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DECEMBER 30, 1916.]

THE
GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

(ESTABLISHED IN 1841.)

VOL. LX.—THIRD SERIES.

JULY TO DECEMBER, 1916.

LONDON:
41, WELLINGTON STREET, COVENT GARDEN, W.C.
1916.

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THE
Gardeners' Chronicle

No. 1540.—SATURDAY, JULY 1, 1916.

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SOME INTERESTING PLANTS IN A CORNISH RECTORY GARDEN.

OLEARIA semi-dentata, which obtained an Award of Merit at the R.H.S. show at Vincent Square on the 20th ult., is one of the best of the species I have seen in flower in this country. I enclose a photograph (see fig. 1) of a plant flowering in my garden now (June 23). The plant is about 6 feet high and 5 feet through. The bright green lanceolate leaves with silver tomentum beneath, and the Daisy-like flowers from 2 to 2½ inches in diameter, which have light purple ray florets and dark purple disc florets, make a very pleasing combination. Cheeseman says that the plant, when grown in favourable conditions, forms rounded bushes 2 to 3 feet high and rather more in diameter. I have planted it in various positions and in different soils, but have been unable to restrain its vigour and get it to form a compact specimen. The same I might say of Olearia chathamica, which also is in flower with me at the present time. These two species were introduced into this country by Major Dorrien-Smith in 1909. One of the most distinct species I have is Olearia lacunosa, but this plant has not flowered with me yet. Its leaves, which somewhat resemble those of the New Zealand Lancewood, are clothed with a ferruginous tomentum and furnished with a prominent midrib and veins. My plants are about 4 feet high and 3 feet through. Olearia Colensoi is another interesting species which has flowered here, but the flowers are disappointing; the leaves, however, and the habit of the plant are all that

could be desired. In shape and texture the leaves are not unlike those of Olearia Lyallii, but rather smaller, being 8 inches long and 4 inches wide. My plant is 5 feet 6 inches high and 7 feet 6 inches through. Another species worthy of note is Olearia moschata; this is a very compact bush with small silvery-grey leaves. When in flower (July) the flowers are so numerous as to completely obliterate the leaves. A good illustration of a flowering spike of this bush may be seen in *Illustrations of New Zealand Flora*, by Cheeseman.

of plants is that the flowering season continues for some weeks. There is another species which comes from Australia which seems to be little known, namely, *Leptospermum Liversidgei*, which is in flower now. It is a beautiful plant with a drooping and graceful habit; the leaves and flowers are much smaller than the New Zealand plants above mentioned.

I am sending you a photograph (see fig. 2) of a most uncommon plant which is flowering with me now, viz., *Puya chilensis*. Some of your readers will remember



FIG. 1.—OLEARIA SEMI-DENTATA IN LUDGVAN RECTORY GARDEN.

Another interesting class of plants flowering now are the *Leptospermums*. Few can realise the beauty of these plants when in flower unless they have seen them in good form, as they are here at present. Of *L. scoparium* varieties it is hard to say which is best. *Nichollsii*, *Chapmanii*, *Boscawenii*, and a giant white form with flowers 1 inch in diameter, all planted in a bed together, give a very pleasing effect. One great advantage which should commend them to lovers

that a flowering spike was shown by Mr. T. A. Dorrien-Smith at the International Show four years ago, and that the plant was flowered by Professor Lynch in the Botanic Gardens at Cambridge (see *Gard. Chron.*, July 5, 1913, figs. 1, 2 and 3). This plant is more hardy than some of us ventured to think, as, in spite of 8° to 10° of frost and without any protection, it has thrown up a fine flower-spike which is nearly 12 feet high. *A. T. B., Ludgvan Rectory, Long Rock, Cornwall.*

ORCHID NOTES AND CLEANINGS.

VUYLSTEKEARA HYEANA.

This interesting hybrid between *Odontonia laresseae* and *Cochlidia noezliana*, embracing *Cochlidia*, *Miltonia* and *Odontoglossum*, has been sent by a correspondent. The plant was shown by the late Monsieur Jules Hye de Cron at the International Horticultural Exhibition, 1912, but is very little known in collections in this country. In the colour of the flowers, which are 2 inches in width, *Cochlidia noezliana* predominates, its

The hybrid genus *Vuykstekeara* commenced with *Vuykstekeara insignis*, said to have been raised by Monsieur Charles Vuyksteke, of Loochristy, Ghent, between *Miltonia vexillaria* and *Odontodia vuykstekeae*, but later the record was pronounced to be erroneous, the flower of the plant produced in 1910 proving it to be a form of *Miltonioda harwoodii* (*M. vexillaria* × *C. noezliana*), and, if so, the genus was without a representative. Monsieur Firmin Laubeau, of Brussels, showed at the Royal Horticultural Society's meeting on June 30, 1914, *Vuykstekeara insignis*, recorded as from *M. Bleuana* × *Oda*.

SALE OF BRACKENHURST ORCHIDS.

The fine collection of Orchids formed by the late J. Gurney Fowler was sold by auction at Pembury on the 21st ult., and two following days, by Messrs. Protheroe and Morris. The attendance was large, the competition keen, and a total sum of £6,200 was realised. The greater number of the best Orchids were purchased by members of the trade. Messrs. Armstrong and Brown secured *Cattleya Warscewiczii* alba var. *Firmin Laubeau* for 210 guineas; it is a good stock plant and extremely rare, and may be considered a good investment. Messrs. Charlesworth and Co. purchased many of the most expensive lots, and Messrs. Sander and Sons, J. and A. McBean, and other nurserymen bought liberally subjects in which they are most interested. *Cymbidiums* went for very low prices, the highest being 14 guineas for *C. Woodhamsianum* Fowler's var. *Cypripediums* were also easy to acquire, the only one which realised a high price being *C. murum*, two specimens of which were sold for 45 and 15 guineas respectively. *Dendrobium* sold freely, the unique *D. Hookerianum* Fowler's var., with fringed petals and lip, realising 5 guineas.

The large sum realised was chiefly the result of the sale of those classes in which Mr. Fowler took a special interest, viz., *Odontoglossums*, *Odontodas*, *Cattleyas*, *Laelio-Cattleyas*, and *Brassavola* crosses. *Brasso-Cattleya Cliftonii* albens was sold for the high price of 150 guineas; B.-C. *Cliftonii* Fowler's var. for 100 guineas; B.-C. *Cliftonii* magnifica for 60 guineas; and *Brasso-Laelio-Cattleya The Baroness*, a beautiful yellow variety, for 50 guineas. As already mentioned, Messrs. Armstrong and Brown were the purchasers of *Cattleya Warscewiczii* alba *Firmin Laubeau*, for the price of 210 guineas. *C. Hardyana* Countess of Derby and *C. labiata* alba each realised 50 guineas; *C. Mendelii* Stuart Low fetched 65 guineas; *C. Luegeae* Fowler's var., 45 guineas; *C. Oriflamme*, 35 guineas; *C. Transylvanica*, 22 guineas (this was purchased by Sir Jeremiah Colman); and a fine specimen of the white *C. Suzanne Hye de Cron* realised the sum of 20 guineas. The best *Odontoglossums* went as follows:—*O. ardentissimum* *Memoria J. Gurney Fowler* (see *Gard. Chron.*, May 27, p. 282), 105 guineas; and *O. crispum* *Solum*, with a seed capsule crossed with it, 85 guineas; *O. illustre* *Europa*, 105 guineas and 70 guineas (the latter plant purchased by Mr. de Barri Crawshay); *O. Mars*, 70 guineas (Messrs. J. and A. McBean); *O. Georgius Rex*, the famous plant shown at Holland House in 1915, 70 guineas (Messrs. Charlesworth and Co.); *O. Président Poincaré*, 60 guineas; *O. Princess Mary*, 52 guineas (Messrs. J. and A. McBean); *O. Aquitania*, 50 guineas (Messrs. Charlesworth and Co.); *O. Clovis*, 40 guineas; *O. Pembury*, 50 guineas; *O. crispum* *Fowlerianum*, 21 guineas; *O. Pescatorei* *Charlesworthii*, 35 guineas (Messrs. J. Cypher and Sons); *O. Armstrongiae*, 35 guineas; *O. Menier St. Vincent*, 25 guineas; and *O. Arnoldianum*, 18 guineas.

The *Odontodas* which were most appreciated were *O. Latona* *Fowler's* var., 30 guineas; *O. Cooksoniae* *Fowler's* var., 45 guineas and 40 guineas, the latter purchased by Mr. R. Brooman White. *Odontonia* *Charlesworthi* *Fowler's* var. went to Messrs. Charlesworth and Co. for 50 guineas. Other good prices were 105 guineas for *Laelio-Cattleya J. F. Birkbeck*; 40 guineas for L.-C. Mrs. Evelyn Norrie; 24 guineas for *Miltonia vexillaria* *Rev. W. Wilks*; 17 guineas for *M. v. Memoria G. D. Owen*; 40 guineas for *Sophrone-Laelia Felicia* *Fowler's* var.; and 35 guineas for *Sophrone-Cattleya Sylvia*.

The plants were all in first-rate condition, without sign of insect or other pest. These present included Sir Jeremiah Colman, Mr. W. K. Lee, Mr. W. Waters Butler, Mr. Paulia Ralli, Mr. H. T. Pitt, Mr. de Barri Crawshay, and other well-known Orchid lovers, as well as practically the whole of the Orchid trade.



FIG. 2.—*PUYA CHILIENSIS* IN LUDGVAN RECTORY GARDEN.

(See page 1.)

cinnabar red tint suffusing the greater part of the surface of the sepals and petals. In form the bloom approaches *Odontonia laresseae* (*Miltonia Warscewiczii* × *Odontoglossum crispum*), especially in the centre of the labellum, which is white, tinged with rose colour, the base having a crest of yellow ridges on a red ground, in front of which is a large, shining, brownish-yellow, raised blotch, similar to that which forms so distinctive a character in *Miltonia Warscewiczii*, and invariably imparted in some degree by *Miltonia Warscewiczii* to its progeny.

Charlesworthii, a plant with flowers very different from the original, which received the R.H.S. Award of Merit, and was illustrated in *Gard. Chron.*, July 4, 1914, p. 14. Doubts were raised as to the correctness even of this record, but it was finally accepted, and, failing better information, may now be said to represent *Vuykstekeara insignis*. These are the only two species recorded, and although they cannot be compared in point of beauty with others of their section, they are, nevertheless, highly interesting plants, worthy the careful study of all Orchid cultivators.

The Week's Work.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

CARNATIONS.—Make preparations for the layering of *Souvenir de la Malmaison* Carnations in a shallow frame on a border in a sheltered situation. Obtain a quantity of fresh compost consisting of loam, leaf-mould, and sand, passing the materials through a fine sieve. Before choosing plants for layering select the best of the one-year-old specimens for potting on directly they have flowered. After the shoots have been layered soak the roots with water and keep the frame close, moist and shaded from bright sunshine until roots have formed, when the plants should be gradually inured to cooler conditions. The one-year-old plants should be potted in a compost consisting of loam, leaf-mould, manure from a spent Mushroom bed, brick-rubble, crushed bones, and coarse sand. Pot firmly and water the plants carefully until the roots are again active.

HYDRANGEA HORTENSIS.—As soon as the plants of *Hydrangea hortensis* have finished flowering, remove the old flower heads and stand the plants out-of-doors. Give the roots plenty of water; if the pots are partially plunged in a bed of ashes the soil will not dry quickly. If suitable shoots are available cuttings may be inserted now.

ROSES IN POTS.—The climbing varieties having finished flowering, the plants should be pruned. Cut out all the old flowering wood to allow the young growths from the base plenty of room. Plants which are not throwing up young growths should be cut well back. Let the trees be syringed vigorously each afternoon; if aphid is present apply an insecticide.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castletford, Gloucestershire.

SEEDLINGS.—Seedlings of *Cattleya*, *Laelia*, and allied genera must be given fresh rooting material and increased pot room as they become necessary. Those that were raised at the beginning of the year may be placed in small pots, but, as a general rule, several may be transferred together to what are known as store pots, which is the better method. Where space is limited, larger seedlings may also be repotted as the necessity arises. The pots should be clean, and filled one-half of their depth with material for drainage. Use a compost consisting of *Osmunda* fibre, peat, and *Sphagnum*-moss in equal parts, and cut up the materials into moderately fine portions. Pot firmly and trim the top of the compost level with the shears. In the case of large seedlings this trimming may be done after repotting. All the seedlings that are potted should be arranged together in one batch, in order that they may receive special attention in watering and shading. A fine syringe or sprayer should be used at frequent intervals during bright weather, as a humid atmosphere is essential. The house should also be damped whenever the stages and floor become dry. Many seedling *Cypripediums* are ready for repotting. Several plants should be placed in a store pot, but they must not be allowed to get in a starved condition, and each seedling should be afforded a separate receptacle as soon as this is necessary. Young *Cypripediums* are benefited by light sprayings overhead in fine weather. Seedling *Odontoglossums* and other seedlings of cool house Orchids are making headway, but it is not advisable to do much repotting at this period of the year; this work is best done in the autumn or spring. Frequent attention will be necessary to prevent the tiny plants suffering from drought, while a close examination for insect pests must be made occasionally. Thrips and mocc fly are the most troublesome of these; light fumigations and sprayings with an insecticide will hold them in check.

THE KITCHEN GARDEN.

By E. R. JAMES, Gardener to the Rt. Hon. LORD NORTH, Wroxton Abbey, Banbury, Oxfordshire.

PARSLEY.—Make a plantation of Parsley with the plants furnished by the out-of-doors sowing. Rich soil is necessary, and plenty of room should be allowed between the plants.

CAULIFLOWERS.—Early Cauliflowers are approaching maturity; tie the foliage over those not quite ready for use to protect the curds. Plants with fully developed heads that are not needed for immediate consumption should be pulled up by the roots, and suspended head downwards in a cool place. Cauliflowers develop very rapidly at this season, and fully developed heads become worthless in a few days if allowed to remain in the beds.

WINTER TOMATOS.—Make another sowing of Tomatos to raise late plants for winter cropping. Tomatos sown after this date are rarely profitable, as unless strong plants are obtained before the autumn, the trusses of bloom seldom set fruit.

DWARF BEANS.—Make a final sowing of dwarf Beans out-of-doors in a warm, sheltered position, as they will not produce pods until the autumn. For this reason make the beds of a suitable size for covering with frames before the advent of frost. Osborne's Forcing or a similar variety is more suitable for this sowing than the larger sorts.

EXHIBITION CARROTS IN FRAMES.—Keep the soil in which frame Carrots are growing consistently moist, for if the plants are allowed to become dry the roots will split and become useless after heavy rains or copious waterings. Feeding would tend to produce coarse, irregularly tapering roots with deep eyes.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORRACOTE, Eastwell Park, Kent.

GOOSEBERRIES.—There is an excellent crop of Gooseberry in this district. Bushes that are laden with fruits should be thinned of a number of the berries, and the thinnings used for culinary purposes. If required for dessert, extra fine berries may be obtained by removing the bulk of the crop early in the season. A dressing of artificial manure will be beneficial, and should be applied during showery or dull weather. In hot, dry weather, the roots need copious supplies of water, and the mulch should be renewed if necessary. Place nets over the bushes to protect the fruits from birds, but before doing this stop or thin the shoots. Shorten the side shoots to the fourth or fifth leaf, but allow the leaders to extend: it is well to leave the latter their full length for the present, shortening them after they have completed their growth. Keep the bushes clear of insect pests before the fruits commence to ripen, as it is not desirable to use insecticides after that time. Where the soil is naturally hot and dry in summer, red spider is often troublesome on Gooseberry bushes, and especially when the roots are allowed to become dry. Use insecticides whilst the berries are still green, and thoroughly syringe the bushes afterwards with clear water.

STRAWBERRIES.—Our Strawberry crop promised to be a record one, but damp and cold weather in the first half of June caused many of the berries to decay before they were ripe. However, the weather has improved, and mid-season and late varieties promise exceedingly well. Givon's Late Prolific (which is probably the best all-round late Strawberry), Waterloo, Fillbasket, and Laxton's Latest are reliable varieties for the latest crops. Waterloo is rather fickle on some soils, but is an imposing fruit when well grown. Olympia, a new sort, from the raiser of Givon's Late Prolific, is still under trial, but I hear very good accounts of it. It is found by some growers to be the latest of the season, and for this quality alone is worthy of extended trial. The plant is free-bearing and of vigorous habit, and the fruit's are of good flavour. Late Strawberries sometimes fail in times of prolonged drought. If hot, dry weather is experienced in July, it is often necessary to soak the

beds with water. The nature of the soil and the position of the bed will partly determine whether this is necessary or no.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

PLANTING VINES.—Early vines which, by reason of old age or other causes, have not done well, and are not worth retaining, should be replaced by young vines. Clear the plants of the bunches, and, if the Grapes are not required for immediate use, place the stems in bottles of water and store them in a Grape or fruit-room. Remove the exhausted soil from the front of the border to a width of some 4 or 5 feet, rearrange the drainage material and cover it with a layer of turf, grass-side downwards. Make the border about 4 feet wide. The most convenient way to do this is to build a turf wall to enclose the space, and fill with rich loam mixed with wood ash, lime rubble, a little bone-meal, soot, and charcoal. In filling in the compost, which should not be too wet, make allowance for the border settling some 4 or 6 inches afterwards. Cleanse the house thoroughly, paint the woodwork if possible, and wash the walls with hot lime and sulphur. If vine eyes were rooted as recommended in an earlier calendar, the plants should be in fine condition for planting, and are much better for planting now than cut-backs. Let the border get warmed through before planting. Turn the plants out of the pots, first seeing that the soil is moist; disturb the roots as little as possible, but remove the drainage crocks. Plant the roots about 1 inch deeper than they were in the pots and make the soil firm about them. Secure the vine to a stake, and the upper part to the trellis, tying loosely so that no injury will result when the border settles. Let the vines be about 4 feet apart. Give sufficient tepid water, through a rose, to settle the soil about the roots. Shade the vines for a few days lightly, and syringe them gently two or three times a day until top growth commences and new roots form. As soon as the vines commence to grow freely, let them have every attention that is likely to induce them to make rapid progress. Syringe the vines twice daily in fine weather, and give the roots liberal supplies of clear water when the condition of the border indicates the need for moisture. Ventilate theinery freely in the middle of the day, but close the ventilators early in the afternoon with plenty of moisture in the atmosphere. This method of growing young vines has everything to recommend it, and if sufficient young canes are at hand they may be planted in a narrow border and grown up the back wall for carrying a crop of fruit next year.

THE FLOWER GARDEN.

By W. J. GRISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffs.

EARLY-FLOWERING CHRYSANTHEMUMS.—The border Chrysanthemums should be staked without delay. Employ stout Bamboo canes, thin ones being useless for these plants. All pinching should now cease, and if the plants are attacked by aphid, syringe them with a good insecticide. The young shoots should be neatly tied in to the stakes before they are too large, otherwise they will become twisted, and so make the work more difficult and tedious. Hoe between the plants and stir the soil well as the work proceeds. Give a light mulching of manure, or leaf mould if manure is not available. During dry weather it may be necessary to water the roots.

GENERAL WORK.—There will be some difficulty in overtaking the general work of cleansing paths, drives, and woodland walks in most gardens this year, but those who are in a position to engage women or girls will no doubt find they can carry out the work in a satisfactory manner. The herbaceous borders will require frequent attention. As the plants pass out of flower the dead flowers and all dead foliage should be cut off. Any plants requiring stakes should be attended to, the borders weeded and scuffled, all verges trimmed, and everything made neat and tidy. Most of this work can be done by women and girls, with good results.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the Editors. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR JULY.

TUESDAY, JULY 4—

Roy. Hort. Soc.'s Summer Show at Holland House, Kensington (3 days).

Scot. Hort. Assoc. meet.

WEDNESDAY, JULY 5—

B.G.A. Executive meet.

MONDAY, JULY 10—

United Hort. Ben. and Prov. Soc. Coms. meet.

TUESDAY, JULY 11—

Nat. Sweet Pea Soc. Show, R.H.S. Hall, Westminster.

WEDNESDAY, JULY 12—

Sheffield Chrys. Soc. meet.

Nottingham Hort. Soc. Show (2 days).

Elstree Hort. Soc. Exhibition at Aldenham House.

TUESDAY, JULY 18—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

THURSDAY, JULY 20—

National Carnation Soc. (Southern Section) Annual Show.

FRIDAY, JULY 21—

Birmingham Hort. Soc. Show (2 days).

FRIDAY, JULY 28—

Midland Carnation Soc. Show, Birmingham (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 63.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, June 29 (10 a.m.); Bar. 29.3°; temp. 60.1°. Weather—Cloudy.

Plant Diseases in England and Wales

The need for the reduction of official expenses and staff reorganisation has led the Board of

Agriculture to suspend for the present the issue of annual reports of the Horticultural Branch. A report, however, under the above title is issued in the *Journal* of the Board on the work done in connection with the control of fungous disease. It appears from the report that the summer stage of American Gooseberry mildew was present in many consignments of berries sent to market in 1914, and that in cases where the offenders seemed to have acted in defiance of the Order against the sale of diseased berries, prosecutions were instituted, but in most cases a warning letter was considered sufficient. The report, whilst recognising the labour difficulties which confront growers at the present time, urges that considerable reduction of the disease may be brought about by tipping Gooseberry bushes at the proper date, that is, "between the soft and hard fruit." The report claims that "while spraying and tipping are the best remedy, tipping alone is distinctly valuable, while spraying alone cannot be depended upon."

With respect to wart disease of Potatoes, the report divides England

and Wales into two districts: (1) the industrial part, in which the disease is prevalent, and (2) the agricultural part, in which the disease is sporadic, mainly in allotments and private gardens, and never serious from the point of view of the national crop. In the industrial districts the disease is rife, and has appeared in various field crops, especially in S. Lancashire and N. Cheshire. No fewer than 200 acres, groups of allotments, etc., have been declared infected—chiefly in Derbyshire, Staffordshire, and the Manchester districts. In these areas the planting of Potatoes is prohibited, except by licence. On growers undertaking to plant varieties immune to the disease, licences are always issued. The practice has proved uniformly successful, and several of the resistant varieties have now stood several thousand tests, and have proved to be absolutely immune. In agricultural districts the number of cases of disease is small, and such as occur are mostly in the neighbourhood of towns, e.g., London, Bristol, Lincoln, Swindon, etc.

Experiments made with the object of testing Professor Eriksen's soil-disinfection method of combating the disease have not confirmed the claims made on behalf of the method. The treatment of the soil with formalin led to no beneficial effects. Nor has the use of superphosphates helped to reduce the disease. Corky or powdery scab, a disease of very local incidence in England, and practically unknown on farms, occurs in Potatoes grown in certain allotments. So far, no variety resistant to this disease is known.

IRIS RICHARD II.—The new Iris illustrated in fig. 3 is a notable addition to garden varieties. The falls are coloured deep violet, whilst the standards are white, the dark and light tones contrasting in a marked degree. The veining on the falls and the rich gold colour of the crest give additional beauty to the flower. The variety received the R.H.S. Award of Merit on the 20th ult. when shown by Mr. AMOS PERRY.

R.H.S. RED CROSS SALE.—The results obtained during the first two days of the sale (June 27-28) at Vincent Square justify the hope that the British Red Cross Society and the Order of St. John will receive a substantial contribution to their funds. Although the attendance was not numerous, serious buyers were present, and scarcely a lot put up failed to find a purchaser. On the first day gardening books fetched good prices, but the bids made for pictures were of an all-too-cautious order. The most spirited bidding was for plants of Paul's Scarlet Climber Rose, which fetched 32s. 6d., 27s. 6d., and similar sums for individual plants. Of the books, £11 was bid for Mr. DYKE'S *The Genus Iris*, £4 for GENARDE'S *Herbal*, £3 15s. for VEITCH'S *Catalogue of New Plants*, (1862 onwards), and £5 10s. for *Lindero*. On the second day prices ruled higher. Spirited bidding on the part of Mr. R. CORY and Mr. G. CROUCHER led to high prices being secured. Narcissus bulbs contributed by Mr. A. M. WILSON and others were amongst the coveted lots, e.g., Sunrise, £6 5s.; Emerald Eye, 12 guineas; White Wax, 5 guineas; Conqueror, 7½ guineas; Croesus, 8½ guineas; Marsh-light, 7 guineas; Gaddy, 6 guineas; Bath's Flame, £14. In the afternoon the sale of Orchids was well attended, and although many good plants were disposed of for quite low sums,

the specimens—beautifully shown—sent by Sir GEORGE HOLFORD realised a total of £275. The following are some of the principal plants: Brasso-Cattleya The King, 50 guineas; Laelio-Cattleya Golden Beauty, 30 guineas; Cattleya Warszewiczii Loos var., 32 guineas; Cypripedium Lucifer, 26 guineas; Odontoglossum crispum Magnum Bonum, 15 guineas; Miltonia vexillaria Snowflake, 25 guineas; Laelio-Cattleya Golden Glory, 10 guineas. The aggregate sum realised for Orchids was about £700. The paintings of Orchids contributed by Mr. J. LEEMANN, in Lots 1,535 to 1,555 inclusive, were purchased by Mr. WATSON (probably for Kew) for the sum of £20. On the third day the auction opened with the sale of herbaceous plants, commencing with lot 1,634. The prices realised by Mr. Dyke's Irises and Mr. Wallace's Alpine and herbaceous plants were very gratifying. The total receipts of the sale should amount to not far short of £2,000.

EXPERIMENTAL FRUIT GARDEN FOR FRANCE.

It has always been cause for regret to the French Pomological Society that it is without an experimental orchard where different methods of culture can be tried, new varieties raised, and experiments carried out as to the best means of combating pests. Monsieur BANOLAT has now placed at the disposal of the society about one hectare of land at Saint-Romain, Mont d'Or, and has promised to defray all the costs of upkeep. A committee has been formed to visit the site and make the preliminary arrangements for its utilisation, and the vice-president of the society has promised to supply 500 fruit trees of different kinds.

THE CHINESE WILD PEACH (AMYGDALUS DAVIDIANA).

—A brief account of the use of the Chinese Wild Peach as a stock on which to bud Peaches, Apricots, Plums, and Almonds is contained in No. 115, November, 1915, of *Plant Immigrants*—the descriptive notes of plants introduced into the U.S.A. through the offices of the Bureau of Plant Industry. This stock possesses remarkable resistance to cold and drought, and is easily budded. In Minnesota and Iowa trees of *Amygdalus Davidiana* have been found to withstand so low a temperature as -40° F., at which temperature commercial varieties were killed to the ground. The fruit is inedible, but the tree has been used for centuries in China as a stock for stone fruits.

EARLY POTATOS IN AYRSHIRE.

—Extra-ordinarily high prices were obtained at the sales of growing early Potatoes in Ayrshire. At Morriston, Jameston, and Warren, on the Carrick coast, the prices constituted a record, a lot of 6 acres, 1 rood, and 11 poles realising £81, as against £51 for a similar lot last year. The highest price at Jameston was £82 for a lot which brought £47 last year. At subsequent sales on other farms equally high prices were obtained. The average price per acre at one farm (Dowhill) was £45 19s. 8d. against £28 2s. 6d. last year, the prices ranging from £29 to £66. At another farm prices ranged from £43 to £67.

EFFECTS OF ASPHYXIATING GAS ON VINES.

—A tour of inspection has lately been made in the vine-growing district of Baillieu, Northern France, by Monsieur P. VIALA, a well-known French expert, who holds the office of General Inspector of Viticulture. His observations were made at the vineyard of Monsieur CORDONNIER, the largest establishment of its kind in France (and possibly in the world), which is situated seven kilometers from the fighting front. He reports that on April 15, 1916, a Taube dropped bombs on the central portion of the vineyard. A certain number of glass-houses were completely smashed, in which the Vines were, at the time, in full growth. Some damage was done by the breaking glass, but this was slight from the cultural point of view. On April 30, however, the Germans made several attacks with asphyxiating gas, with disastrous results to plants, trees, and animals. The Vines were notably affected by the

gas, and presented very curious symptoms. They were at the time in full growth, the leaves well developed, but the flowers were not yet open. The leaves were covered with great white patches from which the colour had completely disappeared; they did not resemble foliage discoloured by the action of gas proceeding from large factories where hydrocyanic acid or sulphuric acid is manufactured; but, after remaining white for some time, they turned brown, dried up, and fell off. As a result of experiments carried out with the gas which produced these results, Monsieur VIALA found that it was of the nature of chlorine, the effects being similar to those produced by free chlorine. By spraying leaves in full growth with "Eau de Javelle," and plunging them in the same mixture, Monsieur VIALA obtained identical results. This asphyxiating gas proved capable of penetrating even into houses which were closely shut, and produced effects varying according to the stage of growth attained by the plants and the temperature of the house. In unheated houses, where the plants were covered with morning dew, the damage done was serious. In houses where the atmosphere was dry, the gas had not destroyed the tissue of the plants, but it caused a complete cessation of growth for a week. When the fumes of gas had cleared away, growth was resumed, and continued in a normal manner.

WAR ITEMS.—A large consignment of seed Potatos was recently sent to France by the Agricultural Relief of Allies Committee for the assistance of peasants ruined in the war. A considerable portion of the Potatos was sown in the vicinity of Verdun, and such is the confidence in the French Army that the farming operations have gone on with stoic disregard for the constant thunder of the guns. The Relief Committee has just learnt that there is every prospect of an excellent crop from these English Potatos, notwithstanding the many difficulties encountered.

SOME JULY SHOWS.—The most important fixtures for the month of July are as follows: The exhibition of the Royal Horticultural Society, at Holland House, Kensington, on the 4th, 5th, and 6th inst.; the National Sweet Pea Society's show in the Royal Horticultural Hall, Westminster, on the 11th inst.; and the City of London Rose Society's show on the 7th inst., at Cannon Street Hotel. Amongst the few provincial exhibits this year we have received schedules of the Southampton Royal Horticultural Society's show, fixed for Wednesday, July 12, in the grounds of South Stoneham House, Swaythling; the Midland Carnation and Protea Society's show in the Botanical Gardens, Edgbaston, Birmingham, on the 28th and 29th inst.; Elstree and Boreham Wood Horticultural Society's annual exhibition on Wednesday, July 12, in the grounds of Aldenham Park, Elstree; and the Carnegie Dunfermline Trust's thirteenth summer show at Pittencrieff Park, Dunfermline, on Thursday and Friday, 20th and 21st inst.

HIGH PRICES FOR GARDEN POTS.—We are informed by Messrs. SANKEY AND SON that in consequence of conditions arising out of the war, the cost of manufacturing garden pots is 65 per cent. above the normal. This firm has lost half its usual staff owing to the calls of the Army and munition trades, including the two travellers, Messrs. OSMAN and BARRATT.

PINEAPPLE PRODUCTION IN THE AZORES.—*The Journal of the Royal Society of Arts*, in the issue for June 25, states that St. Michael Pineapples—the raising of which has for years been the principal industry of the Azores—promise to follow in the wake of the Azorean Orange. The Orange was destroyed by a parasite; the Pineapple industry promises to be destroyed by over-production, combined with the reduced purchasing capacity of Hamburg and London markets since the war. In fact, the war has forced ruinous prices upon the local growers,

many of whom are turning to different lines—some to Tomato cultivation and some to the Orange—while others are emigrating to the United States. A once flourishing industry, yielding nearly £200,000 a year to the people of St. Michael, has thus come to a standstill. The 1915 exports were valued at £109,000, and in 1914 they had declined to £64,000. According to a report by the United States Consul at St. Michael, the Pineapple industry of the Azores

ally, or 600,000 Pineapples, fancy Pineapple stock still brought 6s. to 8s. each in the London market. To-day, when the production is more than 2,500,000, the producers are obtaining only 6d. to 1s. 3d. each for their fruit. When the war destroyed the European market, the local growers endeavoured to dispose of their fruit in New York, Lisbon, and Gibraltar, but nowhere with marked success. The Azorean Pineapple being a high-priced fruit, it was soon discovered

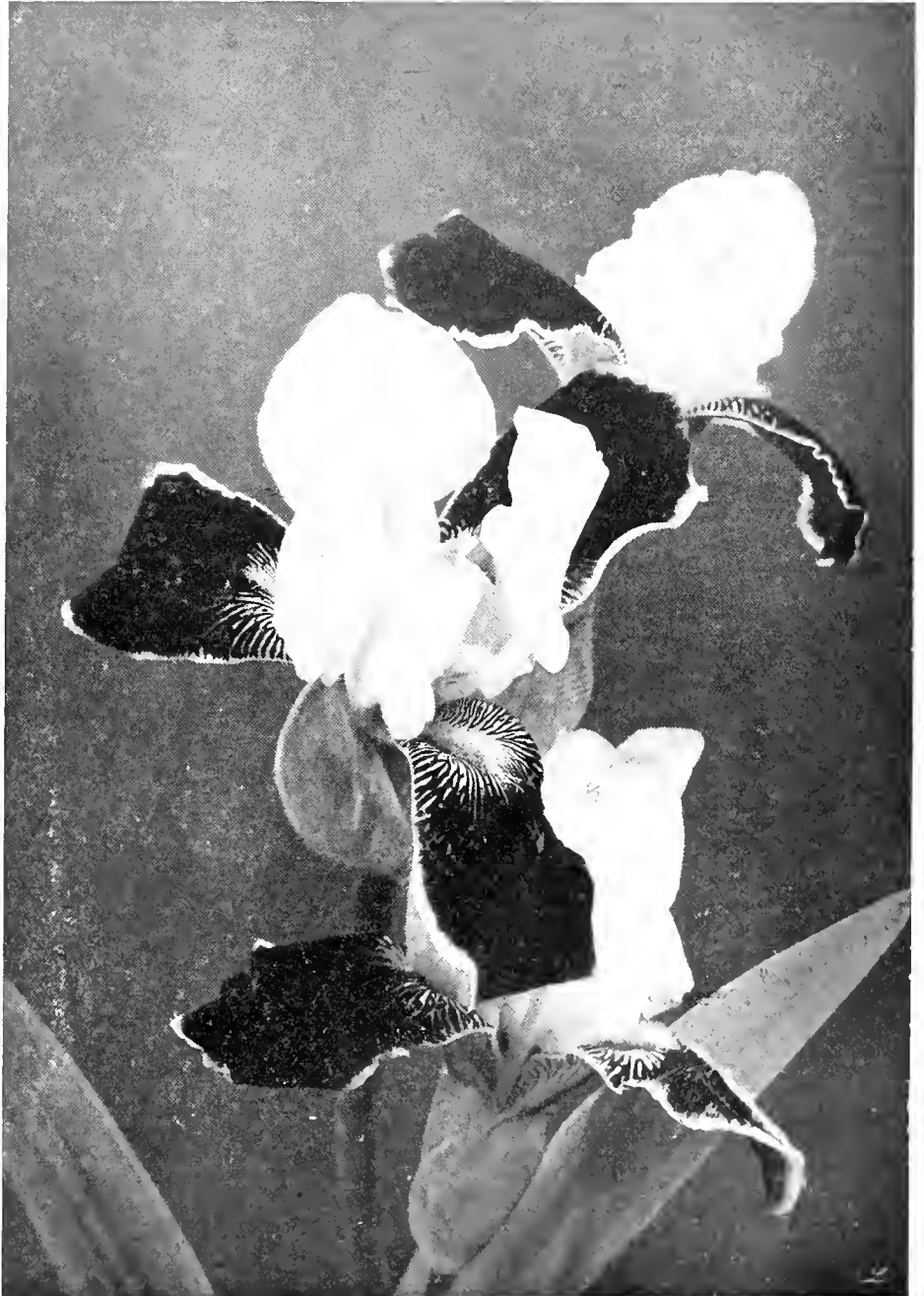


Fig. 3.—IRIS RICHARD II.: COLOUR OF FALLS VIOLET, STANDARDS WHITE.

(See p. 4)

dates back to 1860, when it was discovered that the soil and climate of St. Michael lent themselves to the production of a superior fruit. Because of their size and luxuriant foliage, St. Michael Pineapples sold at prices reaching £1 each in the early days of the industry. Now thousands are engaged in Pineapple culture. The result, as stated, has been over-production. When the production reached 50,000 cases annu-

ally, or 600,000 Pineapples, fancy Pineapple stock still brought 6s. to 8s. each in the London market. At the time when the report was written, only Lisbon was buying in considerable quantities, and was proving to be an unprofitable market. Growers in St. Michael, it is said, were actually selling their crops at 25 to 50 per cent. below the cost of production. In former years Hamburg took about 65 per cent. of the St. Michael Pineapple

(Photograph by C. W. Cole.)

crop for distribution in Germany, Austria, and Russia; London took 20 per cent., mostly the finest fruit; and Italy and France took the remainder.

WOMEN AND FARM WORK.—The Permanent Under Secretary of State for War and the Permanent Secretary of the Board of Agriculture and Fisheries ask us to give publicity to the following notice:—"In many parts of the country there appears to exist a suspicion that, if women register their names for farm work, they may be subjected to some form of compulsory service. The War Office and the Board of Agriculture and Fisheries desire to assure all women who are engaged in work on the land, or who may be willing to undertake such work, that the registration of their names for that purpose will in no way be used to compel them to undertake either agricultural or any other form of work. Such work is entirely voluntary. In no case will they be asked or expected to work on farms outside their own neighbourhood unless they are willing to do so. But it is necessary, in order that the most efficient use may be made of their services, to have a list of the names and addresses of women who are prepared in the national emergency to undertake work in the place of the men who are fighting in the trenches. As there is a great need for the services of patriotic women who are willing to assist in the home production of food, it is hoped that all women who can see their way to offer their services, either whole or part time, will at once have their names registered at the local Labour Exchange or by the village registrar. Board of Agriculture and Fisheries, 4, Whitehall Place, S.W. June 23, 1916."

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

GARDENS ROUND CHEPSTOW.—There are some lovely gardens in the neighbourhood of Chepstow, and all are now looking their best. At Ledbury Park, the residence of Col. Harling, V.C. (gr. Mr. E. Mumford), there is a fine display of Rhododendrons; they thrive in the soil natural to the district, and are extensively planted. The ponds are gay with Nymphaeas, and the little rockery extends hospitality to Rock Roses, Violas, and Saxifrages. Castleford, the residence of W. R. Lysaght, Esq., is famed for its rockery, which is large and very carefully tended. Just now the crevices are filled with Alpine and hardy plants of every kind, including several Primulas which originated there. Flowering shrubs are also a feature of these gardens. The gardener, Mr. T. W. Briscoe, was formerly Orchid hybridist to Messrs. J. Veitch and Sons, and he has the Castleford collection in excellent condition. Oakwood, the residence of the Rev. W. Butt, is famous for its bulbous plants. Daffodils are here in 250 varieties, and Tulips made a brave show, in spite of a number of breaks—an unavoidable, but disappointing, feature of Tulip culture. *G. H. E., Gloucester.*

TREE DESTROYED BY LIGHTNING.—A Tulip tree (*Liriodendron tulipifera*) in these gardens was destroyed by lightning on Saturday, June 10, during a violent thunderstorm. I have seen many examples of the destructive power of lightning, but never one so disastrous and complete as this. The magnificent tree was, if not of the largest, one of the best and most healthy specimens in the country. I have measured the tree as it lay a complete wreck, and find it to be about 70 feet high with a girth 6 feet from ground of 13 feet or more—as the bark is completely stripped off three parts of the way round allowance has been made for that. Pieces of the wood weighing at least 1 cwt. were hurled 50 yards away. *H. Pritchard, Fern Hill Park Gardens, Windsor Forest.*

KERRIA JAPONICA FL. PL.—I am glad to observe that Mr. Edwes (page 330) says a good word for this old-fashioned shrub. It is

one of the hardiest shrubs we have in Scotland, and I know numerous huge plants which have been growing against walls of houses and gardens for very many years. There are some who prefer the single form, but with me the double *Kerria* is a greater favourite than the single. I know some South of Scotland gardens where *K. japonica* fl. pl. comes into bloom extraordinarily early, and is quite gay with its double yellow flowers. *S. Arnot, Sunnymead, Maxwelltown.*

LABOUR FOR THE GARDEN AND FARM.—I am suggesting to the Board of Education that the majority of the boys and girls attending primary and secondary schools should be appealed to to spend some of their ensuing holidays in gardens, allotments and on farms. The problem of the food supply is already serious, and may be more so in the coming winter. Many bread-winners are away, and many gardens are neglected. I appeal to all who read this letter to lend a helping hand. I find both girls and boys most ready to do what they can, but they require teaching. Now is the time for lessons of thrift to be inculcated in the rising generation. I am hoping that the Board of Agriculture will issue a series of leaflets showing how the greatest amount of produce can be obtained for the coming winter by utilising to the best advantage any vacant ground. *Thomas Allen, Moordown, Bournemouth.*

CHRYSANTHEMUM MME. CASTEX DESGRANGES.—I have just received the *R.H.S. Journal*, Vol. XLI., Part 3, and therein I find an article by Mr. Robert Fife, entitled "The Early-flowering Chrysanthemum," read last September before the society. In the brief historical notes which precede the cultural portion, Mr. Fife says: "It is a somewhat difficult matter to get at the early history of the early-flowering Chrysanthemum." No doubt it is, unless one knows where to look for it, but Mr. Fife may rest assured that there is a mass of historical matter on the subject, distributed throughout the various organs of the horticultural press, and a little patient research on his part would have revealed the fact beyond question. For many years the late Mr. W. Piercy regularly wrote in the press on his experience with his pet flower, and even before his day other enthusiasts contributed their quota to the subject. Mr. Piercy, like many other practical men, mainly confined himself in his writings to those facts that came within his own knowledge, and they were consequently of great service, so far as they went. But the history of the early-flowering Chrysanthemum did not begin and end with Mr. Piercy, and it requires some degree of literary skill to gather up all the fragments, examine them and, finally, after passing them through the sieve of critical examination, to piece them together and thus form a harmonious whole. As the late Shirley Hibberd said many years ago, "the busy men who raise new varieties and contribute to exhibitions have generally but little time, and often little taste, for the minute and constant attention that is required to keep pace with the literary and artistic exposition" of such subjects. Mr. Fife is good enough to acknowledge that much of the historic information he gives is drawn from two papers, one by Mr. Piercy, read at the N.C.S. Conference in 1899, and the other from one I read at the N.C.S. Early-flowering Conference at the Crystal Palace in 1905. These are no doubt the two fullest accounts of the historical aspects of the early-flowering Chrysanthemum in existence, although my article in *The Garden* for May 16, 1891, deserves to be placed in the same category, that being written when Simon Delaux distributed his famous collection of 125 new early-flowering varieties. If Mr. Fife had carefully considered these two articles of mine he would certainly have hesitated to repeat what may be called the old Mme. Desgranges bogey. It crops up every now and then, and, like most errors, seems to die hard. The point I wish once again to emphasise is contained in Mr. Fife's statement that "It is suggested that Madame C. Desgranges was raised by this grower (Boucharlat), but Mr. Norman Davis is rather sceptical on the point, because Madame C. Desgranges, to his knowledge, came into this country in 1876 or 1877, as a gratis plant from M. Lemoine, and M. Boucharlat did not list it until some ten years

later." The last time I wrote on this subject in *Gard. Chron.* (January 10, 1914, p. 28), I gave the authentic account of the origin of this variety, and concluded that the question was settled once and for ever. There is no suggestion, but an absolute certainty, that Boucharlat ainé must be credited with the origin of Madame Castex Desgranges. It was raised, as I have often shown, in his nursery at Lyons, in 1875-74. How does Mr. Fife know that Boucharlat did not list it until some ten years later than 1876 or 1877, as he says? Has he consulted Boucharlat's catalogues to see, or has he obtained the information from Mr. Davis? If the latter is the case, then has Mr. Davis done so? Unquestionably no! There is not a collection of Boucharlat's catalogues for the period 1873 and onwards accessible. I have not the slightest doubt that Boucharlat did catalogue Mme. Desgranges yearly from the time he put it into commerce until it had to make way for later novelties. And my reason is well founded, because my collection of Boucharlat's catalogues begins in 1883, and there, sure enough, the variety is listed, and for some years afterwards appears in his catalogues regularly. To be sceptical about a proven fact is permissible to anyone, and I am the last man in the world to deny the right to freedom of thought, but established historical facts cannot be set aside by unfounded scepticism. *Magna est veritas et praevalabit.* One word in conclusion. Mr. Fife says: "Is there any of this curious history about Madame M. Massé?" and he then tells us that the Rev. W. Wilks gave him Emperor of China, which has proved to be Madame M. Massé. There can only be one answer to this, and that is a negative one. Emperor of China (syn. Webb's Queen) was an old reflexed variety, as well known in its day as the Christines. Madame Marie Massé was one of the new early type of Japanese sent out by Delaux in the spring of 1892. It is not possible that Emperor of China was "discovered" and sent out as Madame Marie Massé, for if it had been men like Messrs. Davis, Jones, Wells, Godfrey, Cannell, and D. B. Crane would assuredly have found it out immediately. Mr. Fife may safely conclude that in this case someone has blundered. The two varieties are not only distinct, but they belong to two different sections. *C. Harman Payne.*

VEGETABLES.

THE CABBAGE CROP.

We grew large quantities of spring Cabbage this season, and so far as the earliest crops are concerned, I have never known them to do better. Owing to an exceptionally mild winter we had nice little heads fit for use in open breadth during February. Harbinger, April and Ellam's Early matured in the order named, but later varieties have not come up to expectations, and I find this to be the case in many other places. They have not made the growth which is usual, and are very slow in turning in, though but few have gone to flower prematurely. *E. Beckett.*

INTENSIVE CROPPING.

In these days of high prices it behoves us to increase the food supply wherever possible. The following hints upon crop succeeding crop may be useful to those with small gardens. Beets and Turnips may be sown along the rows of Broad Beans and such early Peas as Pilot. Where autumn-sown Onions are being pulled as wanted, Cabbage and Cauliflowers may be dibbled in between the rows. Tomatos in the open may be planted between rows of Lettuce and spring Cabbage, pulling the Lettuces and Cabbages when ready. Runner Beans may be dibbled in along the rows of early Peas now being gathered, the Pea-haulm being cut close to the soil and left with the sticks as a first support to the Beans, longer stakes being put in later. Seed may be sown on both sides of the rows if they run north and south, but the south side only is advisable if the rows are east and west. *C. E. Bridgett, The Gardens, St. Helens, Hampton Wick.*

SOCIETIES.

HORTICULTURAL CLUB. VISIT TO FRIAR PARK.

JUNE 22.—By the invitation of the president, Sir Frank Crisp, Bart., about fifty members of the Horticultural Club visited Friar Park, Henley-on-Thames, on the 22nd ult. The party assembled at Paddington, and travelled by the 9.15 a.m. train to Marlow. At the riverside at Marlow the president's steam launch was moored, waiting to convey the visitors to Henley. The water trip occupied nearly two hours, and was thoroughly enjoyed. Fine weather, such as usually accompanies the annual outing of the club, prevailed throughout the day, and in the present "green" summer the river is seen at its best, each successive reach revealing some new attraction. Alighting at Sir Frank's boathouse, the visitors were received by Lady Crisp, in the regrettable absence of the host himself through indisposition. At lunch the chair was filled by the treasurer and chairman of committee, Sir Harry J. Veitch, who had on his right Lady Crisp and on his left Mr. Bernard Crisp. The chairman expressed the great sorrow the company felt on hearing the news that the president was too unwell to be present, and the hon. sec., Mr. Hooper Pearson, read a letter from Sir Frank in which he expressed his deep regret that he was prevented from carrying out the duties of the host, and explaining "in his own way" certain things in the garden. Lunch over, the party drove to Friar Park, where a tour was made round the remarkable gardens under the guidance of Mr. Bernard Crisp and the head gardener, Mr. Philip Knowles. To those who had never visited Friar Park before it was the occasion of endless surprises. The place is beautiful by nature, and its "capabilities" (as Brown would say) have been fully utilised in the making of this garden, where all the best and most interesting features of ancient and modern horticulture are combined. The rock and water gardens, with all the appurtenances of waterfalls, bridges, stone lanterns, hills, trees, and stepping-stones were much admired. The lower lake is beautified by the clothing of its rocky banks with flowers and shrubs; stepping-stones and small bridges lead through colonies of Water Lilies and other aquatic, whilst boggy nooks accommodate such plants as find a congenial home in water-logged soil. Near the lake is an artificial underground cave, reminiscent of the time when such "conceits" were considered indispensable features of the garden and reproduced at Friar Park as a reminder of the way in which the old-time gardener "toiled to make his garden fair." So, too, the mediæval gardens, eight in number, display the painstaking spirit of a bygone age. These are faithful copies of ancient pictures, and represent respectively the Castle Garden, Wattle Garden, Garden of Love, etc. Shrubberies, flower borders, rosary, topiary objects, herb garden, Rhododendron dell, "pleached" hedge and maze, much garden statuary, several sundials, and garden furniture of all kinds, were duly inspected, and, finally, the rock garden, crowned with a replica of the Matterhorn. This rock garden has already been described in these pages; it is unique of its kind. Huge stones, such as the Alpine glacier tears from the mountain side, have been brought hither with an expenditure of herculean labour and poised in careful imitation of Nature's handiwork. Artificial streamlets and waterfalls have been added, and great masses of Alpine flowers—Campanula, Dianthus, Geranium, Veronica, Helianthemum, and many others—lend their wonderful tints to the scene, while nooks and crannies are occupied by rare plants. The visitors found so much in this wonderful rockery to see and admire that the time of departure came all too soon, but it was necessary to return betimes to the boathouse for tea, as part of the return journey was to be made by water. At tea Sir Harry Veitch thanked Lady Crisp on behalf of the visitors for the great kindness of their reception and entertainment, and Mr. Bernard Crisp expressed the pleasure it had been to Lady Crisp and himself to receive the guests on behalf of the president. The river

trip to Reading, where the party rejoined the train, was not the least enjoyable part of the day's excursion, and the members returned to Paddington in good time, all agreeing that the outing had been an unqualified success.

WINDSOR AND ETON ROSE AND HORTICULTURAL.

JUNE 24.—The twenty-fifth annual show of the above society, held on the slopes of Windsor Castle, was marred by heavy rains which fell throughout the afternoon. The last Saturday in June, which is the fixed date for the show, is generally suitable, but in this backward season it proved to be too early, and in consequence the entries were not so numerous as usual. H.T. varieties predominated, and were shown at their best.

The King's Challenge Cup, open to all England, is always a great attraction at the Windsor show, and on this occasion it induced eight of the principal trade growers to send collections. Messrs. D. PRIOR AND SON won the Cup, while Messrs. FRANK CANT AND CO., who have held it for the past three years, were placed 2nd.

In the amateurs' classes, Dr. C. LAMPLOUGH, of Alverstoke, showed many beautiful Roses.

Fruit and vegetables were not numerous, but a note should be made of the excellence of the exhibits from the gardens of Mr. H. LANE JACKSON, who won all four 1st prizes for collections of vegetables.

OPEN ROSE CLASSES.

The principal class, for 48 distinct varieties, which carries the King's Challenge Cup, was won by Messrs. D. PRIOR AND SON, Colchester, who showed a very even collection of fresh blooms of good size and colouring. The best blooms were Bessie Brown, Mrs. Walter Easlea, Mrs. Geo. Norwood, Cynthia, Mrs. J. Laing, William Shean, Mrs. W. J. Grant, Augustus Hartmann and Mrs. Charles Russell. In the 2nd prize stand of Messrs. F. CANT AND CO., Colchester, there was an immense bloom of Mrs. Joseph Welsh. Other noteworthy blooms were Souvenir de Maria de Zayas, Mrs. W. J. Grant, Edgar M. Burnett, Auguste Comte and Edward Mawley.

There were only three exhibitors of 18 Teas or Noisettes. Although a trifle small, the blooms generally showed fewer signs of damage by the weather than might have been expected. The 1st prize was won by Mr. H. DREW, Longworth, with a charming collection, of which the outstanding sorts were Auguste Comte, Souvenir de Pierre Notting, Mrs. Foley Hobbs, Mrs. Mawley, Comtesse de Nadaillac and Maman Cochet. Messrs. D. PRIOR AND SON, who were 2nd, had a perfect bloom of Mrs. Herbert Stevens, while their examples of Mrs. Cynthia Forde and White Maman Cochet were splendid.

The rather trying class for 12 varieties, 3 blooms of each, was won by Mr. E. J. HICKS, Twyford, Messrs. D. PRIOR AND SON being placed 2nd. The chief tiers on the 1st prize board were Augustus Hartmann, C. E. Shea, Mrs. Geo. Norwood, Mrs. J. Laing and Caroline Testout. Messrs. POWER AND SON had especially good blooms of Margaret, Lady Ashdown, Lohengrin and William Shean.

Eight competitors brought exhibits of 12 blooms of any T. or N. all showed Mme. Jules Graveureux with superb blooms of C. E. Shea, the new satiny rose-pink H.T. of superlative merit and delightful fragrance. Messrs. D. PRIOR AND SON were a good 2nd with beautiful blooms of Mme. M. Soupert.

The prize winners in the class for 12 blooms of any T. or N. all showed Mme. Jules Graveureux. Messrs. D. PRIOR AND SON were 1st, Mr. JARMAN, Chard, 2nd, and Mr. HICKS 3rd.

Only three competed in the class for 18 bunches of decorative Roses, but their exhibits were very attractive. Messrs. F. CANT AND CO., showing such sorts as Crimson Damask, Rouge

Angevine, Rayon d'Or and Carine were 1st. Messrs. G. JACKMAN AND SON, Woking, were 2nd, and had Duchess of Wellington, Sylvia, Lady Pirrie and Rouge Angevine especially fine. Mr. CHARLES TURNER, Slough, was 3rd.

With especially good blooms of Bessie Brown and Mrs. Charles Russell Messrs. D. PRIOR AND SON were placed 1st for 12 blooms each of any crimson and white variety. Mr. DREW, showing White Maman Cochet and George Dickson, was 2nd.

The finest blooms in the open amateurs' classes were those of Dr. C. LAMPLOUGH, who won the Islet Cup, and Lady Julia Follett's Cup for the second time. In the former he had in Mme. Jules Graveureux, for which he obtained the National Rose Society's medal for the best Rose in the show, and also splendid examples of Florence Forrester, La Tusca, Mme. M. Soupert and Mildred Grant. He had no competitor in the latter class, but his 12 blooms were magnificent. Dr. LAMPLOUGH, showing very good blooms of such as Nita Weldon and Maman Cochet, also won 1st prize for 12 T. or N. Roses, and was equally successful in the class for growers of fewer than 1,000 plants. Mr. F. DENNISON won the Windsor Challenge Cup for the second time. The best of his 24 blooms were Mme. M. Soupert, White Maman Cochet, Yvonne Vacherot and Mrs. Amy Hammond.

Mr. G. C. SAWDAY was the most successful exhibitor in the local Rose classes. He won Lady Mary Arkwright's Cup for the second time and Mrs. Beril Fortescue's Cup for the third time in succession, and this now becomes his property. The Rev. J. B. SNACKLE was 1st in the class for 6 bunches of decorative Roses with a splendid display.

Sweet Peas were not so good as usual, but Mr. C. ROMAINE easily won the Mrs. Beril Fortescue Cup with 12 good varieties. The best 6 bunches of hardy border flowers were shown by J. BERIL FORTESCUE, Esq. (gr. Mr. C. Page), while Mrs. WHITWORTH won 1st prize for a vase of Tree Carnations.

ROYAL METEOROLOGICAL.

JUNE 21.—The last monthly meeting of this society for the present was held on the 21st ult. at 70, Victoria Street, Westminster. Major H. G. LYONS, D.Sc., F.R.S., president, in the chair.

Mr. J. E. CLARK and Mr. H. R. ADAMES presented their "report on the phenological observations for 1915." The year as a whole approximated closely to the mean for the 25 years over which records now extend, being, if anything, a shade earlier. But this new mean for England and Wales, falling on May 18 (taking the whole British Isles the mean date is May 21) is a day earlier than that for the 20 years. Every one of the intervening years was early, whilst the four preceding these had been late. 1914 was seven days earlier than 1915, of which the outstanding features were the mild and very wet winter; the following period of drought, interrupted in most parts through July and early August, in others almost continuous through October; the genial conditions, as a whole, in April and June, but with cold spells and frosts in May and June; the cold, sunless, wet July, followed by a genial autumn, ending in the unprecedented November frosts. On the whole, garden and field came through fairly well, the Hay and Strawberry crops being the chief exceptions, and a large proportion of Apples malformed from the May set-back. Roses and herbaceous flowers were above the average in summer and autumn. The cold periods in spring affected migrants adversely, the mean date being April 26, compared with April 24 in 1914, and April 23 for the 20 years mean of the *Natural History Journal* records, 1877 to 1896. An important appendix deals with a communication by Dr. Ihne, of Darmstadt, extending to the British Isles, the mean date in six weekly zones of the coming of spring in various parts, such as he has carried out for the Continent. The map representing this roughly shows that central England corresponds to Belgium, north England and the Lowlands of Scotland to Holland, and the northern Highlands to Denmark. Ireland

has similar zones, except the last, the southern parts as also in England coming under the two earlier zones, starting from April 17.

In the discussion which followed, Col. Rawson drew attention to the importance of noting the anti-cyclonic and cyclonic conditions which prevailed at the stages in a plant's growth. Sunlight, humidity, and soil were undoubtedly the chief factors, but the greatest of them was sunlight. Botanists were agreed that the rays of the solar spectrum were not of equal efficiency in carbon assimilation or in stimulating transpiration, and the transparency of the sky was very different under the two conditions he referred to. Moreover, the absorption of the different rays varied daily and seasonably with the sun's altitude. The red rays were known to be highly efficient in transpiration, and at sunrise they were the first to shine on the tops of the loftiest trees. It was there that work began, and the sap was drawn up from those cells which were less active, and it was there that they were most intense throughout the day, owing to the greater intensity of the light. The height of a tree will therefore rather assist than retard the ascent of sap. The efficiency of the red rays in transpiration is an important factor in the ascent of sap, and should be taken account of, in addition to root pressure, osmosis, and capillarity.

ROYAL AGRICULTURAL.

JUNE 27 30.—The seventy-seventh annual show of the Royal Agricultural Society was held at Manchester on these dates. Horticultural exhibits were staged in three large marquees, and the following awards were made in the competitive classes.

GROUP OF MISCELLANEOUS PLANTS IN AND OUT OF BLOOM—MESSRS. JAMES CYPHER AND SONS, Cheltenham, had the better of two exhibits. At the back of their display, which was awarded the 1st prize, were well-grown Palms, whilst single-stemmed Crotons with fine foliage, brightly coloured Begonias, *Odontoglossums*, *Cattleyas*, and *Exoras* made a brilliant exhibit. 2nd, Mr. W. HOLMES, Chesterfield. Messrs. CYPHER AND SONS were also placed 1st in the class for a collection of Orchids arranged for effect. Plants of *Cattleya gigas* Sanderiana, *C. Muriel* Reineckiana and *Odontoglossum Thompsoniana* were excellent specimens.

MESSRS. BLACKMORE AND LANGDON, Bath, were awarded the 1st prize in the class for a collection of Delphiniums with a fine display of massive spikes, the varieties Queen Mary and Lord Lansdowne being unusually fine.

MESSRS. BLACKMORE AND LANGDON showed best in the class for tuberous Begonias. The class for a group of hardy plants, Bamboos, and water plants was a good one, in which Mr. A. P. BRUCE, Charlton-cum-Hardy, excelled, 2nd, Messrs. G. GIBSON AND CO., Bedale. The best collection of hardy perennial plants and cut blooms was shown by Messrs. W. AND J. BROWN, Peterborough. 2nd, Messrs. W. ARTINDALE AND SON, Sheffield.

For a collection of cut sprays of Carnations Messrs. TUDVIN AND CO., Willaston, were awarded the 1st prize, and for a collection of cut Roses Messrs. W. AND J. BROWN, Peterborough, led. The class for a collection of Sweet Peas brought strong competition, the prize-winners being (1st) Mr. R. BOLTON, Carnforth, (2nd) Mr. J. STEVENSON, Wimborne, and (3rd) Mr. W. BOND, Formby.

NON-COMPETITIVE EXHIBITS.

Large Gold Medals were awarded to Messrs. A. DICKSON AND SONS, Newtownards, for Sweet Peas and Roses; KING'S ACRE NURSERY CO., Hereford, for a collection of fruit trees in pots; Messrs. WATERER, SON AND CRISP, Bagshot, for a collection of clipped shrubs, Rhododendrons and Kalmias.

Gold Medals to Dr. HAMILTON, Studley College, Warwickshire, for vegetables; Messrs. KING AND CO., Coggeshall, for Sweet Peas; Messrs. CANT AND SONS, Colchester, for seedling Roses; Messrs. BROADHEAD AND SONS, Huddersfield, for a rockery; Messrs. GODFREY AND SON, Exmouth, for Pelargoniums; Messrs. STUART LOW AND CO., Enfield, for Orchids, Roses and Carnations; Messrs. DOBBIE AND CO., Edinburgh, for Sweet

Peas; Mr. A. P. BRUCE, for a collection of Sarracenias, Spiraeas, etc., and Messrs. JARMAN AND CO., Chard, for Roses and Sweet Peas.

Silver-gilt Medals to Messrs. W. ARTINDALE AND SON, Sheffield, for Roses, Violas and other flowers; Mr. R. H. BATH, Wisbech, for Delphiniums and Paeonies.

Silver Medals to Mr. W. EDWARDS, Nottingham, for table decorations; STUDELEY COLLEGE, for fruit.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 1.—*Committee present*:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hammer, A. J. Keeling, D. McLeod, Dr. F. T. Paul, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Miltonia Charlesworthii var. *grandis*; *M. C. Lecana*; *Odontoglossum crispum Alderforthii*, a large flower, heavily blotched with crimson and with white margins. These three shown by W. R. LEE, Esq.

Laelia purpurata alba var. *Ashworthiae*, a pure white form of good shape, from R. ASHWORTH, Esq.

Odontoglossum eximium Purple Emperor (blotched *crispum* × *ardentissimum*), a large flower, heavily marked with purple, from Dr. CRAVEN MOORE.

Cattleya gigas Gratrixae, from S. GRATRIX, Esq.

Odontoglossum Meildemansi (*apriculum* × *mirum*), from A. J. OAKSHOTT, Esq.

Cattleya Mossiae Reineckiana Haddon House var., from P. SMITH, Esq.

AWARDS OF MERIT.

Odontoglossum crispum Empire Day, *O. c. Vironique*, *O. c. Conyngium*, and *O. c. muncianum*; *O. Hycanum Monitor* (*Harryanum* × *lutea purpureum*), *O. eximium Virginiae Purity*, and *O. Fascinator aureum* var. *Primrose Dame*, all from Dr. CRAVEN MOORE.

Cattleya Mossiae Arnoldiana var. *Margarit*, *C. Mendelii* var. *Amethyst*, and *Odontoglossum Red Monarch*, all from P. SMITH, Esq.

O. Yula var. *Ophelia* (*Adrianae Rochford's* var. × *Lambeana*), and *O. crispum* var. *Fijnella*, from R. ASHWORTH, Esq.

Cypripedium Harryanum var. *Petronilla* (*Chamberlainianum* × *Galetroyne*), from the Rev. J. CROMBLEHOLME.

Cattleya Mossiae Reineckiana Carter Place var., from TOM WORSLEY, Esq.

AWARD OF APPRECIATION.

Dendrobium Cliv var. *Mitchellii* (*splendidissimum grandiflorum* × *Wardianum*), a seedling flowering for the first time, shown by Mr. E. MITCHELL.

FIRST-CLASS CULTURAL CERTIFICATES.

To Mr. C. BRANCH, for *Cypripedium Miltonia Charlesworthii* var. *grandis*.

To Mr. E. MARSHALL, for *Cypripedium bellatum* *Rehms* var.

ENQUIRY.

CASIMIRO GOMEZ DE ORTEGA.—This Spanish botanical author, as we learn from Pritzl, between 1763 and 1733 wrote several works. They were all published in Madrid. I should be glad to know whether he was in any way officially connected with the Botanical Garden there, and particularly when he died. He was evidently a contemporary of the Abbé Cavanilles. Does any reader of the *Gardeners' Chronicle* know anything of him, and is he in any way connected with contemporary British botany? Is he known to have been in correspondence with British botanists or nurserymen? *C. H. P.*

ANSWERS TO CORRESPONDENTS.

BOOKS: *Forward*. *Types of British Vegetation*, edited by A. G. Tansley. 416 pages, published by the University Press, Cambridge, 6s. net. *Vegetation of the Peak District*, by C. E. Moss. 235 pages. University Press, Cambridge, 12s. net. *Common Weeds of the Form and Garden*, by H. C. Long, in collaboration with J. Percival. 451 pages. Smith, Elder and Co., London, 6s. net.

BRUSSELS SPROUTS: *Hants*. Your Brussels Sprouts are too far advanced for any remedial measures to be effective. The maggots are very prevalent in light soils that have been continuously cropped with members of the Cabbage tribe, and are frequently found in conjunction with clubbing. Pull up all affected plants, and destroy every maggot you see. The ground should not be cropped with Brassicas for at least two years, unless it is dressed with gas-lime in winter.

NAMES OF PLANTS: *Birds*. 1, *Leptospermum scoparium*; 2, *Pittosporum tenuifolium* var. *Mayi*; 3, *Sophora tetraptera*; 4, *Bupleurum fruticosum*; 5, too withered to identify; 6, *Erigeron philadelphicus*.—*Gardener* (*Hants*). The Lilac is *Syringa Emodi*; the other plant *Solanum crispum*. *H. W. T.* Red Dutch Honey-suckle (*Lonicera Periclymenum* var.).—*Rev. W. C. Gosling*. *Abelia chinensis*.—*W. A. T.* *Olearia macrodonata*.—*T. B.* *Leicester*. 1, *Polemonium coeruleum*; 2, *Linaria Cymbalaria*; 3, *Oxalis Bowiei*; 4, *Escallonia macrantha*; 5, *Euonymus japonicus microphyllus*; 6, *Laurus nobilis* (Bay-tree); 7, *Hypericum calycinum*; 8, *Euonymus japonicus aureus*; 9, *E. j. albo-marginatus*.

ORANGE TREES: *Gardener* (*Hants*). A suitable compost for Orange trees in tubs is one consisting of good, turfy loam, peat, and leaf-mould in equal parts, to which is added enough well-rotted manure and sharp sand to make up the fourth part. The materials should be chopped into pieces about the size of a walnut, and should be mixed for at least two months before it is used; in the meantime, turn the heap occasionally so as thoroughly to mix the materials.

RABBITS ON A LAWN: *H. S.* The best way to rid your lawn of rabbits is to snare them. A good snare is made by Mr. Robertson, of West Calder, at 5s. a hundred, which is recommended by the Board of Agriculture. Poisoning is not a good method, as the poison would probably be eaten by domestic animals much more readily than by wild rabbits, which have truer instincts on matters of food.

RASPBERRIES NOT FRUITING: *E. W.* There is apparently nothing organically the matter with the Raspberry canes. We attribute the failure of the fruit to the unfavourable weather.

ROSES DISEASED: *G. T. D. de V.* The Roses are affected by the Rose Rust disease (*Phragmidium subcorticatum*). Remove all the diseased portions of the trees; or, if the stout shoots are affected, it may be sufficient to cut out all the discoloured parts and dress the wound with grafting wax to exclude floating spores. Spray all the plants, whether affected or not, with liver of sulphur at intervals of about four days, so as to check the spread of the disease. By this means you may save the remainder of the trees.

ROSES WITH WHITE FLY: *J. B.* The white fly you have found attacking your Roses is known as the "Rose-leaf hopper" (*Typhlocyba rosae*). Spray the plants with an infusion of tobacco or quassa, taking care thoroughly to wet the under surface of the leaves. The black spots are caused by a fungous disease, *Actinonema rosae*. Spray with liver of sulphur at intervals of four days.

Communications Received.—A. H. B.—H. R. D.—Perpetual—Lt. Col. F. G. L. M.—I. A. A., Cheltenham—W. Frewin—T. S. T.—P. C.—Dr. H. E. D.—S. A.—Glady's W.—V. A. et Cie (Paris)—W. B. G.—J. R. B.—G. W. T.—B. of A.—"Pax"—"Hortus"—Amateur—C. B.—A. E.—G. E. G.—M. L. L.—H. S. T.—H. J. E.—R. A.—R.—A. B.—J.—Foyle.

THE
Gardeners' Chronicle

No. 1541.—SATURDAY, JULY 8, 1916.

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NOTES FROM A COTSWOLD GARDEN.—IX.

ONE of the most interesting plants now in flower is a species of *Castilleja*, a genus which, though very abundant on the mountains of North America, from the Rockies to the Pacific Coast, is very little known in cultivation, because, as Sir Joseph Hooker tells us under *Bot. Mag.*, t. 6,376, the species are believed to be, like their near relatives *Bartsia* and *Euphrasia*, root-parasites in a young state. But we have evidently much to learn as to their life-history, for my plant is not annual or biennial like most of the species, and if it continues to flourish as it has done, since I planted it out a year ago on a low bit of rockery facing north, will be a great attraction. My recollection of the species as I saw them on the Rocky Mountains of Alberta and also in Colorado, on the Sierra Nevada and on Mount Tacoma in Washington State, is that they are among the most beautiful of North American Alpines; and Sir Joseph Hooker says the same of the species which he saw in Utah and Colorado; but the colour of the bracts, which gives beauty to the plants, is not so brilliant under our dull skies as in their native country. Mrs. Longstaff, of Ridgeland, Wimbledon, has hitherto been more successful in growing *Castilleja* than anyone else, if I can judge from the photographs she sent me two years ago. She raised a species which was named *C. miniata* Douglas, by Prof. Macoun, which she found near Glacier, B.C., and flowered very well in 1915, as the illustration in fig. 4 shows. It is described by Mrs. Henshaw (*Mountain Wild Flowers of America*, 1906, p. 169) as follows:—

“The Red Indian Paint-brush is the only Alpine wild flower that really rivals the scarlet geranium of our cultivated gardens, and no grander sight may be seen by travellers than where, from ‘tree-line,’ close to the edge of the eternal snows that

enfold the towering mountain tops, down into the deep green heart of the valleys, the slopes and steeps are clothed with a marvellous mantle of vermilion and golden Castillejas. As the sunlight flames across these royal-robed hills every blossom blooms and burns with effulgent glory, until

‘Earth’s crammed with Heaven,
And every common bush afire with God.’

“No words can describe the brilliant beauty of such a scene, far from uncommon at the higher altitudes, where many species of *Castilleja* thrive abundantly, and you may walk for miles across meadows and banks whereon the Paint-brushes and Painted-cups (or Flame-flowers, as they are sometimes called) run riot in magnificent profusion. Every colour, every shade, from coral-pink to cardinal, from canary to tangerine, is growing and blowing on either hand, with here and there a single snowy spike to emphasize the splendid conflagration of colour. It is wonderful to note that all this carmine and gold is not lavished on the corolla of the flower at all, but only on the bracts, which are set below each insignificant blossom, from whose cleft tube the long pistil protrudes. The plant grows from 6 inches to 2 feet high, and the leaves have wavy or scalloped margins.”

My plant was collected near Lake Louise, Alberta, by Mr. F. R. S. Balfour, and was named *C. purpurascens*, Greenman; but on referring it to Kew I hear that it cannot be exactly identified with Greenman’s description or with any species in the Kew Herbarium. With regard to cultivation, I grew mine and flowered it weakly in a pot last year; but, finding it did not thrive, turned it out with little hope of saving it. A fairly moist, peaty soil in a well-drained sunny situation seems to suit it best. Mr. Thompson, of Ipswich, who sent to Kew the plant of *C. indivisa* from Texas figured in *Bot. Mag.*, t. 6,376, found it easy to raise from seed and to rear under glass; but that species is an annual, though it lasted in flower for three months.

One of the three most stately plants in my garden in the latter part of June is a *Paeony*, of which I have had a large clump for some years, and which Mr. Barr believes to be one of the varieties of *Paeonia officinalis* introduced by Mr. Whittall from Smyrna. It is much larger, both in leaf and flower, than the one he has named *Sunbeam*, which received the Award of Merit of the Royal Horticultural Society. As it is for its rich crimson colour and vigour the best of all the late-flowering *Paeonies*, I think it is worthy of being named as a variety after Mr. Whittall, who has enriched our gardens with so many fine plants from Asia Minor, and who I hope is not suffering from the German occupation of Turkey.

The second is an *Eremurus* raised here, of doubtful parentage, with a stem 8 feet high, of which half is covered with large blue-coloured flowers not too crowded on the stalk. So good a judge as Sir F. Moore

said last year that it was the finest *Eremurus* he had seen, and it is as good or better this season. It is an improvement on what I have more than once shown under the name of *E. robustus tardiflorus*.

The third is a claret-coloured *Meconopsis* raised from Sikkim seed, which agrees precisely with the form figured as *M. Wallichii* var. *fusco-purpurea*, in *Bot. Mag.*, t. 6,760. Though nothing can be more beautiful than the best blue form of the species, except perhaps the rare white variety which I have only once seen, this is, both in foliage, colour and habit, a glorious plant.

The old idea that he who knew the natural conditions under which a plant grew in its native home, would be more likely to cultivate it successfully than he who knew nothing about its habitat, was very ably discussed in the *Gardeners' Chronicle* years ago by some of the best cultivators in England. At that time I upheld the same theory, but I am gradually coming round to the opinion that Mr. Watson, of Kew, then expressed, namely, that a little knowledge only was worse than none, and that even when you did know all the conditions of soil and climate, you were rarely able to reproduce them in this country. An excellent instance of this has just occurred in my garden; and as it is very seldom that I can add anything to what Mr. Dykes has told us about Irises, I will give particulars. Almost every visitor to Darjeeling knows the top of Tonglo, a mountain 10,400 feet high, on the Nepal frontier, which used to be a botanist’s paradise, though when I last went there in 1914 it was sadly wasted by fire, grazing, and grass-cutters. Close to the bungalow on the top of the hill there is a little flat surrounded by magnificent old *Rhododendrons*, which, during the rainy season is a marsh, full of *Iris Clarkei*, a much more beautiful species, in some varieties at least, than Plate V. in Dykes’ Monograph represents. He tells us that plants received from the same locality as mine, planted in a damp soil rich in humus, have proved difficult to keep, and that many plants have died after flowering. I, by some chance that I cannot account for, planted it in a dry, sunny situation on the top of my rockery in ordinary soil; and here it has lived, increased, and flowered for several years, whereas, planted in a deep, moist soil, it has refused to flower. As the plant has proved capable of enduring conditions so unlike those of its native home, why is it so local in the Himalayas as it appears to be? A thousand problems of this kind are constantly being asked by the intelligent grower of rare and curious plants, and it is very seldom that they can be answered or explained.

The hybrid *Calceolaria* named John Innes which was raised at the John Innes Institute from a cross between *C. plantaginea* and *C. polyrhiza*, the latter, I believe, being the seed-parent, seems to be as good a plant as *C. polyrhiza* in its habit and constitution, and resembles it closely except in the larger size and flatter shape

of its flowers. Than *C. polyrrhiza* no more floriferous plant exists, and it spreads so rapidly among the stones, and even in the paths of my rockery, that it may become a weed, though a very charming one; but it wants a free run for its roots, and is not such a good pot-plant as some recently raised hybrid *Calceolarias* from the same source, which are without exception the most elegant little *Calceolarias* I have ever seen for the greenhouse, and to my eye very much to be preferred to the larger-flowered and more gaudy strains florists have created. They are the produce of several crosses between *C. angustifolia*

Sir Joseph Hooker, in the *Himalayan Journal*, tells us that his men were reduced to this unwholesome diet, when he was struggling with indomitable patience and courage against many difficulties in the Lachen Valley. I often think that a cheap edition of that unrivalled book would be a great boon to gardeners, young and old, and would induce some of them to go to India, where good appointments on plantations and in the Government service are likely to be open, in order to replace the loss of so many gallant planters and soldiers in the war. Two of these *Arisaemas* at least are perfectly hardy if planted deeply in

burgia frutescens, whose beautifully coloured and abundant flowers are now out, and will continue to appear for some months, on a plant potted in the greenhouse. It is much more beautiful than the better-known *N. rivularis*, and seems so easy to grow that I wonder it has not become a popular greenhouse plant. There are certain plants which attract you when you do not know what a pest they may become. One is *Oxalis vesperilionis*, which I got from Bitton years ago and have now a great deal too much of. It has a very quaint and pretty leaf, but once in the soil nothing but a zero frost will kill it. Another is an *Epilobium* which I believe to be a New Zealander of recent introduction and which I got as *E. macropus*. It is very dwarf and creeping with white flowers as large as a sixpence. *H. J. Elwes, Colesborne, Gloucestershire.*

NURSERY NOTE.

TREES AND SHRUBS AT CHESHUNT.

At the end of May I had the pleasure of inspecting the trees and shrubs in the nursery of Messrs. Paul and Son, Cheshunt, whence the most popular of the Hawthorns, Paul's Scarlet Thorn, was sent out in 1865. Mr. George Paul is as enthusiastic as ever about this class of plants, and keeps adding the best of the fresh arrivals to his extensive collection. The new Chinese Poplar, *Populus lasiocarpa*, has proved hardly so far, and the leaves retain their size, or even get larger, for one on the new growth measured 16 inches by 9 inches, including the stalk, which, together with the principal nerves, is red. It is not generally known to what excellent use the Brazilian *Erythrina Crista-galli* can be put. A bush has been grown here for the last 60 years on the west aspect of a wall, making fine growth and flowering every year. *Sambucus racemosa tenuifolia* makes a bush 8 feet by 10 feet, has its leaves as finely cut as any of the Japanese Maples, and has the merit of greater hardiness. A very uncommon shrub is *Daphniphyllum glaucescens aureo-marginatum*, with prettily-coloured margins to the young leaves. A new Portugal Laurel, obtained by crossing *Prunus lusitanica* and *P. l. azorica*, promises to oust both parents on account of its broad leaves and vigorous growth. It is now 10 feet high or more. Most interesting is a small-growing species named *Pyrus Vilmoriniana*, grown as a standard. The leaves are like those of a miniature Mountain Ash, whitish beneath, and the petioles, like all parts of the inflorescence, covered with powdery, yellow-brown hairs. The plant is evidently a bush, freely branched, densely leafy and profuse in blossom during May. It would make a choice subject for restricted spaces without severe pruning.

Those who like coloured foliage should pay more attention to the golden varieties of trees and shrubs, because, having more chlorophyll in the leaves than those with silver variegation, they are more vigorous, and they do not get burned with the sun, nor torn at the margins by the wind during summer. They are highly conspicuous in the grounds of an estate, and effective far into the gloaming. Many golden varieties are to be seen in the Cheshunt collection, but *Liriodendron tulipifera aurea*, *Alnus glutinosa aurea* and *Ulmus americana macrophylla aurea* are particularly noticeable. The golden Alder would make a fine subject for the margin of lakes and other moist places, though it succeeds in any soil. Some Conifers may be added to the list, including *Picea orientalis aurea*, *Abies concolor Wallezii*, and *Taxus baccata semper-aurea*. Much attention has been paid to the last named, which



FIG. 4.—CASTILLEJA MINIATA IN MRS. LONGSTAFF'S GARDEN, WIMBLEDON.

× herbacea, *C. integrifolia* × herbacea × cana, and *C. integrifolia* × alba.

Several fine species of *Arisaema* from Sikkim are in flower now, and though not sufficiently showy for general cultivation, they are plants which attract many people by their fine, stately foliage, and large curiously marked and tailed flowers. The best that I have grown are *A. speciosum* and *A. utile*, the latter sent me last year by Mr. Cave from the high interior valleys of Sikkim, where its great tuberous roots, sometimes weighing half a pound, are used as food in times of scarcity by the natives.

cool leaf-soil in a shady place; these are *A. concinnum* and *A. curvatum*, which both ripened seed here last year; and I believe *A. utile* and *A. Griffithii*, which has the largest flowers of all, would be equally hardy, as they do not start into growth until May or June; but dry storage in winter does not seem to suit their starchy tubers, which seem liable to dry-rot when taken up; this is perhaps the reason why they have not become better known in gardens.

A plant which is not hardy here, though I believe it is so in Sussex, is *Nierem-*

is fastigiate, very compact, deeply coloured, evidently slow-growing and suitable for the rock garden. The *Picea* retains its colour for three months.

Purple foliage is quite as durable as yellow, if not more so, because the chlorophyll is not defective, and has the additional protection of shading by the coloured pigment in the sap. The Purple Beech is particularly fine, because grown and propagated from a selected seedling. Paul's Purple Barberry has leaves twice the size of the old purple-leaved variety of the common Barberry. Needless to say, the popular *Prunus cerasifera atropurpurea* (Pissartii) is propagated in quantity, but a variety, named *nigra*, has darker purple foliage. The tree known as *P. Moseri flore pleno* is also a variety of the purple-leaved *Myrobalan*, with semi-double, white flowers and purple leaves. The purple Filbert (*Corylus maxima atropurpurea*) is also very decided in colour, but not so often planted as it might be.

The recently introduced *Robinia Kelseyi* (see *Gard. Chron.*, July 31, 1915, fig. 25) makes a handsome small tree when grafted standard high, and will prove a good substitute for *R. hispida inermis*, which is very liable to be broken down by the wind, and is otherwise short-lived as a standard. A tree of *Laburnum alpinum Alschingeri*, 20 feet high, with racemes 1 foot long, was a fine sight. Usually the Scotch *Laburnum* waits till June before flowering, but several varieties bloomed in May this year. The new *Pyrus Sargentii* has two forms of leaves, one being deeply three-lobed. It flowers and fruits very freely, being ornamental at both ends of the season; a figure in the *Gardeners' Chronicle* for November 13, 1915, shows a fruiting spray. Other interesting things were *Cercis Siliquastrum alba*, *Rhamnus Imbertinus*, *Dentzia crenata magnifica* (double pure white), *Pinus monophylla* (18 feet high and 25 years old), and *Cerasus pendula rosea*. This latter has recently been altered to *Prunus subhirtella pendula* by Mr. E. H. Wilson, as a result of his investigations amongst the Cherries of Japan. The leaves and twigs of *Betula lenta* are peculiarly fragrant and agreeable. They have been used for making tea with sugar and milk.

On account of the lack of labour the species of Roses have been allowed to go unpruned this year, but they were flowering splendidly all the same. Probably the largest Rose bush in the country is *Rosa rugosa repens*, a white-flowered variety with peculiarly tortuous stems. The original seedling now makes one huge bush, 96 yards in circumference, and laden with thousands of flowers. Very handsome was the yellow *R. spinosissima ochroleuca*. *R. lucens* is notable for its crimson stems and the varnished appearance of the whole plant. Some hybrids have been raised, including *R. lucens* × *indica*, and promise something very distinct. Another handsome hybrid was *R. microphylla* × *rugosa*, with beautiful foliage and single, blush-pink flowers, 4 inches across. *J. P.*

THE MARKET FRUIT GARDEN.

JUNE was one of the most unseasonable months ever experienced, if not a "record" for coldness. There was not a single hot day, and only a few days were passably warm, while every night was cold. During the first thirteen days of the month rain was measured on ten days, and fires were necessary for comfort frequently. Hoeing was rendered almost a waste of labour in the first, second, and last weeks by the frequent falls of rain, and was discontinued for a good part of the time, the opportunity being taken to attend to fungous and insect attacks, to be referred to in subsequent paragraphs. My fruit plantations have been rendered tolerably presentable only by repeated horse and hand hoeing, at a great ex-

pense. Rain fell on seventeen days, amounting to 2.63 inches. It was the frequency rather than the quantity of the rainfall that was objectionable. A great hay crop has been much damaged by the rains of the latter part of June. The lowness of temperature has made all vegetable and fruit crops backward, and has given time for slugs and other ground pests to injure badly tender vegetables, and even plants of the Cabbage tribe.

THE BLACK CURRANT CROP.

Many growers complain of the Black Currant crop having "run off" badly; but with me it is a particularly good one. The fruit has ripened a week later than usual, owing to the coldness of almost the entire month of June. Usually picking in my orchards begins in the last week of June, but this season the start was not before the first week of July, and even then there were more green Currants than are desirable for marketing. The need of beginning to pick as soon as possible when the acreage is considerable is two-fold. In the first place, early prices are almost invariably better than any but the very late ones, for which it is impracticable to wait in my district; and, secondly, unless a start is made before all the Currants are ripe, a large proportion will be over-ripe before the finish. It is better to market the fruit when it includes a small proportion of green Currants than when ripeness is so complete that crushing in picking and in rail transport is inevitable. The supervision of a large gang of pickers, to see that they pick cleanly and do not crush the fruit in their haste to make their tallies (as they work by weighed measure) as good as possible, is no sinecure. They are distributed in different parts of rows of bushes over a considerable tract of land, as some lag far behind others. It is desirable to have both early and late varieties, in order to extend the period of ripening. My varieties are three in number. Boskoop Giant is earliest, and it is succeeded by an uncommon sort named Goddard's Monarch, whilst Edina is the latest. The second variety was brought out by a nurseryman whose name it bears, and he sold to me all the bushes he had left, after selling some small lots, on his emigration to Australia. The berries are as big as those of Boskoop Giant, while the bunches are shorter, but thicker on the bushes. It is less subject to "big bud" than Boskoop, but more so than Edina, which is practically immune with me at present. This late variety also has short but numerous bunches of Currants of a goodly size. Growers of Currants and Plums are anxious about prices, in consequence of the dearth of sugar for jam. That domestic jam-making will be on a reduced scale may be regarded as certain, but the large manufacturers have been promised a good supply of sugar by the Government, and large supplies of jam will be needed for the Army, over and above the requirements of the home population. The supply of French Black Currants has exceeded expectations, based on the difficulties of shipping.

THE PLUM CROP.

From nearly all parts of the country reports represent this crop as a light one of all varieties except Czar, Victoria, and the Pershore. Early Prolifics and Monarchs are particularly scanty as a rule, though the former are not so on my mature trees. It would interest me greatly to learn why four old Greengage trees, planted sixteen years ago in my private orchard, have never borne sixteen quarts in all that time, though each tree is big enough now to bear at least two bushels if even moderately fruited. Six other varieties grow close to the trees, so that there is every opportunity of cross-pollination. In some seasons, it is true, the fruit buds have been eaten by birds, but in others spraying has prevented this destruction, and yet the blossoms failed to set any fruit worth notice. The temptation is to grub up the trees as mere cumberers of the ground, and probably they will be dug up next autumn. *Southern Grower.*

THE ROSARY.

ROSA GIGANTEA AND FORTUNE'S YELLOW ROSE.

THE question of the botanical origin of Fortune's Yellow Rose is raised in an interesting article on *Rosa gigantea* by *White Rose* (*Gard. Chron.*, March 11, 1916, p. 147). It is remarked as "probable that we already possess one derivative or connection of *R. gigantea* in Fortune's Yellow," and Prof. Crépin's opinion is cited to the effect that "it bears so many points of resemblance to *R. gigantea* that in the future it might be found possible to unite them under the same specific name. *White Rose* further remarks that Fortune's Yellow "has proved something of a puzzle to those who have given attention to it. The majority of catalogues, including that of the National Rose Society, include it among the Noisettes, but I think that no one who has regarded its foliage, or considers the characters of its sharp and hooked thorns, would seriously place it here, even if the single period of flowering could be overlooked." And after discussing its history, he adds: "If, as above suggested, Fortune's Yellow is connected with *R. gigantea*, it must, of course, be of hybrid origin, and it is quite probable that the Double Banksian may be among its ascendants; but, if so, whence did Fortune's Yellow obtain the thorns that are so marked a feature of this Rose?"

This suggestion of possible descent from *R. Banksiae* and *R. gigantea* raises the question whether the latter has not an earlier history than would be inferred from its being described as recently as 1888, and a search has revealed some interesting information. Before discussing this, however, we may deal with the question of *R. Banksiae*, which must surely be excluded from the parentage, for its free stipules, comparatively smooth bark, and numerous small flowers, must have exerted some modifying influence, as in *R. Fortuneana*, Lindl. (*Part. Fl. Gard.*, ii., p. 71, fig. 171), now universally recognised as a hybrid between *R. Banksiae* and *R. laciniata*, as, indeed, Lindley shrewdly suspected.

It was by a curious mistake that *R. Banksiae* was brought into the suggested parentage of *R. Fortune's Yellow* at all. The fact is, there is a second *R. Fortuneana*, which originated with Lindley himself (*Part. Fl. Gard.*, iii., p. 157) a year after the first one had been described. We read: "Rosa Fortuneana, Lindley. Fortune's Double Yellow, or Wang-jang-ve Rose. If it is desirable to give a botanical specific name to a hybrid plant at all, it can only be done, with any kind of propriety, when we are acquainted with the double origin of the plant in question, viz., both parents. Of the pedigree of the Rose here figured we know nothing, save that it comes from China, and . . . it is fruitless to enquire." Glancing on to the end of the article we discover that it is a literal transcript from t. 4,679 of the *Botanical Magazine*, with the solitary exception of the botanical name, which was added by Lindley, and the addition is not only incongruous when prefixed to such a sentiment, but also erroneous, for the plant under discussion is totally different from Lindley's earlier *R. Fortuneana*. How he came to make such a blunder is inexplicable. Lemaire helped to perpetuate the error, for his *R. Fortuneana* (*Jard. Fleuriste*, iv., t. 361) is simply a copy of the *Bot. Mag.* figure with the addition of Lindley's erroneous name.

This disposes of *R. Banksiae* as a parent of Fortune's Yellow, and the scandent habit of the latter clearly came from something else, and all the characters point to *R. gigantea*. Hemsley's suggestion of *R. Banksiae* and *R. indica* as the parents is only feasible so far as the latter is concerned, and a combination of some double garden form of *R. indica* with *R. gigantea* would be expected to give all the characters.

A search limited to the wild types is not likely to succeed, for we are dealing with a double garden Rose, found in the garden of a Chinese mandarin over seventy years ago. This, however, suggests an earlier history for *R. gigantea* than that recorded, and a search among Chinese Roses has afforded a clue.

Among drawings of unnamed Roses at Kew has been found an old Chinese painting which clearly represents *R. gigantea*, though it has laid undetermined until now. Habit, stipules, foliage, the unappendaged sepals, and the size and whitish-yellow colour of the solitary flowers are unmistakable. This drawing formed part of an old Chinese collection which came as a bound volume from Sir William Hooker's library, but the original source cannot at present be traced further. It is inscribed with Chinese characters, which Mr. A. Henry has kindly translated as

variety. In fact, it has every appearance of being a hybrid from a double form of *R. chinensis* (*indica*) and *R. gigantea*, and I should like the opportunity of comparing it with *R. Etoile de Portugal*, a reputed cross between *R. gigantea* and *Reine Marie Henriette*, which *Experience* (p. 218) says is "not unlike Fortune's Yellow in form and colouring, but more pink." The Yellow China, "The Jaune," is also a Rose I should like to see, for if this is the second parent of Fortune's Yellow (*R. Banksiae* is quite out of the question), and it is a true *Noisette*, some influence of *R. moschata* may also be present.

R. Pseudo-indica, Lindl., is a Rose of which nothing is known beyond the short description and the fact that it was based on a Chinese coloured drawing of a double yellow Rose in Lambert's collection, and all efforts to trace this

awarded a First-class Certificate by the Royal Horticultural Society. This exquisite species from China is one of the most distinct and beautiful single Roses in cultivation, and a well-grown established plant is a striking object in any garden. It is graceful both in flower and foliage. The blossoms are a rich, blood-red colour, and when they dehisce and the pollen is dusted over their petals they appear as if sprinkled with powdered gold, the effect in sunshine being very dazzling and brilliant. I have often cut flowers three inches across. My plants have been established in their present quarters for five years, and appear to be quite hardy. They have formed bushes about 6 to 8 feet in height; they produce an abundance of blossom at the end of June, and set seed-pods freely. Here in the Lothian district on a warm, loamy soil, this species seems quite happy and at home. Beautiful as *R. Moyesii* is in bush form, it is probably even more beautiful on a wall. My best plants are on their own roots, and were obtained from cuttings that I took from the plants received some years ago. I found that the cuttings rooted readily in a light, loamy compost, and they were struck in a sheltered position out-of-doors. No doubt *R. Moyesii*, owing to its apparent ease of cultivation, will become very popular. *George M. Taylor, Mid-Lothian.*

NEW ROSES AT BAGATELLE.

THE jury charged with the duty of making the awards to new Roses at Bagatelle has just published its findings, which are of great interest. In spite of the difficulty of the prevailing conditions, many foreign Rose growers have taken part in the competition, notably English and Dutch. The two Gold Medals have been awarded to two very beautiful yellow Roses—a colour which seems very popular nowadays—one from the famous firm of Pernet-Ducher, and the other from the well-known Irish firm of Alexander Dickson and Sons, Newtownards. The first Rose is named Constance, and is a large, yellow flower of admirable form. The second is Mrs. Wemyss Quin, already known and admired in this country.

Many other very fine Roses were on view, and were considered by the jury to be worthy of commendation, notably:—Admiral Ward (Pernet-Ducher), a large bloom, of an intense red colour; Benedictus (Leenders), with long, pointed buds, which develop into large but refined flowers, white, flushed with yellowish-pink; Red Letter Day (A. Dickson and Sons), not very large and almost single, but exceedingly attractive, bright scarlet in colour; André Messeray (Guillot), pale yellow, with a golden interior; Gloire des Belges (Chambard), a beautiful bright pink (these two last were endorsed "ex-aequo"); and Ghislaine de Féligonde (Turbat), distinguished by its masses of small blossoms, yellow and white, which continue to open all through the season.

The Roses will be on view at Bagatelle for the remainder of the year, and will flower until the autumn. They will be labelled with the award given in each case.

ROSE LUCY WILLIAMS.

THIS new Wichuraiana hybrid (see fig. 5) is a seedling of Jersey Beauty crossed with Edward Mawley. It was raised by Dr. Williams, who informs us that the plant is a vigorous climber with strong thorny shoots. The foliage is large and of a dark glossy-green colour, which in the young state is bronzed.

The flowering season is early, and lasts about six weeks, the blooms being produced in profusion in trusses from one to a dozen. The petals are a bright cerise colour; Dr. Williams states that they light up beautifully in artificial light, and even when fading do not look unsightly. The blooms are fragrant, up to 6 inches across when fully expanded, double, and of good form. The petals are of good substance, so that the flowers last fresh for several days.



FIG. 5.—ROSE LUCY WILLIAMS.
(R.H.S. Award of Merit, June 20, 1916.)

meaning "yellow, beautiful, spring," referring to its colour and time of flowering. He also suggests that there may be a further reference in old Chinese works, though none has been found in such as are accessible. There is a possibility that it may still be found in gardens in South China, on which point readers of the *Gardeners' Chronicle* who are resident there may be able to supply some information. One of the flowers in this drawing, which is represented full face, is unmistakably double, and unless this is a liberty of the artist a double form of *R. gigantea* may possibly exist, for the drawing bears no resemblance to the well-known Fortune's Yellow, and except for the double flower mentioned is quite characteristic *R. gigantea*.

Mr. Baker refers Fortune's Yellow to *R. Pseudo-indica*, Lindl., which he makes a variety of *R. chinensis* (Willmott, *The Genus Rosa*, p. 99, with plate), though it is clearly more than a mere

drawing have proved fruitless (see Rolfe, *Gard. Chron.*, 1914, ii., p. 206). Lindley's description states: "Habit of *R. indica*. Prickles nearly equal. Stipules very hairy. Peduncles without bracteae, covered with little short prickles. Tube of the calyx and sepals very hairy. Flowers double, deep yellow. Leaves more finely serrated and coriaceous than of *R. indica* (*Monogr. Rosa*, p. 152). This scarcely agrees with Fortune's Yellow, as we know it, yet it may have been this Rose that Lindley had in view, and it is unfortunate that the original drawing cannot be found. It probably represents some well-known Chinese double yellow Rose, which may still exist there. *R. A. Rolfe.*

ROSA MOYESII.

THOSE who have made the acquaintance of *Rosa Moyesii* cannot fail to note with considerable satisfaction that this fine Rose has been

NOTICES OF BOOKS.

THE AMERICAN ROSE ANNUAL.*

THE American Rose Society and Mr. McFarland, its Editor, are to be congratulated on the issue of the first Annual under the auspices of the Society. This forms a volume of some 150 pages, the last ten of which are devoted to accounts of Rose shows.

In his introductory article on the American Rose Society, its aims and purposes, Mr. S. S. Pennock, president of the Society, says "We cherish the hope that eventually we can give our members help of at least as much real value as that supplied in England by the National Rose Society, which sends out literature that is invaluable to its members." Like the *N.R.S. Annual*, the *American Rose Annual* contains a considerable number of articles by different writers, grouped under headings.

Among the half-dozen articles under the heading "Getting Better Roses," there are two that are of general interest, and deserve careful study. Dr. W. van Fleet, in discussing the possibilities in American Roses, considers many of our modern continuous blooming Roses, with their strong infusion of tender Oriental blood, to be, with very few exceptions, children of exacting cultural conditions, and not to be relied on as "home-yard" plants. It follows that more easily managed varieties are needed, and he proceeds to review some of the species of the genus with the help of which the desired improvement might be attained, and the work that has already been done with them. Though Rose breeding for "American home-yard adornment" is yet in its infancy, he considers that not much more is to be expected from primary crosses with newly-found species except as a starting-point, but the hybrids should be extensively used whenever they prove fertile, and he concludes: "The era of intelligent Rose breeding for outdoor effects has scarcely dawned, and the wealth of material at hand suggests the widest use by patient and hopeful workers."

Mr. E. H. Wilson, the well-known author of *A Naturalist in Western China*, writes on some new Roses introduced by the Arnold Arboretum, and the fact that many have, it is believed, been discovered or introduced owing to the author's own exertions, lends a particular interest to his observations.

Many rosarians have heard of the careful work that has been attempted by the Rev. George Schoener, the village priest of Brooks, in the hybridisation of Roses, and will learn with regret of the disastrous fire that has destroyed, not only his church and house, but also his garden, and practically all his seeds and seedlings, all the latter having perished except seven. The charm of the Rose is well illustrated by the devotion and arduous work it exacts from its votaries, serious work in hybridisation such as that carried out by Dr. van Fleet and the Rev. G. Schoener requiring years of patience. It is doubly hard when the labour of years is, as it would seem, thrown away in a few moments by a mere accident.

The article under "Enemies of the Rose" on diseases is rather disappointing. Possibly the writer has not devoted much time to experiments on the treatment of diseased Roses. Almost the only remedy suggested is sulphur, and there is no suggestion of its limitations. Now sulphur requires still and hot weather for its successful employment out-of-doors; in cold and wet weather it has little effect. Under glass, no doubt, it is invaluable, for there assistance can be had from the hot-water pipes, and in the still and warm atmosphere of the greenhouse, sulphur seems almost a specific, but it is a little curious in an article on disease of Roses to find no mention of spraying or spray washes, particularly as we have been given to understand that the ravages of

* *The American Rose Annual*, 1916. Edited for the American Rose Society by J. Horace McFarland.

black spot in some parts of America are of an extremely severe character. The article on Rose insects and their control, by Messrs. Crosby and Leonard, of Cornell University, is more satisfactory. It is not surprising to find that American Roses are troubled with many of our English pests, amongst others.

Several writers deal with municipal Rose gardens, a feature in which, it would appear, the Americans are in advance of the local corporations of this country.

America has clearly done much in this direction. Not only is there a National Rose Garden near Washington, and a Rose Test Garden at Cornell, but Hartford, Conn., Minneapolis, and Portland all seem to possess municipal Rose gardens. Canada must also be progressing in the same direction, for in an editorial footnote we read: "In Ontario, not so many miles north and west of Syracuse, there are more than fifty prospering horticultural societies, each of which, encouraged by the Provincial Government, conducts several flower shows annually." And elsewhere we read: "The Provincial Government lends substantial support to all these organisations." Well done, Canada! We wonder if an English local authority has ever concerned itself with any flower show in its district, save to charge the committee for the provision of their own police! *White Rose*.

NOTES ON IRISES.

IRIS APHRODITE.

LAST autumn I received from Mr. C. G. Van Tubergen, junr., of Haarlem, a rhizome of this Iris, which resulted from a cross between *I. Lortetii* and *I. Gatesii*. The growth of the leaves is weak, and resembles rather that of *Iris iberica* than that of either of the parents. The solitary flower has recently opened, and is truly extraordinary. The stem is about a foot in height and, as usual in the *Oncoeyclus* section, bears only the one flower. The narrow spathe is nearly 4 inches long, and remains green, except at the tip, even when the flower has expanded.

The orbicular standards are white, $3\frac{1}{2}$ inches in diameter, very faintly veined and minutely dotted, especially in the central portion, with violet purple. For twenty-four hours after the flower first opened the falls remained extended horizontally and deeply concave, as in *Iris iberica*, and indeed it appeared at first as if this latter Iris must have been one of the parents. Then, however, the falls began to droop and became conspicuously convex, the outer edges bending back so far as actually to meet behind. The colour is a faint creamy yellow, closely dotted all over with violet-purple, and, when expanded, the blade measures 3 inches across. The most striking feature is perhaps the pear-shaped patch of rich velvety crimson purple in the centre of the fall, above which there is a broad straggling beard of pale, straw-coloured, purple-tipped hairs. The style-branches are coloured and dotted in the same way as the falls, and bear the widely separated, triangular crests which are characteristic of the *Oncoeyclus* Irises.

I do not know yet for how many years this beautiful hybrid has flourished in Haarlem. We can only hope that it will prove to have a more robust constitution than either of its parents appears to have, at any rate in this sandy soil. Each succeeding year's experience of the behaviour of bearded Irises here and elsewhere makes it more and more clear that there are no exceptions to the rule that, given a sunny and well-drained position, all bearded Irises are more vigorous in a heavy soil rich in lime than in any other conditions. Here, in a garden of light sandy soil, they can only be kept in health and vigour by frequent removal into fresh soil, which has been manured and enriched for previous crops of another kind. *W. R. Jukes, Charterhouse, Godalming.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

POTATO DISEASE AND BLINDNESS.—In *R.H.S. J.L.*, Reps. of Sci. Committee, 1916, p. exciv., Dr. Horne is reported to call attention to the "erroneous belief" that *Phytophthora* travels down infected stems to the tubers below. Is this really the case? I have an idea that Mr. Sutton showed some years ago that perfectly sound tubers could be obtained on ground that was thoroughly infected with spores. Again, there is a widespread belief that cutting away the diseased haulm will save the crop, but in removing the haulm vast numbers of the spores must be cast upon the ground and make the endeavour worse than useless. Last year when disease showed itself I tried a late spraying with "Lysol" and "Novol," two cresol preparations, which certainly must have killed a good many spores, so that the liability to infection direct from the ground would not have been so great when the haulm was cut off. Meanwhile one's tendency is to believe that diseased stems are found attached to diseased tubers. In addition to the causes of failure to sprout which are given, there are two others: (1) Slugs. I have had complete failure of sets due to this cause, generally with tubers that had not acquired thoroughly hardened sprouts before planting; and (2) too much exposure of the sets to light. Thinking to make thoroughly matured "seed," three successive years I exposed tubers to light from the time of digging. They either did not grow or yielded miserable produce, whilst a few of the same sort left accidentally in the ground grew and were productive. Lately I have seen that a writer ninety years ago laid great stress on covering the tubers with leaf-mould and leaves when they were put to sprout. The matter is one that deserves further investigation. *H. E. Durham.*

CYPRIPEDIUM CALCFOLIO.—It may be news to some of your readers that this most interesting of our British Orchids is still to be seen growing wild in its native habitat in the Yorkshire Highland. On a recent botanical expedition it was my good fortune to come upon a patch containing upwards of twenty plants. A party of Yorkshire botanists and myself had been searching for the plant for a whole day; indeed, our search had been continued for upwards of 30 years, but this was a special day set apart to see if we could find the plant in one of its well-known habitats. The evening was getting far spent, and my two well-known friends had to return home to Thirsk. Not having any urgent calls upon my time, I determined to continue the search. At last I was rewarded with a sight of not one, but at least twenty robust, healthy plants. There can be no mistake about the plant, as a specimen was sent to Professor Bayley Balfour for the Herbarium at Edinburgh. It has been my joy and pleasure during this last twenty years to visit the habitats of all our rare British plants, extending from John o' Groats to Land's End, but my joy was fulfilled at the sight of Our Lady's Slipper, as it was known in pre-Reformation days. A friend of mine has also found it wild in one of its old habitats near Answick, near Settle. *William Stansfeld, Branwood, Southport.*

THE INTRODUCTION OF THE DAHLIA.—I thank Mr. George M. Taylor for his reference (p. 336), but it does not in any way bear upon my inquiry respecting the Marchioness of Bute. I am perfectly well acquainted with all these little scraps that can be gleaned in the *Horticultural Cabinet* and other similar monthly publications. The quotation Mr. Taylor gives relates, of course, to Francisco Hernandez, who in *Rerum Medicarum Navae Hispanae Thesaurus seu Plantarum*, etc., printed at Rome in 1651, as they say, although the title-page is dated 1649, gives two figures of "Acocotlis," not "Cococochitl." Acocotli, we are told, is the native Mexican name for our Dahlia, but I defy anybody to prove that either of these tiny rough wood-block figures (they are uncoloured in the copy I have seen) can be identified as being a

"very correct figure of a double Dahlia." The writer who said so can never have seen them. Only by the foliage and tuberous root can we suppose they are intended for Dahlias, certainly not by the flower. There are several versions extant of this story by persons who have apparently borrowed from other writers, and this is another reason why first-handed evidence should be insisted upon. There is another book by Hernandez in which the *Acocotli* is several times referred to, and that is *Cuatro libros de la Naturaleza y virtudes medicinales de las plantas y animales de la Nueva España*, etc., published in Spanish in Mexico, 1615. I have a modern reprint, abridged, and it is not at all certain whether some Dahlia historians have or have not mixed up the two books without ever consulting them first hand. There may have been double Dahlias in Mexico long before that flower was introduced into Europe, just as there were brave men before Agamemnon, and I may some day have something interesting to our Dahlia fanciers to say on that score, but it is beyond dispute that our double Dahlias of to-day are the direct produce of European florists. I have shown most conclusively, from authentic records, the gradual process by which the Dahlia became a double flower in my contribution entitled "The Dahlia as a Show Flower," which appeared in *The Dahlia Year Book* for 1915. But all this has no bearing upon my original question. C. Harman Payne.

OF THE PARTS OF A FRUIT TREE.—Eighteen months ago (*G. C.*, December 19, 1914, p. 395) I called attention to the want of names for some parts of fruit trees, or rather to the want of English equivalents for names used in France. One difficulty was to find a good word for "bourse," and it was suggested that the name might be retained. Lately, through the kindness of a friend, I have been able to peruse *The Clergyman's Recreation: Showing the Pleasure and Profit of the Art of Gardening*, by John Lawrence, fourth edition, 1716. In this the structure is called the "knob," e.g., p. 41, in pruning "all branches proceeding from the knob, whereon the stalk of a Pear grew, are to be intirely taken off; but not the knob itself." The word is good, and might well be rehabilitated. It may be noted here that Dr. A. S. Home (*R.H.S. J.*, 1915, Repts. of Sci. Committee, p. xli.) has confused the "knob" with the "spur," or rather with the "bouton." Lawrence (p. 51), writing of "Gourmands," says "All False Wood, or, as others call them, Water-shoots, etc." For the snag or "onglet" left by pruning too far in the internode he uses the word "cock-spur," and one rather gathers that no attention was paid by him to cutting close to the node. In his interesting paper on classifying Apples, Mr. Bunyard (*R.H.S. J.*, XL, 1916, p. 448) adheres to the view that Reinette "is probably a diminutive of Reine, as in our Queening." Curiously enough, there seems to be some doubt about both Reinette and Queening, neither of which may have any origin in Reine or Queen. The Académie Française gives both "Reinette" and "Rainette," and Littré is strongly of opinion that the latter is correct and derived from Raine, an old term for Grenouille or frog, which seems to have survived longer in Picardy than in the rest of France. The general character of "peau tachetée plus ou moins grise on jaune au fond; absence de côtes saillantes," was evidently likened by him to the dull yellow-grey-green of the frog. Old English spellings (v. *Murray's Diet.*), e.g., 1583 Reinetts, 1706 Reynette, also Runnet, Renat, Renate, and Rennett all agree in an absence of "a" in the first syllable. On the other hand, Hogg (*Fruit Manual*, 4th Ed., p. 160) derives Queening from Coin or Quoin, evidently, perhaps, from the Herefordshire pronunciation, as he spells it Quoining; here, as with Reinette, old writers favour a royal origin for "Quenyng" and "Queenen" are old spellings. The "absence de côtes saillantes" of the Reinettes may be contrasted with the bossing or ribbing of, at any rate, many "Queenings." Pippin seems to be of rather vague application, as including "varieties of Apple raised from seed;" in Normandy "Pépin" is used for a seedling Apple. But there would seem to be no contrast between "wildlings" or "foundlings" and intentional seedlings amongst the "Pippins." H. E. Durham.

The Week's Work.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

EARLY STRAWBERRY RUNNERS.—Where Strawberries were planted from pots late last season or in the spring of this year, they should not be allowed to fruit until next year. Such plants are the best possible for the production of early runners, as, owing to the fact that they are not developing fruit, they immediately start growing, throwing out strong runners much earlier than is the case with fruiting plants. Layering should therefore commence as soon as the runners are sufficiently advanced, for a runner which has already pushed its roots deep into the soil of the bed does not get away so quickly if put in a pot afterwards as does the one layered in its early stages. A convenient method, and one very largely followed, is that of using small pots. These should be half plunged when placed into position, thus reducing the need for much watering. The young plants should be removed directly they are nicely rooted and potted into the fruiting pots or planted out as the case may be. Above all things, avoid letting them stand about in small pots to become stunted and starved. No crocking is necessary for the pots, a small handful of rough loam or dung will provide ample drainage. Where only a small number is required stones will answer the purpose of fixing the runner in the soil, but pegs will usually be found most satisfactory. The soil for layering should be mainly composed of good loam, with a little chemical manure, or bone-meal, and manure from a spent Mushroom-bed. Avoid making the soil too rich, the result of which would be an extra amount of leafage, and soft, flabby plants, ill suited either for potting or for planting out in borders. The ideal Strawberry plant is a stout, single crown, with stiff, well-developed leaves, combined with good root-action. Such plants can be depended on to ripen up well in the autumn, and, given favourable climatic conditions, can hardly fail to do well the following season. In hot and dry weather the small runners should be damped overhead every afternoon to encourage the quick formation of roots. Layer only a moderate number from each plant, cutting off all others as they appear.

PERPETUAL-FRUITING STRAWBERRIES.—Generally speaking, the advantage of growing the perpetual fruiting varieties is not so much that of allowing them to bear fruit continuously as of retarding their fruiting so as to bring them into bearing when the main crop and late varieties are completely over. The bed should be kept hoed regularly, and all blooms picked off till about the middle of July. The beds must be well watered during hot spells, keeping a mulch of short manure around the plants. A little artificial stimulant should be applied during showery weather, or watered in. After the blooms are set, dust round the plants with soot or lime to keep down slugs. The beds should then be strawed in the ordinary way. But heavy dews are the rule in late summer and autumn, and these, combined with dull weather, will sometimes cause the fruits to decay before they are ripe. In this case it is well to support the trusses of fruit with forked sticks, or with the ordinary wire Strawberry supports, to keep them off the damp surface. To ensure fruits of good size and quality the trusses should be thinned, allowing about a dozen fruits to each plant of average vigour.

PLANTS UNDER GLASS

By E. HARRIS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

IPOMOEA RUBRO-COERULEA.—The flowers of *Ipomoea rubro-coerulea* are very useful for decorative purposes late in autumn and winter. Sow the seeds singly in 2½ inch pots, and plunge the pots in a hot-bed. Pot the seedlings when they are ready in a rich compost. The plants should

be flowered in pots 10 inches in diameter. Train the shoots along the roof-rafters of a house having a minimum temperature of 60°. Red-spider attacks the shoots and foliage, and should be kept in check by vigorous syringings twice daily.

CAMPANULA PYRAMIDALIS.—Sow seeds of this useful plant thinly in boxes of fine sandy soil. They will germinate freely in a cold frame if kept close and shaded. The old plants which are throwing up their flowers must be kept well supplied with water at the roots or they will lose some of their lower leaves. If desirable, their flowering may be retarded by placing them at the foot of a north wall. They must, however, be securely tied or they may suffer damage from strong winds.

SMILAX.—There is no place more suitable in which to grow this useful plant (*Asparagus medeoloides*) than on the back wall of a viney. It may either be planted in boxes or in a narrow border. In either case the soil must not be excessively rich or the young growths may become too strong. Strands of fine green twine must be placed about 6 inches apart for the shoots to train on. They will require regulating once or twice a week when in active growth.

ASPARAGUS SPRENGERI.—This plant may be grown in various ways, but where large quantities are required it should be treated as advised above for Smilax. It also makes a useful plant for furnishing the front of the stages in the greenhouse or conservatory. For this purpose seeds should be sown annually, and the plants grown in ¾ inch pots. A Sprenger also makes a most handsome plant when grown in a hanging basket, in which case the roots must not be allowed to get dry.

ANTHURUM CRYSTALLINUM.—This plant requires a good deal of attention during the growing season. The young leaves must be regulated and neatly staked, so that they have plenty of room to develop. It needs plenty of heat and moisture, but must not be exposed to bright sun or the leaves will scorch. Liquid manure and soot-water, given alternately, should be applied during the period of active growth.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffs.

PANSIES.—These succeed in most soils that are not too hot and dry. Seed should be sown in drills 12 inches apart in a partially shaded position, first applying a dusting of sifted wood ashes in the drills. In a few weeks' time they will be ready for transplanting into temporary quarters, and they should be placed 6 inches apart from plant to plant in rows 12 inches asunder. Keep the hoe busy on the surface soil and apply water when necessary, but on no account must they be watered during really hot weather with very cold water. It is an open question if Pansies are worth propagating from cuttings, for seed obtained from a reliable firm gives such splendid results in size, colour and substance, that very little is left to be desired, and a fine bed or border of well-grown Pansies is a source of pleasure to everyone.

ANNUALS.—If any annuals still require thinning the spare plants may be used to fill beds or borders where there is a shortage of bedding plants, which will no doubt occur in many gardens this year, owing to the scarcity of labour. Some varieties dislike transplanting and are never a success, especially the tap-rooted sorts; still, glorious shows of bloom can be had from transplanted Clarkias, Coreopsis, Calendulas, Chrysanthemums, Godetias, Larkspurs, Lavatera, Malope, and many others. This operation should be accomplished during showery weather, lifting the plants carefully with a small hand-fork, with as much soil adhering to the roots as possible. Afford shade from the hot sun for a few days if convenient, although this is not essential, provided the work be carried out with care and the plants are sprayed with clear water every evening for a week or so.

FLOWER BEES.—These will require attention every alternate week. All dead flowers and foliage should be picked off and a small hoe run between the plants, especially on soils that become baked after heavy rains and crack when

dry. A mulching of leaf-mould or Coco-nut fibre will help to conserve the moisture, and so save a great deal of time and labour in watering. Verbenas, Petunias, Iresines, Ivy-leaf Petargoniums, and similar plants should be pinched, pegged, and trained to fill the spaces required. All edging plants should have attention in the same particulars in order to give a smart, neat appearance to the beds. The lawns should be mown at frequent intervals, verges trimmed, and gravel paths adjoining weeded, cleaned, and lightly raked to obliterate marks and give a spick and span appearance to the whole. All tall plants should be neatly staked. Liquid manure and soot-water must be given at intervals to plants that are plunged in their pots, especially ornamental foliage plants.

ROSE TREES that were planted late will require water at least once a week. Established plants can be freely fed with diluted liquid manure, and occasionally with soot-water, to impart colour to flowers and foliage. Should an artificial manure be used, give a little often rather than over-do it. A sharp look-out should be kept for the Rose grub, aphids, and mildew. The first-named pest can be exterminated by careful hand-picking. Prevention is better than cure, and if the trees are syringed with an insecticide at intervals of a week or ten days it will keep most insects in check. All faded flowers and suckers should be removed and the beds made neat and clean.

SHRUBBERIES.—Summer pruning and trimming are amongst the more important operations, and only those with some experience should attempt them. Hedges of Box, Holly, Hornbeam, Privet, Yew, and Thorn should be trimmed with hand-shears. Azaleas, Laurels, Rhododendrons, Hollies—in fact, all specimen shrubs—should be cut with a knife, and for very tall subjects the "standard" tree pruners should be used. Flowering shrubs require a different method. Ribes, Syringas, Deutzias, Weigelas, Escallonias, and Forsythias should be pruned directly they have finished flowering, removing old and exhausted wood to admit light and air to the new growths. Shrubs and trees that were planted late this year should not be neglected for water, and a mulching of decayed leaves will prevent evaporation. Rhododendrons and Azaleas should have the seed vessels pinched off, an operation that requires care, so that next year's embryo buds will not be injured. The hoe should be run through the shrubberies, followed by the rake.

THE ORCHID HOUSES.

By T. W. BRISQOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

DECIDUOUS CALANTHES.—Plants of *C. vestita* and *C. Veitchii* are growing freely; those that have made plenty of roots need liberal supplies of water, but specimens not so forward should be kept on the dry side. Stage the plants near to the roof-glass, and do not shade them excessively. Keep the surroundings moist, damping the house thoroughly just before rolling up the blinds. Old back pseudo-bulbs that were retained for propagating purposes have made sufficient growth to permit of repotting into small pots.

THUNIA.—Some of these plants show signs of flowering; when the first bloom opens they should be placed in a cooler, drier house. After the flower scapes are removed, grow the plants in a cool airy house, in full exposure to sunlight. Continue to water the roots liberally until the leaves begin to turn yellow. The tips of growths that are not flowering should be pinched out. If the foliage is attacked by red-spider spray the plants with an insecticide, placing them on their sides in order to reach every part of them.

EPIPENDRUM PRISMATOCARPUM.—This distinct *Epidendrum* will soon pass the flowering stage. Annual disturbance at the base is not desirable, but if the soil has decayed to any great extent it will be necessary to thoroughly overhaul the plant. When repotting, all the useless back bulbs may be removed, two or three behind each lead being sufficient. If a good lasting material is employed, the plants will succeed for several years without repotting, but a little top-dressing may be needed each year. The compost may consist of Osmunda

or Al fibre, with a small quantity of crushed potsherds. To the last layer of soil add a portion of Sphagnum-moss to keep it moist on the surface and give the plants a better appearance. Pot firmly, and do not raise the soil above the rim of the receptacle. Those plants that have been disturbed will not require a great amount of moisture until the roots are re-established. Place them in a light position in the intermediate house, and shade them from strong sunlight. Plants that are not repotted may require a top-dressing.

DENDROBIUM BRYMERIANUM may be repotted at this season, using a mixture of Osmunda-fibre and Sphagnum-moss. It resents much root disturbance, and wherever possible a top-dressing should be given in preference to repotting. When the latter operation is decided upon it ought to be carried out carefully, avoiding injury to the roots as far as possible. This *Dendrobium* should be grown in the warm house or plant stove, and afforded copious supplies of water throughout the growing season.

D. PARISHII AND D. PRIMULINUM.—These two species may also be repotted, and they should be suspended from the rafters of the Cattleya division. A light position of this kind is essential, for unless the pseudo-bulbs are firm and well matured they often decay at the base during the winter months. Do not over-water these plants at any time. *D. chrysanthum* will soon complete its growth, and after a short rest in the intermediate house it will begin to bloom. The roots must be kept moist until after the flowering period.

THE KITCHEN GARDEN.

By E. R. JAMES, Gardener to the Rt. Hon. LORD NORTH, Wroxton Abbey, Banbury, Oxfordshire.

ASPARAGUS. The growths should be supported before they are damaged by winds. During stormy weather artificial manure may be applied, and, if time permits, frequent soakings of liquid farmyard manure. The plants receive greater benefit if fed now than during the resting period, as the roots being active they are able to utilise a greater proportion of the available food. Keep the beds free from weeds. These should be removed by hand, without having recourse to the hoe or other cutting tool.

PARSLEY.—Make a sowing of Parsley to furnish winter supplies. If the plants are intended for standing the winter in open quarters do not sow or subsequently transplant on rich soil as previously advocated, as growth of a firmer and more compact nature is necessary. In those districts where Parsley is known to die during winter, either sow or transplant on a warm border, making the beds of a size suitable for being covered with frames at the approach of autumn. Surplus plants may be transplanted thickly in boxes, which may be placed later in a cold house or frame. These plants form an invaluable source of supply during snowy weather, and, being portable, may be hastened if necessary by putting them in warmer quarters. Positions sheltered by walls, or borders adjoining heated structures which exhale warmth, also may be advantageously utilised, providing there is no drip from the copings.

FILLING VACANT SPACES.—Make every effort to recrop all spaces that become vacant by the removal of early crops. On ground from which Potatos were lifted in an immature state it is possible to obtain another crop of Potatos, especially if the situation is warm and well-sprouted sets are available. If the crop should be immature when frost threatens, the tubers may be consumed at once, thus conserving the supply of ripened tubers. Select an early variety. Many kinds of Brassicas may be utilised for recropping, taking care not to plant late varieties, such as Late Queen Broccoli, if the ground is to be trenched in autumn. Globe Beet and all kinds of salad plants may be used for catch crops.

GENERAL REMARKS.—The two most necessary operations in the vegetable garden are hoeing and watering. The more the surface is stirred with the hoe the less need will there be to water. It is inadvisable to apply water to the roots of many crops unless the grower is fully prepared subsequently to do so regularly. With

certain exceptions the application of water to the roots of vegetables is unnecessary. If the soil was deeply cultivated in the autumn or winter, the roots will have a large area in which to find food and moisture. The sudden application of water to the roots of certain vegetables—notably Peas—is conducive of mildew, but Celery and Leeks must be regularly and copiously watered. Surface dribbles of water are harmful, as they encourage the roots to grow near the surface only to perish when the ground dries by evaporation.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshires.

FIGS.—Early trees from which the fruit has been gathered should be syringed thoroughly and well watered, as red spider is difficult to keep down where the roots are kept in a semi-dry condition. Syringing twice a day should suffice to destroy ordinary pests without the use of insecticides until the second crop of fruit is gathered. Figs in succession houses require an abundance of air and syringing on bright, fine days. A damp atmosphere at night must be guarded against where little or no fire-heat is used, and the fruits ripening.

THE ORCHARD HOUSE.—Most of the Peaches and Nectarines will now have been gathered, and provision must be made for next year's crop by careful attention to feeding, syringing, and watering. Stand the trees in a sheltered position, securing them to wires to prevent damage by strong winds. The compost for repotting must be prepared at the first opportunity. It should consist of fairly heavy loam, lime rubble, burnt earth, bone meal, and a little soot, the whole well mixed together by turning.

SUCCESSION HOUSES.—The final thinning having been finished, all strong growths, and shoots which will be removed after the fruit is gathered, should be kept constantly pinched. Weak growths should be left alone, as the removal of the points at this stage might destroy their bearing properties. As soon as the fruits have finished stoning, liberal supplies of liquid manure and guano water, with top dressings of some approved fertiliser, must be given. The heat of the house may be increased by closing the ventilators a little earlier in the afternoon, with plenty of atmospheric moisture. Liberal thinning, good feeding, and syringing are essential. A comparatively small number of fully developed fruits will weigh as much as double the number of poor ones; and the latter would exhaust the trees much more. If Pears and Apples are grown in the latest house, and the house is crowded, these may be taken to some sheltered position out-of-doors to ripen; but on no account must the roots be allowed to suffer for want of water. One mishap of this nature may ruin the present crop and injure the trees for next year. Plums are better kept indoors and given plenty of air; they will repay any special attention which may be afforded them. When the fruit is nearly ripe, syringing should be discontinued and more air admitted. For very late fruits of Coe's Golden Drop a little artificial heat may be useful if the weather is wet and cold. Maiden trees of Pears, Apples, Plums, and Cherries, which were potted last autumn and plunged in the open, must be kept pinched at about the fifth leaf, allowing the leaders to extend a foot or more. The 8 or 9-inch pots will now be full of roots, and a mulching of rotten manure will be beneficial. Watering and evening syringings must not be neglected.

CUCUMBERS.—Cucumbers in frames have not made such rapid progress as one could have wished. After this date their management should be extremely simple, and provided the plants are liberally fed with warm, diluted manure water, well syringed, and moderately cropped, they will continue fruitful throughout the remainder of the summer. Pinch out the points at the first joint as soon as the fruits become visible, as by this means bleeding is prevented. Young plants may still be planted and quickly raised where empty frames or pits are available. They will be in full bearing by September, and will keep up an unbroken supply until the autumn plants come into bearing.

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Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are mis-directed.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JULY 11—

Nat. Sweet Pea Soc. Show, R.H.S. Hall, Westminster.

WEDNESDAY, JULY 12—

National Sweet Pea Society, Annual Outing.

Sheffield Chrys. Soc. meet.

Nottingham Hort. Soc. Show (2 days).

Elstree Hort. Soc. Exhibition at Aldenham House.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, July 6 (10 a.m.); Bar. 29.5°; temp. 64.0°. Weather—Cloudy.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

The collection of Orchids formed at Liba by A. Ward, Esq., at the Coal Exchange, Manchester, by Prothero and Morris, at 12.30.

Settlement on the Land.

The reports on the land and the fulness thereof—forestry, fruit and settlement—succeed one another at decorous intervals, and the events prove that they are like Macbeth's theory of life—"full of sound and fury signifying nothing." We are therefore not sanguine that Part II. of the Report of the Departmental Committee on Settlement and Employment on the Land of Discharged Sailors and Soldiers will achieve much more than its predecessors. The Final Report recognises that the establishment of small holdings recommended in Part I. cannot provide for more than a small fraction of ex-Service men, and that the great majority of discharged sailors and soldiers "will have" (if they go on the land at all) "in the first instance to gain their living by means of employment." The report records the hope that for the men so employed as labourers an "agricultural ladder" may be provided

whereby these men, climbing up from high to higher—become, on Fortune's crowning slopes—occupiers of small holdings. The Committee recognises that it is the duty of the State to secure employment for discharged sailors and soldiers on the land. It anticipates a serious shortage of agricultural labour after the war, and the majority of the Committee appears to think that the present enhanced rate of wage—say, 3-5 shillings a week—might, if the cost of living falls after the war, attract both discharged men and certain urban dwellers. On the subject of the establishment of a minimum wage, the Committee is divided. The majority thinks that legislation on the subject is unnecessary. Wages and prices and profits will apparently, in obedience to high law, work with the co-ordinate regularity of the stars of a constellation. If so, why do anything at all, except, perhaps, supply the circus? But even with respect to that instrument of entertainment it would inevitably come of its own accord in obedience to law of supply and demand. The Committee speaks kindly of the occasional practice of giving to employees an annual bonus, and likes a certain scheme of profit-sharing, of which particulars are given. It is of opinion that the Act authorising the Board of Agriculture to advance loans for the purpose of cottage building in agricultural districts should be put in operation as soon as practicable. The Committee is unanimous in believing that if ex-Service men are to be attracted to the land more opportunities for recreation and self-improvement must be provided. "A brighter village life is also highly desirable." The Committee does not think that it will be necessary to give preliminary instruction in farming to ex-Service men who have not worked on farms. Labour Exchanges are to be made more effective in rendering service to employers and employees.

The Minority Report is not imbued with such consummate caution. It points out that the Majority Report fails to solve the two main problems set it. The problems are to make the conditions of life good enough to attract ex-Service men and to do it in time. The Majority Report "fails in both." With this criticism none will disagree. The minority maintains that the State must establish and maintain a proper standard of wages, and also ensure to agriculture such security and prosperity as will encourage the employment of well-paid labour. In a vigorous sentence the minority expresses its conviction that "if the Government realises what a tremendous opportunity the end of the war will present of achieving the twin object of an increase in our rural population and in our home-grown food supply, and how essential these two things are to national welfare, then the thing can be done, because it must be done; and if it is to be done at all it must be done in time."

They make clear the gravity of the problem, for it is a question not merely of finding employment for ex-Service men, but of bringing up the agricultural popula-

tion to its already low previous standard. There will be an inevitable shortage in the supply of farm labour at the end of the war of not less than 80,000. The Minority Report is worth reading. Those who sign it recognise that the times are critical. They understand what so few appear to do, that the great national test will come after the war is over: that at present we are in no wise prepared for that test. We suffer from lack of vision on the part of our governors, lack of education on the part of our administrators, and lack of cohesion between the several parts of the social structure. With respect to the state of agriculture there is no room for complacency. As the minority, quoting from Mr. Prothero, states, "thousands of acres of tillage and grass land are comparatively wasted, under-farmed, and undermanned. Countries where climate is severer than our own and in which poorer soils are cultivated produce more from the land than ourselves. The gross receipts per cultivated area in Great Britain have been calculated at only one-fifth of those of Belgium, and two-thirds of those of Denmark."

The minority wants to see large additions made to the arable land, and is not averse to a ten-years' guarantee of from 40s. to 42s. per quarter of wheat. We are grateful indeed to the minority for attempting to solve and not shelve these great problems, and could but wish that its recommendations might have some result other than that of going, with so many preceding reports, "the way to dusty death" in official pigeon-holes.

To Mr. A. D. Hall's memorandum on Land Reclamation, published as an Appendix to the Report, we shall hope to devote attention in the near future.

TRANSIT OF FRUIT AND EMPTIES.—The President of the Board of Agriculture and Fisheries, in view of the strain now falling on the railway systems of the country, desires to urge fruit and vegetable growers and salesmen to do all they can during the continuance of the war to assist the railway companies in the handling of produce and empties. Fruit should be sent to the most accessible markets in approximately regular daily quantities. Whenever possible fruit should be disposed of locally. Growers should put together their consignments to salesmen in lots of 2 or 4 tons, and advise their station overnight of the quantities they wish to forward the following day. All salesmen should open their stands by the time the first deliveries of fruit are made by the railway companies, and discharge the vans immediately. In returning empties salesmen should put together the lots for each grower so that they can be transferred direct from van to truck without further sorting at the station, and make up full truck-loads. Growers should clear empties from the country stations promptly. Sellers should not send empties to country stations on the chance of finding a grower who will make use of them.

FORCED FRUITS AND VEGETABLES IN FRANCE DURING 1916.—Under the auspices of the Ministry of Agriculture, Monsieur BUISSON, of the *Revue Horticole*, has made an inquiry into the present condition of the forced fruit industry in France. In the report which has been issued, the effect of the war on production and on prices has been examined. It states that during the year 1916 the industry will be gravely affected by

three factors—the dearness of coal, the scarcity of labour, and the considerable restrictions which have been made on export. The report goes on to state that at the beginning of the year forced vegetables were more abundant even than in a normal season, and prices about average. "Forced Tomatos (it continues) will probably be above the average in quantity. Forced Strawberries were a fortnight later than in 1915, but more abundant. Melons will be more plentiful than in 1915, but probably less than in pre-war years. Peaches and Nectarines will exceed in quantity those of 1915, but will be more than a month later. The ruling characteristic of the industry will be that more vegetables will be produced, and fewer fruits and flowers, for which there is not so ready a sale." The report also mentions the damage done by bombardments and Zeppelin raids to nurseries near the firing line, notably those of Monsieur MARGOTIN and Messieurs CORDONNIER.

LAND SETTLEMENT OF EX-SERVICE MEN.—The President of the Board of Agriculture and Fisheries desires it to be known that in the selection of settlers for the three pioneer land colonies of ex-Service men, preference will be given, as between men of equal merit and qualifications, to those whose wives or sisters or daughters have, as the result of their employment on the land either before or during the war, acquired proficiency in milking or other farming operations.

FRUIT AND POTATO CROPS IN HOLLAND.—The Board of Agriculture and Fisheries is informed by His Majesty's Consul General at Rotterdam that prospects for the fruit crop in Holland are far below those of last year. As so little care has been given to the manuring of the orchards, only a much smaller crop could be expected after the abundant crops of Apples and Pears of last year. In general, prospects are better for Apples than for Pears, although some complaints are heard about diseases. The condition of Cherries is not so favourable as the first blossoming promised. "English" Plums are a failure, but other Plums are more promising. Garden products are very satisfactory. Apples.—On the whole conditions are fairly good, especially in Zealand, but are worst in South Holland. Pears are most satisfactory in North Holland, and in South Holland prospects are bad; on the whole, the conditions vary from fairly bad to moderate. Early Cherries vary from moderate to good, but are bad in Zealand. Late Cherries.—A moderate crop is expected. "English" Plums are a complete failure in most districts, and bad almost everywhere. Other Plums.—Prospects are good in Groningen and bad in Limburg; elsewhere the condition is only moderately good. Tomatos are very satisfactory throughout the country. Early Potatos.—Conditions are very good in Groningen, West Friesland, and Hillegom; good to very good in the other parts of Friesland and Gelderland south of the Rhine; fairly good to good in Limburg, Overijssel, North Gelderland, and North Brabant; and moderate in South Holland, where they suffered from water.

WOOLLY PEAR APHIS.—Investigation of the woolly aphid which attacks the roots of Pears in California, have led Messrs. BARKER and DAVIDSON, of the U.S. Bureau of Entomology, to the conclusion that the species which does the damage is distinct from that which attacks Apples. The authors therefore propose to name the woolly Pear aphid *Eriosma pyricola*. Unlike the woolly aphid of the Apple, the woolly Pear aphid works entirely underground. It attacks the roots of all types of Pears, but is specially injurious to the French wild stock, which, in California, is largely used as a stock for the Bartlett Pear. The Quince stock, though attacked, is possessed of a certain measure of resistance, and the authors believe that the Japanese stock may prove still more re-

sistant. The woolly Pear aphid attacks the smaller fibrous roots to a depth of 3 feet or more below the surface of the soil. They attack more rarely the larger roots, but only very occasionally settle on roots of more than ¼ inch in diameter. Unlike the woolly Apple aphid, this species rarely causes tuber-like lesions, but the fact that it often destroys many of the "feeding" roots leads to a marked checking of the growth of the trees. With young trees, for instance, those under four years of age, heavy infestation may result in the death of the tree, and the first symptoms of such attack are stunted growth and premature fall of foliage.

GARDENER'S RUBY WEDDING.—Mr. and Mrs. PETER WATSON, late of Dell Lodge, Nethybridge,

Cherries and Pears, and scarcely any Plums or Apricots. The Apple crop is distinctly under the average. In certain districts Peaches are fairly good, especially the early American varieties. On the whole, the season is decidedly bad for fruit cultivators.

VEGETABLE DISTRIBUTION.—The address delivered by Mr. JAMES W. SCARLETT, J.P., before the Scottish Horticultural Association, on "Suggestions for Modifying the Cost of Fruit and Vegetable Distribution," has been published in pamphlet form. Mr. SCARLETT draws attention to the many defects in our system of distribution of food products. Among others, he deprecates the high relative charges for railway transport over short distances—pointing out, for

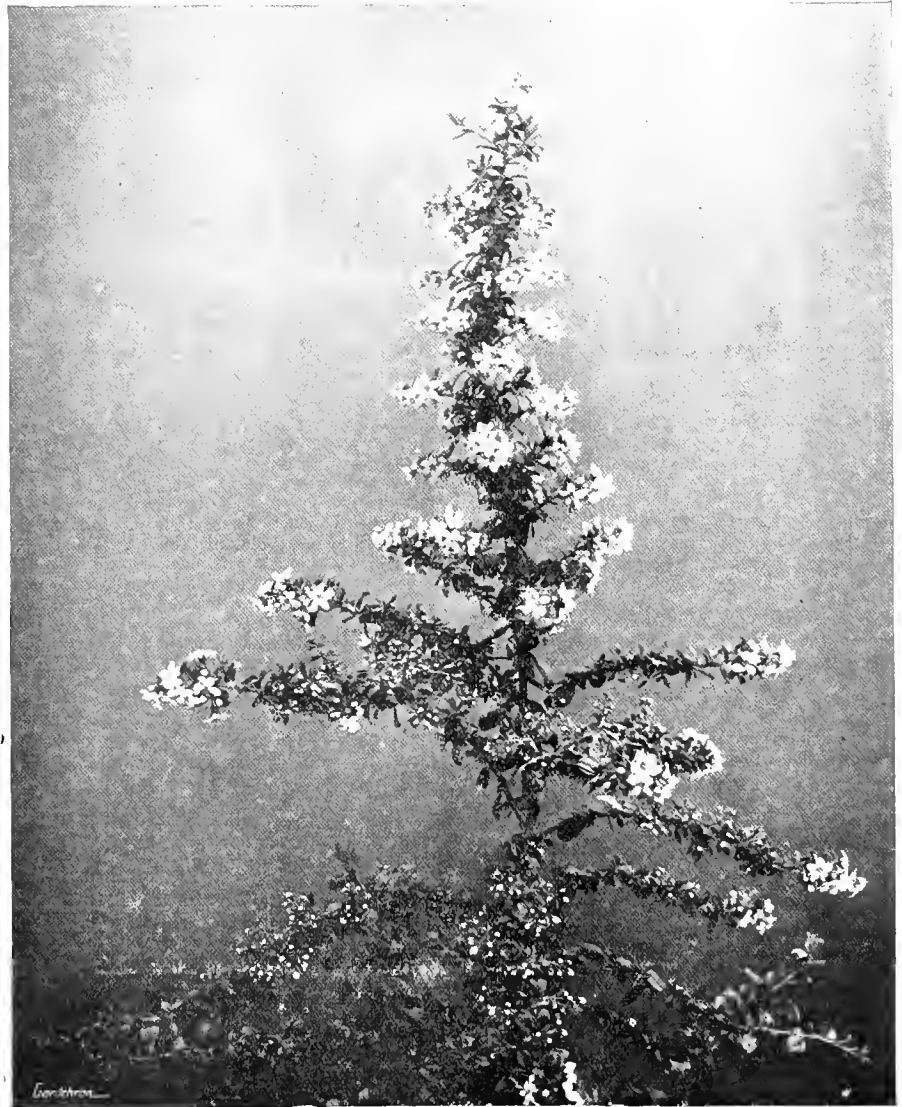


FIG. 6.—ESCALLONIA DONARD SEEDLING.
(See Floral Committee's Awards, p. 18)

Speyside, recently celebrated their ruby wedding. They were married by the Rev. DONALD FRASER, Cromdale, Morayshire, in June, 1851. Mr. WATSON is ninety-seven years, and Mrs. WATSON ninety-four years of age. This veteran gardener was for over seventy years in charge of Dell Lodge gardens, first in the service of Mr. HOLT, and later the Earl of Stamford and Warrington. Mr. WATSON resigned his office at Dell Lodge ten years ago.

THE FRUIT CROPS IN FRANCE.—We hear from M. GABRIEL LUZET that the French fruit crops are far from good; there are very few

example, that the carriage per ton from Holland to Glasgow may be cheaper than that from Inveresk to Glasgow.

WATER AS A PREVENTIVE OF DAMAGE BY FROST. According to *American Fruits*,* orchardists in Idaho who have plentiful supplies of water at their disposal are able to prevent, or greatly reduce, damage by frost by flooding their orchards. By copious irrigation trees are said to pass unharmed through a severe spring frost, whereas neighbouring trees on land not irrigated failed to yield a crop.

* *Journ. of Agric. Research*, VI., No. 10, Dept. of Agric., Washington, D.C., June 5, 1916

ROYAL HORTICULTURAL SOCIETY.

Exhibition at Holland House.

July 4, 5, 6.

THE Holland Park exhibition of the Royal Horticultural Society was held on Tuesday, Wednesday and Thursday last. All things considered it was very successful. We missed the bright displays of Messrs. Sutton, Carter, Dobbie and other seed firms, and there were fewer groups of Orchids from amateurs, but Roses and Sweet Peas, which always appear well at these shows, seemed as numerous and as good as ever. The weather was gloriously fine, and the attendance appeared good, although we learn that the number of visitors on the opening day was less than the average. There was no outstanding feature in the show itself; but the grouping seemed in many cases to be extraordinarily good, and the quality was uniformly high—possibly because the difficulty of transit in these days forced exhibitors to exercise rigid selection and show only their best.

The Floral Committee recommended no fewer than eighteen awards to new plants. It is a pity that the novelties were not collected either in a special tent, or, at any rate, on a stage by themselves in one of the larger tents. Very few of the numerous visitors, however much they desired it, could hope to see all the plants that secured awards, as it was next to impossible to find them.

Orchid Committee.

Present: Sir Harry J. Veitch (vice-chairman), Sir Jeremiah Colman Bart., Sir Frederick Moore, Messrs. Jas. O'Brien (hon. secretary), F. Menteith Ogilvie, Walter Cobb, A. Dye, H. G. Alexander, S. W. Flory, J. Wilson Potter, W. Bolton, J. Cypher, R. A. Rolfe, W. H. Hatcher, C. J. Lucas, T. Armstrong, J. E. Shill, Pantia Ralli, E. R. Ashton, R. Brooman-White, Gurney Wilson, R. G. Thwaites, F. J. Hanbury, and A. McBean.

The Orchids were arranged on the central stage in the large No. 1 tent. Although they were fewer in number than they have been at former shows, the quality was excellent, and the arrangement uniformly good. Sixteen special subjects were submitted to the Committee, resulting in the awarding of one First-class Certificate and four Awards of Merit.

AWARDS.

FIRST-CLASS CERTIFICATE.

Laelio-Cattleya × *Isabel Sander Blenheim variety* (C. Mossiae Wagneri × L.C. Canhamiana), from the DUKE OF MARLBOROUGH, Blenheim Palace, Woodstock (Orchid grower Mr. Smith). A very fine Laelio-Cattleya, broader in all its parts than L.C. Canhamiana. The petals were equal to those of a good C. Mossiae. Sepal and petals white, tinged with lilac; lip broad and well-formed, ruby-purple in front, with a yellow disc.

AWARD OF MERIT.

Laelio-Cattleya Isabel Sander Gattton Queen (C. Mossiae Wagneri × L.C. Canhamiana), from Sir JEREMIAH COLMAN Bart., Gattton Park, Surrey (gr. Mr. Collier). A charming flower, of beautiful shape, in which the clear white of C. Mossiae Wagneri is reproduced in the sepals and petals, the bright violet-purple of the front of the broad labellum being an effective contrast to the white background.

Miltonia Isabel Sander Charlesworth's variety (Hycana × Roezii), from Messrs. CHARLESWORTH AND CO., Haywards Heath. A very fine Miltonia, equal in size to a good M. vexillaria, clear white, with a pale purple base to the petals, and a distinct rayed mask of purple lines at the base of the lip.

Miltonia John Baker (parentage unrecorded), from Messrs. SANDER AND SONS, St. Albans. Flowers white, with the lip and petals tinged and veined with rose-pink. The lip has a very dark ruby-red mask at the base.

Brasso-Cattleya Irene Low's variety (B.-C. Madame Chas. Maron × C. Dowiana), from Messrs. STUART LOW AND CO., Jarvisbrook, Sussex. A bold, well-displayed and fragrant flower, with primrose-yellow ground colour delicately flaked with rosy-lilac, the broad, fringed lip having a clear yellow centre.

LINDLEY MEDAL.

To F. MONTEITH OULVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balfour), for a good specimen of *Epidendrum prismatocarpum*, with many spikes a well-merited cultural award.

CULTURAL COMMENDATION.

To Mr. THURGOOD, gr. to H. T. Pitt, Esq., Rosslyn, Starford Hill, for two good specimens of *Platylinis* (*Dendrochilum*) yellow forms, with many elegant sprays of small yellow flowers.

To Messrs. SANDER AND SONS, St. Albans, for a fine specimen of *Cirrhopetalum robustum*, with twelve spikes of yellow and brownish-red flowers, forming a dense head.

OTHER EXHIBITS.

Sir JEREMIAH COLMAN, Bart., Gattton Park (gr. Mr. Collier), showed the only amateur's group. As usual, his exhibit was most interesting, and contained many fine Gattton hybrids and a good selection of rare species. In the centre were twelve specimens of the rose-coloured *Disa Luna*, with showy Laelio-Cattleyas, including *Epicasta*, *Excelsior*, and some unnamed hybrids. One of the prettiest of these last was a clear canary-yellow hybrid, raised between L.C. Hippolyta Phoebe and C. Mossiae Wagneri. Another interesting novelty was *Miltonoda Colmanii* (M. Warscewiczii × Od. Bradshawiae), with pretty flowers of a pearly-red tint, freely produced. Cattleya Warscewiczii King Edward VII., two good *Nanodes* *Medusae*, the rare little *Sarcochilus* *Ceciliae*, *Odontoglossum Queen of Gattton*, and bright scarlet *Odontiodas* were also noted. (Gold Medal.)

Messrs. CHARLESWORTH AND CO., Haywards Heath, staged an effective group, in the centre of which was a mass of the handsome *Miltonia Charlesworthii*. Many showy Laelio-Cattleyas and hybrid *Odontoglossums* were included. Among special subjects noted were *Odontioda Brevii* callistoglossa, a very large, deep mahogany-red flower, the spike bearing thirteen blooms; the famous original form of *Odontonia Charlesworthii* (O. Uro-Skinneri × M. vexillaria), which had previously secured a First-class Certificate, rendered unique by its fine rose-crimson lip and richly-coloured petals; *Odontodia Chanteclair*, bright scarlet; *Laelio-Cattleya Gatttoniana grandis*, of fine size and colour; and a good selection of white Cattleyas. (Gold Medal.)

Messrs. SANDER AND SONS, St. Albans, exhibited an extensive group, the centre of which was of *Cattleya Warscewiczii Sanderiana*, surrounded by good Laelio-Cattleyas, Miltonias, and *Odontoglossums* arranged with them. Of the varieties of *Miltonia Isabel Sander* shown, the finest was that named *Brilliant*. M. *Hycana Colossus* was a large and finely-formed rose-pink flower. Among the *Odontiodas* the new O. General Brussloff (Oda Bradshawiae × Odm. Rolfeae) was a rich, red flower, with yellow ground, the broad lip being an outstanding feature. Among the *Angulosas* were the rare dark-coloured A. *brevilabris* var. *punctata* (imported with the yellow A. *Cliftonii*, which was also shown), and various tints of Laelio-Cattleyas *Martinetti* and L.-C. *brigensis*. (Williams Medal.)

Messrs. STUART LOW AND CO., Jarvisbrook, showed a good group, with fine plants of *Cattleya Warscewiczii* in the centre, the side being of white *Phalaenopsis Rimestadiana* arranged with red *Renanthera* *Imshoottiana*. Good *Brasso-*

Cattleya Veitchii and other *Brasso-Cattleyas* and *Laelio-Cattleyas* were effectively arranged, one of the most attractive being L.-C. *Teucria gloriosa* (L.-C. *Martinetti* × C. *Mossiae*), a large and finely-formed rose flower, with fine ruby-purple lip. (Williams Medal.)

Messrs. MANSELL AND HATCHER, Rawdon, Yorks, staged an effective group, with a fine mass of the large white *Phalaenopsis Rimestadiana* arranged with scarlet *Odontiodas*. There were good blotched *Odontoglossums* in the centre, the sides being chiefly of showy *Laelio-Cattleyas*, with *Miltonias* in front. (Williams Medal.)

Mr. C. F. WATERS, Balcombe, staged a group of good typical *Odontoglossum crispum*, *Cattleyas*, and hybrids. (Silver Banksian Medal.)

Messrs. J. AND A. McBEAN, Cooksbridge, had a well-arranged group, in which the showy species and hybrids of the season were well represented. A selection of *Odontoglossum Hycanum* was arranged with *Oncidium McBeanianum*, scarlet *Masdevallias*, and white *Cattleyas*, including the new C. *Mabel* (Myra Peeters × *Warneri* alba), etc. *Miltonias* were well shown, the large white M. *vexillaria* *Queen Alexandra* being prominent. Scarlet *Masdevallias* and white *Dendrobium Denis* were effective. (Silver-gilt Flora Medal.)

On the other side of the central stage Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, had a fine selection of new and handsome blotched *Odontoglossums* and *Miltonias*. The most prominent was their superb M. J. Gurney Fowler, which will long remain one of the best in its section. Some new *Odontoglossums* and *Odontiodas* flowering for the first time were shown in good form, and a charming new white form of *Cattleya Mendelii* was also noted.

Mr. HARRY DIXON, Wandsworth Common, staged a group in which the new *Odontioda Buenos Aires*, some fine *Cattleyas*, and *Laelio-Cattleyas* were noted. (Silver Flora Medal.)

Sir MERVYN BULLER, Broomhill, Sprouton, showed *Vanda coerulba* Killarney, a beautiful white flower netted with violet, and with violet lip.

Floral Committee.

AWARDS OF MERIT.

Leptospermum Donard Beauty (*Boscawenii* × *Nichollsii*).—A very free-flowering variety, with blooms of a bright rose colour, paler at the edges. The flowers are larger than those of *Nichollsii*, being about ½ inch in diameter.

Escallonia Donard Seedling (E. *Philippiana* × *langleyensis*) (see fig. 6).—This fine variety has large bluish flowers; the leaves are small, glossy dark green, with finely-toothed edges. The habit, as will be seen from the illustration, is distinct from that of most *Escallonias*, being bushy, so that the plant promises to make a good specimen for an open situation. These two plants were shown by THE DONARD NURSERY CO.

Cyananthus incanus leiocalyx.—This trailing plant has much the appearance of a *Gentian*, the flowers especially bearing a close resemblance. The bloom is tubular, with clear blue petals, and a darker fringe of hairs around the tube. The prostrate shoots are furnished with small, ovate-spathulate leaves. Shown by Mr. REGINALD PRICHARD.

Salvia warleyensis.—A strong-growing plant, with flower-spikes some 2 feet tall. The flowers and flower-stems are a deep shade of violet, the lip and pistil being white. The large leaves are cordate in shape, after *S. turkestanica*, but the plant is apparently of a lighter habit than that species. Shown by Miss WILLMOTT.

Dianthus Miss Gladys Cranfield.—A border Pink, with large, circular flowers of a pale rose-pink colour, and with a well-defined crimson centre. The bloom is prettily fringed at the edges.

Polystichum Perry's No. 1.—This grand Fern is a form of *Polystichum angustifolium divisi-lobum plumosum*. The fronds are a pale green, with a gold-coloured sheen at the edges of the pinnules, which overlap each other like a mosaic of green tracery. It is one of the most remarkable of hardy Ferns. These two shown by Mr. AMOS PERRY.

Campanula persicifolia Telham Beauty.—The blooms of this pale mauve variety are 3 inches in diameter; the spike carries about nine of the big, widely-expanded flowers. An excellent novelty. Shown by Messrs. BARR AND SONS.

Rose C. F. Hawthorn.—A fine red Rose, with a sheen of crimson on the outer petals. The bloom is of large size, very fragrant, and of beautiful shape, those fully blown being as charming as the younger flowers. Shown by Messrs. ALEX. DICKSON AND SONS, LTD.

Rose Blush Queen.—A finely-formed flower, with a blush centre, the outer petals being white. The shape reminds us of a small bloom of *Bessie Brown*; the plant has a good, upright habit. Shown by Messrs. F. CANT AND CO.

Gentiana Przewalskii.—A lax-growing, free-flowering species, with long, tubular flowers coloured deep cobalt-blue on the face of the petals, the under surface being greenish-yellow and the tube almost white. The flowering shoots are prostrate, and bear 15-20 blooms. The leaves are linear, and about 6 inches long. Shown by Messrs. J. PIPER AND SONS.

Sweet Pea John Porter.—A variety with orange-coloured standard and pale, rosy-mauve coloured wings. Shown by Messrs. ALEX. DICKSON AND SONS, LTD.

Streptocarpus Rose Queen.—An extremely large, rose-pink coloured variety, with white at the throat entrance faintly suffused with yellow. There are no guiding lines. One of the most distinct *Streptocarpaceae* raised, its only fault is thinness of petal.

S. x Southgate White.—A fine white variety, with a trace of lemon-colour in the throat. Both these varieties were shown by Messrs. R. AND G. CUTHBERT, Southgate.

Begonia Mrs. C. F. Langdon.—This variety has large blooms of a clear, deep orange shade. It belongs to the "rose" type of bloom, and the petals, which possess great substance, are pleasingly waved.

Delphinium Mrs. Shirley.—A pale mauve variety, with white processes and white tipped inner petals.

D. Mrs. A. J. Watson.—The spike of this variety is of very large size. The inner petals are mauve, stained with blue, and the outer ones opal-blue. The black centre adds to the beauty of the flower.

D. Mrs. Colin McIver.—A vigorous variety of rosy-mauve colour, with a white centre and traces of cobalt in the interior. These four plants were shown by Messrs. BLACKMORE AND LANGDON.

Trollius King Cup.—A hybrid of *T. chinensis* x *T. yunnanensis*, but of more compact habit than either of its parents. The flowers are deep buttercup-yellow, and have a ring of orange-coloured petaloid processes. The foliage is very deeply divided, and most resembles that of *T. yunnanensis*. Shown by Messrs. R. WALLACE AND CO.

GENERAL EXHIBITS.

ROSES.

Mr. CHAS. TURNER, Slough, had a charming exhibit of Roses arranged as a wide border, with undulating front edged with *Adiantum* Ferns. This group was a clever example of colour arrangement, and a bed of cool-looking *Asparagus Sprengeri* was in good keeping with the design. Large weeping standards of *Bar-le-Duc*, *Rubin*, *Léontine Gervais*, and *Goldfinch* appeared like cascades of bloom, whilst pillars of *Wichuraiana* varieties were equally floriferous. Vases and epergnes were filled with exhibition varieties of fine quality. (Gold Medal.)

Messrs. ALEX. DICKSON AND SONS, Newtownards, Ireland, brought a fresh and charming collection of cut blooms. Due prominence was given to such excellent recent sorts as *Rod Letter Day*, *Mrs. Wemyss Quinn*, *Margaret Dorothy Hamill*, *Donald McDonaki*, and *Christie MacKellar*, while many other desirable varieties were also well represented. (Gold Medal.)

Mr. ELISHA J. HICKS, Twyford, had a brilliant display on a tabling. Their gorgeous novelty, *C. E. Shea*, and *Princess Mary* were especially prominent, while in the background arches of *Joanna Bridge* and others, with pillars of *Mrs. E. Powell*, were also very attractive. (Gold Medal.)

Messrs. W. PAUL AND SON, LTD., Waltham Cross, showed a large exhibit of Roses, in which were three large groups—as a centre-piece and wings—of their new *Scarlet Climber*. At the back, tall ramblers of *American Pillar*, *Sodenia*,

Messrs. PAUL AND SON, Cheshunt, had a floor group of Roses of excellent quality. The majority were arranged in baskets with foliage, a pleasing way of showing Roses, taller epergnes here and there serving as foils. A few standards were included and, at the back, weeping standards and pillar varieties. Their *Lemon Pillar* was remarkably fine, and there were good blooms of *Rayon d'Or*, *Mrs. T. Roosevelt*, *Najad*, *George Dickson*, *Mrs. E. Powell*, *Edward Mawley*, *Lady Ashtown*, *Betty*, *Laurent Carle* and others. (Silver-gilt Flora Medal.)

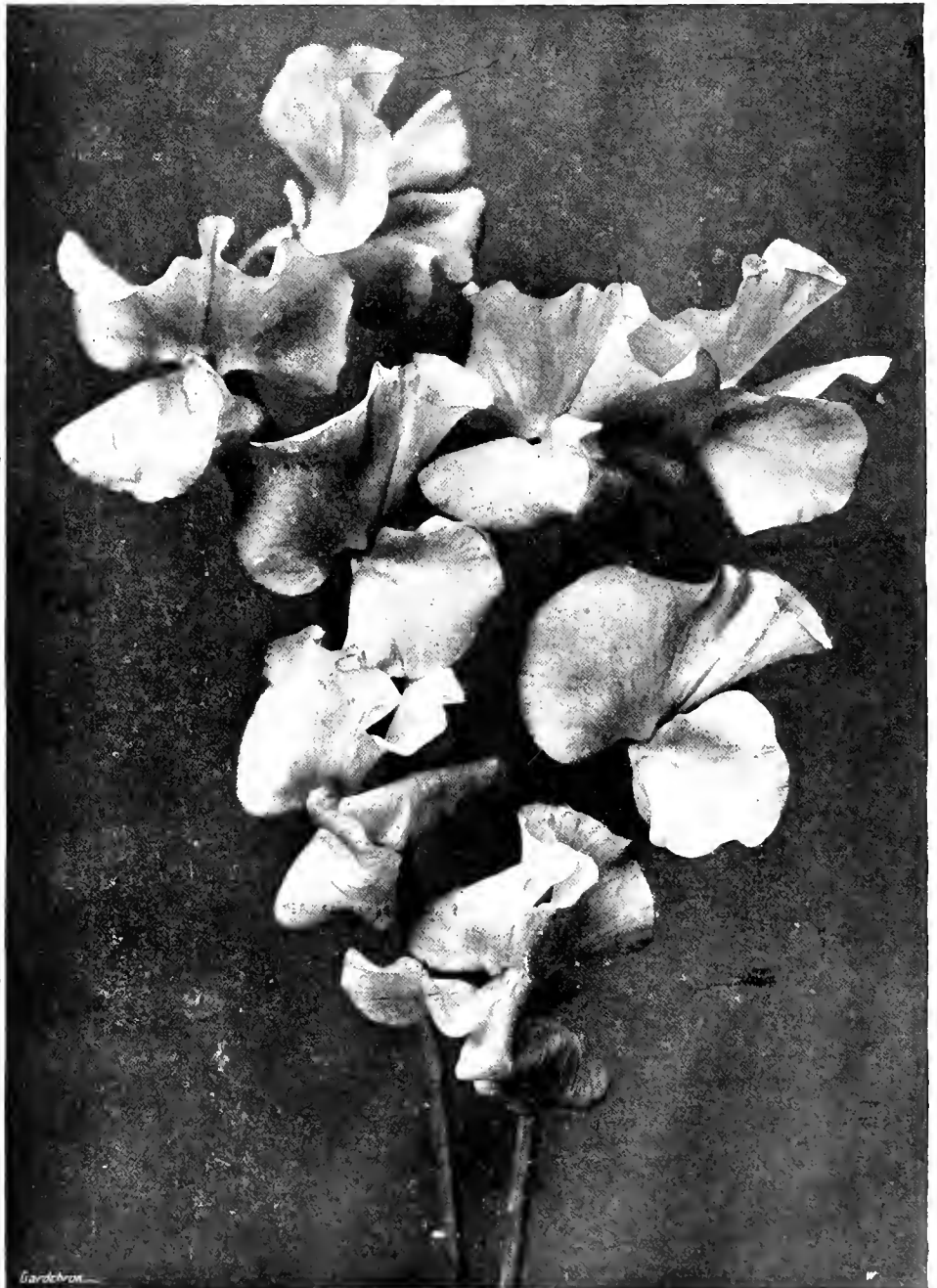


FIG. 7.—SWEET PEA JOHN PORTER.
(See Floral Committee's Awards.)

Hiawatha, *Mrs. F. W. Flight*, and others of this type marked the limits of the exhibit, whilst in front were large masses of *Ophelia*, *Queen of Fragrance*, *Mme. Ravary*, *Joséphine*, *General McArthur*, *Mme. Ségond-Weber*, and other choice sorts. Arising from the body of the group were magnificent standard plants of *Goldfinch*. (Silver-gilt Flora Medal and the Wigan Cup.)

Messrs. W. AND J. BROWN, Peterborough, featured their new pink single variety, *Mrs. Rosalie Wrench*, in a collection of much merit. This beautiful single Rose was arranged on a series of arches through the centre, beyond which appeared columns of *Mme. Jules Grayeraux*, *Florence Pemberton*, *Hugh Dickson*, *Sarah Bernhardt*, and other good garden sorts. (Silver-gilt Flora Medal.)

Messrs. STUART LOW AND CO., Enfield, showed a large table of Roses, some of the blooms in tall epergnes, some in vases, and special blooms in exhibition boxes. Juliet was shown well, and there were excellent blooms of Lyon Rose, Mrs. Ambrose Riccardio, Lady Pirrie, President Taft, Miss Alice de Rothschild, and Mme. Ed. Herriot. (Silver-gilt Flora Medal.)

Messrs. FRANK CANT AND CO., Colchester, featured several good novelties: Annie Peurice, Vivid, Blush Queen, and Mrs. C. E. Salmon—the latter a very promising climber in a collection of excellent Roses. (Silver-gilt Flora Medal.)

Mr. GEORGE PRINCE, Oxford, made splendid use of the climbing varieties to furnish arches in the background, where he displayed such sorts as Seagull, Crimson Rambler, and Goldfinch. Blooms of many dwarf varieties, particularly Una, were also excellent. (Silver-gilt Flora Medal.)

A great profusion of cut Roses in large stands and on exhibition boards was arranged by Messrs. B. R. CANT AND SONS, Colchester, who showed Iona Herdman, Cupid, Sallie, and many other sorts, in great beauty. (Silver-gilt Flora Medal.)

Blooms on exhibition boards were very prominent in the collections from Messrs. G. AND W. H. BURCH, Peterborough, who also set up stands generously filled with garden varieties. (Silver Flora Medal.)

Messrs. G. JACKMAN AND SON, Woking, made good use of stands of Edward Mawley, Rayon d'Or, Marquis de Siney, General MacArthur, and many other varieties. (Silver Flora Medal.)

The Rev. J. H. PHIBBERTON, Havering-atte-Bower, contributed many seedling Roses, of which Queen Alexandra, Callisto, and Lady Curzon are of great garden value. (Silver Flora Medal.)

Messrs. W. H. ROGERS AND SON, Southampton, grouped a number of trained plants of the single, free-flowering Lady Swaythling. (Bronze Flora Medal.)

In a pleasing stand Messrs. H. CANNELL AND CO., Eynsford, showed many of the best-grade sorts. Laurent Carie, Lady Ashtown, Irish Elegance, Mildred Grant, and Sweet Lavender are the names of a few of the sorts shown.

Messrs. CHAPLIN BROS., LTD., Waltham Cross, had a few novelties, such as Lord Kitchener, Mrs. Chaplin and Mrs. A. W. Atkinson.

Mr. PHILIP DE CORNU, Jersey, also showed a few novelties, and of these Jersey Rose and Major Pierson were attractive.

Mr. WALTER EASLEA, Eastwood, Essex, brought Cherry Page and Lady Bowater.

CARNATIONS.

Mr. A. F. DUTTON, Iver, Bucks, had a dainty collection of cut flowers. Baroness de Brienen, White Enchantress, Louvain, Lady Meyer, and Sunstar were prominent. (Silver-gilt Medal.)

Messrs. W. CUTBUSH AND SON exhibited Perpetual-flowering Carnations, with graceful Palms and well-grown Ferns. Corner groups of Sabina, a Perpetual-flowering Malmaison variety, were notable, the blooms being of fine quality. There were also White Wonder, Enchantress, Supreme, Lady Angela Campbell, Marmion, and other choice sorts. (Silver-gilt Banksian Medal.)

Mr. JAMES DOUGLAS, Great Bookham, showed many excellent border Carnations and Pinks. Of the former, Hercules, Lieut. Shackleton, Fujiyama and Gordon Douglas were particularly noteworthy, while Bookham Belle, Radiant and Aviator, of the Pinks, were very attractive. (Silver-gilt Banksian Medal.)

Messrs. STUART LOW AND CO., Enfield, showed Carnations as a very attractive exhibit, with plenty of greenery in Fern and Cupressus funebris. The white "Malmaison" Carnation Charles Blick was very good, and above this was grouped the pink Princess of Wales in excellent condition. The firm's novelties, Baroness de Brienen, Hon. Charlotte Knollys, Mrs. Myles Kennedy, Irene, and Countess of Wilton, were represented in the collection. (Silver-gilt Banksian Medal.)

Mr. JENNER, Rayleigh, Essex, arranged in an attractive manner various cut Carnations, of which Rose Dorée, Sunstar, and Mary Allwood are a selection. (Silver Banksian Medal.)

Mr. CHARLES TURNER, Slough, included large and fragrant blooms of Carnation Princess of

Wales in his collection. (Silver-gilt Banksian Medal.)

Messrs. LAXTON BROS., Bedford, exhibited their new salmon-pink variety, Bedford Belle.

BEGONIAS.

Messrs. BLACKMORE AND LANGDON, Bath, exhibited tuberous-rooted Begonias of superb quality. Place of honour was given to the large soft salmon-pink variety Chrystabel Spry, this being in a small group by itself, with a centre-piece of the White Venus variety in a basket on a stand. The plants of Lady Cromer, pink and white; Royal George, orange-red; Mrs. Robert Morton, yellow; W. H. Fry, salmon-cerise and of Camellia shape; Lady Tweedmouth, of the waved petalled type; and Mrs. J. Bruntton, white, were all in the best condition. (Silver-gilt Flora Medal.)

Messrs. T. S. WARE, LTD., Feltham, arranged a group of well-grown double-flowered tuberous Begonias, being large flowers of refined colours, and also showed good clumps of Alpines of such genera as Thymus, Campanula and Lychnis. (Silver Flora Medal.)

Messrs. JOHN PRED AND SON, West Norwood, showed a good collection of double-flowered tuberous Begonias. (Silver Flora Medal.)

SWEET PEAS.

Messrs. E. W. KING AND CO., Coggeshall, showed Sweet Peas as a kind of bower; seven columns linked overhead to a central group, with trails of Asparagus plumosus. The style was pretty, and made a good, self-contained exhibit. The chief varieties were Anglican Orange, Anglican White, Hercules, Anglican Crimson, Rowena, Margaret Atlee, Anglican Fairy, and Jean Ireland. (Silver-gilt Flora Medal.)

Messrs. ALEX. DICKSON AND SONS set up a gorgeous collection on the tabling adjoining their Roses. The new John Porter, Nora Unwin and Melody were given especial prominence. Other charming varieties equally well shown were Phyllis, Royal Purple, Blue Picotee, Hawmark Cream, Melba, and May Unwin. (Silver-gilt Flora Medal.)

An especially bright display was made by Messrs. S. BIDE AND SONS, Farnham. Fiery Cross, President, Golden Glory, and Edward Cowdy, of scarlet and orange colourings, Constance Hinton, pure white, and Queen of Norway, deep mauve, are a representative selection of the good sorts so well shown. (Silver-gilt Flora Medal.)

Messrs. R. SYDENHAM, LTD., Birmingham, included Constance Acomb, Lady Fisher, Maud Holmes, and Norvic in a collection of standard varieties. (Silver Banksian Medal.)

Messrs. J. PIPER AND SONS had a large collection, of which Agricola, Countess Spencer, Doris Usher, Elsie Herbert, Hercules, Illuminator, King White, and Malta deserve special mention. (Silver-gilt Banksian Medal.)

STOVE AND GREENHOUSE PLANTS.

The largest collection of stove and greenhouse plants was contributed by Mr. L. R. RUSSELL, Richmond, who had excellent specimen plants of Dracaena Victoria, Cycas revoluta and Medinilla magnifica. Well-flowered plants of Gloriosa Rothschildiana and fascinating little berried plants of Nertera adpressa were also well shown. (Silver-gilt Flora Medal.)

Messrs. J. PRED AND SON, West Norwood, arranged a large bank of Caladiums with plants of their choice strain of Streptocarpus as an edging. Of the Caladiums the specimens of King George, Duchess of Teck, Robert de Neuville, May Archer, Silver Queen, Triomphe de Compté, Mrs. H. Veitch, and Alexandra III. were large and exceptionally brilliant in colour. (Silver Flora Medal.) They also showed a fine group of Streptocarpus. (Silver-gilt Banksian Medal.)

Gloxinias and Streptocarpuses of excellent strains were shown by Messrs. R. AND G. CUTBERT, Southgate. Streptocarpus Rose Queen is an immense advance on the already splendid varieties, and attracted much merited admiration. Gloxinia Distinction, a very large, erect flower of lilac-maroon shading, was also noteworthy amongst the varieties of this genus. (Silver-gilt Banksian Medal.)

Messrs. W. CUTBUSH AND SON, Highgate, showed Hydrangeas, Fuchsias, Polyantha Roses,

and a big batch of their new Ivy-leaved Pelargonium Radiance. The group was staged for effect, standard Hydrangeas and specimen plants of Dracaena Victoria being employed as foils to groups of Roses, Pelargoniums, and Fuchsias. (Silver Banksian Medal.)

Messrs. J. PIPER AND SONS showed such cactaceous plants as Echinocactus and Echinocereus in variety.

Mr. VINCENT SLADE, Taunton, displayed as cut flowers a good variety of double and single Zonal Pelargoniums.

Messrs. JARMAN AND CO., Chard, showed Roses with Zonal Pelargoniums. (Silver Banksian Medal.)

FERNS.

Mr. AMOS PERRY, Enfield, arranged with his customary skill a large collection of hardy Ferns. These had a cool and restful effect in the tent, and also showed that almost as great variation is available in the hardy kinds as in the stove and greenhouse species. Many varieties of Athyrium, Polystichum, Lastrea and Osmunda were represented by splendid plants, but the most effective were handsome specimens of Athyrium Filix-foemina todeoides and A. F. f. cristatum purpureum. (Gold Medal.)

Messrs. H. B. MAY AND SONS, Edmonton, showed a bank of Ferns of exotic and native species, the latter in crested, plumose, and other varietal forms, which appear quite unlike the type. For example, Athyrium Filix-foemina gemination has dense, congested ends to the fronds that look like Parsley, whereas the type leaf resembles a graceful plume. So, too, the ruffled fronds of Scolopendrium vulgare diversifrons and the lace-like fronds of Polystichum aculeatum gracillimum marked a great advance. Amongst the greenhouse kinds there was marvellous colouring, especially in Pteris tricolor, Adiantum Veitchii, Gymnogramma (silver and gold), and the glaucous tints of the Polypodiums and Selaginellas. (Silver-gilt Flora Medal.)

HARDY.

From the Holland House Gardens of Mary Countess of Ilchester, Mr. J. DIXON arranged a most interesting collection of the Sempervivums and Saxifrages for which the gardens are noted. (Silver-gilt Banksian Medal.)

Mr. AMOS PERRY, Enfield, exhibited a magnificent collection of hardy border flowers, aquatics and hardy Ferns. The flowers were boldly arranged in masses, and made a great effect. The central golden Isatis glauca well illustrated the value of this plant when liberally treated both as to quantity and culture. Delphiniums of first-rate quality were shown profusely. Lilies were also a great feature of the exhibit, and these included L. tenuifolium, L. Hansonii, L. Marhan and L. cernuum, which first flowered in this country out-of-doors at Enfield last year. Many border and Alpine Pinks arranged in the foreground were also a great attraction. The Water-Lily pool contained a valuable selection of the best Nymphaeas, and was surrounded by appropriate plants. (Coronation Cup and Gold Medal.)

Messrs. R. WALLACE AND CO., Colchester, showed the best water garden, but it was not on such pretentious lines as their exhibits of some former years. It was natural arrangement, in which Iris monanrea, Rodgersia, Epilobium angustifolium, Liliun pardalinum, seedling Primulas raised from P. Bulleyana and P. Beesiana, Japanese Irises, and Ferns all played a part, with groups of beautiful Water Lilies in the pool, the collection including Nymphaea Hudsonii, N. Lord Brook, both blue varieties, and N. Listeri, pink. A group of Eremurus seedlings contained many of great merit, Salmon Queen, pink hybrids of E. Olga, and a seedling under No. 8 being especially fine. This firm also showed a great bank of border flowers, principally Delphiniums. (Gold Medal.)

Messrs. J. PIPER AND SONS made good use of a corner space in the large marquee to show how effective plants appear in association with stones and water. At one end tiers of old weather-beaten sandstone were overhung with Saxifrages, Rock Roses, Convolvulus Cneorum and Dianthus; whilst Primula Beesiana appeared to sweep down a ravine, terminating in a fine clump of the rare Gentiana Przewalskii. The water pool was overhung with Irises, Astilbes, and a very realistic bit of planting in a drooping Escallonia

langleyensis shadowing one of the bluffs. (Gold Medal.)

Messrs. T. S. WARE, LTD., Feltham, showed a group of miscellaneous border flowers, which included fine spikes of Delphiniums in such beautiful varieties as Arthur Streeton, The Alake, Lavanda, Rev. E. Lascelles, and Perry's Favourite. Verbascum Lady Havelock Allen and Lady Allinson were also of much merit.

Messrs. WATERER, SONS, AND CRISP, LTD., Twyford, arranged a half circular bank of border flowers with a separated bed in the foreground, permitting a path through the group. Many choice varieties of Delphiniums, Scarlet Tritomas, the blush Lupinus Nelly, Verbascum, and tall Campanulas, grading to such dwarfier plants as Erigeron speciosus, Salvia, and Anthemis Triumfettii, led to the front bed, which was planted with Campanula G. F. Wilson, C. Miss Willmott, Mazus Pumilio, Dianthus viscidoides, and other low growers. (Silver Flora Medal.)

Mr. J. MACDONALD, Harpenden, made an attractive display at one end of the large tent with many hardy ornamental grasses, some of which were in flower, and lawns two years or so from the seed. The excellent samples of grass was laid out in the form of a miniature tennis lawn. He had also a stronger grass recommended for polo greens. (Silver Flora Medal.)

Messrs. BLACKMORE AND LANGDON, Bath, enclosed their fine exhibit of tuberous-rooted Begonias in a setting of Delphiniums, which were amongst the best in the show. Some of the spikes were over 2 feet long, the varieties including several new ones. (Silver Flora Medal.)

Messrs. JOHN FORBES, LTD., Hawick, also showed a good collection of hardy flowers. (Silver Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, amongst his group of border flowers showed Oenothera fruticosa major and Campanula mirabilis of especially good cultivation. (Silver Flora Medal.)

Messrs. B. LADHAMS, LTD., Southport, had a valuable collection of border Pinks, Delphiniums, Gaillardias, and other border flowers. (Silver Flora Medal.)

Messrs. G. JACKMAN AND SONS, Woking, had also a good collection of hardy flowers. (Silver Flora Medal.)

Messrs. G. BUNYARD, LTD., Maidstone, had an imposing group of their new pale blue Delphinium Queen Mary over a ground of dwarf Liliun longiflorum, as a centre-piece to a collection of hardy flowers. All the plants were shown well, the principal subjects being Irises, Eremurus Bungei, E. Shelford, Calochortus venustus, E. vestitus, Erigeron grandiflorus, Verbascum, the double-flowered Heperis matronalis, and Gladioli The Bride. (Silver-gilt Banksian Medal.)

Mr. G. W. MILLER, Wisbech, showed a large half-circular group of a great variety of subjects, of which the most remarkable was Liliun giganteum, there being more than sixty spikes of this noble Lily. (Silver-gilt Banksian Medal.)

A small rockery, surrounded by masses of border flowers, was arranged by Messrs. J. CHEAL AND SONS, Crawley. (Silver-gilt Banksian Medal.)

Eremurus of uncommon merit, splendid Delphinium Rev. E. Lascelles, many new Primulas, notably Beesiana and Baileyana rosea, and floriferous branches of Fremontia californica were included in a superb collection from Mr. J. C. ALLGROVE, Langley. (Silver-gilt Banksian Medal.)

Messrs. HARKNESS AND SON, Bedale, showed a mass of the large-flowered Gaillardia Mrs. MacKellar in a general collection of border flowers, for which a Silver-gilt Banksian Medal was awarded.

Mr. FRANK LILLEY, Guernsey, brought over such uncommon bulbous species as Sparax pulcherrima purpurea, Brodiaea laxa, Alstroemeria chilensis, and some early-flowering Gladioli. (Silver Banksian Medal.)

Mr. G. G. WHITELEGG, Chislehurst, associated an arch of fruiting sprays of the Newberry with border and rockery plants. Veronica chamaedryoides and Campanula pusilla Miss Willmott of the latter were especially attractive. (Silver Banksian Medal.)

Messrs. A. D. THOMPSON, Bushey, Herts, staged an interesting collection of herbaceous and rock garden plants. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, arranged such hardy

species as Magnolia fuscata, Oethopappus pulcherrimus, Ononis fruticosa, Campanula fenestrelata and Lithospermum Froebelii on a staging. (Gold Medal.)

Messrs. H. CANNELL AND SONS, Eynsford, Kent, arranged next to their delightful Roses a selection of the best border flowers. Delphiniums, especially the new Mrs. Robert Cobb, double Paeonies, Gaillardias and Canterbury Bells were very well grown. Of the smaller, but equally valuable, kinds, Astrantia major, Betonica grandiflora, and an especially floriferous Campanula garganica.

Messrs. W. CURBUSH AND SON, Highgate, arranged a water-pool planted with Water Lilies and surrounded by Primula Beesiana, Campanula G. F. Wilson, Viola gracilis, and at the back clumps of Paeonies, Anchusa, Erigeron and Lilies.

Mr. REGINALD PRICHARD, Wimborne, showed a table of Alpines, in pots. Campanula abietina purpurea has purplish-violet flowers. It is more graceful and much finer generally than the Vitosch variety. Silene Prichard's hybrids were very pretty.

Messrs. BAKERS, Wolverhampton, contributed a large group, in which Delphiniums were especially prominent; masses of the Pink Erigeron B. Ladhams were shown finely, and there was a pleasing pool in front planted with Nymphaeas. (Silver-gilt Flora Medal.)

Messrs. W. AND J. BROWN, Peterborough, exhibited a large mass of Liliun Szovitzianum in a collection of general border flowers.

Delphiniums, Paeonies and Irises of especial merit were the predominant features of the exhibit by Messrs. R. H. BATH, LTD., Wisbech. Of the former, Ceres, Juliette, Mrs. K. F. Carron, and Rev. E. Lascelles were splendid, while there were several seedling Paeonies of great promise. (Bronze Flora Medal.)

Messrs. KELWAY AND CO., Langport, Somerset, displayed many handsome spikes of Delphinium varieties arranged on a floor space where their merits could be easily seen. All the spikes were stout and long and well furnished with large flowers. (Silver Banksian Medal.)

Fragrant herbaceous Phloxes of great garden value were shown by Mr. H. J. JONES, Lewisham.

Messrs. BARR AND SONS, Covent Garden, arranged a very comprehensive collection of border flowers. Besides many splendid Delphiniums, of which The Olake, Capri, Nelly, and Lizzie van Veen are examples; there were many varieties of English Iris, early-flowering Gladioli, and Allium giganteum. (Silver Banksian Medal.)

Mr. JAMES BOX, Haywards Heath, had a boldly arranged group of border flowers. (Silver Flora Medal.)

Messrs. J. GODFREY AND SONS, Exmouth, Devon, contributed especially good Canterbury Bells and plants of fancy and scented Pelargoniums, with a batch of Solanum Wendlandii. (Silver Banksian Medal.)

Messrs. PULHAM AND SONS, Newman Street, London, included Armeria cephalotes rubra, Calamintha grandiflora, and many Cheddar Pinks in an attractive group of border flowers.

Mr. CLARENCE ELLIOTT, Stevenage, had a small, but well-designed, rock garden. (Silver-gilt Banksian Medal.)

Messrs. G. AND A. CLARK, Dover, showed border flowers.

Messrs. G. STARK AND SON, Great Ryburgh, showed an interesting strain of semi-double Shirley Poppies. (Bronze Flora Medal.)

TREES AND SHRUBS.

Mr. L. R. RUSSELL, Richmond, showed, in the open, a large number of ornamental trees and shrubs. Ivies, Maples, the silver variegated form of Aralia mandchurica; Escallonia of sorts, Sollya heterophylla in flower and fruit, Vitis species, Clematis in bloom, and many other plants were included in this large collection. (Silver-gilt Flora Medal.)

Messrs. J. PIPER AND SONS, Bayswater, contributed a large group of trees and shrubs, the exhibit making a suitable end group to the large tent. Species with brightly coloured and ornamental leafage, interspersed with plants in flower, against a background of graceful Bamboos, were all effectively grouped. The use of numerous tall columnar plants served as foils, and

amongst these were several new Chinese species—Rubus Giraldiana, Poliothyrsis sinensis, Rubus Veitchii, Viburnum Henryi, V. rhytidophyllum, and others. (Silver Flora Medal.)

Messrs. JOHN WATERER, SONS, AND CRISP, LTD., Bagshot, showed a bank of Kalmia latifolia in association with Japanese Maples, and edged with the silver-leaved variety of Eurya latifolia. (Silver-gilt Banksian Medal.)

Messrs. J. CHEAL AND SONS, Crawley, showed many Escallonias, including E. langleyensis, Philippiana and Edinburgh; Philadelphuses, of which the best was the double Bouquet Blanc; Veronicas of sorts; the fine red Dutch Honey-suckle; and pretty foliated Maples of the Japanese section. (Silver-gilt Banksian Medal.)

The DONARD NURSERY Co., Co. Down, had a most interesting exhibit of rare and choice shrubs in the open. The newer Leptospermums were shown finely in flower, including Nichollsii, the bigger-flowered but paler Chapmanii, and a new variety, Donard Beauty, which received an Award of Merit. Olearias were represented by O. nitida nana, O. chathamica, O. semi-dentata, and O. ilicifolia. Novelties included an upright form of Berberis Wilsonae, Rosa Moyesii, Elegans macrophylla ferruginea, with green leaves like a Magnolia, not at all like the smaller grey leaves of the type; Escallonia Donard, a seedling, which gained an Award of Merit; Spiraea Henryi, a most floriferous white-flowered species. (Silver-gilt Banksian Medal.)

Dwarfed Japanese trees of fascinating form and in miniature gardens, complete with pools and bridges, were shown by Messrs. BARR AND SONS, Covent Garden, London, and the YOKOHAMA NURSERY COMPANY, Kingsway, London. (Silver Banksian Medal.)

FRUIT.

Messrs. RICHMOND AND SONS, LTD., Feltham, exhibited excellent pot fruit trees of all kinds. The plants were splendidly trained, good in shape, and carried large crops still to ripen. Perfect espalier trees of Peach Duke of York and Nectarine Early Rivers, however, bore plentiful crops of luscious fruits ready for the dessert table, and equally good were the standard fan trees of Peach Peregrine and Early Rivers Nectarine. Bush trained Plums, Apples, Peaches, Nectarines and Figs were all laden with fruits, whilst standard Gooseberries and Currants added further variety. (Gold Medal.)

Messrs. GEORGE BUNYARD, LTD., Maidstone, contributed excellent pot Cherries in full bearing. Such sorts as Napoleon Bigarreau, Noir de Guben, and Black Heart illustrated excellent cultivation. Dishes of large, ripe fruits of Early Rivers and Amber Heart from orchard trees were also included in this splendid exhibit. (Silver-gilt Knightian Medal.)

Messrs. LAXTON BROS., Bedford, showed their novelties in Strawberries and a large fruited Red Currant named Perfection. (Silver Knightian Medal.)

Messrs. STUART LOW AND CO., Enfield, showed pot trees of Figs, Nectarines, Peaches and Vines, all well fruited.

VEGETABLES.

The Market Gardeners, Nurserymen, and Farmers' Association, Covent Garden, London, made a seasonable display of produce, packed or bunched as for market. The chief exhibitors were Mr. A. W. SMITH, Feltham; Messrs. T. MANN AND SONS, Twickenham; Messrs. J. LOBJOIT AND SON, Hounslow; and Messrs. T. PETHER, LTD., Hanworth. It need scarcely be said that the exhibits were all of high quality; they included Black Grapes, Cherries, Gooseberries, Mushrooms, Globe Artichokes, Broccoli, Carrots, and Potatoes. (Highly commended.)

GARDEN SUNDRIES.

Selections of the various aids—both mechanical and technical—to successful gardening were arranged in one of the large tents and also out-of-doors. From the spectacular point of view the most noteworthy were the large collection of beautiful wrought-iron gates and stone and leaden vases from Messrs. T. CROWTHER AND SON, Fulham (Silver-gilt Banksian Medal), and the old-world stone garden ornaments arranged as a formal garden by Mr. H. JONES, Bath (Silver Flora Medal).

Garden seats of good workmanship were shown by CASTLE SHIPBREAKING COMPANY, Millbank, London (Silver Banksian Medal); Messrs. HUGHES, BOLCOW, AND Co., Blyth (Silver Banksian Medal); and Messrs. MAOS AND Co., Bristol, who included garden tents (Silver Banksian Medal).

Messrs. H. C. PHILCOX, LTD., Brixton, exhibited various ladders and steps (Silver Banksian Medal).

The FOUR OAKS SPRAYING Co., Sutton Coldfield, showed many spraying machines, pumps, and sprinklers (Silver Banksian Medal); and Mr. J. SINGLETON, Preston, illustrated the merits of his "Nuespray" (Bronze Banksian Medal).

Horse boots and weeding tools were exhibited by Messrs. H. PATTISSON, Streatham (Bronze Banksian Medal); and the GARDEN CITY TRUG Co. staged useful garden baskets (Bronze Banksian Medal).

Various fumigating compounds, garden hose, and tying materials were set up by Mr. PERCY BUNYARD (Bronze Banksian Medal). The MOLASSINE Co., LTD., Greenwich, had a tent with samples of their well-known Rito, and flourishing Fuchsias, Hydrangeas, and other plants grown by its aid.

A variety of useful spray fluids, particularly the non-arsenic preparations, were arranged by Messrs. JEYES, LTD., Cannon Street, London.

Messrs. PRICE AND Co., Battersea, had a valuable selection of their soft soap and paraffin preparation ready for immediate use, and also showed their Manulav toilet soap.

Spray fluids and useful spraying pumps were displayed by Messrs. COOPER AND NEPHEWS, Berkhamsted; while Messrs. E. A. WHITE, LTD., Paddock Wood, Kent, staged the well-known Abol disinfectant and syringe.

There also was the customary exhibits of garden and flower paintings, which received medal awards.

Scientific Committee.

JUNE 20.—*Present*: Mr. E. A. Bowles, M.A. (in the chair), Messrs. W. Fawcett, W. Hales, W. C. Worsdell, H. J. Elwes, W. E. Ledger, R. H. Pearson, J. Ramsbottom, A. S. Horne, J. Fraser, W. Cuthbertson, J. Baker, Sir Everard im Thurn, and F. J. Chittenden (hon. sec.).

White-flowered Securiidaca Lamarckii.—Mr. Fawcett exhibited a specimen of a white-flowered form of the Polygonaceous *Securiidaca Lamarckii* found growing in St. Vincent, W. Indies—the first recorded occurrence of the albino form of this species.

Tulip with elongated axis.—Mr. R. Hooper Pearson showed a bulb of a garden Tulip from which a stem about 3 inches in length had developed bearing a bulb at its apex.

Fusarium on Potato.—Dr. Horne showed old Potato tubers which had been attacked by winter rot, now bearing deep red pustules similar to those attributed to *Nectria Solani*. No *nectria* spores had, however, been produced.

Various Plants.—Mr. H. J. Elwes showed a series of plants from his garden, including *Myosotis micrantha*, a purplish-flowered species from New Zealand with a curious but not unpleasing scent; *Arisaema concinnum*, from Sikkim, which has proved quite hardy at Colesborne when planted deep in shady places; *A. utile* from the upper valleys of Sikkim, where the tubers are eaten in times of famine—a plant with curious transparent stripes on the spathe; a variety of *Paeonia officinalis* from Asia Minor, single, and flowering late, and received by Mr. Elwes from Messrs. Barr under the name "Smyrna," but for which he proposes the name *Whittallii*; a form of *Tropaeolum polyphyllum* similar in habit to that known as *T. Leichlinii* raised from seed collected by him at an elevation of 9,000 feet near the mouth of the Transandean Tunnel at Puente del Inca; *Iris Clarkei*, from the Tonglo swamp, Sikkim, at an elevation of 10,000 feet, bearing much finer flowers than those figured in Mr. Dyke's monograph—it grows on the dry, hot rockery at Colesborne, but does not thrive in wet, peaty soil, like that of its native home; the Siberian form of *Cypripedium macranthum*; *Angioanthus* sp.; *Bomarea* sp. raised from seed collected at Rio Janeiro, Brazil, and grown planted out in a warm-house border; *Urceocharis*

× *Clibrani*; *Eremurus* seedlings raised at Colesborne by crossing the broad-leaved early-flowering robustus-himalaius forms with the narrow-leaved Bungei-Olgae group; and giving a race intermediate in flowering between the two.

Castilleja sp.—Mr. Elwes also showed a shoot of a *Castilleja* from the rock garden at Colesborne, possibly the same species as that exhibited by Mrs. Longstaff (see fig. 4) last year, and grown also by Mr. Beamish near Cork. This plant was one of several sent home by Mr. F. R. S. Balfour in August, 1915. Mr. Balfour says concerning it: "Others of the same lot and of the same species are in bloom at my place, Darysk, in Tweeddale. I am uncertain whether it is *C. purpurascens* Greenm. or *C. miniata* Dougl. I am inclined to think the latter, as it grows above timber line and is cardinal scarlet, whereas the former is more usual at lower altitudes and of usually a

"They are all, I think, undoubtedly parasitic to some extent, but not saprophytic. The genus is not represented in Europe. For mass of colour I never saw anything to equal them, except, perhaps, a British Poppy field."

New Notholirion.—Mr. Allgrove sent a plant collected by Purdom in China and evidently nearly related to *Notholirion Hookeri*, differing, however, in being much more robust, reaching 2 feet 6 inches in height, in having much more curved stamens, and in having the spreading tips of the perianth green. It is an interesting plant, sharing with *N. roseum* (= *macrophyllum*) and *N. Hookeri* a position intermediate between *Fritillaria* and *Lilium*. *N. roseum* has been and often is still assigned to *Lilium* as *L. Thomsonianum*.

Purple-tubed Primula sikkimensis.—Mr. E. A. Bowles showed flowers of *Primula sikkimensis* with a purple tube to the corolla, another with



(Photograph by C. W. Cole.)

FIG. 8.—ROSE NELLIE PARKER.

(Awarded National Rose Society's Gold Medal on the 30th ult. See p. 23.)

purplish hue. The plants I sent home were lifted at about 8,000 feet near Lake Agnes in the Canadian Rockies, and formed sheets of scarlet near snow level in the mountain meadows, where it is at its best in late July and August. It is occasionally pinkish or rarely whitish in colour. There is, however, a white species, *C. pallida*, which occurs in similar situations with more hairy bracts.

"On Mount Rainier (Washington) in September I saw *Castilleja* in masses above timber line mixed with *Pulsatilla occidentalis* and *Aster pulchellus*, *Gentiana calycosa*, *Polygonum bistorta*, *Veratrum viride*, *Dodecatheon Jeffreyi*—altitude about 9,000 feet—the flowers of a distinctly purplish crimson, not at all the scarlet shade of what seemed otherwise the same species as I found in the Canadian Rockies. *C. septentrionalis* must, I think, be a synonym of *C. purpurascens*, though of this I am not sure. I notice Mrs. Henshaw says they are of every colour from coral pink to cardinal and from canary tint to tangerine.

very widely spreading petals, and another with very pale flowers, all from Mr. Farrer's garden at Clapham, Yorks.

NATIONAL ROSE.

JUNE 30.—The great event of the Rose world for the year—the Metropolitan show of the National Rose Society—was held on Friday, the 30th ult., in the Botanic Gardens, Regent's Park. The day was fine, but not warm and sunny, and doubtless the dull weather was partly responsible for a falling off in the number of visitors. Queen Alexandra, however, paid her usual visit in the morning, together with the Grand Duchess George of Russia. Following the arrangement of last year, most of the exhibits were staged in one large marquee, only the seedling Roses and the decorative classes being accommodated in special tents. With regard to the quality of the exhibits, a notable falling off was remarked, as

was only to be expected in such an unfavourable season. Indeed, we believe that not for many years has the standard reached been so low. The spell of tropical sunshine in May caused the plants to burst into vigorous growth, but while this was still tender conditions changed, and all through June cold showers and winds had effects altogether unfavourable to kindly growth. Moreover, the blooms that developed became weather-beaten, with ragged outer petals, and failed to display their best form. The poor quality was most to be remarked in the flowers shown on boards. The reason for this is obvious; the show board, which some condemn on every count, permits of the immediate appreciation of the qualities of the bloom, whether good or bad, and the want of form and small size of most of the blooms was here strikingly apparent. In the decorative classes, on the contrary, these defects were far less noticeable; in the case of flowers shown in vases, several together, and surrounded with foliage and ruby-tipped shoots, imperfection of form is more easily overlooked.

There was one exhibit in the classes for cut blooms which calls for especial praise, namely, the collection shown by Messrs. HUGH DICKSON, LTD., Belfast, in the class for 48 blooms distinct. One of the flowers, a specimen of Frau Karl Druschki, was awarded the Silver Medal for the finest bloom of its class in the show.

The number of seedling varieties shown for certificate was about on the average of preceding years. Two were awarded the Society's Gold Medal, and four new flowers received Certificates of Merit.

The proceeds of the show this year will be devoted to the funds of the Red Cross Society and the Order of St. John.

GOLD MEDAL ROSES.

Nelly Parker (see fig. 8).—A Hybrid Tea variety after the style of Antoine Rivière. The petals in the buds are pale gold colour, tipped with delicate salmon-pink. Most of the colour fades with age, but a little of the salmon tinting remains in the centre, and the gold at their bases throws a sheen on the flower. In all stages, from bud to full blown, the bloom is beautiful and of charming form. The young growth is red, and the foliage is pleasing. Shown by Messrs. HUGH DICKSON, LTD.

C. E. Shea.—This fine salmon-pink variety received the R.H.S. Award of Merit on May 16, 1916 (see p. 274, Vol. LIX.). Shown by Mr. ELISHA HICKS.

CERTIFICATES OF MERIT.

Lord Kitchener.—A Hybrid Tea variety of carmine colour. The bloom is of fine shape and fragrant. The stout growth and healthy foliage point to a vigorous constitution.

Mrs. A. W. Atkinson.—A big, full-petalled H.T. variety, with high, finely-shaped centre and petals of cream colour. Both these varieties shown by Messrs. CHAPLIN BROS.

Archie Gray.—A Hybrid Tea variety of deep rose colour, with a purple sheen on the older petals. The bloom is long in the centre and has good form. Shown by Messrs. HUGH DICKSON, LTD.

Emily Gray.—A Wichuraiana variety with Tea foliage and growth. The small blooms are of a typical Noisette shape and size, and of the colour of *Le Progrès*—golden yellow. The foliage is bronzy and shining, the young growth being red-tinted. Shown by Dr. WILLIAMS.

NURSERYMEN'S CLASSES.

CUT BLOOMS SHOWN ON BOARDS.

The Champion class for 72 blooms distinct attracted five exhibitors. Messrs. ALEX. DICKSON AND SONS, Newtownards, won the Champion Trophy and Gold Medal for a collection of average quality. Although some of the flowers were of the largest exhibition size, most of them were smaller than in average seasons, but the colours were good. The varieties included two new ones—Sir Edward Carson, a shade of scarlet, and Lady Inchiquin, with blush petals. Other varieties worthy of mention were Mme. Maurice de Luze, Avoca, Mildred Grant, Mrs. J. H. Welch, Mrs. G. Sawyer, Red Cross, Lyon Rose, Mrs. T. Roosevelt, A. Hartmann, Jonkheer J. L. Mock, H. V. Machin, Lady Greenall, Wm. Shean, Mrs. Maud

Dawson, Dean Hole and Countess of Derby. The 2nd prize was awarded to Messrs. D. PRIOR AND SON, Colchester, whose variety Mildred Grant gained the Silver Medal offered for the best Hybrid Tea variety in the nurserymen's classes. The collection also included good blooms of Mrs. Geo. Norwood, Oberhofgärtner Terks, Mme. J. Gravereaux, Mme. Mélanie Soupert, Duchess of Westminster, Rayon d'Or and Mrs. Jules Kennedy. The 3rd prize was awarded to Messrs. R. HARKNESS AND CO., Hitchin.

MESSRS. ALEX. DICKSON AND SONS were also successful in the class for 40 varieties shown in triplets. Their exhibit included fine average blooms of such varieties as Wm. Shean, H. V. Machin, Bessie Brown, Geo. C. Waud (fine bright colour), Red Cross, Mrs. Geo. Sawyer, Mme. Mélanie Soupert, Molly Sherman-Crawford, Mrs. Maud Dawson and Lady Ashtown (fine of form).

MESSRS. D. PRIOR AND SONS were again 2nd, with blooms of Mildred Grant, Mrs. Geo. Norwood, Wm. Shean, Freda, Mrs. Dudley Cross, J. B. Clark, Medea, and other varieties; and Messrs. R. HARKNESS AND CO., Hitchin, 3rd.

In the class for 48 blooms distinct, Messrs. HUGH DICKSON, LTD., showed the fine exhibit already referred to, which gained for them the Chama Challenge Trophy. The chief varieties were William Shean, Lyon Rose, Mrs. Theodore Roosevelt, Jonkheer J. L. Mock, Mrs. C. Russell, Archie Gray, Gorgeous, Mrs. Hugh Dickson, Mrs. R. D. McClure, Mildred Grant, J. B. Clark, G. Dickson and Hugh Dickson. Mr. ELISHA J. HICKS, Twyford, Berkshire, was placed 2nd, and Messrs. J. BURRELL AND CO., Cambridge, 3rd. Mr. HICKS' chief varieties were Mrs. George Norwood, Killarney Brilliant, Mme. Jules Gravereaux, Hugh Dickson (of remarkable colour), Mrs. John Laing, and the fine scarlet variety, H. V. Machin.

In Class 4, for 24 varieties shown in triplets, Messrs. G. AND W. H. BUNCH, Peterborough, had the better of two somewhat mediocre exhibits, the varieties shown including Lieut. Chauré, William Shean, Mrs. Geo. Sawyer, Edward Mawley, Augustus Hartmann, and Mrs. Foley Hobbs. Messrs. J. BURRELL AND CO. were placed 2nd. Messrs. JARMAN AND CO., Chard, gained the 1st prize in Class 5, for 24 blooms, distinct. Their exhibit was comprised of very good blooms of Hugh Dickson, Edward Mawley, St. Helena, Augustus Hartmann, Medea, Gloire de Chédane Guinoisseau, Bessie Brown, and Mme. J. Dupuy. Messrs. CHAPLIN BROS., LTD., Waltham Cross, were awarded the 2nd prize, their exhibits including the varieties, Mrs. Chaplin (a new cream-coloured Rose of their own raising), Lady Barham, H. V. Machin, Mrs. Foley Hobbs, and Wilham Shean. The 3rd prize was awarded to Mr. HARRY RICHARDS, Warsash.

The D'Ombraian Challenge Cup was competed for in Class 7, for 24 blooms of Tea and Noisette varieties. The trophy and the 1st prize of £2 were awarded to Mr. HENRY DREW, Longworth, for a very creditable exhibit containing one or two particularly fine blooms. His varieties included Mrs. Edward Mawley (which gained the Silver Medal for the best Tea or Noisette variety), Lady Plymouth, Molly Sherman-Crawford, White Maman Cochet, Mrs. Dudley Cross and Anguste Comte. Messrs. D. PRIOR AND SON were placed 2nd, and Messrs. FRANK CANT AND CO., Colchester, 3rd.

Class 8, for 12 Tea or Noisettes, was not keenly contested, the exhibits being small and of poor quality. Mr. J. MATTOCK, Oxford, gained the 1st prize, his collection including Mrs. Foley Hobbs, Medea, and Molly Sherman-Crawford. Messrs. J. BURRELL AND CO. were placed 2nd, and Mr. H. WELLER, Ashted, 3rd.

For three blooms each of 16 varieties Messrs. D. PRIOR AND SONS gained the 1st prize. Their blooms were mainly of pale-coloured varieties; the best were Medea, Mrs. R. Smith and Nita Weldon. Mr. HENRY DREW was awarded the 2nd prize, his exhibit including Alexander Hill Gray, a fine soft yellow Rose.

BLOOMS SHOWN IN VASES.

For 12 exhibition blooms in vases, and for 9 varieties of Teas and Noisettes respectively

the only meritorious exhibits were those of Messrs. D. PRIOR AND SON, who were awarded the 1st prize in both classes. They showed creditable blooms of Lady Ashtown, Mrs. W. J. Grant, Richmond, Caroline Testout, Mrs. Andrew Carnegie, Mrs. Dudley Cross and Mme. Jules Gravereaux. No 2nd prize was awarded in the class for 12 exhibition blooms, but in the Tea and Noisette class Mr. HENRY DREW was placed 2nd.

There were several pleasing exhibits in Class 12, for 9 baskets of cut Roses, in each basket a different variety. Messrs. HUGH DICKSON, LTD., obtained the 1st prize, their exhibit including beautiful baskets of Mrs. David McKee, Ulster Standard, Mrs. Geo. Sawyer, Mrs. John Lynes, and Jonkheer J. L. Mock. Ulster Standard is a new Rose of their own raising, somewhat after the style of Red Letter Day. Messrs. A. DICKSON AND SONS were placed 2nd; they showed fine specimens of the red variety General McArthur, Lady Hillingdon, Red Letter Day, a semi-single variety, Lady Pirrie, and other good sorts. Messrs. CHAPLIN BROS., LTD., were awarded the prize. The flowers shown in this class remained beautifully fresh throughout the day. The quality was generally good, though the size was smaller than the average.

Class 13 was for 5 baskets of Roses in 5 varieties. Mr. ELISHA HICKS was placed 1st for a creditable exhibit, including good baskets of Princess Mary, Lady Hillingdon, Mrs. E. Powell, and Joanna Bridge (this latter is a new Rose, semi-single, cream colour, with a pink flush). Mr. G. PRINCE, Oxford, was placed 2nd.

In Class 14, for 18 distinct varieties, not more than 7 stems of each, in separate vases, the large size of some of the vases detracted from the general appearance. Messrs. CHAPLIN BROS., LTD., won the 1st prize; their exhibit was well arranged, and the effect was much enhanced by a plentiful use of buds and foliage, which served to hide the huge vases.

Class 15 called for half the above number of varieties, the same conditions being imposed. Mr. GPO. LILLEY, Yiewsley, Middlesex, was successful in obtaining the 1st prize. Mr. ELISHA HICKS was placed 2nd, but the brightest and freshest collection late in the day was that of Mr. WILL TAYLER, Hampton.

DECORATIVE ROSES.

The "A. C. Turner" Cup was offered in Class 16 for 36 distinct varieties of decorative Roses. Mr. JOHN MATTOCK was successful in winning this award, and the 1st prize of £3. His blooms were particularly fine, and remained fresh all day; the colours were especially good, and the black velvet background against which they were arranged threw them into bold relief. His best varieties were Rayon d'Or, Lady Waterlow, Iona Herdman (a variety somewhat resembling Rayon d'Or, but darker), Mrs. H. Stevens, Rosa mundi, Lady Hillingdon, Mrs. S. Weher, and Simplicity, a charming white single variety. The exhibit of Messrs. FRANK CANT AND CO., which was placed 2nd in order of merit, was also a fine display of representative varieties.

In Class 17, for 12 varieties, Mr. FRANK SPOONER was awarded the 1st prize. In Class 18, for 12 varieties of any summer-flowering Roses, Mr. ELISHA HICKS was successful in winning the 1st prize for a good collection of cluster and Rambler varieties. The same competitor also gained the 1st prize in Class 20, for 12 varieties of dwarf Polyantha Roses, showing dwarf Ellen Poulsen and Léonie Lamesch with good effect. Messrs. FRANK CANT AND CO. were placed 2nd.

GROUPS.

Messrs. W. PAUL AND SON, the prizewinners in Class 22, showed an excellent group of Roses on the ground. The arrangement was half-circular in shape, with Paul's Scarlet Climber making a splash of bright colour in the centre. Messrs. HOBBS were placed 2nd for a very good group, but not quite so imposing as the 1st prize one. The Royal Botanic Society's Cup was offered in Class 23, for a group of cut Roses on staging, and Messrs. W. AND J. BROWN were successful in winning the trophy. Their exhibit was a very fine one, and

included several arches covered with a single pink climbing Rose named Mrs. Rosalie Winch. The Rev. J. H. PEMBERTON was placed 2nd, with a group composed entirely of his own seedlings.

The Nickerson Cup was competed for in Class 24, for a representative group of cut Roses shown on staging, and four good exhibits were forthcoming. The best was that of Messrs. B. R. CANT AND SONS, Colchester, who staged an imposing bank of cut Roses with their own foliage.

Mr. ELISHA HICKS was successful in obtaining the Cup given by Capt. Kilbee-Stuart for 12 blooms of new Roses in distinct varieties. The display was a very fine one, and did great credit to Mr. Hicks, who has raised a number of attractive varieties.

AMATEURS' CLASSES.

The classes for amateurs were fairly contested, considering the backwardness of the season. The blooms were in many cases large, though not particularly well formed. An exception to this latter qualification was to be found in many of the blooms included in the 1st prize collection of Mr. H. L. WETTERN, Oxted, in Class 39, for 36 blooms, distinct varieties. The group well deserved the Champion Trophy and Gold Medal which were awarded, and one of the blooms, that of the variety Wm. Shean, gained the Silver Medal offered for the best H.T. bloom in the section. The same competitor also won the 1st prize in Class 40, for 24 blooms, distinct. The Ben Cant Memorial Prize was awarded to Dr. SEATON for 12 blooms, distinct, and the Tea and Noisette Trophy, for 18 blooms of distinct Tea and Noisette varieties, to Mr. A. HILL GRAY.

DECORATIVE CLASSES.

There was, as usual, a fine display of tastefully arranged exhibits in the decorative classes. From a general survey of the tent it was apparent that the new copper-toned Roses had for the moment captured the popular taste. Such varieties as Irish Fireflame, Old Gold, Irish Elegance and Mme. Edonard Herriot were to be seen everywhere, particularly in the prize-winning exhibits. They are undoubtedly very beautiful varieties, but it seems a pity that the beautiful pink, crimson, or soft yellow varieties should be so ousted. It was almost a relief to see here and there the beautiful flowers of Ophelia, Mrs. Herbert Stevens, Una, Melody, or Sunburst; the two last named appeared this year in fine delicate shades, probably owing to the lack of sunshine in the past few weeks. There were also some choice exhibits of crimson Roses; but pure pink tones were almost absent. Something might perhaps be done to check the copper monopoly by having a few special classes in the schedule restricted to some of these old and beautiful shades of colour.

Amongst the most pleasing exhibits were three arranged by Mrs. COURTNEY PAGE, including Isobel, Sunburst, and Melody; and the tables decorated by Mrs. C. HALES and Mrs. H. DREW, both with Irish Elegance. Mrs. C. GIDDINGS also showed a beautiful bowl of Ophelia.

The judging was, on the whole, excellent; but we preferred Mrs. F. A. FISHDAL'S table of Melody, which was placed 2nd in Class 99, to the first prize exhibit.

RICHMOND HORTICULTURAL.

JUNE 23.—There was no flower show at Richmond last year, but at the special request of the president, whose purpose was to promote an increased cultivation of vegetables, the committee this year decided to hold an exhibition. Special prizes were offered by the president and others for collections and exhibits of vegetables.

Flowers and plants were sold during the afternoon in aid of the Red Cross Funds and local military hospitals, and 100 wounded soldiers were entertained to tea by the committee.

ROSES.

The Gunnersbury Park Challenge Cup was offered for the best collection of 48 varieties, 3 blooms of each. Messrs. D. PRIOR AND SON, Colchester, were the only exhibitors, and they were awarded the 1st prize and

trophy. The rains of the previous few days had marred many of the blooms on their outer petals. The predominant varieties were St. Helena, Mrs. G. Shawyer, Mrs. Amy Hammond, Caroline Testout, Mme. Jules Graveureux, La France, and Comtesse Icy Hardegg. Messrs. D. PRIOR AND SON were also awarded the 1st prize in the class for 12 Tea Roses of any one variety, with especially good blooms of Madame Jules Graveureux; 2nd, Mr. E. J. HICKS, Twyford, with the same variety.

There was very little to choose between the two exhibits of 12 H.P. or H.T. Roses of one variety; both were exceedingly good. Messrs. D. PRIOR AND SON were placed 1st for the variety Mrs. W. J. Grant, while Mr. HICKS was 2nd with the new variety C. E. Shea. The MARQUIS OF RIPON, Coombe Court, Kingston (gr. Mr. Thos. Smith), was awarded the 1st prize for a highly meritorious exhibit of 6 bunches of scented garden Roses. He showed Pride of Fairfield, Aimée Vibert, American Pillar, Common Pink China, Crimson China, and Mrs. F. W. Flight.

In the amateurs' classes Mr. COLIN ROMAINE, Old Windsor (gr. Mr. J. Guttridge), was the only exhibitor of 24 Roses, and was awarded the 1st prize for a collection which, though a trifle weather-stained, was fresh and of good size. Mr. ROMAINE also won the first prize in the class for 12 blooms.

The MARQUIS OF RIPON was awarded the 1st prize for 12 blooms in the section restricted to the Society's district.

PLANTS AND CUT FLOWERS.

Dr. M. LACROZE, Bryndir, Roehampton, was the only exhibitor of 6 exotic Orchids, and was awarded the 1st prize. Dr. LACROZE also won 1st prizes for 3 Palms and a specimen stove and greenhouse plant, and was second for 3 stove and greenhouse plants and 6 exotic Ferns.

The 1st prize in the last-named class was won by Mrs. VAUGHAN ARBUCKLE, Stavell House, Richmond (gr. Mr. H. Lawrence), and she also won 1st prizes for 6 Hardy Ferns, 6 Fuchsias, and was placed 2nd for 6 table plants.

The best Coleus, Caladiums, Zonal Pelargoniums and Gloxinias were shown by LIONEL WARDE, Esq., Petersham House, Petersham (gr. Mr. A. Allum), who was placed first.

There was a splendid competition in the class for 12 vases of hardy herbaceous cut flowers. LIONEL WARDE, Esq., won the 1st prize with excellent vases of useful varieties.

S. R. EMANUEL, Esq., won Messrs. Webb's special prize for 6 bunches of Sweet Peas.

FRUIT AND VEGETABLES.—The MARQUIS OF RIPON was awarded a Silver-gilt Medal for a magnificent collection of ripe Melons, and 1st prizes for 1 Melon, a dish of Cherries, for 3 Cabbages and a brace of Cucumbers. S. R. EMANUEL, Esq., won 1st prizes for a collection of 6 dishes of fruit; 3 bunches of black Grapes, 3 of white Grapes, 9 Peaches; Messrs. Carter and Co's prize for a collection of vegetables, and Messrs. Sutton and Sons' prize for a collection of vegetables, for dishes of Peas, Broad Beans, Carrots, Beet and Tomatos.

Obituary.

HERBERT SMITH.—The death of this young gardener occurred under distressing circumstances at the age of 24 years. He was foreman gardener at Powerscroft, County Wicklow, Ireland, and with another young man had been bathing in a pond. Smith got into difficulties in deep water. His companion, seeing the danger, called for assistance, but death occurred before measures could be taken to effect a rescue.

JAMES AMYS.—We learn with regret of the death of James Amys, which took place on June 29, in his 80th year. The deceased was head gardener and farm bailiff for the Hon. Mrs. Elliott Yorke, Hamble Cliff, Netley, for thirty-three years, but he retired eight years ago on a pension. He was an excellent gardener, and a prominent exhibitor at the Southampton shows. As a judge at local shows Mr. Amys was also well known; and he served on the committee of the Bishops Waltham Horticultural Society for twenty-six years.



APPLES DAMAGED: *Foyle.* The injury is caused by the Apple sucker—*Psylla mali*. In September or October, when the leaves are fully ripe and ready to fall, spray the trees with petroleum emulsion consisting of 1 gallon of petroleum and 10 lbs. of soft soap to fifty gallons of water. Next spring, immediately after the opening of the flower buds, spray with a wash composed in the proportions of 3 lbs. of soft soap and 4 lbs. of Quassia to fifty gallons of water.

CARNATIONS FAILING: *H. F.* There is no disease present in the Carnations; their failure is due to a defective root system.

DOUBLE CUCUMBER: *G. W. T., Mortimer.* The cause of the "twin" Cucumber displayed in the specimen you sent us is in the union of two buds at an early stage of development. It is not uncommon; indeed, every season many such specimens are received here.

IPOMOEA LEARNI: *Dorset Gardener.* This species of *Ipomoea* succeeds best in a warm greenhouse; indeed, in many cases it is grown in a stove, where it flowers very freely. There is little doubt that your specimen in the unheated greenhouse will grow well enough during the summer, but there will be a risk of its being killed in the winter unless means are taken to protect the greenhouse from severe frost.

LAND FOR FRUIT-CULTURE: *Hortus.* If you want good fruit land within 40 miles of London it will be most easily found in Kent. Around Swanley Junction, and near any station up to and including Maidstone, much of the land is well suited to fruit growing. Around Faversham and Canterbury there is also much good fruit land, but this is over 40 miles from London.

NAMES OF PLANTS: *Mrs. G.* *Iris sibirica.* *Gladys Hicks.* 1. *Geranium Endressii*; 2. *Sedum Middendorffianum minus*; 3. *Heuchera micrantha rosea*; 4. *Geum Heldreichii*; 5. *Mimulus luteus guttatus*; 6. *Campanula rhomboidalis*; 7. *Orpine (Sedum Telephium)*.—*J. R.* *Booth.* *Populus tremula* var. *pendula*.—*A. C. H.* *Abutilon* insignis. The *Lonicera* is *L. Sullivantii* × *hirsuta*, a hybrid which has never received a distinctive name.—*J. R.* 1. *Pyrus* sp. (send fruit); 2. *Mimulus aurantiaca*; 3. too withered to identify; 4. Rose "Niphetos"; 5. *Abies Veitchii*.—*L. C.* 1. *Libertia paniculata*; 2. Probably *Lilium Martagon*. (The petals of the specimen received were entirely without colour, and nothing but the poise of the peduncle was left as a guide to identification.) 3. *Symphandra Wanneri*; 4. *Adiantum Veitchianum*.—*J. F. Rotton.* *Moltkia petraea*. The plant varies more in a wild state than your specimens showed, but all three were of the same species.—*A. E.* *Lychnis viscaria* fl. pl.

PRIMULA AURICULA MARGINATA: *Mrs. G.* Plants of *Primula Auricula marginata* should be taken up and divided soon after they have flowered, and this applies to most of the Alpine species.

SAWDUST MANTRE: *Subscriber.* The manure from the stable in which the horses have been bedded with sawdust will do quite well for herbaceous borders, kitchen gardens or hedges. Its value is not so great as when straw litter is used, and we do not recommend it for use indoors.

STRUTHIOPTERIS PENNSYLVANICA: *Dorset Gardener.* The correct name of this plant is *Onoclea germanica*. It succeeds best in a somewhat rich, loamy soil. It may be that your specimen is making little growth on account of the presence of too much iron in the soil; try it in a different situation.

Communications Received.—*J. C. H.* and *Co.*—*H. A.*—*E. W.* and *S. M. L. L.*—*G. F.*—*J. H. D.*, *U.S.A.*—*Mrs. D. F. K.* *British Columbia*—*H. S. T.*—*F. J. C.*—*Pyx.*—*J. A.*—*R. F.*—*Jno. T. T.*—*W. E. B.*—*E. H. W. U.S.A.*—*S. A.*—*E. B.* (thanks for photographs)—*W. F. R.*

THE
Gardeners' Chronicle

No. 1542.—SATURDAY, JULY 15, 1916.

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ALDENHAM IN SUMMER.

SITUATED in a flat, uninteresting part of West Hertfordshire, and possessing but little natural beauty or picturesque environment, the site of Aldenham would appear to offer poor material for the making of a great garden. Indeed, such classic gardens as Aldenham are the outcome, not so much of natural environment as the love and enthusiasm of their creators for plants, and the desire to provide setting and conditions appropriate to their growth.

The mansion at Aldenham, as related in these pages by a former writer (see *Gard. Chron.*, December 25, 1910), dates from 1550, and doubtless the extensive park is coeval, but it remained for the late Lord Aldenham to commence the establishment of the gardens that have made the name of Aldenham famous in the horticultural world, leaving the work to be completed by his equally enthusiastic son, the Hon. Vicary Gibbs. Both father and son have been aided by the professional skill of one of the greatest gardeners of our time, Mr. Edwin Beckett. How well Mr. Beckett can raise and show plants is known to every gardener in Great Britain. Because of his unrivalled collections of vegetables at shows, many imagine that the kitchen garden must be the chief concern of the establishment; but visitors to Aldenham are shown everything but vegetables, unless a special request is made to see them. It needs only a few minutes' acquaintance with the place to learn that trees and shrubs are the things that matter there, and that they are the owner's chief interest and delight. Indeed, on leaving the station at Elstree, only some twelve

miles from St. Pancras, the visitor at once realises that he is in the neighbourhood of someone who loves trees, for every specimen by fence and hedgerow along the many miles of public and private road leading to the estate is protected from browsing animals, whilst clumps of golden Elms and the like in the centres of the cross-roads further show the proclivities of the owner. And so, when Mr. Vicary Gibbs gives an open invitation to all who are interested to inspect his garden, the tree lover has opportunities of seeing not only rarities, but the best and choicest species and varieties for garden effect. Not only will the connoisseur find delights, but all garden lovers will meet with something to interest at every point, for all that is good as well as rare or new is included. The object of our visit was to inspect the new trees and shrubs which the several recent collectors in China have sent home in such large numbers, and of which the Aldenham collection is one of the most complete in Great Britain. Many of the specimens are now a goodly size, and have been planted in the borders, where their beauty may be appreciated, with others which are well known. Some are still more carefully tended in pots and tubs, whilst still others are in the nursery quarters, awaiting their turn for planting permanently. Early summer is a good time to see arboreal vegetation at its best, for it is the time of flowering for many trees and shrubs, and the new growth has a rare charm of its own. Not all of those described below are new, for, beautiful as are many of the newer introductions, some of the old favourites are even more ornamental, and cannot be passed over. The list is in no order, but follows the names as they occur in our notebook. *Sorbus subrachnoides* is a fine tree with handsome pinnate leaves, each some 6-9 inches long, like those of an *Acacia*, each pinnule being an inch across. *Cotoneaster hupehensis* (*integerrima* of Hemsley) has arching side shoots crowded with corymbs of white flowers. The leaves are small, ovate, and densely tomentose on the lower sides. The plant has a better habit than *C. multiflora*, and has great promise as a garden subject. *Cercis racemosa*, from Western Hupeh, is a rare, low-growing tree, which Wilson states has a wide-spreading head. The leaves are cordate and the young foliage golden-yellow. *Sycopsis sinensis* flowers in January; the plant is a handsome evergreen species with golden shoots in the young stage. *Euonymus sanguinea* should prove an acquisition for the shrubbery. The young shoots are purple colour, and late in the season the leaves assume the same tint. We were informed that the purple fruits are as handsome as those of the common Spindle Tree. *Poliathyrsis sinensis* is another new tree with handsome foliage, native of Western Hupeh. The big leaves are a pale golden-green, in shape not unlike those of a Poplar. The stems in the young stage are ruby coloured. Wilson describes the plant as a common, rather slender, loosely branched tree with grey bark, deeply furrowed

in the adult and smooth in the young stage. The flowers are greenish-white. *Ribes longeracemosum* is like a big bush of Red Currant; the inflorescence is some 2 feet long. It might be of value for hybridising, as a new edible Currant of this type would put all others to shame.

Cotoneaster Dielsiana elegans has a fastigate habit, and this character is reproduced in seedlings. The brick-red fruits persist all through the winter, and numbers were hanging on the trees at the time of our visit. The tree is very beautiful in spring, when the young foliage makes a good setting to the attractive berries. *Liquidambar formosana monticola* differs from the type in being glabrous, and Wilson states that it is hardier. Like other *Liquidambars*, the foliage assumes a glorious colour in autumn, and hangs late in the season. This fact may be accounted for by the plant breaking into leaf very late in the season.

Euptelea Franchetii is like a *Cornus* in growth, and makes a small tree, which favours moist places. The young leaves, as we saw them, are rose-tinted. *Tetracentron sinense* is like an *Actinidia*, but the cordate leaves are coloured red on the edges and nerves. The stems also are red, the young growths appearing very beautiful. *Idesia polycarpa* would make an excellent subject as a lawn tree; it has big leaves, reminding one of a large Poplar. *Cornus brachypoda* (*controversa*) is one of the gems of the new Chinese trees. It is a glorious sight in flower, with flat, broad branches loaded with large white corymbs, something like a truss of Elder blossom. The growth is disposed horizontally, as in the Cedar. The Aldenham tree has been relieved of some of the lower branches, so that it possesses a straight stem for some 5 feet.

And now some of the older worthies occur in our list, for we could not pass unnoted a beautiful Snowball tree which the label proclaimed to be *Viburnum tomentosum plicatum*. The "Snowballs" hung in profusion along the branches, of snowy whiteness, in contrast with the handsome dark leafage. *Acers*, too, were exceedingly beautiful, notably *A. palmatum sanguineum*, a small, spreading tree, at a corner of the drive, with leaves of marvellous colouring, translucent in the sunshine; and *A. pennsylvanicum*, the foliage golden, with paler margins and ruddy stems and petioles. In striking contrast was a tree of *A. californicum aureum*, about the same size as a well-grown *A. Negundo*, the delicate golden colour of the leaves lighting up gloriously in the bright sun. Then we noticed a specimen of the curiously contorted *Caragana jubata*, the twisted, dependent shoots appearing like spiny masses of growths, the old, persistent leaf petioles giving a still more rugged appearance. The young, silky, compound leaves show the plant's affinity with Leguminosae. *Betula Medwediewii* has foliage like that of a big Hazel tree, very pronounced ribs, and a shining light-green colour. It was only a small plant, but a perfect gem of beauty.

(To be concluded.)

ORCHID NOTES AND CLEANINGS.

FLOWERS IN SEASON.

I HAVE at the present time, amongst other showy Cattleyas, *C. Warszewiczii*, with five flowers on one spike, perhaps not an unusual occurrence, though this number has not fallen to my lot hitherto. I have also a plant of *C. Mendelii* with no fewer than six perfect flowers on one pseudo-bulb. Standing, as they do, erect on the single spike, they are, indeed, pleasing. Among other interesting plants is *Coelogyne Dayana*, which had spikes just 3 feet long; a rare and singular species, interesting to all who have the opportunity of inspecting it. W. Swan, *Jamnagar House Gardens, Staines.*

HOME-RAISED PLANTS OF LAELIA PUMILA ALBA.

THE true pure white form of *Laelia pumila alba*, which flowered out of an importation about twenty years ago, has always been rare, and it

is a very compact little specimen of the Queensland *Sarcochilus Ceciliae*, which is probably not to be found in any other collection. The pretty little dwarf plant bore linear lanceolate leaves 2 or 3 inches in length, and many upright, slender spikes of pretty bright-rose flowers, each about half an inch across. It was described and figured in 1865 (*Fragm. Phyt. Austral.*, V., p. 42, t. 42), but owing to its rather frail nature, and the consequent difficulty in importing it, it has only been recently recorded as flowering in this country.

LAELIO-CATTELEYA CERES GATTON PARK VARIETY.

THIS pretty addition to the medium-sized light yellow *Laelio Cattleyas* has been flowered in the collection of Sir Jeremiah Colman, Bart., and the introduction of the white *C. Mossiae Wagneri* as a parent with *L.-C. hippolyta Phoebe* instead of the ordinary coloured form used in obtaining the original has entirely eliminated the red of those forms, largely inherited

bore hardly any. The female blossoms were scanty, and they appeared in two instalments, the first being open before there was any pollen available.

APPLE SAWFLY.

The maggots of the Apple sawfly (*Hopllocampa testudinea*) have done a great amount of harm on some varieties of Apples this season, which is very bad luck in a year of extreme scarcity. On some young trees of James Grieve quite half the Apples are spoilt by these maggots. Nothing practicable has been suggested for their destruction beyond picking off the fruits while the maggots are inside, and burning them; and this in large orchards would be a tremendous undertaking. Of course, when Apples are thinned, the thinners should be instructed to look out for fruitlets with holes in them, and to collect them in bags or aprons for burning. Fish-baskets, slung over the shoulders of the pickers, serve well for this purpose, or women thinners can form temporary bags by pinning up their aprons.

LACKEY MOTH CATERPILLARS.

Caterpillars of the Lackey Moth (*Clissiocampa nenstria*), commonly known as "tent caterpillars," are more numerous and general on Apple trees than I have ever seen them before. As these pests grow to the length of an inch and a-half, and there are quite a large number in most of the webs in which they are found when young, they do an immense amount of damage if left to spread over the trees. Therefore it was necessary to have my Apple orchards looked over by women in order that the webs and their contents might be collected and crushed by stamping them into the ground. Fortunately, nearly all the webs could be reached without steps, as they were found mainly on the lower parts of the trees, and most of those which were higher could be got by pulling down branches. In many of the webs the young caterpillars were dead, probably on account of the persistently wet and cold weather of the first half of June. But other webs, or leaves just above them, contained many living caterpillars.

DEALING WITH BROWN ROT.

While the crusade against the Lackey Moth caterpillars was in progress, the opportunity of cutting off spurs killed by Brown Rot was taken. The land during the first half of June was too wet for advantageous hoeing, and this unfitness diverted the work of a gang of female hoers to the operations just described. Unfortunately, it is found that the Brown Rot has affected the branches at the bases of many of the diseased spurs, and at these places Brown Rot cankers will be found. Such cankers are even worse than ordinary cankers, as they extend more rapidly, and will surround the branches affected, unless the diseased bark is pared off before extension has gone far, Stockholm tar being painted over the pared surfaces. Already the length of the extension is found to be 2 inches in some cases, and half-way round the smaller branches. Growth above the affected patches will never be very vigorous, and therefore the injury done to the trees is incalculable.

APPLE SETTING.

A point of interest in relation to the blooming and fruiting of a few varieties of Apples, including Bramley's Seedling, was noticed independently by myself and some of my men. The trees with dark green foliage are bearing fair crops, while those with yellowish-green leaves are almost or quite barren. Probably the explanation is that the former had small crops last year, while the latter had heavy crops, which exhausted their vigour, although the orchard in which the difference was most noticeable has been manured frequently, and had a good coat of the best London cow manure dug in last winter. *Southern Grower.*



FIG. 9.—MAY ROSES: *ROSA SERICEA*.

(See p. 27.)

has the reputation of being difficult to grow. A few years ago it flowered with Messrs. Armstrong and Brown, at Tunbridge Wells, a seed capsule was secured by fertilisation with its own pollen, and a few plants were raised from the seeds. The seedlings so obtained proved to be very free growing, and recently two of them have bloomed, the flowers being slightly larger than the type and pure white, except for the usual tinge of pale yellow in the tube of the lip. Great success has been obtained here in raising albinos of species and hybrids true from seed, and experience points to the fact that the home-raised seedlings are much easier to grow and flower than the imported plants.

SARCOCHILUS CECILIAE.

AMONG the many interesting and rare species in the attractive group shown at Holland House by Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. Collier), was a com-

from the copper-red tinted *L.-C. Hippolyta*, proving that the use of albinos as parents, even on one side, tend to albinism or colour suppression in the progeny. The flowers of the Gatton Park variety are light canary-yellow, the midribs of the petals being pure white.

THE MARKET FRUIT GARDEN.

FAILURE OF COB NUTS.

Two months ago, or more, I predicted that the Cob Nut crop would be a failure, because of the extreme scarcity of catkins. Kent reports verify this prediction, as well as my own show of Nuts. The plan of hanging small branches containing wild Nut catkins on the trees was adopted, but so far as that goes, a small piece of Cob Nuts which bore plenty of catkins appears to be as nearly fruitless as those which

THE ROSARY.

ROSES OF MAY.

NEARLY everyone grows June Roses, but how few take any trouble to provide room in their gardens for the early single-flowered species which, for those who will give them garden room and the minimum of attention, will furnish more than an extra month of Roses of great beauty and interest from the open ground.

The groups of the great *Rosa* family which give us these May-flowering Roses are the *Sericeae* from the Himalayas and Western China, the *Spinosissimae*, our native Burnet Rose and its allies, and the *Alpinae* or the thornless Rose of the Alps and its connections.

R. sericea (see fig. 9) generally opens first, its blossoms appearing in my garden, which lies on high ground to the north of London, towards the close of the first or some time during the second week in May, according to the earliness or lateness of the season. Its name means the silky Rose, and is taken from the downy pubescence which covers the leaflets and young stems, a character very noticeable in young plants, but less obvious in those of some years' growth. If allowed to grow as it likes it soon makes a large and well-shaped bush, and its foliage, bearing usually 9 to 11 rather narrow leaflets on each leaf, is extremely graceful and Fern-like. Perhaps even better known than the type is the variety *R. sericea Pteracantha*, with huge thorns much dilated at the base, red and translucent when young. In this variety, therefore, pruning after flowering, to favour the production of plenty of young stems, is desirable. The flowers are followed by berries, in some varieties orange, in others scarlet, depending apparently on the district whence they come. M. Vilmorin states that plants from Yunnan always produce orange-coloured berries, while those from Tse-chuan give scarlet ones. There seems to be a considerable number of varieties of *R. sericea*, but they have not as yet been studied and worked out individually.

Soon after this, some of the varieties of *R. alpina* begin to open. Two of the most beautiful of this section are *R. alpina* var. *pendulina*, with darker flowers and foliage than the type, and the hybrid *R. rubella* (*R. alpina* × *R. spinosissima*), which makes a charming plant when in flower, and bears well a certain amount of pruning. A useful little plant for the rockery is *R. alpina* var. *pyrenaica*, which has prickles on its stems and is much more dwarf than typical *R. alpina*, which has smooth stems quite destitute of prickles.

A very beautiful form when it first opens is *R. nipponensis*, of comparatively recent introduction, which is free in flowering and has rather larger flowers than *R. alpina*. Its origin is not known beyond the fact that it was introduced from Japan about 20 years ago. It is classed by M. Graveraux among the *Cinnamomeae*, but from its appearance it might well be thought to have been at some time derived from a cross between *R. alpina* and *R. rugosa*. The colour of the flowers deteriorates as they fade, and they then begin to remind one of the rather ugly shade of magenta which characterises many of the *rugosae*.

About the same time some of the Scotch Rose group, *R. spinosissima* and its relatives begin to appear, some of them being among the most beautiful of our early Roses. *R. altaica* (Lindley's *grandiflora*) has a large white flower with yellow stamens, and few of the single forms are more perfect. It is hardy and increases rapidly from stolons. Scarcely less lovely is *R. Hugonis*, with soft, bright yellow flowers, so freely produced that a spray in flower makes quite a picture in itself; moreover, the flowers last well on the plant for a Rose of this type. It is not quite so hardy as the last, and some protection is no bad thing, provided it is removed early

enough. It has, however, stood the evil effects of last March well, and I have seldom seen my plant more beautiful than this year, which has proved fatal to so many of our Roses.

This section provides us with a number of yellow forms, all of greater or less interest. Beside *R. Hugonis* we have the pale yellow *R. hispida* of Sims and *Curtis's Magazine* (pl. 1570), probably identical with Lindley's *R. lutescens* and the *R. ochroleuca* of Swarz. Deeper in colour come *R. xanthina*, which has the peculiarity among the *Spinosissimae* of possessing thorns without setae, while if we desire a bright golden yellow we have it in *R. spinosissima lutea* (fig. 10). *R. Albertii* also is of a good yellow shade, with small, finely-cut leaflets.

Before leaving this family I should mention our English Burnet Rose, little *R. spinosissima* itself, which is so small that it is eminently suited to the rock garden, where its creamy white flowers, about as large as a golf ball, are very pleasing. If planted in poor soil it will not exceed 6 inches in height.

Towards the close of May a number of Roses make their appearance, but few are so attractive as *R. sinica Anemone*. It is a hybrid between *R. sinica* and some form of *indica*, and is a strong

when we may expect our ordinary garden Roses to begin to flower. *White Rose*.

ROSE MRS. GERARD LEIGH.

THIS new Rose is a white sport from Mrs. F. W. Flight. It originated in the gardens at Lees Court, Faversham, where Mr. G. Low, the gardener, informs us it has been grown for three years. The trusses are very handsome, and the blooms pure white, without any traces of colour except in the golden anthers. Mrs. F. W. Flight is one of the best of the *Wichuraiana* varieties, and is exceptionally beautiful when grown as a pillar plant. Our correspondent states that the sport has all the good qualities of its progenitor, and it is grown at Lees Court as pillar specimens, on walls, and in pots. Flowers are sent us which were cut from pot plants which had been in flower for nine weeks, and the season promised to continue for some time longer.

ROSE LORD KITCHENER.

THIS variety (see fig. 13) is one of four Roses which gained Certificates of Merit at the National Rose Society's Metropolitan Exhibition, held on the 30th ult. The variety Lord Kitchener was shown by Messrs. Chaplin Brothers, and belongs to the Hybrid Tea section. The flowers are of good shape, and they have a sweet perfume.



FIG. 10.—MAY ROSES: *ROSA SPINOSISSIMA LUTEA*.

grower, producing long rods, on the laterals, from which the lovely single pink flowers are produced. These are on rather short stems, and if gathered, as they should be from time to time, for decoration of the dinner table, they should be placed in low bowls, not too much crowded together. I can even imagine they would look well floated on water in flat dishes, for they have quite a resemblance to the Water Lily. When possible the plant should be grown on a south wall, a certain amount of old wood being taken out yearly and the younger growths loosely tied in.

R. macrophylla var. *Korolkowii* (fig. 11) also flowers towards the end of May, and is interesting both in flower and foliage. The flowers are of a very pleasing shade of soft pink, and if allowed it will grow into a large bush, but it will bear judicious pruning, and this will be desirable except in cases where ample space is at the disposal of the gardener.

The close of the month brings us the *rugosa* Roses, of which we have now a number of hybrids. Among the earliest and best are the white *Blanc double de Coubert*, the dark-red *Atropurpurea*, the pink *Delicata*, and the blush *Thusnelda*, and these will carry us on into June,

A NEW HARDY HEATH.

ERICA AUSTRALIS MR. ROBERT.

TOWARDS the end of April and early in May, probably the most attractive of hardy Heaths is *Erica australis*, a species found in mountainous districts in Spain and Portugal. It is distinct among the other tall Heaths flowering at the same time in having its flowers arranged in clusters at the end of the twig, not axillary, as in *E. mediterranea*. The flowers are of a rich shade of purplish-red, and are usually produced four together. A new white-flowered variety has lately been discovered and brought into cultivation. It is now in Mr. J. C. Williams' collection at Werrington Park, Launceston, where it blossomed this last spring. It was discovered in 1912 after ten days' arduous search by his son, the late Lieut. Robert Williams, on the mountains behind Algeciras in Southern Spain.

Lieut. Williams belonged to the 3rd Grenadier Guards, and fell fighting for his country on one of the battlefields near Loos on October 8, 1915. It is proposed that this charming new Heath shall bear the name by which he was known in his home. *W. J. Bean*.

NOTICES OF BOOKS.

THE APPLE.*

THE growing importance of the Apple as an article of food is a striking feature of the past fifty years. Thousands of small householders who formerly regarded Apples as the luxury of a feast day now purchase them as an important part of the regular dietary.

It is largely the imports from America and our Colonies that have made this possible by placing fruit upon the markets from Christmas to June. In the United States the cultivation of the Apple has extended in a remarkable manner, and the Government has recognised its importance by the numerous experimental stations which are spread over all the States in the temperate zone. From these institutions come bulletins rivalling in number the leaves in Vallombrosa, and the task of sifting this literature becomes yearly more difficult. It is useful, therefore, to find the author of this book focussing in his pages the most recent researches upon the Apple. The whole gamut of cultural operations, from selection of an orchard site to the final marketing of the product, is treated in great detail, and illustrated with figures, which, for the most part, illustrate the text and not merely decorate the pages.

Much of the information is, of course, only applicable to conditions obtaining in the United States, but the British grower will, nevertheless, find many hints and new ideas which will be worthy of consideration. For instance, a grading machine called the "Woods," is, we think, new to this country, requiring, as it does, no machine or hand power to operate it, the weight of the fruit supplying this. Designs and plans of ice stores will be of interest to many, as the "cold" method of preventing market gluts is now beginning to attract growers in this country. Especially good are the many photographs of the various Apple rots and scabs. The author is a little apt to adopt an ambiguous attitude in regard to certain knotty points, and the beginner will be puzzled upon occasion. The question of "pedigree" trees is a case in point. On p. 41 we read "From the above facts it is easily recognised that pedigree trees should be more highly recommended than any other trees." On p. 426 Professor Hedrick is quoted upon the same subject, under the heading, "Bud Selection," as follows:—"No precise experimental evidence has been offered to prove that varieties of fruits can be changed in the least by continuous bud selection." We hope this weighty pronouncement will stop any attempt in this country to promote pedigree strains of fruits. We have quite enough before us without the added labour of testing Jones' strain of Cox's Orange Pippin against that of Brown or Robinson.

A few of the newer ideas as to marketing are worthy of study. Co-operative advertising is financed by stamps purchased by the grower and affixed to each case of fruit. The suggestion that choice fruits should be packed in small boxes of one dozen or so because purchasers of such will not carry a paper bag is an idea worthy of consideration in this country.

Taken as a whole there is much in this work to interest and help the progressive grower, and in the States it will fill a useful place as the best handbook solely devoted to the culture of the Apple.

FRENCH NOTES.

OWING to difficulties connected with the war the French National Horticultural Society found it impossible to hold the spring exhibition at the usual place—Cours la Reine—and was obliged, therefore, to hold it in its meeting-place, Rue de

Minette. The exhibition took place on June 3-6, and the proceeds were devoted to the relief of victims of the war and of gardeners in invaded territory. The exhibition was well attended, and most of the usual exhibitors were represented. An avenue of Rhododendrons of superb colour led to the inner court of the building, in which a delightful Rose garden was laid out. In the Reception Hall the flowers exhibited included Roses, Irises, Poppies, Carnations, and Orchids. They were shown against a background consisting of a landscape garden scene, in which numbers of unusual and hardy plants were included. In another room Begonias and Caladins were staged, and also vegetables and fruit.

Few novelties were exhibited. Among them



FIG. 11.—MAY ROSES: ROSA MACROPHYLLA
KOROLKOWII.
(See p. 27.)

were a number of handsome seedling Clematises and a new Anemone, Triomphe des Alliés, with double rose-coloured flowers, several Laelio-Cattleyas and Odontoglossum hybrids raised by the late M. Lecoupe, who was killed on the field of battle. The exhibition was opened by M. Méline, Minister of Agriculture, who, in spite of his 78 years, spent two hours examining the various exhibits.

On the initiative of the Minister of Agriculture the Academy of Agriculture invited the chief agricultural and horticultural societies to a meeting, in the course of which M. Ducrocq, President of the Society of Workmen's Gardens of Lille, outlined a scheme for the organisation throughout France of vegetable gardens for the civil population and the army. The meeting decided to lend its support to the creation of civil and military gardens. A. M.

The Week's Work.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq.,
Castleford, Gloucestershire.

REARRANGEMENT OF THE PLANTS.—Much of the repotting will be finished, and an opportunity will probably occur to re-stage the inmates of some houses, such work being very important in every well-kept collection. In carrying out this operation dirty plants are at once discovered and duly cleansed, young growths can be given good positions, while any pots or pans may be washed that are in need of it. A deal of time will now be taken up with shading, ventilation, damping down, and similar work, more particularly if there is intermittent sunshine.

SOBRALIA.—When the Sobralias cease flowering let each plant be examined in order that any that have produced shorter stems than last season may be repotted. As a general rule Sobralias are vigorous plants and produce a large number of fleshy roots, which render top-dressing difficult, if not impossible. Small specimens may be moved into larger pots, without any disturbance to the ball of roots, but large examples must be broken up, and each piece potted singly, or the pieces made up into compact plants of convenient dimensions. The pots should be filled one-fourth of their depth with drainage material, and a compost may be used consisting of the best fibrous loam, with all the fine particles removed, good peat or Osmunda-fibre cut up finely, and a light sprinkling of crushed crocks. Press the soil firmly, and leave an inch or so of space at the top for holding water. Sobralias succeed either in the intermediate or Cattleya houses, and I have seen some tolerably good examples in the cool division. Plants that do not need to be repotted may have a few of their old stems removed, which will throw more vigour into the young shoots. If such plants have filled their pots with roots they can be given some weak liquid cow manure once or twice each week while they are growing freely. When a plant is divided, careful watering will be necessary for a few weeks, and protection from strong sunlight, while the surroundings should be kept moist and the foliage be syringed once or twice daily. Sobralias often produce small plants near the top of the stems, and when these form roots they can be cut off, and repotted in small pots. By occasionally propagating a few plants, a young and healthy stock will be maintained. A few of the best species and hybrids are *S. macrantha*, *S. xantholeuca*, *S. Lowii*, *S. Veitchii*, *S. Amesiana*, and *S. Dellense*.

ONCIDIUM CONCOLOR, after undergoing a short rest, will begin to push forth fresh growth, and directly new roots are seen the repotting may be carried out, using a compost of Osmunda-fibre and Sphagnum-moss in equal parts. Pans without side-holes are suitable receptacles, and a wire handle should be attached to suspend the plants from the roof-rafters of the intermediate house or the warmest end of the cool division. Water sparingly until the roots are well established. This species is very floriferous, but small, weak plants must not be permitted to flower, and if a few partly-decayed Oak leaves are added to the usual compost it will assist any sickly plants to a more vigorous condition.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE,
Lockinge House, Berkshire.

FREESIAs.—Where the old bulbs have been saved for repotting they may now be shaken out of the soil and the most promising bulbs stored in a cool, dry shed till they are required for repotting. It is time now to place orders for fresh bulbs if any are required.

BEGONIA GLOIRE DE LORRAINE.—This Begonia is now growing freely and needs timely attention to staking and tying. Its beauty is often spoiled by the use of too many stakes. Unless a plant is unusually large one stake is ample. Green Bamboo tips are suitable, and if

* *The Apple*, Albert E. Wilkinson, (Ginn & Co., Boston, 1915.) 2s. 6d.

thin strands of green raffia are used for tying the plants will present a very natural appearance. Little fire-heat is necessary now to keep them in active growth, but the best possible must be made of the sun's rays by closing the houses early in the afternoon.

EUPHORBIA PULCHERRIMA (POINSETTIA).—Move plants of Poinsettia into their flowering-pots as soon as they are ready, or growth will be checked. Keep them growing steadily in a moist atmosphere for the next two or three weeks, then gradually inure them to cooler conditions.

EUPHORBIA JACQUINIAEFLOREA.—Fine specimens may be made of this plant by potting several plants into each large pot. But for ordinary decorative work they are most useful when grown singly in 5-inch pots. Their requirements are similar to those of the Poinsettia, except that they require more warmth.

VIOLETS.—Watch for attacks of red spider, and should it appear syringe the plant with an insecticide late in the afternoon. Keep runners removed and frequently disturb the soil between the plants. During showery weather light dustings with well-seasoned soot will have good results. A spraying with the garden hose at the end of a hot day is also beneficial.

CHRYSANTHEMUMS.—Most of the potting will now be finished, and attention must be given to tying and staking. A great deal of time is often wasted by using too many stakes. In most cases one stake will suffice if the tying be carefully done. Some of the large-flowered varieties will be showing their flower-buds, but these must be rubbed off, as it is too early yet to retain the buds. As a precaution against aphid syringe all the plants occasionally with an insecticide.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHOTE, Eastwell Park, Kent.

THE MORELLO CHERRY.—Morello Cherries may be picked for cooking before they are fully ripe, and if there is a heavy crop it is well to lighten the trees in this manner at the earliest moment. Having been disbudded, as recommended in previous calendars, the young shoots should now be tied up to the wires before the nets are fixed over the trees. The object of disbudding is for the purpose of preventing a greater number of shoots than is required to furnish the wall space for the next season. This year's fruiting wood cannot be removed till the crop is cleared, and it may appear that the wood is much too thick when the young shoots are secured to the wires; but this is only a temporary measure. As soon as the crop is cleared off as much of the old fruiting wood as can be spared should be cut out, and the new growths evenly spread out and trained over the whole space. The copious rains experienced recently will have penetrated to the roots of all fruit trees, and Morellos should finish up well this season. Fully established trees that have been bearing heavy crops should be assisted with an approved artificial manure, applied in showery weather if possible. See that the trees are clean before adjusting the nets; if traces of aphid remain, a thorough washing with the garden engine should cleanse the trees, but as the fruit is now changing colour it would be unwise to use insecticides.

THE LOGANBERRY.—One of the good qualities of the Loganberry is that it seldom, if ever, fails to bear a crop, and in a season like the present, when some other fruits are scarce, Loganberries will be especially welcome. The current year's growth should be tied up out of harm's way till the autumn, when it can be trained in its permanent place, after the present year's fruiting canes have been removed. Do not retard too many of the new shoots, but only sufficient to fill the space.

BLACKBERRIES.—The same remarks as to thinning the growths apply equally to the Blackberry, and the young shoots should be secured by ties sufficiently early to avoid damage by storms. See that they are secured away from the fruit as much as possible, or, as the foliage develops, there is a danger of its covering the fruit, and if this is allowed the berries will be almost flavourless; full exposure to sun and air is

necessary to get the best flavour into the berries. Apart from the usual way of growing Blackberries on a fence or trellis, they can often be utilised in odd corners to ramble over stones, an old wall, or roots, and left almost entirely to themselves after the bushes have become established, beyond the work of keeping down large weeds, as if these are allowed to remain and seed they will quickly make a piece of ground extremely troublesome.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

EARLY PEACH TREES.—As soon as the early trees are cleared of fruit, prompt attention must be paid to pruning, cleansing, and the rearranging of the shoots. All the ventilation possible should be given, and water afforded the borders every ten or fourteen days. Superfluous wood which has borne fruit and interferes with the ingress of light and air should be cut away now. Whilst giving more room for the shoots, it will also enable the operator to cover the bare stems with shoots and foliage to protect them from hot sunshine. If the wood be strong and the foliage good, it is best not to attempt over much feeding, but to err on the safe side. At the same time, trees which from age or heavy cropping show signs of weakness may be stimulated into plumping up their buds by a dressing of manure and occasional waterings with liquid manure. The trees must be kept clean by liberal syringings on fine evenings or by spraying with an approved insecticide.

SUCCESSION PEACHES.—Keep the atmosphere cool in houses where the fruit is ripe, and see that the border does not become dry, or the fruit will not hang so long as could be wished. Maintain a fairly dry, warm atmosphere in houses where the fruit is ripening, and should the weather be dull and sunless, a little fire-heat may be helpful in developing high flavour and finish. Later houses, in which the fruit is now swelling fast, must have the borders freely watered and the trees thoroughly syringed twice a day with soft water. It is even better to reduce the syringing to once a day than to use water containing lime or other sediment on woolly-coated Peaches. Abundance of air must be given from the time the colouring process is perceptible.

LATE PEACHES.—The fruits from the latest trees are intended to precede the supply from open walls, or (as in northern counties) to maintain a constant supply as long as possible. Now is the time to retard or hurry them as the case may be, for it is almost useless to attempt these measures when the fruits are approaching the ripening stage, nor is it desirable, for the fruits then need all the light and air possible. Borders of late Peaches, whether inside the house or not, should be mulched with fresh stable manure. By adopting this plan, and adding a little fresh material occasionally, ammonia constantly rises up, which helps to keep the foliage free from red spider. Tie in the requisite number of young shoots, avoiding any overcrowding, and pinch all laterals and strong shoots. Push aside the foliage as the fruits approach ripeness in order to give the latter all the benefit of direct sunlight.

THE FLOWER GARDEN.

By W. J. GURSE, Gardener to Mrs. DEMSTER, Keele Hall, Staffordshire.

LILIUM.—Place stakes to Lilliums as they throw up their flower spikes, before they are damaged by wind, and apply liberal top-dressings, consisting of loam, peat, decayed cow manure, sand, and a good fertiliser well mixed together. These will induce the surface-roots to make strong growth, upon which the well doing of the plants so much depends. Precautions must be taken to keep aphid in check by syringing the plants occasionally with an insecticide.

LILY-OF-THE-VALLEY.—It is possible that Lily-of-the-Valley crowns will be scarce for some considerable time owing to restricted imports, therefore all care should be taken to encourage plants in beds to make good, strong crowns. The

beds should be kept free from weeds, and if frequent applications of manure are given they will have good results.

GLADIOLUS.—The present popularity of Gladiolus is not surprising, for great improvements have been obtained both in colour and constitution. The plants will be benefited greatly by feeding them occasionally with manure-water, or by a light top-dressing of some rich material, in which a sprinkling of some good fertiliser has been incorporated. Where necessary the plants should be supported with neat stakes. The autumn-flowering varieties—such as Halley (salmon), Princeps (glowing scarlet), America (lavender), Electra (salmon), Lily Lehmann (pure white), Panama (pink), and Baron Hulot (deep blue), are indispensable for planting in groups in the herbaceous or mixed borders. Early-flowering varieties, such as The Bride, Peach Blossom, Rosy Gem, and Fire King, are very useful where quantities of cut flowers are required for vases.

DAHLIAS. After the heavy rains of the past ten days the plants are now growing fast. No time should be lost in placing strong stakes to them. All weak growths should be cut out, especially from old plants. Work the hoe between the plants frequently.

PHLOX DECUSSATA.—The weather has been very favourable for *P. decussata* and *P. suffruticosa* (Early-flowering Phlox). The plants should be carefully staked, and a mulching of well-decayed manure placed round them. Plenty of water during dry weather will help to prolong the flowering season, as there are not many herbaceous plants more sensitive to drought than Phloxes.

THE KITCHEN GARDEN.

By E. R. JAMES, Gardener to the Rt. Hon. LORND NORTH, Wroxton Abbey, Banbury, Oxfordshire.

SPRING CABBAGE.—Make a small sowing of Cabbage to obtain plants for early supplies. In the north and in cold districts this sowing may be relied upon to produce early Cabbages, but in gardens in the south only a small number should be planted, as there is a danger of the plants "bolting." In such districts better Cabbages are obtained if the seed is sown about August 10. It is important to sow suitable varieties, as certain of the summer sorts run to seed on any land if sown in August to withstand the winter. Harbinger, Ellam's Early, and Flower of Spring may be relied upon to furnish a succession. Follow the advice given previously for sowing Brassicas, choosing a cool spot for the seed bed. Aphid and mildew are sometimes troublesome at this season, and must be guarded against. Maintain the soil of the seed bed in an uniformly moist condition, and take precautions against damage by birds and the Turnip beetle.

LATE QUEEN BROCCOLI.—The sites of old Strawberry beds may be planted with late sown plants of late Queen Broccoli. After the Strawberries have been removed, hoe the soil well and rake the surface, but do not dig the beds, as firm soil is essential to produce strong plants that will be capable of withstanding the cold of winter. Planting in hard soil may be done by the use of a small crowbar. Select the smallest plants and, in dry weather, water the roots until the plants commence to grow actively.

PARSLEY.—Makes a sowing of Parsley to provide plants for use during autumn and spring. Do not sow in rich, deeply cultivated soil, but on poor ground, as firm, compact growth is desirable that will be capable of withstanding the cold of winter. A sheltered but light situation is best, and the seed beds should be of a size to permit of covering the plants with frames on the approach of winter. Plants from this sowing may be transplanted to sheltered positions, such as south borders, and narrow borders adjacent to the walls of heated glasshouses. In such positions Parsley will survive the winter, but the plants must not be exposed to water dripping from the wall plates and copings of the house. Surplus plants may be planted thickly in boxes of soil, which should be placed in cold houses or frames on the approach of winter, for use during severe weather.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JULY 18—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

THURSDAY, JULY 20—

National Carnation Soc. (Southern Section) Annual Show.

AVERAGE MEAN TEMPERATURES for the ensuing week deduced from observations during the last fifty years at Greenwich, 63.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, July 13 (10 a.m.); Bar, 29.5°; temp. 63.0°. Weather—Cloudy.

SALES FOR THE ENSUING WEEK.

TUESDAY—

Horticultural Sundries, by order of the Agricultural and Horticultural Association, Ltd., in liquidation, at 195, Creek Street, Deptford, by Protheroe and Morris, at 12.

The Control of Disease by Dusting.

Apple growers will read with considerable interest the report* by Messrs. D. Reddick and

C. R. Crosby on the results of experiments in the use of "dust" instead of spray as a preventive of fungous and insect attack.

The dust employed consists of a mixture of finely powdered sulphur and arsenate of lead, the former as a fungicide and the latter as an insecticide. Tests carried out in many different orchards demonstrated that the sulphur should be as finely powdered as possible, and that the mixture should consist in 85 per cent. of sulphur and 15 per cent. of powdered arsenate of lead. The powder was applied at the rate of 1½ to 2½ pounds per tree by means of a power outfit operated by an old gasoline engine of 2 h.p. The diseases and pests which were effectively controlled by this method were Apple scab, sooty blotch (*Phyllachora pomigena*), and the codlin moth. The cost of application of the dust is less than that of spraying; but the materials used in the former are more expensive. The great advantages, however, which dusting has over spraying are, first, that the work can be done about four times quicker, and hence labour is not swallowed up at busy times; and, second, that dusting is less at the mercy of weather conditions than is spraying.

The authors point out that so far no dusting material has been discovered

which will destroy aphid and Pear psylla, but they are hopeful that other powders may be discovered which will have these effects. In the meantime they claim that the dusting method gives the grower a means of protecting his orchard at critical times.

Dusting may be practised at any time of the day, though, naturally, still weather is more suitable than is windy weather. The materials may be mixed at home, and, if necessary, they may be diluted by means of some inert substance, such as hydrated lime or terra alba (powdered gypsum). When sulphur and arsenate of lead are used together no dilution is necessary, but if either is used separately, it is as well to add the inert substance in a finely powdered form; if arsenate of lead only is used, the diluting substance is necessary in order to give bulk



MR. A. D. RICHARDSON.

(Awarded the Neill Prize by the Royal Caledonian Horticultural Association)

and, if only sulphur is used, in order to improve its flowing qualities.

The only equipment required is a gasoline engine, and dusting and mixing machines. Where high trees are to be dusted additional lengths of outlet pipe will be required. Operators must be provided with goggles, and must not take them off during the work. The results achieved by this method are so promising that we hope that it will receive a trial in this country. The labour expended on spraying is so considerable that, if dusting prove at all applicable to our conditions, the new method should prove a blessing to commercial fruit growers.

Messrs. Reddick and Crosby are of opinion that dusting will prove efficacious in the case of fruit trees other than the Apple, and we would suggest that the several researchers who are endeavouring to find means to rid us of American Gooseberry mildew should give this method a trial.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The following appeal on behalf of the funds of the Gardeners' Royal Benevolent Institution has been issued, as, owing to the war, the committee consider it inadvisable to hold the usual festival dinner.—"Dear Sir,—May we plead for your practical sympathy on behalf of the Gardeners' Royal Benevolent Institution, a most deserving national horticultural charity, the immense benefits of which we can vouch for to many most worthy and necessitous men and widows. We hope you will kindly cheer the committee by sending a subscription or donation to help them to maintain the good work which has been of such great value during the last 78 years. The demands on our resources are ever on the increase, but never more so than at this present crisis in our nation's history. We urgently need funds to support the 265 annuitants, and there are no less than 42 applicants anxiously awaiting aid, of whom 16 are widows, who cannot be assisted for lack of means. We therefore earnestly appeal for your generous financial assistance.—We are, yours very faithfully, GREN-FELL, F.M., President of the Royal Horticultural Society; HARRY J. VEITCH, Treasurer and Chairman of Committee, G.R.B. Institution; GEORGE J. INGRAM, Secretary.

THE NEILL PRIZEMAN.—The Council of the Royal Caledonian Horticultural Society has awarded the Neill Prize for the period 1914-16 to Mr. A. D. RICHARDSON, 19, Joppa Road, Portobello. This prize, which is in the gift of the society, is awarded to distinguished Scottish botanists or cultivators. Mr. RICHARDSON, who is secretary of the Scottish Horticultural Association, has been an Associate of the Botanical Society of Edinburgh for over 30 years. He has made communications to the society, and one of these, namely, "The Disposition of the Leaves on the Lateral Shoots of the Flat-leaved Spruces," was published in *extenso* in *Notes from the Royal Botanic Garden, Edinburgh*, and at the request of the Editor, Professor WILLIAM SOMERVILLE, of Oxford, was republished last year in the *Quarterly Journal of Forestry*. In this investigation Mr. RICHARDSON can lay claim to original work, for although Professor WILKOMM had previously discovered that the stomata are on the morphologically upper surface of the leaf in the flat-leaved Spruces, Mr. RICHARDSON was the first to point out that the order of succession in which the leaves twist on their bases on the lateral branches of these plants was the reverse of that which obtained in the other flat-leaved Firs, as well as in all other flat-leaved plants in which the position of the stomatic leaf surface is normal. Mr. RICHARDSON has also investigated the question of the origin of the Camperdown Weeping Elm, which up to the time of the publication of his account was completely ignored as a distinct form in all the British works on arboriculture, and even in botanical collections in this country, of the common Golden Elder. Mr. RICHARDSON is a regular contributor to the *Gardeners' Chronicle*. Articles from his pen have been published in the *Transactions of the Royal Scottish Arboricultural Society*, which he sub-edited for a number of years under the late Dr. JOHN NISBET, and he is recognised as an authority on hardy trees and shrubs, of which he has made a life study.

NATIONAL ROSE SOCIETY.—Owing to the war the Council of the National Rose Society decided not to hold their usual provincial show this year, but, in order that raisers of new seedling Roses might have an opportunity of staging their productions, a special exhibit of new seedling Roses will be held, by permission of the Royal Horticultural Society, at the Horticultural Hall, Vincent Square, on Tuesday next, the 18th inst. The Roses will be judged, and the awards made by the New Seedling Rose Committee of the National Rose Society.

* *Dusting and Spraying Experiments with Apples*. Bull. 269. Jan., 1916. Cornell Univ. Agric. Exp. Station of N.Y. State College of Agriculture.

NATIONAL ROSE SHOW.—The National Rose Society has handed to the British Red Cross Society the sum of £76, being the whole of the gate receipts at the summer show held on the 30th ult. We hope that this fine example will be followed by other societies who hold horticultural shows during the period of the war.

WOMEN GARDENERS AT ABERDEEN.—Under the auspices of the Aberdeen and North of Scotland College of Agriculture, a class for women gardeners has been inaugurated at Aberdeen. Mr. GEORGE E. GREENHOWE, lecturer in horticulture in the college, is the teacher. Four weeks will be devoted to the course, which is being given at the fine demonstration garden at Rubislaw, Aberdeen, used by the students of the Aberdeen Training Centre. The course will be strictly practical and simple in character, and, short though it is, it is hoped the training given will make those coming forward more adaptable in the elementary part of gardening work. A woman gardener—the first engaged by the Corporation—has started work in the Duthie Public Park.

UTILISATION OF COMMON LAND.—The Board of Agriculture points out that, in view of the importance of increased food production, it may be useful to call attention to the existing statutory powers for the temporary use of land subject to rights of common. Under Section 15 of the Inclosure Act, 1775 (15 George III., chapter 81), it is competent for the lord of a manor, with the consent of three-fourths of the commoners in meeting assembled, to lease by auction a part not exceeding one-twelfth of the common for not more than four years; and the net rent is to be applied by the lord and the major part of his tenants in draining, fencing, or otherwise improving the residue of the common. In the case of common land which is not at present frequented by the public, it may be possible to take advantage of this power of temporary use, while at the same time providing for the eventual improvement of the common.

MR. FRANK CUTHBERTSON.—Recent communications from America bring us news of the marriage, on June 21 last, of Mr. FRANK GOODWIN CUTHBERTSON, eldest son of Mr. WILLIAM CUTHBERTSON, V.M.H., Edinburgh, to Miss EVELYN MATHILDE McLEAN, daughter of Mr. and Mrs. GEORGE McLEAN, of San Francisco. Mr. CUTHBERTSON left Scotland for America some years ago, and he now occupies a responsible position in the vast nursery business of C. C. MORSE AND Co., at San Francisco. Mr. and Mrs. CUTHBERTSON will reside at 6109, California Street, San Francisco.

WAR HORTICULTURAL RELIEF FUND.—At the invitation of the Viscountess ST. CYRES a meeting was held at 84, Eaton Square, on the 5th inst., in aid of the War Horticultural Relief Fund. The chair was taken by Lady NORTHCOTE, C.I., and there were present the members of the Ladies' Committee and many county presidents. At this meeting Mr. VAN ORSHOVEN, the agricultural representative in London of the Belgium Government, spoke on the conditions of horticulture in Belgium, and of the sad outlook for horticulturists at the close of the war were help not forthcoming to reinstate them in their businesses. Means for increasing the fund were then discussed, and Lady BALFOUR OF BURLINGHAM reported upon a recent garden fête held at Norwood, Alloa, by Mr. and Mrs. JOHN GRAEME THOMSON, which had resulted in £370 being added to the fund. The further addition of an anonymous donation of £100, and £75 from Mr. and Mrs. JOHN PIERPONT MORGAN were also reported, which brought the fund to a grand total of about £9,000. Lady NORTHCOTE announced that Mrs. WATSON had been appointed lady assistant secretary to the fund. The office of the fund is at the Royal Horticultural Hall, Vincent Square, Westminster, where subscriptions will be gratefully received.

LOCH LOMOND PARK.—Loch Lomond Park, the portion of the newly acquired Balloch

estate which has been set aside by the Corporation of Glasgow for the use of the public, was formally opened on July 1 last by Lady DUNLOP, the wife of the Lord Provost. Commemoration trees were planted, and later in the day the general public was admitted to the park. In the course of the speeches it was stated that a large portion of the estate consisted of good

economic importance is carried out by Dr. HURRY, of Westfield, Reading, in a manner worthy of imitation elsewhere. During the summer months on certain holidays, visitors are invited to inspect the gardens and conservatories in which are growing many of the plants used in medicine, as well as those used for food or for the manufacture of textiles.

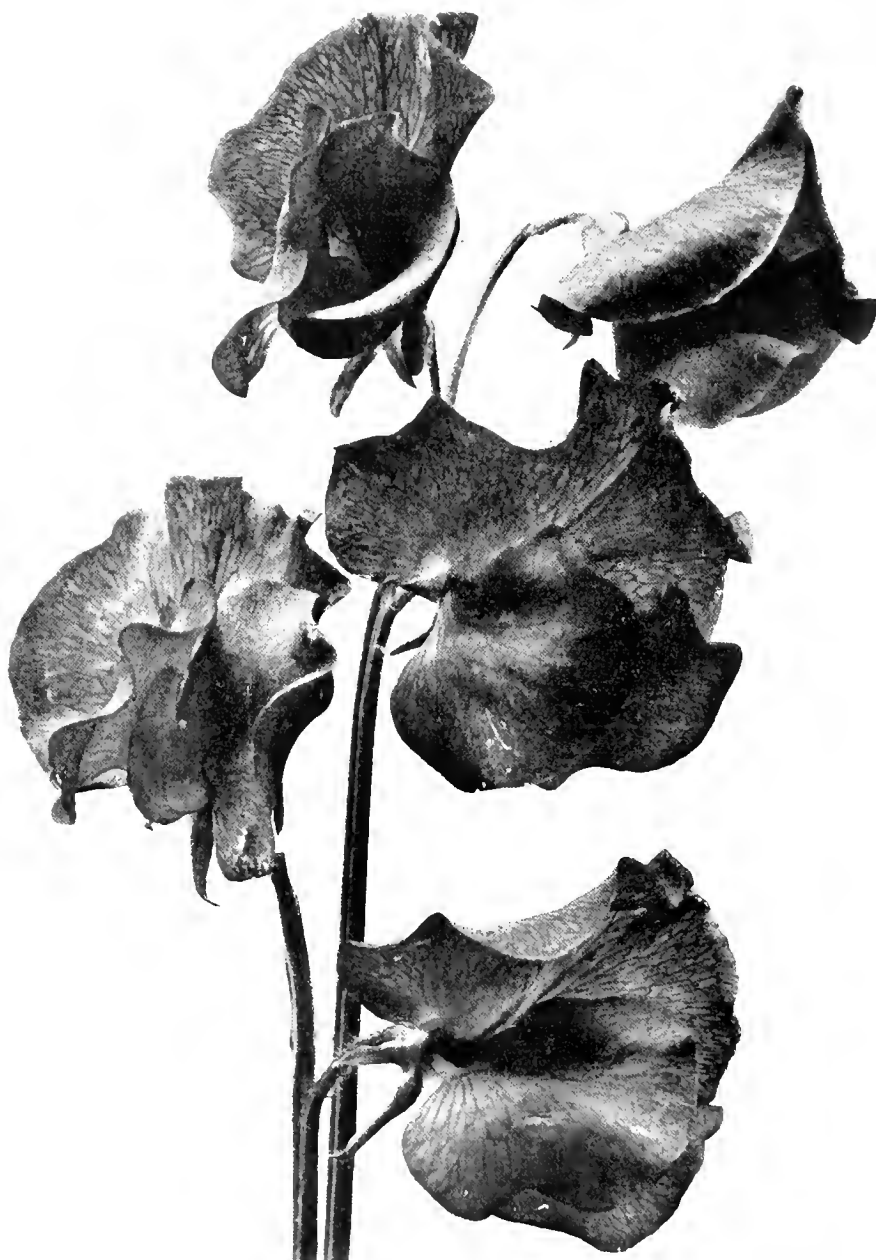


FIG. 12. SWEET PEA THE PRESIDENT COLOUR OF FLOWERS, ORANGE-SCARLET.

(Photograph by I. Stevenson.)

farm lands, which would pay their way. There were also ideal sites for garden cities, and it was believed that, with proper feuing arrangements and improved agriculture, it would prove a very good investment for the city of Glasgow, and more than pay for the cost of upkeep of the park.

EXHIBITION OF ECONOMIC PLANTS.—The happy idea of interesting the young in plants of

PUBLICATIONS RECEIVED.—*The Manual of Manures.* By Henry Vendelmans. (London: "Country Life," Ltd., 20, Tavistock Street, Covent Garden.) 3s. 6d. net.—*Discovery, or the Spirit and Service of Science.* By R. A. Gregory. (London: Macmillan & Co., Ltd., St. Martin's Street.) 5s. net. *Bulletin of Miscellaneous Information.* No. 5 of 1916. Royal Botanic Gardens, Kew.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

COLOUR STANDARDISATION.—Take the opportunity given in the *Gardeners' Chronicle* of March 20 last to discuss colour standardisation. Two chief considerations urge me to write: (1) Colour appeals to every human being and belongs of right to all who love joy-giving knowledge. Colour discrimination has its value in every walk of life and in all art and science. Let us classify and name colours on simple, intelligible lines, before the professional experts get hold of the subject and try to lock it up as supposed occult knowledge, and quarrel among themselves over names; for colour is new as a science, though old as an art. (2) Every science must be international for its development, and a natural science, especially, can only do its best work through links between naturalists of diverse nations. It is good news that Dr. Ridgway has agreed to promote a colour chart adapted to wider use. I believe any colour chart that was not based on the Ridgway method would be retrograde. Yet the Frenchmen of the *Répertoire des Couleurs* are eminently right (1) in recognising the importance of international work; (2) in giving the origin of the names adopted; (3) in their fine feeling for colour names, the English names being often very inferior, while the Latin nations have usually wisely imitated French names; (4) in quoting examples of colours (though too exclusively, for general use, from the vegetable world); and (5) in laying down the rule that a colour is best tested or exhibited by being surrounded with white, though it must be admitted that for the convenience of a small book of reference, where colour samples are crowded, the grey ground of Ridgway's may be justified as more restful to the eye. Colour nomenclature should be fixed after comparisons between the work of French, Italian, Spanish, and German colour-students, and the names they select, as well as of American and English; and if possible we should consult a few of the many cultured people of Japan (who all learn English, in spite of our irrational spelling). I believe Dr. Ridgway to be a true American in fine intellectual sympathies and appreciation of the needs and capacities of ordinary mortals; and we should ask him to add some helpful pages to his admirable letterpress. Some alternative names should be given in a prefatory classified index, even if synonyms are ruled objectionable in the body of the book. Brief notes on the origin of names are needed, and also such historical appellations as "Chevreul's type blue," and if possible all the forty of Saccardo's Latin names. There is no more delightful hobby than a collection of colours, which can be made with not only paints or pastels, but also with scraps of coloured paper from wrappers on merchandise, disused sample books, and small pieces of cotton or silk-coloured cloth, cut into uniform shape. The best model is the Ridgway chart, three columns of seven colours each to a page (omitting black and white); and a skeleton outline of the rectangular spaces can be easily pencilled in by means of a cardboard stencil. Opposite each of the fifty-three pages space should be left for entering notes of examples. Thus this individual colour chart will have the Scarlet Pimpernel (*Anagallis arvensis*) and the two tones of the Dandelion duly noted; also the Purple Clover (*Trifolium pratense*), the best example of Ridgway's Eumatorium Purple, XXXVIII., 67", V-R; in the French Repertory "Deep carmine violet," 174, tone 1. The colour primuline yellow will be referred to the yellow of the wasp. To go further afield for examples, the Mariposa Lily (*Calochortus macrocarpus*), the loveliest of British Columbian flowers, is Hay's lilac, XXXVIII., 63", R. V., tone d—perhaps better given in the French chart: "Violet heliotrope," 188, tone 2. The inside of the Maynard Plum is Pomegranate purple, Ridgway, XII., 71, V. R. R., i; or in the French chart, 165, purple garnet, tone 1, or reddish-purple, 161, tone 1 (*Saccardo's purpureus*). The production of a universal and easily-understood colour guide would do many things for us, especially when we should become familiar with it through a little colour-testing practice. Not the least of the benefits resulting would be the help in visualising from description the floral treasures

found by such travellers as Mr. E. H. Wilson and Mr. Reginald Farrer. *D. F. Kerr, Kelowna, B.C.*

ROBINIA KELSEYI.—A note on this plant in your issue of the 8th inst. seems to imply that it is less brittle than the Rose Acacia. This, however, has not been my experience, as young plants have made 6ft. of growth in a year, and the autumn winds have broken them in a terrible manner. A sheltered position for this plant is desirable, and the bush form is probably the best way of growing it. *E. A. Bunyard.*

UNFRUITFUL GREENGAGE TREES.—Having seen *Southern Grower's* interesting article on "The Market Fruit Garden" in the issue for July 8, I would like to refer to the four Greengage trees that do not bear. I think I am right in saying the same thing happened for eight years with some six Greengages close together, but with two or more other Plum trees near (including Cox's Emperor), in one of the college plantations. They have now been grubbed. As a contrast, in my brother Geoffrey's orchards at Pershore, Worcestershire, Greengage trees among Early Rivers and Pershore Egg Plum trees crop well and regularly. In a garden here where Greengages of several kinds are grown together against a wall (bees are also kept), the Greengages crop well. In my pollination trial Greengage set well with Pershore Egg Plum pollen. May I ask of what varieties are the six Plum trees near the Greengages? I think if there were one or two Pershore Egg Plums among them the Greengages might set their fruit. *Cecil H. Hooper, South-Eastern Agricultural College, Wye, Kent.*

STRUTHIOPTERIS PENNSYLVANICA.—Among the "Answers to Correspondents" in the *Gardeners' Chronicle* for July 8 is one regarding the hardy Fern often known as above. In the answer it is stated that the correct name is *Onclea germanica*. This answer calls attention to the difficulty experienced by the average individual in finding out what is really the correct name of a given plant, as authorities differ so greatly in many respects. In the last issue of *Plants Certificated by the Royal Horticultural Society Between the Years 1859 and 1910 Inclusive*, the Fern is placed in the genus *Matteuccia*, and even the well-known Hart's Tongue Fern is changed from *Scolopendrium* to *Phyllitis*. Seeking some elucidation of these changes, I consulted the preface, and therein read:—"The greatest number of alterations in nomenclature will be found in the Ferns, where Carl Christensen's 'Index Filicum,' published in 1905 and 1906, has been followed. For example, *Nephrodium* now becomes *Doryopteris*, and *Scolopendrium* *Phyllitis*." Now the practical man is very apt to ask why he is set the task of unlearning what he has already committed to memory. It is not as if a consistent course was followed, for the R.H.S. gives certificates and awards to plants bearing the older, and, according to their own dictum, the wiser names. *W. T.*

CLASSIFICATION AND DESCRIPTION OF APPLES.—Part 3, Vol. XL., of the *R.H.S. Journal* contains, as it were, an antithesis; on the one hand we find an endeavour to put the classification of Apples, and by inference their recognition and description, on more or less scientific lines by Mr. E. A. Bunyard, whilst on the other (pp. ccii and ccv) records of two new Apples are given with a very thin amount of descriptive effort; the accompanying figures (119-121), particularly those of the vertical sections, seem hardly worth the space occupied; in neither case can the core outline be seen, and in that of Madresfield Court the section is not central, and the stalk measures about an inch instead of half that length. In neither case are the characters of the tree, liability to disease and pests, or keeping quality given. The Société Nat. d'Horticult. de France, in the *Mollleurs Fruits au début du XX^e Siècle* has made some methodical attempt to give more, though hardly sufficient, information in each cited case of the character of the tree, of its vegetative parts, of the fruit and blossom, of its history, season, liability to pests, cropping power, etc. To return to our instance: We are told that Edwin Beckett is distinct from Peasgood's Nonesuch "in foliage and growth," but are given no hint as to the

nature of this difference. The two also differ when cooked, whether because one is more sidid, crisper, more leathery, more foamy or pul-taceous it is impossible to tell; whether the cooking consisted in baking or pie-form (both of which are necessary in estimating an Apple, whether "cooker" or "dessert") is not given. But, except in the case of vintage fruit, there is an appalling lack of information in regard to analytical details in all our descriptions, and I venture to think that in a description of a fruit (of whatever sort) the acidity of the juice, the total sugar, and especially the ratio of saccharose to total sugar, should always be given. A little while back *Southern Grower* made a most sapient remark on this point; when comparing two Apples he remarked that one required sugar and the other did not. That veteran in pomological analyses, M. Truelle, lays it down that an Apple should be examined chemically in at least three consecutive seasons before a verdict can be given, and this should apply not only to its analysis, but also to its texture and aroma. Seeing the confusion that reigns with some older varieties, it is especially important that any new introductions should be properly ticketed with most searching descriptions of their peculiarities, in order that the existing salad of synonyms and wrong names may not be handed on to the twenty-first century. From a rough practical point of view the primitive division into "early," "mid," and "late" season is very useful, for Apples and Pears, at any rate. The utter want of method in the choice or arrangement of fancy names is quite the contrary. Would it not be possible to ticket new introductions with names that would signify something about their nature? As an example, if Edwin Beckett were an early it might be called Eardwin, if a mid season Midwin, and if late Ladwin, and Madresfield Court would become Madresfield Early, Mid, or Late as the case may be. But it is not only Apples that require some systematising, for what a meaningless jumble of names is attached to Broccoli, Potatos, and what not, including floral efforts. *H. E. Durham.*

NATIONAL DIPLOMA IN HORTICULTURE.—In accordance with the frequent notices which you have kindly allowed to appear in your columns, the 1916 Examinations for the National Diploma in Horticulture—established by the Royal Horticultural Society in conjunction with, and by the approval of H.M. Government—were held at the society's gardens at Wisley in June. The Council has approved the recommendations of the examiners that the Diploma should be bestowed upon the following, who have satisfactorily passed the Final Examination:—

SECTION I.

Miss E. H. Ekins, Studley College, Warwick.
Mr. A. D. Turner, Madryn Farm School, Pwllheli, N. Wales.

SECTION II.

Mr. J. Coombes, Research Station, Long Ashton, Bristol.

SECTION VIII.

Mr. A. D. Turner, Madryn Farm School, Pwllheli, N. Wales.

PRELIMINARY EXAMINATION.

Further, the following candidates satisfied the examiners' requirements in the Preliminary Examination:—

DIVISION A.

Mr. H. C. Elsdon, Maesbrook, 27, Emscote Road, Warwick.
Mr. A. T. Harrison, Eynsham Hall Gardens, Witney, Oxon.
Mr. J. K. Ramsbottom, 61, Ennerdale Road, Richmond.

DIVISION B.

Miss May Heron, 5, Wellington Road, Handsworth Wood, Birmingham.
Miss G. D. King, Gayton Rectory, Blisworth, R.S.O.

DIVISION C.

Mr. G. H. Copley, 37, Sowden Street, Gt. Horton, Bradford.
Miss E. Lucas, The Elms, Pulborough, Sussex.
Miss D. G. Plimley, Belgrave Road, Clifton, Bristol.
Mr. G. Willan, The Nurseries, Lymm, Cheshire.
W. Wilks, Secretary.

SOCIETIES.

ROYAL HORTICULTURAL.

TRIAL OF HORTICULTURAL SUNDRIES.

JUNE 20.—The following awards have been made to sundries after trial in the Wisley Gardens:—

AWARDS OF MERIT.

Four Oaks Spraying Pump, Southern Cross pattern, sent by THE FOUR OAKS SPRAYING MACHINE Co., Sutton Coldfield, near Birmingham.

Dry Powder Sprayer, Little Wonder, sent by THE FOUR OAKS SPRAYING MACHINE Co.

Adjustable Sand Distributor, sent by MESSRS. H. PATTISSON AND Co., 4 and 6, Greyhound Lane, Streatham.

HIGHLY COMMENDED.—Four Oaks Hand Sprayer, Streetley Pattern de Luxe, sent by THE FOUR OAKS SPRAYING MACHINE Co.

COMMENDED.—Turf Renovators, sent by MESSRS. H. PATTISSON AND Co.; Voss Nicotine Soap, sent by MESSRS. WALTER VOSS AND Co., LTD., Glengall Road, Millwall, E.

NATIONAL SWEET PEA.

JULY 11.—The Annual Exhibition of the National Sweet Pea Society was held on Tuesday last in the Royal Horticultural Society's Hall, Vincent Square, Westminster. The show was a great success, the classes being well filled and the flowers of high quality generally. The exhibits from traders were especially good.

AWARDS OF MERIT

were awarded to the two following varieties:—

Sweet Pea Old Rose (selected).—This is an improved form of this well-known variety of old rose colour. Exhibited by MESSRS. DOBBIE AND Co.

S. P. Mrs. C. P. Tomlin.—A bright cerise-crimson variety, said to be a sport from Sincerity. Shown by Mr. F. C. Woodcock, Walmer, Kent.

SPECIAL PRIZE CLASSES FOR AMATEURS.

The Henry Eckford Memorial Cup was offered in Class 1, open to amateurs, for the best exhibit of 12 bunches, distinct varieties. Five excellent collections were staged, the 1st prize being awarded to Mr. W. H. HOLLOWAY, Shrewsbury, for splendid spikes of Audrey Crier, Melha, Agricola, Prince George, Fenton's Cream, President (see fig. 12), Jean Ireland, Warrior, Edrom Beauty, R. L. Felton, Prince Edward of Wales, and Royal Purple; 2nd, Mr. F. W. FRANKS, Tonbridge, for large blooms on long, stout stalks, John Ingram and Royal Purple being exceptionally good.

The Sutton Cup was offered for 18 bunches, distinct, selected from a specified list of varieties. It was won by Mr. H. H. LEES, Exeter, who showed Elsie Herbert, Agricola, Maud Holmes, Jean Ireland, King Manoel, and other well-known sorts; 2nd, Mr. L. COOKSON, Wrexham, with rather smaller flowers, but good arrangement.

In Class 3 Messrs. John K. King and Sons offered a Challenge Cup, the schedule calling for 12 bunches, distinct, from a list recommended by the Floral Committee as being the best in their respective colours. Mr. W. PHILIP, Astley, Shrewsbury, won the trophy with an excellent collection, the flowers being very large and brightly coloured. Jean Ireland was splendid, and others especially good were Duchess of Portland, R. F. Felton, May Unwin, and Agricola; 2nd, Mr. H. LEES.

Messrs. Dobbie and Co. offered prizes in Class 5 for 6 bunches of new varieties. The 1st prize was won by Mr. T. JONES, Ruabon, with grand spikes of Golden Glory, Melody, Victory, Jean Ireland, Miss Burnie, and Peace. Two exhibits were disqualified, one for wrong naming of a white variety, the other for having two varieties in the one vase.

OPEN CLASSES.

CLASSIFICATION CLASS.—This class was for 18 bunches, distinct, from the Floral Committee's classification list. Mr. H. D. TIGWELL, Greenford, won the 1st prize finely with splendid

bunches of Hercules, Mrs. Sykes, King Manoel, Illuminator, Nora Morriss, R. F. Felton, Elsie Herbert, Dobbie's Cream, and Royal Purple; 2nd, Messrs. J. PIPER AND SON, Bayswater; 3rd, Mr. R. WRIGHT, Formby.

Four exhibits were forthcoming in the class for 12 bunches, distinct, in which Major MOLSON, Goring-on-Sea, Sussex, excelled with a superb exhibit, his flowers of Melba, Agricola, Sun-proof Crimson, Hercules, R. F. Felton, Constance Hinton, Rosabelle, and King Manoel being among the best in the show; 2nd, Mr. F. W. FRANKS; 3rd, Mrs. MACNAMARA, Ennistymon, Co. Clare, both being worthy competitors in this keenly contested class.

Mr. J. STEVENSON, Wimborne, had the field all to himself in the class for 3 bunches of seedling varieties, and was awarded the 1st prize for Hope, Faith (lavender), and Royalty (deep purple). Mr. STEVENSON also showed best in the

pick of the varieties; 2nd, Messrs. E. W. KING AND Co., Coggeshall, with an exhibit of great merit; 3rd, Messrs. BIDE AND SON, Farnham.

DISTRICT CLASSES.—These numbered nine.

London Class.—This was for 6 bunches, distinct, open to growers residing within nine miles of Hyde Park Corner. 1st, Mr. W. RAVEN, Wood Green, who showed much the best of five. **Irish Class, for 9 bunches, distinct.**—1st, Mrs. MACNAMARA, whose flowers were superb specimens. **Welsh Class, for 9 bunches, distinct.**—1st, Mr. THOS. JONES, with an exhibit up to his usual high standard; 2nd, Mr. L. WEBB, Welshpool. **Northern Counties Class.**—1st, Mr. F. J. HARRISON, Ulverstone. **Western Counties.**—1st, Mr. W. H. HOLLOWAY, Shrewsbury; 2nd, Mr. H. LEES, Exeter. **Eastern Counties.**—1st, Mr. G. W. Paton, Little Hallingbury, Bishop's Stortford. **Midland Counties.**—1st, Mr. F. CARTER, Banbury. **Southern Counties.**—1st, Mr.



FIG. 13.—HYBRID TEA ROSE LORD KITCHENER: COLOUR ROSY-CARMINE. (Awarded the National Rose Society's Certificate of Merit on the 30th ult.) (See p. 27.)

class for 1 bunch of a seedling variety, and received the 1st prize for his novelty, Charity.

E. W. KING CHALLENGE CUP.—This trophy, and the Gold Medal of the Society, were offered for 12 bunches, distinct, of varieties in commerce. There was good competition amongst five. E. BROAD, Esq., Fowey (gr. Mr. R. Stevens), staged unusually long-stemmed spikes of large flowers of Dobbie's Cream, Mrs. Cuthbertson, Barbara, Edrom Beauty, Miss Burnie, Hercules, Mrs. Breadmore, R. F. Felton, and Elsie Herbert; 2nd, Mr. A. BAKER, Reigate, whose finest vase was of Jean Ireland.

BURPEE CUP.—The Burpee Challenge Cup and Gold Medal of the Society were offered for a display of waved varieties on staging 8 feet by 3 feet, the exhibit not to be higher than 4 feet. There were four splendid collections, each a self-contained exhibit, on a small table by itself. The best collection was shown by E. G. MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. Thos. Stevenson), Barbara, Rosy Rapture, Thos. Stevenson, Elfrida Pearson, Mrs. Cuthbertson, Peace, Jean Ireland, and Lady Evelyn being the

F. W. FRANKS, Tonbridge. The 1st prize included a Silver Challenge Trophy and Gold Medal offered by the Boundary Chemical Company. The vase of Rose Purple was superb.

Miss R. CHRISTIE, Chelmsford, won the Bide Challenge Cup for 12 bunches; Dr. G. T. LEGGATT, Harpenden, the Perkin Challenge Cup for 5 bunches; and Mr. R. COX, Wimborne, the Breadmore Challenge Cup for 6 bunches. Mr. H. HANSON, Ipswich, had the better of two exhibits in the class for 3 bunches, distinct.

In a special division for amateurs, in which the new Hawlmark Challenge Cup was offered for 12 bunches, distinct, Mr. TOM JONES showed splendid spikes of Marks Tey, Dobbie's Cream, R. F. Felton, Elfrida Pearson, and Agricola, winning the trophy easily; 2nd, Mr. E. DANIELS, Harrow.

Other winners of 1st prizes were Messrs. W. J. ABBEY, Tonbridge; E. WALTERS, Swindon; J. R. ROBINSON, Lardy; W. JAMES, Bedford; and F. J. ROGERS, Yarmouth.

The best table of Sweet Peas was arranged by Mrs. A. D. DUFF, Sharnbrook, who employed

mixed varieties: 2nd, Mrs. C. A. TISDALL, Woodford Green.

NURSERYMEN'S EXHIBITS.

The following medals were awarded for non-competitive exhibits of Sweet Peas by nurserymen:—*Large Gold Medals*—Mr. J. STEVENSON, Messrs. DOBBIE AND Co. *Gold Medals*—Messrs. E. W. KING AND Co., Messrs. J. PIPER AND SONS, Messrs. ALEX. DICKSON AND SONS, Messrs. S. BIDE AND SONS, and Messrs. ROBERT BOLTON. *Silver-gilt Medals* to Messrs. JARMAN AND Co., and Mr. H. J. DAMERUM. *Silver Medals* to ROBERT SYDENHAM, LTD., and Messrs. HOBBIES, LTD.

CITY OF LONDON ROSE.

JULY 7.—The fourth annual exhibition of the City of London Rose Society was held at Cannon Street Hotel. The show was originally fixed for the 27th ult., but, in view of the backward season, the committee postponed the event until the 7th inst. The weather was very unfavourable. Rain fell during the afternoon, and in the dull, cloudy weather artificial light was soon needed in the building.

The Lord Mayor, the Rt. Hon. Sir Charles Wakefield, President of the Society, accompanied by the Lady Mayoress, presided at the opening ceremony. The competition was very good, but, as at the National Rose Society's show, the blooms did not reach a high standard of quality. The proceeds of the exhibition were in aid of the funds of the Red Cross Society.

NURSERYMEN'S CLASSES.

The class for 48 blooms, distinct, attracted eight competitors, all well-known firms.

The 1st prize, which included the Nurserymen's Champion Trophy, was won by Messrs. ALEX. DICKSON AND SON, Newtownards, with blooms of good quality, but a little weather stained in the outer petals. Their best flowers were Mrs. J. H. Welch, Alice Lindsell, Bessie Brown, Margaret Dickson, Hamill, George A. Hammond, Lohengrin, H. V. Machin, Souvenir de Pierre Notting, George Dickson, Mme. Chédane-Guinoisseau and Pharisier; 2nd, Messrs. R. HARKNESS AND Co., Hitchin, for clean, bright flowers of Mildred Grant, H. V. Machin, Mrs. Amy Hammond and Duchess of Sutherland were all shown finely; 2nd, Mr. W. R. HAMMOND, Burgess Hill, Sussex, with Avoca, Geo. Dickson (awarded the medal as the best Rose in the nurserymen's classes), Mme. Jules Graveraux, Dean Hole, Gloire de Chédane-Guinoisseau and Mrs. Cornwallis West; 3rd, Messrs. CHAPLIN BROS., LTD., Waltham Cross.

In Class 3, for 13 blooms, distinct, of Tea and Noisette varieties, Messrs D. PRIOR AND SON won the 1st prize with Mrs. Foley Hobbs, Mrs. Ed. Mawley, Alexander Hill Gray, White Maman Cochet and W. R. Smith as their best flowers; 2nd, Mr. GEO. PRINCE, Oxford, with excellent flowers of Cleopatra, Comtesse de Nadailac, Mrs. D. Cross and Souv. de E. Vardon; 3rd, Messrs. F. CANT AND Co., Colchester.

Class 6, for 12 blooms of new Roses, attracted five exhibitors. The 1st prize was won by Messrs. ALEX. DICKSON AND SONS, with Florence Forrester, H. V. Machin, Colleen, Mrs. M. Dawson, Mrs. Geo. Norwood, Edward Bohane, Geo. A. Hammond, Coronation, Janet A. Hartman, Edgar M. Burnett and Mrs. Archie Grey; 2nd, Mr. ELISHA HICKS, who showed Gorgeous, Coronation, Candeur Lyonnaise, Colleen and Mrs. G. Norwood.

Mr. FRANK SPOONER, Horsell, Woking, showed best in the class for 18 bunches of decorative Roses. The exhibit was well staged, and the blooms were of good quality, especially those of General McArthur, Mme. E. Herriot, Lady Hill, Mrs. Alfred Tate, Rayon d'Or, Sunburst and Mme. Looyman, a cerise pink variety after Tausendschön; 2nd, Messrs. F. CARR AND Co., 3rd, Messrs. CHAPLIN BROS.

Mr. ELISHA HICKS, Twyford, won in splendid manner the 1st prize in the class for 5 baskets of cut blooms. Mrs. E. Powell, a Rose of delicate perfume and a blaze of colour; Joanna Bridge; C. E. Shea, a new satiny-pink variety; his gorgeous crimson single variety Princess Mary, and Queen of the Belgians, a fine decorative pink Rose with crimped petals. 2nd, Messrs. ALEXANDER DICKSON, who showed fine baskets of Margaret Dickson, Hamill, Red Letter Day, Mrs. Alfred Tate, and Donald McDonald.

MEMBERS' CLASSES.—The most important class in this section was for 24 blooms, distinct. It proved an excellent class, attracting seven competitors. H. L. WETTERN, Esq., 16, Water Lane, was adjudged the winner of the 1st prize, which included the Amateur Challenge Trophy. He had fine blooms of large size of such beautiful sorts as Mildred Grant, Majestic, H. V. Machin, Amy Hammond, Mrs. Coxhead, G. Dickson and Avoca; 2nd, F. DENNISON, Esq., Leamington, with blooms of splendid quality but not so large. Maman Cochet, Mabel Drew, W. Shean, Ethel Malcolm and Mrs. Foley Hobbs are a selection of the best varieties. 3rd, G. C. SAWDAY, Esq., Beechfield, Weybridge, whose exhibit contained the medal bloom in the Amateurs' classes, a superb flower of Mrs. Foley Hobbs.

Class 8 was for eight distinct varieties. The 1st prize was won by G. A. HAMMOND, Esq., Burgess Hill, for a splendid box of flowers with rich colours, including many fine old varieties such as G. Dickson, Avoca, Gloire de Chédane-Guinoisseau, and Hugh Dickson. 2nd, F. DENNISON, Esq., Leamington.

Class 9, for 12 blooms, was not so good as the preceding, but there were two good exhibits. The best was shown by ALEX. HILL GRAY, Esq., Newbridge, Bath, who had Mme. Jules Graveraux, Mrs. Campbell Hall, Pink Maman Cochet, and small but superbly shaped and richly coloured blooms of Mme. Constant Soupert. 2nd, Mr. F. DENNISON.

Class 10, for 9 blooms of one variety, attracted nine exhibitors. The 1st prize was won by G. A. HAMMOND, Esq., with George Dickson; 2nd, Mr. F. DENNISON, with Mrs. Foley Hobbs.

G. C. SAWDAY, Esq., Weybridge, won 1st prizes for (a) 12 blooms, distinct, and (b) 6 blooms of one variety, with Mildred Grant.

The City of London Championship Trophy, presented by the Lord Mayor of London, for 12 blooms, distinct, was won by Mr. H. L. WETTERN, who won other 1st prizes, whilst the Challenge Cup in the Metropolitan classes was again won by R. DE ESCOFFIER, Esq., Dulwich, who also showed the best exhibit of 6 blooms grown within 8 miles of the Royal Exchange, thus securing the Challenge Cup offered.

Other winners of 1st prizes in the Members' classes were Messrs. E. F. MORGAN, South Croydon; H. R. DARLINGTON, Potters Bar; J. HART, Potters Bar; C. C. WILLIAMSON, Canterbury; D. H. DAVIS, Beaconsfield; and R. WOOSNAM, Hutton, Essex. Substantial money prizes were offered by Mr. and Mrs. R. G. Anderson for vases of Roses, the entry fees being in aid of the Red Cross Funds. Mr. WETTERN excelled for 5 vases; Rev. BURNSIDE, Great Stambridge, for 5 vases, and C. BROWN, Esq., Slough, for 3 vases.

SCOTTISH HORTICULTURAL.

JULY 4.—The monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on this date. Mr. Pirie, the president, presided, and there was an attendance of sixty members.

Mr. C. Comfort, Broomfield Gardens, Davidsons Mains, read a paper on "Some Scented-leaved Plants," and exhibited specimens. A note on the "Golden Elder" was read by the secretary, Mr. A. D. Richardson, in which he pointed out that in all the scientific works on trees and shrubs, as well as in all garden literature, this very commonly grown plant was stated to be a variety of the common Elder (*Sambucus nigra*), whereas it was a variety of the Canadian Elder (*S. canadensis*), a species, as he explained, which was quite distinct from the common Elder. The exhibits were *Olearia Gun-*

niana, from Mr. Comfort; Genm Mrs. Bradshaw, from Messrs. Jas. Grieve and Sons, Edinburgh; and Show Pansies from Mr. C. Cockburn, Pencaitland (awarded a Cultural Certificate).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 1.—At a meeting held on the above date the following awards were made.

FIRST-CLASS CERTIFICATES.

Odontioda Schroderiana var. *Gén. Joffre* (*Odm. Luciani* × *Odu. Bradshawiae*) from TOM WORSLEY, Esq.

Cattleya gigas Conyngham var., from Dr. CRAVEN MOORE.

AWARDS OF MERIT.

Odontoglossum Watsonianum loochristiense × *blotched crispum*, *O. ardentissimum* var. *Mancunium*, *O. Doris* var. *La Bella* (*Ossulstonii* × *crispum*), *O. Aireworth Conyngham* var. (*crispum* × *Lambeavianum*), all from Dr. CRAVEN MOORE.

Cattleya Cowaniae alba Ashlands var.; *Odontioda Schröderiana* var. *marginata*, and *Disa Luna*, from R. ASHWORTH, Esq.

Odontioda Earl Kitchener (*Oda. Bradshawiae* × *Odm. Rolfeae*), and *Laelia-Cattleya General Brussiloff* (*Helius* × *G. S. Ball*), from S. GRATRIX, Esq.

Cattleya Mendelii var. *Rosendale*, and *Cattleya Mossiae* var. *Evelyn*, from TOM WORSLEY, Esq.

AWARD OF APPRECIATION.

Odontoglossum venustum Gathurst var. (*crisp-Harryanum* × *ardentissimum*), from S. SWIFT, Esq.

ROYAL INSTITUTION.

III.—THE BREAKING OF THE RHYTHM.*

THE first object of the present lecture is to examine the methods employed in modern horticulture whereby plants are forced to blossom and bear fruit out of season. We will proceed to discuss the methods of forcing in current use in this country and elsewhere. Having done so we shall endeavour to discover what light the results of these forcing processes throw on the nature of the resurrection of plant life in spring. Until recently the sole agent—or almost the sole agent—used in forcing was heat. In forcing by heat plants which have finished their resting period are brought into hothouses or into heated frames and are thereby constrained to resume growth and come to precocious maturity of flower and fruit.

It would be of some interest to trace the history of forcing to its origin; but for that I have not at present the materials. It is, however, certain that soon after the cheapening of glass rendered possible the building of greenhouses for the shelter during winter of tender greens, it was discovered that if the house were kept warm by means of a flue many plants would not only survive the winter, but would also continue to grow and blossom. What more natural, then, than that enterprising gardeners should endeavour to bring early-flowering shrubs into flower before the world of plants outside awoke? A certain measure of success attending these efforts, the practice would be extended to fruits and vegetables.

In spite of all the ingenuity of gardeners, however, forcing by heat was found to have its limitations. Certain plants respond well, others badly; and, moreover, some plants may only be thus quickened into life after a certain period of rest. Before that time they prove refractory. This fact probably led to the discoveries, first, that a plant forces better if it has, as gardeners say, thoroughly ripened its wood; and, second, that many plants—Rhubarb, Lilies-of-the-Valley, etc.—are more amenable to forcing if, previously to being brought into the forcing house, they are exposed to the weather, and particularly to frost.

What exactly is meant by the thorough "ripening of the wood" has never, so far as I know, been defined. I think, however, that we may take it to include at least three processes—the formation of well-developed buds for next season's leaves and flowers; the storage by the

* Third lecture on "Modern Horticulture," delivered by Dr. Keeble before the Royal Institution (see *Gard. Chron.*, May 13, p. 260, and June 17, p. 327).

plant of a large reserve of food material, starch, etc., for supplying the developing buds with nutriment; and a state of relative rest in the plant, brought about, as we have learned, by a reduction of the water supply and a locking up of the food materials in an insoluble form.

If plants of Elder be brought into a warm house in November they may be caused to start into growth and to develop their leaves and flowers; but if in early summer the leaves of an Elder be removed from the plant, although it forms its buds as usual during the late summer, all attempts at forcing the plant in the autumn are without effect. The results of the removal of the leaves would be, probably, an accumulation of water in the tissues, for active leaves transpire large quantities of water, and hence a reduction in leaf surface might well lead to an accumulation of water in the tissues, and certainly a reduction of the reserve of food materials, for, in the first place, the leaves are the factories in which these food materials are made; and in the second place, the continued ascent of water containing mineral salts from the soil to the leaves being interrupted the supply of mineral salts would perforce be curtailed. With respect to the influence of frost in facilitating forcing, we shall have something to say presently; for the moment we need only recognise it as a well-known phenomenon, and one of which advantage is taken by all good gardeners. We had this year what I take to be a striking example of this curious effect of frost. After a uniquely warm January we experienced in the South of England a spell of very sharp frost. With the disappearance of the frost, vegetation showed a rapid and precocious development, many spring flowers rushing into blossom before their time.

In addition to thorough ripening of wood and exposure to frost, there is another factor which in some cases, at all events, facilitates forcing, and that is exposure of the plants to darkness after they are brought into the warm forcing-house.

I cannot say whether this practice is always beneficial, but in certain cases it undoubtedly is. Still less am I prepared to offer an explanation of the fact, although it is worth noting that when any ordinary growing plant is placed in darkness the distribution of its growth undergoes a remarkable alteration. If it be a plant such as a Pea, Potato, or Marrow, the young stem of which normally appears above ground and bears its leaves in series, exposure to darkness accelerates the growth in length of the stem and retards that of the leaves, so that these organs remain rudimentary. If, on the other hand, the plant be one such as Rhubarb or Sea Kale, which retains its stem below ground and sends up large-stalked leaves singly, the effect of darkness is to increase the length of the leaf-stalk.

In either case the increased growth in length of stem or leaf-stalk brought about by darkness might have for an effect the separation of the bud-scales which enclose the bud, and this separation of the bud-scales may, as we shall see, facilitate the forcing of the plant.

ETHER AND CHLOROFORM AS AIDS TO FORCING.

Until comparatively recently, the method of forcing by heat, aided by preliminary exposure to frost, and occasionally by a preliminary darkening, was the only known means of breaking into the resting period of plants and causing them to resume growth precociously. But in 1893 Johansen began a series of experiments which led to the discovery of altogether new practical methods of forcing.

The starting-point for this distinguished Dane's experiments was provided by Claude Bernard's famous investigations on the effects of anaesthetics—ether and chloroform—on the sensitive plant *Mimosa pudica*. As is well known, the leaves of this plant exhibit a wonderful sensitiveness. They assume well marked diurnal and nocturnal positions, and also respond by no less well-marked movements to a slight shock or other mechanical stimulus.

When subjected to the influence of ether or chloroform vapour the leaves of *Mimosa pudica* lose the power of responding to mechanical stimulation. They are anaesthetised just as is an animal when subjected to chloroform and ether. The nineteenth century physiologists concluded from the behaviour of such sensitive plants to

ether and chloroform that they, like animals, possess a nervous system. Nor, in its broad sense, is this conclusion erroneous, for as more modern investigations have shown, the cells which compose the several plant tissues are linked together by living strands of protoplasm, so that although the plant consists of countless thousands of microscopic cells, it is, both in structure and in behaviour, an individual; that is, is able to react as a whole to a stimulus from the outer world.

Johansen discovered the curious practical paradox that whereas chloroform and ether suspends the activity of growing plants, they aid in awakening plants which are at rest. If resting plants, such as Lilac and many others, be exposed in autumn in an air-tight box for twenty-four to forty-eight hours to the vapour of ether at the rate of about one-third of a fluid ounce per cubic foot of space, they are released from the spell of winter rest. When brought into a warm greenhouse the etherised plants begin to grow at once, blossom, and even bear fruit many days before similar but unetherised plants.

For example, Lilac etherised in August 24 blossomed on September 18, and when other Lilac plants were etherised in November the forcing period was reduced from fifty-one to thirty-one days. Although many plants respond to this treatment, others do not, and even different varieties of the same species behave very differently after treatment with ether.

Among plants with which etherisation has proved a successful aid to forcing are: Lilacs, Azaleas, Astilbes, Viburnums, and Strawberries.

The advantages of the method are that it shortens the forcing period, and so allows of a quicker turnover, and that it permits forcing to be carried out at a lower temperature, and thus reduces cost of production. In the practice of etherisation it is usual to protect the roots of the plants from the vapour of ether, and to leave the etherised plants for a few days in a cool place before bringing them into the warm forcing-house. For, curiously enough, once the plant is awakened from its rest it does not turn over and go to sleep again. Evidently the ether has effected some permanent change in the plant.

But the discovery by the Austrian botanist Mollisch of an equally effective and far simpler method of facilitating forcing will probably result in the abandonment of the etherisation process.

THE "WARM BATH" TREATMENT OF PLANTS FOR FORCING.

The discovery, which is now known by the name of the "warm bath" method, is as elegant as it is simple, and illustrates again the paradoxical behaviour of resting as compared with active organisms. For active human beings a warm bath is generally a sedative; but it disposes resting plants to activity. If the stems of resting plants be submerged for a few hours (six or more) in tepid water (35° to 40° C. = 95° to 104° F.), they lose their lethargic condition and respond readily—at least, as readily as etherised plants—when brought into the forcing-house. Anyone may demonstrate the efficacy of this method by cutting branches in autumn of Hazel or Birch or Lilac, giving them a bath for six to twelve hours, and standing the cut ends of the branches in water near the window of a warm room. Within a few weeks, and even in the depth of winter, the buds burst and leaves and flowers are produced. The experiment may be made more entertaining if a bifurcating branch be taken and one limb be bathed and the other not. Only the former will break prematurely into leaf, the unbathed branch remaining in its proper resting state. Whence it follows that the warm bath has only a local effect on the plant.

The warm bath method of quickening vegetation has been practised successfully on many plants: Lilacs, Forsythias, Ribes (Flowering Currant), Apple, *Wistaria sinensis*, Syringas, Spiraeas. One of the readiest to respond is *Azalea mollis*, and Continental growers who specialise in the cultivation of this plant for the Christmas flower trade have adopted the warm-bath method very generally. As is the case with etherisation, the quickening effects of the warm-bath method persist. Plants subject to it may

be returned to the open and kept there for weeks, and yet retain this "certain liveliness" induced by brief submersion in warm water. Of bulbous plants not all—nor, indeed, many—respond; but *Narcissus* may be forced quickly by this treatment.

Experiments on a large scale show that Mollisch's method is as efficacious as the method of etherisation for the forcing of Strawberries.

As is the case with etherisation, it is found advisable to prevent the access of the warm water to the roots. Neither method produces any bad after-effects, so that there seems no reason why the simpler hot-water aid to forcing should not come into general use.

It would be curious if so simple a method as the warm bath should prove to have remained undiscovered until a few years ago; yet the only instance of an earlier use of something like this method which I have been able to find is one recorded in Lindley's *Theory and Practice of Horticulture*, published in 1855. Therein, on the subject of forcing Cherries, it is recorded that Mr. Fintelmann, gardener to the King of Prussia, practised what we may call the warm shower-bath method. "He first soaks the roots in water heated by the mixture of equal parts of boiling and cold water; he afterwards sprinkles the trees with luke-warm water, and he continues to employ it of the same temperature so long as moisture is required." (P. 149, *op. cit.*) The discovery of the wonderful effects of etherisation and of warm water on resting plants has led to a large amount of experimental work on forcing methods, and as a result of this work two interesting discoveries have been made recently. Of these discoveries, one is perhaps more curious than commercially useful; but the other has certainly great possibilities of large-scale practical application. The first of these recent discoveries, due to Weber, demonstrates that a resting bud may be quickened into growth if a drop or two of warm water be injected by means of a surgical syringe into the stem beneath the bud. Indeed, the same result may be achieved if the stem beneath the bud be merely punctured.

NUTRITIVE SALTS AND THEIR EFFECT UPON GROWTH.

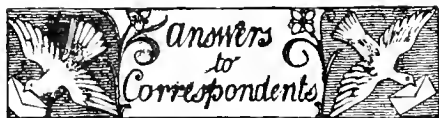
The second discovery, due in the first place to Klebs, but also to the researches of Lakon, opens up an entirely novel mode of forcing.

In the course of Professor Klebs' endeavours to discover the causes of the periodic alternation of rest and activity of plants he turned his attention to the part played by the soil in supplying the roots with mineral food substances. It is, of course, well known that the mineral salts necessary for its life are obtained by the plant from the soil. Weak, watery solutions of these salts are taken up by the root-hairs, and travel through the vessels of the wood to the leaves, where they are used in the manufacture of the food materials which serve to nourish the plant. After a season of active growth, during which the roots have taken a heavy toll of the mineral salts of potash, lime, magnesia, phosphates, nitrates, it may well be that the soil is for the time being somewhat depleted of its store of soluble salts. To test this view Klebs carried out in Java a series of experiments with pot-plants. They were allowed to pass into their natural resting phase, and were then watered with a solution (Knop's solution) containing in small but proper quantity the essential nutritive salts: nitrates, phosphates, salts of potash, lime, magnesia, iron, etc.

As a result of this treatment the resting plants started into growth again.

This method of awakening the plant by supplying it with the nutritive salts necessary for growth has given remarkable results when applied in Europe to cut off branches of resting plants, and it has been found possible by this means to compel plants to become active which are refractory to all other forcing agents. Branches of Beech, Ash, and Oak, cut in November and stood with their cut ends in an extremely dilute solution of nutrient salts, began to grow in January, and had developed young leaves by February; a result all the more noteworthy in that all these plants are very resistant to forcing, and the Ash altogether unresponsive to etherisation or warm-bath treatment.

(To be continued.)



ABNORMAL PLUM FLOWERS: *W. H. Divers.* You send us an interesting specimen of a flower of Monarch Plum containing 12 ovaries and styles. So large a number of ovaries in the Plum is interesting, chiefly because it suggests that the normal flower, with its single ovary, is derived by reduction, i.e., by suppression from the many-carpelled flower typical of this section of the Rosaceae.

ASTERS FAILING: *F. E. G.* The condition of the plants is caused by bacteria in the soil. A little superphosphate worked into the soil now might save some of the plants, but it is doubtful whether it is not too late. When planting afresh, apply the superphosphate to the soil beforehand, as a preventive of further attacks.

EPHYPHYLLUM GAERTNERI: *Amateur.* As so few of English nurserymen cultivate Cacti to any extent, it is very doubtful whether any could supply you with *Epiphyllum Gaertneri*, but failing them, you may be able to obtain it through some private source. Frantz De Laet, nurseryman, Contich, Village-lez-Anvers, Belgium, catalogues it under the name of *E. Makoyanum*, which is synonymous with *E. Gaertneri*.

EUONYMUS MILDEWED: *H. J.* The leaves of the *Euonymus* are attacked by a superficial mould, not by a parasitic fungus. It will probably therefore be sufficient to spray with weak Bordeaux mixture or a similar preparation that has proved efficacious in cases of mildew attack.

FLIES IN STAGNANT WATER: *H. S. L.* It would be more satisfactory if specimens of the flies or of the larvae in the water could be sent us, so that the exact species could be determined. In the absence of such detail, however, we may say that all larvae which breed in water have to obtain air for respiratory purposes, and it is by the exclusion of the air by means of spreading a film of petroleum over the surface of the water that they are usually destroyed. It is a remedy frequently used with good effect, and might very well be tried in your case.

FOXGLOVE WITH REGULAR FLOWER: *W. J. T.* The Campanula-like flower which you have observed in your Foxglove is an example of what is known as "Peloria." It is not uncommon for plants which normally produce zygomorphic flowers occasionally to produce a regular one at the end of the spike (see *Gard. Chron.*, Sept. 26, 1885, p. 397).

GRAPES INJURED: *W. H. and T. W., Berks.* The injury is caused by a disease known as Grape rot or Anthracnose (*Gloeosporium ampelophagum*). All leaves, shoots and fruit showing any signs of being affected should be removed and burnt. The disease spreads very quickly, and should be arrested by dusting the leaves and shoots of the vines at intervals of ten days with flowers of sulphur. On the second application of sulphur a little quicklime should be mixed with it, and the quantity of lime increased on every successive occasion until the proportions of lime and sulphur are nearly (but not quite) equal. Thoroughly wash the branches in winter with a solution of sulphate of iron, and do not be too liberal with rich manures.

IVY FAILING: *A. G.* The Ivy is attacked by red spider. Spray the plants liberally with the following mixture:—3 lbs. soft soap, 3 gallons paraffin, and 50 gallons of water, well mixed together.

"JAPAN" PLANTS: *Pyx.* It is impossible for us to give a satisfactory reply to your question whether the plants you refer to should be plunged in a border as they are, or taken out of the pots and then plunged. If you will let us know what species the plants belong to, and what is their present condition, we may then be able to assist you. With respect to the neglected Azaleas and Hydrangeas, we cannot advise you on this point without having some

idea of the condition in which they are. In what way, for instance, have they been neglected? Assuming that the Azaleas are impoverished for want of re-potting, this operation should have taken place immediately after the flowering period; or it may be done in the autumn, when the flower-buds have perfectly set. The Hydrangeas can be re-potted at almost any time; they are robust plants, very easy to cultivate if they are given a fairly rich rooting medium and plenty of water. With reference to the Carnations attacked by green fly, if these are in pots it will be better to keep them in the house until you have got rid of the pest by frequent mild fumigations with a nicotine vapourising compound. You say nothing, however, as to the type of Carnation. It is not necessary to place pot Carnations out-of-doors at any time, and to Carnations of the Malmaison type it would be distinctly injurious, even in the summer. Rain softens the leaves, and renders them less able to withstand fungous diseases, which are always ready to attack Carnations of this type.

MARKING OUT GROUND FOR CLOCK GOLF: *G. E. G.* There are at least two different methods of marking out ground for clock golf, but so far as we are aware no set measurements need be observed, as these depend upon the taste of the players and the area of ground at their disposal. The first method—the one from which the game derives its name—is to form on a well-kept lawn a circle having a diameter of from 25 feet to 35 feet. This is then divided at the circumference into 12 equal parts and numbered like the dial of a clock. A hole (3 inches across and 4 inches deep) is sunk at a spot inside the circle near what would be six on a clock, placed in such a way that no two of the twelve points are at exactly the same distance from it. The art of the game is to "putt" a golf ball into the hole in the fewest number of strokes while playing from the twelve points around the circle. Another method of marking out the ground—one which gives an equally good game—is to set out twelve points (numbered from 1 to 12) quite irregularly over a lawn, and so arrange all that no two are the same distance from the hole.

NAMES OF PLANTS: *W. and S. Cryptomeria japonica.*—*Puzzled.* 1, *Cornus capitata*, commonly called *Benthamia fragifera* in gardens and known as the Strawberry Tree; 2, *Pittosporum undulatum*; 3, *Teucrium fruticosum*; 4, *Polygonum baldschuanicum*; 5, *Pernettya mucronata*; 6, *Convolvulus Cneorum.*—*J. Wilson.* *Aesculus flava*, an American species of Horse Chestnut.—*Caldwell and Sons.* *Syringa Emodi.*—*Shrub.* The white-flowered tree is the Manna Ash (*Fraxinus Ornus*); the tree with a "catkin" is *Pterocarya rhoifolia*. If the fruits of the latter ripen we should be glad to see them, as ripe fruits of this genus are not common in this country.—*F. P. D.* The slender spray is of *Platyclinis filiformis*, often called *Dendrochilum* in gardens; the other is *Laelia cinnabrosa* (*L. cinnabarina* × *L. tenebrosa*).—*H. and Son.* *Garrya elliptica.*—*G. G.* *Cattleya intertexta*, a hybrid between *C. Warneri* and *C. Mossiae.*—*C. B.* 1, *Celsia cretica.*—*A. H. B.* The specimen agrees well with the illustration of *Sedum dasyphyllum* var. *glanduliferum*, *Bot. Mag.* t. 6,027.

PEACH NOT FLOWERING: *C. S.* We cannot give any reason for the Peach not flowering, unless it be from unsatisfactory conditions of cultivation. In our experience, however, the variety you mention, which is usually grown for the colour of its leaves, is not so free-flowering as green-leaved varieties. Are you sure the flower-buds are not taken out by bullfinches or tits?

PEAS: *E. C.* Your specimens of Peas failed, on examination, to disclose any evidence of an attack of fungous disease. The trouble is due to some circumstance which it is impossible to determine without being on the spot.

RHODODENDRONS DISEASED: *Mrs. M. M.* The Rhododendrons are attacked by a fungous

disease (*Gloeosporium rhododendri*). Collect and burn all affected leaves, and spray the bushes with liver of sulphur.

SOUVENIR DE LA MALMAISON CARNATIONS: *C. P.* It is not necessary to pinch the shoots of "Malmaison" Carnations to make them break. One-year-old plants will produce plenty of growths from the base, and each of these will produce a flower next year. It is not unusual to grow from 10 to 20, or even more, flowers on a two-year-old plant. "Malmaisons" usually flower at this time of year. They may be hastened by forcing when the flower-buds are forming, or retarded by keeping them as cool as practicable throughout the year.

STAPELIA INJURED: *F. H. B.* We have failed to find any evidence of fungous disease in the specimens received. The spotting and decay are caused by unsuitable cultural conditions, probably through excess of moisture and insufficient ventilation. *Stapelia*s, in common with other succulent plants, require rather dry conditions. If you have an opportunity to visit the succulent house (No. 5) at the Royal Botanic Gardens, Kew, you will obtain a correct idea of the kind of atmosphere and degree of exposure to sun that these plants need in this country.

STRAWBERRY-LIKE OUTGROWTH FROM TOMATO: *T. J. P.* The outgrowth presenting a superficial resemblance to a Strawberry which occurs in the wounded part of the Tomato fruit is the placenta—that is, the part of the ovary in which ovules are formed. Owing doubtless to the injury, ovules failed to develop, and the pits seen on the surface of the outgrowth are the places which mark the position of the aborted ovules.

WHITE CACTUS: *An Old Subscriber.* After blooming, the stems of *Phyllocactus* often become wilted, at the same time assuming a sickly appearance, but if given proper treatment the plants will quickly regain their former healthy condition. They thrive best when placed on a shelf in a rather dry, warm greenhouse exposed to sunshine. A temperature of 50° in winter will be sufficient for them. The most suitable soil is a light, porous loam, with about one-fourth the bulk of leaf-mould and brick rubble. Potting should be done in spring, using comparatively small, well-drained pots. Water must be given carefully, especially during the winter, as the roots soon die if kept wet. Cuttings of the ripened shoots about 6 inches in length, taken before growth has commenced in spring, and inserted in sandy soil, will root readily if placed in a close, moist house, with a temperature of 60°. An occasional light syringing to prevent the soil from becoming very dry is all that is needed until roots are formed. During the spring and summer the roots must not be allowed to become too dry.

Obituary.

GEORGE GOVER.—We regret to record the death of Mr. George Gover, which took place on the 22nd ult., after a short illness. He was apprenticed to the horticultural trade at the age of 13; later he worked for a time in the gardens at Leonardlee, Horsham, subsequently becoming *Chrysanthemum* grower to Mr. W. Wells, at Merstham. He also worked with Mr. W. J. Godfrey, of Exmouth, and was with this grower when he introduced his set of English seedlings in 1901. Later he entered the firm of J. Peed and Sons, where he remained for twelve years. Mr. Gover took a florist's business of his own early in 1915, but relinquished it some months later.

Communications Received.—*T. S., Newry*—*W. S.*—*Dr. R. F. S.*—*Perpetual*—*W. J. T.*—*Rev. W. C. G.*—*E. M. H.*—*A. C. B.*—*A. A., Mass.*—*S. H. A.*—*J. M.*—*C. P.*—*R. H. S.*—*Pte. A. D., Mesopotamia* (Many thanks)—*K. and S.*—*W. and Son.*—*C. T.*—*G. P.*—*W. and S.*—*J. F.*—*Nat. Com. for Relief in Belgium*—*W. H. D.*—*F. J.*—*W. J. A. C. H.*—*Li. Col. M.*—*G. A.*—*Geo. F. H.*—*J. P. & S., Ltd.*—*Miss P.*—*L. P.*—*C. A.*—*E. M.*—*H. E.*—*Dr. W. B. H.*—*F. W. J.*—*S. A.*

THE

Gardeners' Chronicle

No. 1543.—SATURDAY, JULY 22, 1916.

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SOME RECENT CHINESE ROSES.

SEVERAL interesting Roses have come into cultivation during recent years, mainly through the introductions of Mr. E. H. Wilson for Messrs. James Veitch and Sons and the Arnold Arboretum. The following notes refer to a few species of the section Cinnamomeae, which are either flowering at Kew at the present time or have recently passed through the writer's hands. It may be added that the Chinese Roses have recently been worked out by Messrs. A. Rehder and E. H. Wilson in Prof. C. S. Sargent's *Plantae Wilsonianae* (Vol. II., pp. 304-344).

Rosa Davidii, Crep., is a very distinct Rose that has only recently come into cultivation through Wilson's introductions, though it was originally described over twenty years ago from dried materials collected by the Abbé David at Moupine, western Szechuen. It was then referred, somewhat doubtfully, to the section *Synstylae*, and was compared with *R. moschata*, Herrm., though a photograph recently sent to Kew by Dr. Gagnepain shows that the specimen was also inscribed "*R. macrophylla* var." (possibly at a later date), which, though not correct, represents its real affinity. The plant flowering at Kew was grown from seeds communicated by Messrs. Veitch, with the number W. 1,060. The species is characterised by its rather long, loose corymbs of bright rose-pink flowers, with long, slender pedicels and rather large ovate bracts, which give it a very distinct appearance. It bears pendulous, somewhat elongated scarlet-red fruit in autumn, crowned with the persistent foliaceous sepals. Wilson remarks that it is a common Rose on the mountains of western Szechuen. The young shoots are very strongly armed.

R. corymbulosa, Rolfe (*Bot. Mag.*, t. 8,556), is an ally of the preceding, but is readily distinguished by its mostly unarmed shoots, compact corymbs of smaller, rose-pink flowers, and by the more membranous leaves, which are glaucous beneath, and turn deep vinous-purple in the autumn. Wilson remarks that it is fairly

common on the mountains of western Hupeh. It bears small, globose, coral-red fruit in autumn, crowned with the persistent foliaceous sepals.

R. setipoda, Hemsl. and Wils., is an ally of the Himalayan *R. macrophylla*, Lindl., which has been grown from Wilson's seeds, communicated by Messrs. Veitch, and figured in the *Botanical Magazine* (t. 8,569). Wilson remarks: "This well-marked species, with its shoots thickly clad with short, stout, flattened prickles, is local in its distribution, and is known to us only from the north-west corner of Hupeh and the adjacent region of Szechuen. The inflorescence varies considerably in size, being largely dependent upon vigour of growth."

R. Sweginowii, Koehne, is nearly allied to the preceding, but is readily distinguished by the remarkably strong prickles of the young shoots, which are also mixed with copious aciculae. Wilson suggests that it "may be a geographical form of *R. setipoda*, distinguished by its more hairy leaves, smaller inflorescence, and by its rounder flowers with shorter calyx lobes." The armature, however, is totally different, and the leaflets scarcely half as long, so that we regard it as quite distinct. It is a native of western Szechuen, and has light rose-pink flowers. To this belongs *R. macrophylla* var. *crasseaculeata*, Vilmorin (*Journ. Linn. Soc.*, XXVII., pp. 485-487, figs. 135, 136.)

R. sertata, Rolfe (*Bot. Mag.*, t. 8,473), is a charming Rose, of which there are four bushes in the bed in full bloom, the original from Wilson's seeds, two from Vilmorin, one much paler in colour than the other, and one from seeds sent by Dr. Henry, and the loose, wreathed character of the flowering branches, from which the specific name was derived, is always well maintained. Wilson remarks: "This pretty Rose, with its small flowers, is common on the mountain slopes of western Hupeh, but is rare in western Szechuen. None of our specimens has flowers as large as those figured in the *Botanical Magazine*," e.g., 2½ inches across, but this suggests the question whether he is speaking of the same Rose, for we have again measured the flowers, and they are the reverse of small. Its character is well shown in the illustration.

R. elegantula, Rolfe, is a dainty little Rose, which was grown from Wilson's seeds, communicated by Messrs. Veitch with the number W. 1,280. It differs markedly from the preceding in its closely acicular stems and branches, and much smaller flowers, with carmine-rose petals. The flowers also are not arranged in the same loose, wreath-like fashion. It is the *R. macrophylla* var. *acicularis*, of Vilmorin (*Journ. Roy. Hort. Soc.*, XXVII., pp. 487, 488, figs. 137, 138), but quite distinct from the Himalayan *R. macrophylla*, Lindl.

R. Moyesii, Hemsl. and Wils., is now so well known as not to require description, but it should be recorded that Wilson 4,098, now in bloom, matches the *R. macrophylla* var. *rubrostaminea*, Crep. (Vilmorin, *Journ. Roy. Hort. Soc.*, XXVII., pp. 489, 490, fig. 139), of which Vilmorin remarked: "Were it not for M. Crépin's authority I should have doubted this strange plant being a *macrophylla*." The fact is, this specific name has been extended to include at least four distinct Chinese Roses." The colour of the petals is deep rose rather than crimson. It may be added that in the Rose Dell is an exceptionally large, deep crimson form, like the one for which Mr. J. C. Allgrove received a First-class Certificate from the R.H.S. on July 20 last. Wilson remarks: "This is a very common species in the

mountain thickets of extreme western Szechuen between 2,000 and 4,000 metres altitude. The flowers vary considerably in colour, and the pedicels and calyx tube are smooth or densely stipitate-glandular. The typical form, which has dark red flowers, is abundant in the upland thickets round Tachien-lu, and is one of the most beautiful of Roses." *R. A. Rolfe*.

ALDENHAM IN SUMMER.

(Continued from page 25.)

A FINE bit of colouring at the end of one of the shrubby borders was provided by a perfect globular-shaped bush of *Philadelphus coronarius alba variegata*. Every leaf of *Quercus rubra aurea* was a pale gold colour, and at its foot a plant of *Aralia chinensis variegata aurea* throws out its big compound leaves, with an irregular band of golden-green in the centre, beyond the shade of the overhanging Oak. And now a new gem was seen in *Acer Davidii*, which has leaves shaped like those of the Portuguese Laurel, but more refined and with ruby petioles. Its glorious bark is like stratified marble, with irregular lines of purple, grey, yellow, green, and other colours, looking as though the cortex had been split, yet the surface is perfectly smooth. There was nothing finer in stem-colouring in this remarkable collection. At a little distance a magnificent bush in flower appeared like a *Dier-villa*, but closer inspection showed that it had the *Gesnera*-like blooms, subtended by three bracts, two large and one small, characteristic of *Dipelta floribunda* (see fig. 14). The blossoms are rose-coloured, white inside, with a blotch of deep orange colour that feathers at the base. A Walnut, leaved like an *Ailanthus*, had catkins hanging from the old wood some 18 inches long. This was *Juglans cathayensis*, and the Aldenham tree is about 18 feet high. In this part of the grounds, surrounded by beautiful vegetation of all kinds, is a piece of water shaped like a figure of 8, or a rough Maltese cross, known as the Wrestler's Pond, taking its name from an old inn which formerly occupied the site. A seat by the waterside under the shade of *Populus deltoides aurea*, from which hung a large clump of *Mistletoe*, tempted us to rest and admire the scene. On all sides were beautiful trees of every conceivable tint. On the opposite bank, straight across the fountain in the centre of the pond, was a great clump of the purple Hazel, and at the back of the Hazel was a tall Golden Alder. A wash with the water rose the golden-tipped spikes of *Orontium aquaticum*, and further in were colonies of Water Lilies. *Spiraeas* lined the margin, including the dwarf *S. nudiflora*, which has heads tinged with rose colour, in company with clumps of *Caltha palustris* fl. pl. *Iris Kaempferi*, *Salix lanata*, a delightful dwarf tree for the waterside, indigenous to Sutherlandshire, though not common there, with leaves like grey felt, and *Senecio Veitchii*, the big, cordate leaves having edges notched as regularly as a saw. Laburnums drooped their flower-laden branches almost in the water itself, and *Salix Salamonii*, a variety of *S. babylonica*, overhung the bank with its growth in festoons. Clumps of giant-leaved *Rheums* and *Gunneras*, patches of *Solomon's Seal*, and a thousand and one other plants that love to grow near water were flourishing in this enchanting spot.

In another part of the water garden are the old moats, which surrounded a small manor house which was pulled down in the time of Henry VIII. These are planted in a quite different style. Trees in parallel rows form a series of avenues. The outer row on the one side is of the purple *Acer Schwedleri*, its companion line being of varieties of *Cydonia japonica*, the water separating a second row of this Japanese flowering shrub. Then follows a row of fine Yews, planted in 1897 to commemorate the Diamond Jubilee; next to

them is a row of Silver Birch, and then a second line of Yews. A double row of Lombardy Poplars succeeds the Birches, and then follow lines of Hawthorus, which were in full bloom. In the borders hereabouts are many new and rare shrubs, including large numbers of Barberries. Of the newer species we noticed *Berberis Prattii*, which has salmon-red fruits with a purplish sheen around the base; *B. diaphana*, which has yellow, star-like flowers half an inch across and handsome leafage; *B. Caroli* var. *hoanghensis*, with growth more light in appearance than the majority, yet rather Box-like, but with the same family characteristic of long and short leaves in clusters. The stems are coloured hazel-brown and the leaves shining green. In contrast to the

Aldenham collection is rich in Mahonias, the large-leaved, evergreen section of Barberries without stem spines. The North American *B. aquifolium* has long been a favourite in gardens, as it grows well in almost any soil or situation. The variety *Aldenhamensis* makes a bush about 5 feet high, being altogether more robust than the type. It has dull, smooth leaves, which were already tinged with bronzy tints; the whole leaf in autumn assumes a reddish-bronze colour. The foliage is not spiny. *B. aquifolium* var. *Vicarii* is of dwarfer growth than the last. The leaves are very numerous, rather smaller than the type, and covered with a violet-coloured bloom. The margins of the leaflets are spiny and waved. Another variety, named *Revoluta*.

ORCHID NOTES AND CLEANINGS.

CYPRIPEDIUM PARISHII.

A GOOD example of this now rare *Cypripedium* is flowering in the Royal Horticultural Society's Gardens at Wisley. The plant bears two stout scapes of five and six flowers respectively. The sepals are yellowish with green veins; the twisted, pendulous petals 4 inches in length, the basal half green with some blackish spots, the terminal half blackish purple with paler margin; the lip is green stained with purple. The peculiar form of the staminode, and the general appearance of the flower, is unlike that of any other *Cypripedium*. It was discovered by the Rev. C. Parish

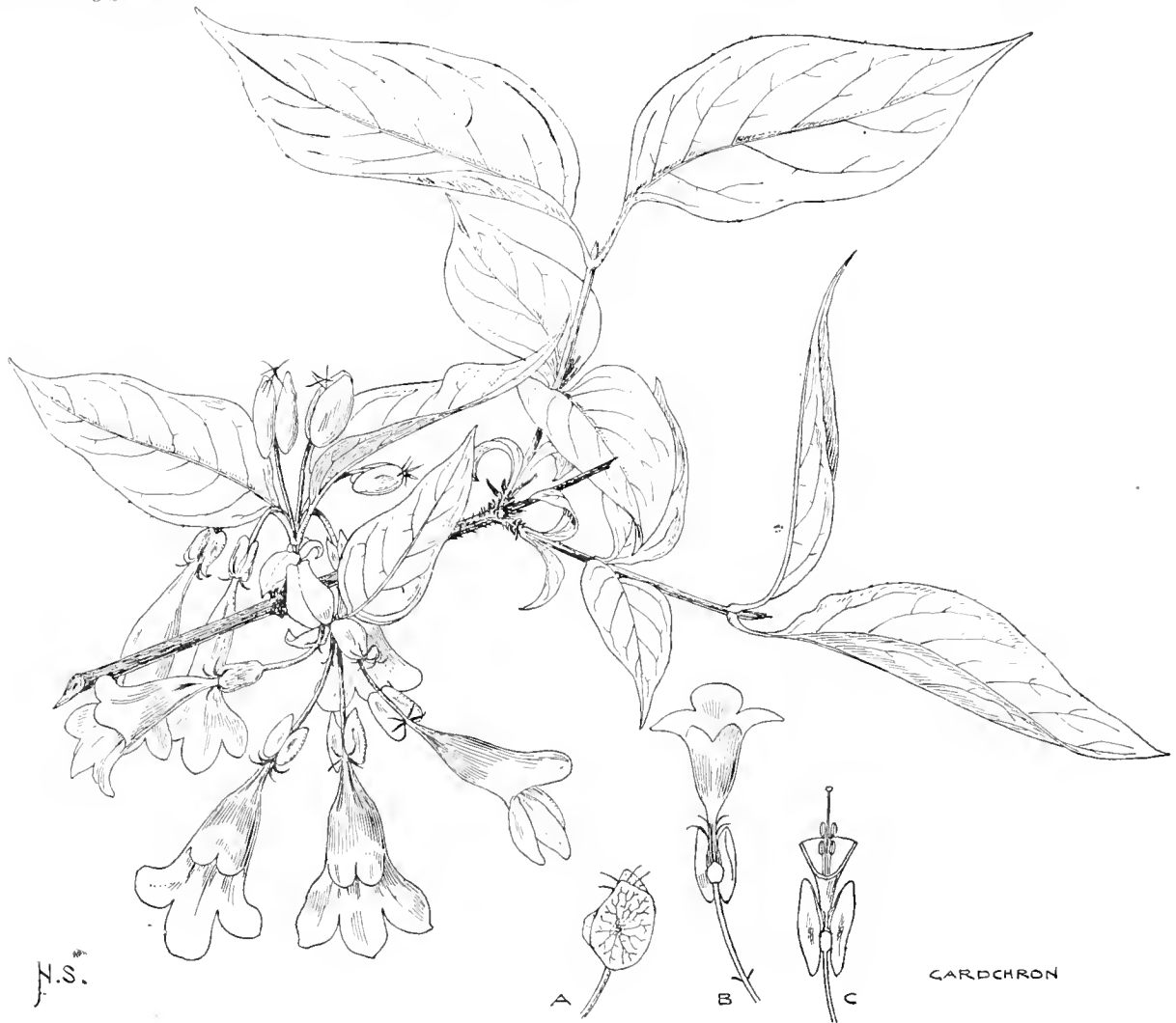


FIG. 14.—DIPELTA FLORIBUNDA.

A, lateral petal; B, flower showing abortive bract; C, portion of corolla removed to show stamens and pistil. (See page 37.)

last is the dark-leaved *B. polyantha*, which has rounded foliage and a dense habit of growth. The stems are set with rigid spines. The flowers appear in July and are succeeded by small red fruits. The stems of *B. dictyophylla albicans* are white, like those of *Rubus Giraldianus*. As the plant loses most of its leaves in autumn, the white stems form a fine feature of the shrubbery in winter. *B. Sargentiana* has distinct foliage, the old leaves being like those of the evergreen Oak, but narrower. The shrub is very formidably armed with long prickles, which arise from the leaf bases. The tips of the young growths were gloriously coloured, a foretaste of the rich tinting the whole plant assumes in autumn. *B. Koreana* is something like *Rhus Cotinus*, but the leaves are not quite so round in shape. The

has the margins of the leaves rolled back, whilst *Juglanaefolia* has foliage twice the size of the type and more numerous leaflets. This strong-growing variety puts on fine tints in autumn. In the Barberry border is a tree of *Acer platanoides Drummondii*, which is a gem among hardy trees. The leaves are on long red stalks; the blade is blotched with silver along the margin, then occurs a zone of green underlying the silver, and in the middle a deeper green. The tinting is such as is found in some *Caladiums*. Another tree that cannot be omitted from our list is *Crataegus fulvida*. It makes a perfectly globular head on a straight stem. The branches are armed with long spines and bear corymbs of white, scented flowers, that look like Guelder Roses.

in the Moulmein district in 1859, growing on thick branches in the decayed roots of the Fern *Drynaria quercifolia*. It has since been recorded from the Shan States and other parts, growing in a similar situation, which indicates that it requires comparative shade. This species was illustrated and described in the *Gardeners' Chronicle* in 1869, p. 814.

STANHOPEA DEVONIENSIS.

THIS handsome *Stanhopea* first flowered in the Duke of Devonshire's gardens at Chatsworth in 1837. For many years during the last century *Stanhopeas* were among the chief favourites in gardens, and although modern tastes, and the absorbing interest taken in hybrid Orchids, has somewhat alienated the

orchidist from this remarkable genus, its beauty still commands a considerable amount of attention. A flower of the still rare *Stanhopea devoniensis* kindly sent by Mr. W. H. Feltham, Barriola, Sutton, shows it to be one of the most beautiful of the genus. The flower, which is 4 inches across, has broadly ovate sepals, light yellow in colour, blotched with claret-colour, except at the apex. The narrower petals are yellow, with dark, vinous purple blotches, which are larger and brighter at the base; the large, fleshy lip is white, spotted with purple at the basal portion; the sub-globose hypochile bears a crimson-purple band, extending to the base of the column, which forms a very distinctive feature. The flower is pleasantly fragrant.

FRUIT REGISTER.

PLUM JAUNE HATIVE.

THIS Plum, though of great antiquity, is still to be found in gardeos, especially around London. A small oval fruit tapering a little toward the stem, of an amber colour with a white bloom, it can hardly be mistaken for any other sort, as it is the earliest of all yellow Plums. In ordinary seasons it is ripe about the last week in July. The tree is compact and twiggy, never making much growth, but of suitable habit for gardens. Like most fruits of great age, this variety has received many names, of which Jaune Hative seems to be the first, and it is probably of French origin.

Another name—De Catalogne—is of supposed Spanish origin, but no proof of this is available. That it had reached this country by the early seventeenth century is evident from its inclusion in Parkinson's *Paradisus*, where it is called the "Amber Primordian Plumme." "an indifferent faire Plumme, early ripe, of a pale yellowish colour and a waterish taste, not pleasing."

Most of the writers on fruits since Stuart days mention it under one name or another—*Cerisette Blanche*, *Avant Prune Blanche*, and in English, *Picketts July*, *London Plum*, *White Primordian*, etc. A tree existed in the old Chiswick Garden, and Mr. Barron thought so highly of it that the Fruit Committee gave it a First-class Certificate on August 13, 1901, under the name of *Early Yellow*. It is not with any idea of endorsing his judgment that I write this note, but merely that the correct name may be established, and that it may not be brought forward as a desirable novelty. *E. A. Bunyard.*

CONFESSIONS OF A NOVICE.—X.

ROSES.

I THINK that I have read, and certainly I have assumed, that only on a soil at least somewhat heavy, will Roses flourish. Of course, the *Wichuraianas* were excepted from this generalisation, which, however, I supposed to hold good for most, if not all, other races. Time, which teaches so many sorrowful lessons, will very likely prove that the books are right, and that my present refusal to believe their teaching is the result of my having drunk too abstemiously at the spring of knowledge. Nevertheless, the fact remains that this year Roses of many diverse kinds newly planted in beds the staple of which is mere sand, have one and all blossomed in amazing fashion, and are now making growth—or, as the gardener calls it with more propriety—timber—on the most generous scale. The pests which normally attack Roses did not fail to attempt their worst. Caterpillars descended from the defoliated Oaks and finished their gluttony on a savoury of Rose leaves. Aphis, of course, came, not in single spies, but in battalions so dense that finger and thumb were stained as brown as those of a confirmed cigarette smoker—though why a green aphis should when crushed

leave a brown stain is not evident. Scorch, or it may be precocious black spot, made the leaves of Hugh Dickson (Hugh Dickson my gardener prefers to call it) so brittle that they fell at a touch. Nevertheless these Roses made light of their many troubles and ailments, and bloomed as though they were living in a world where sorrows are unknown. Needless to say, the gardener, who insisted on my planting these Rose beds, who knows the plants like any expert, who appraises them like an artist, and loves them like a father, recounting their occasional faults, but not faltering on that account in his love, is as proud as or prouder than I am. So proud, indeed, is he of the success of his Roses that, instead of a frown of stark displeasure, only a passing shade of annoyance flits across his countenance when,

room for experiments in those beds, and so science confined its attempts in better practice to the fruit trees, with results that I may some day describe but certainly cannot boast about. No, the trenching, the load or two of manure, and the little bit of clay discovered in an odd corner and used for top-dressing, as thriftily as a French cook uses bones in soup, were all due to him, and science—in the person of this novice—has had the task, as salutary as it is unusual, of offering applause instead of advice.

Not to remain in such a position of manifest inferiority, I invited the gardener—*Old Practice*, as I may call him—to look at the spores of the mildew under the microscope. I showed them to him in their thousands, and his only comment was "Bosh!" I took pains to convince



FIG. 15.—ROSE C. V. HAWORTH: COLOUR RED, WITH CRIMSON SHEEN ON THE OUTER PETALS. (R.H.S. Award of Merit on the 4th inst. See p. 19.)

greatly daring, I pick one of the best blooms. Only once, when I furtively stole a bloom of General McArthur in order to give it to a rival and neighbour, that he might give it to his wife, whose Roses are poor this year, did he make any deprecatory comment—"We want all them to keep the garden full of smell."

If it were only our own Roses which have done so well I should not be surprised. I should attribute this result to the judicious blend of science and practice with which they have been treated, and to the further fact that practice in the form of the gardener would not let science have anything to do on any of the major operations concerned in their cultivation. When I spoke of trying sundry experiments in pruning and in spraying, practice remarked with acid firmness that there wasn't

him that these were indeed the seeds of mildew, and discovered then that what he meant by hosh was "boches," and that he was referring to the countless numbers of the pests. I scored a mild triumph also in the matter of scorch, because the day after the half-hour with the microscope I saw *Old Practice* picking off all the dead and diseased leaves of Hugh Dickson. When observed, he remarked, "My soil is too good for burying 'boches' of any kind; burning is the only thing for them." I went away very pleased, for I realised that if science would show more and teach less it would reap a richer and quicker harvest. "We are all fond of giving instruction, but can only teach what is not worth knowing."

To return, however, to the main theme. It is by no means only in my own garden that I have

seen wonderful Roses this year. On yet poorer soil at Wisley, close to the new cottages, are rows of many kinds of Roses, put out, they tell me, to contract mildew in order that it may be discovered which sorts catch it and which resist this meanly infliction. Many of the blooms of Mme. Abel Chatenay, Réve d'Or, Frau Karl Druschki, La France, Caroline Testout, Duke of Wellington, Mrs. A. R. Waddell, Joseph Hill, and others whose names escape me, were wonderfully fine. Just before my visit the members of the Floral Committee of the R.H.S. had been to Wisley and the officers of the Gardens informed me that such experts as Messrs. Paul and Page Roberts were also impressed by the size and substance of the flowers. Mr. Paul, they told me, made a remark which, when repeated to me, interested me very greatly—namely, the nearer the Rose is to a species the better it does in poor ground. I wonder whether this is well known to and generally accepted by Rose growers?

In any case I think that sunless June, which made life so miserable for many of us, and stopped the Strawberries from ripening, must have suited Roses, though how the cold nights could have suited any living thing except an Esquimaux, passes my comprehension. Finally, I should like to inquire of any expert who reads so far as these lines, if it be true that Frau Karl Druschki is a Rose which, originating in England as White Queen, went visiting in Germany and came back with her name changed? It so, and without raising the larger question of changing German names, ought we not to revert to our allegiance to White Queen? A. N.

VEGETABLES.

OF GLOBE ARTICHOKEs.

LATELY I have been wondering whether the orthodox varieties and treatment of this vegetable may not be susceptible of improvement. It had long been my ambition to be able to have dishes of the bases of "fonds d'artichaux," served as such, and thinking perhaps to obtain something with a huge base which would fill the purpose, I obtained seeds, when in Brittany, in the hope of raising a specially large "Gros Camus de Bretagne." As it turned out we got dishes of bases, though no "Gros Camus" was amongst the seedlings. When the seedlings were of good size, the majority were thorny or of a poor habit, and only two were retained after all the likely ones had been through the cook's hands. Only one, however, will be permanently retained on account of its very floriferous habit. Last year we were able to have a number of dishes, and this year still more, for the single plant produced some sixty buds. Ten or a dozen can be cut sufficiently mature at a time; though small, for the cooked bases measure about 2½ to 2½ inches across, they make up in numbers what they lack individually in size, and the flavour compares well with others that I have tasted. Incidentally, it may be mentioned that the "leaves" or involucre need not be wasted when removed after preliminary cooking to separate the bases, for if put through an Enterprise fruit press, or similar process, a satisfactory basis for the preparation of "purée d'artichaux" is obtained. The plant reaches a height of some 8 feet, and the foliage is artistically cut, somewhat after the fashion of the cardoon. The involucre bracts are somewhat sharply pointed and less fleshy than is desirable for serving the heads whole, though the flavour is good. In the general cultivation attention may be paid to Dr. B. Dyer and Mr. Shrivell (*R.H.S. Journal*, XXVII., 1903), who, in their most useful contribution, point out the importance of potash for good cropping of this vegetable. Some writers advise that a new bed be set out every year, which is hardly possible in a small garden; others every two years, and again others every three

years. My own small patch is now in its fifth year; last year, the fourth, it was most prolific, and showed successive increase over the previous years; this year there is a falling-off, and a new plantation is perhaps necessary. Evidently the duration must be measured on different soils, and in this heavy earth, rich naturally in potash, a longer tether can be given than the two or three years which are commonly advised. Dr. Dyer (*loc. cit.*), does not specifically relate the age of his plants or the crop in successive years, but apparently the experiment extended over five seasons on the same plots. Besides potash, a dressing of manure is given in the spring, when the shoots are reduced to five on each plant. The flower-stalks are left in place and form supports for pea-sticks, etc., which yield a slight winter protection. Whether served whole or merely as bases, to my taste they are preferable when served cold, when a little vinegar may be added to the salad oil, which is always preferable to the more common melted butter of English cookery.

In the last ten years I have never seen any trouble from pests or diseases, though two aphides are described in the books. Slugs we have in plenty, but they have not done harm, though they are said to do so. H. E. Durham.

NEWLANDS, HARROW-ON-THE-HILL.

THE interesting gardens at Newlands, the residence of Sir Arthur Hort, are situated on the steep, sunny slope of Harrow Hill. Species of Iris have been cultivated at Newlands for many years past, and several hybrids have been raised there in the sections *I. germanica*, *I. pallida*, *I. cypriana*, and others. The hybrids have not only superior flowers to the species, but are more floriferous. The variety *Hermione*, with a spike of several stout branches bearing sixteen flowers, eight being open at the same time, may be cited as an example. Those of the large-growing types are arranged in broad beds in an old, walled-in garden next to the house, and they present an unbroken mass of colour when viewed from the entrance, shades of blue and purple of the forms of *Iris pallida* predominating.

Some of the late Sir Michael Foster's seedlings have been used for crossing with forms of *I. Cengialtii* and others collected by Sir Arthur Hort in Southern Tyrol. One of the best and showiest masses of blooms is of the very large light-blue and purple *I. mesopotamica*. *Miranda*, which was raised at Newlands, Edouard Michel, the delicate white *Miss Willmott*, *Lady Foster*, and *I. albicans* are all specially attractive. Irises are planted in front of shrubs in beds on the slopes: one, edged with *Pernettya mucronata*, contained masses of the slender *sibirica* in varying tints of blue, with an occasional pure white form, also some pretty tufts of the dwarfier *I. versicolor*, the effect of the whole being enhanced by tall spikes of self-sown Foxgloves.

In front of a large mass of brightly-coloured Ghent Azaleas, variously tinted flowers of Irises flowering at the same time give a good effect in their season.

Dwarf species of Irises, such as *I. Douglasiana*, *I. bracteata*, and those of the *Pumila* section, are planted along the approaches to the wild garden and in smaller beds. *Saxifraga*, *Aubrietias*, *Alpine Pinks*, *Androsaces*, *Helianthemums*, dwarf *Phloxes*, and *Potentillas* furnish a goodly show of flowers in the rockery, whilst in a moist corner *Primula Veitchiana*, covered with bloom, numerous plants of *P. japonica*, *P. Bulleyana*, *P. Cockburniana*, and hybrid *Primulas* were noted. Amongst flowering shrubs, *Rosa rubifolia*, *Olearias*, *Cistus purpureus*, white and yellow *Cytisus*, and brightly-coloured *Rhododendrons* were all in full flower at the time of my visit. In the wild garden are several rare and interesting British plants. B.

The Week's Work.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

ONCIDIUM TIGRINUM.—This *Oncidium* enjoys much the same treatment as *Odontoglossum crispum*, although it will succeed in the intermediate house. Any repotting can be done during the present month, or when the new growth is rooting. Watering should be moderate at all times, and when the plants are at rest only enough need be given to keep the pseudo-bulbs in a rigid condition.

CATLEYA WARNERI will soon show signs of flowering, and the plants must be kept moist at the base. When the flowers are removed roots will appear at the base of the current year's pseudo-bulbs, and then any plants that need it may be repotted, or re-surfaced with new soil. Shade the plants from strong sunlight. When the roots reach the edge of the pot water can be applied fairly liberally, but less must be given when the pseudo-bulbs are fully developed.

SCHOMBURGKIA.—*Schomburgkia rosea*, *S. tibicinis*, *S. Sanderiana*, *S. Thompsoniana*, and *S. Kimballiana* are now beginning to grow, and can be repotted. *Osmunda* or *A I* fibre is a suitable rooting medium; the pots should be filled to one-half of their depth with drainage material, as *Schomburgkias* do not require a great depth of soil. A sunny position should be chosen; if possible, in the Mexican house. Water must be afforded liberally throughout the growing period, and when the pseudo-bulbs are matured a long rest will be necessary.

COLAX JUGOSUS.—When the new shoots of *Colax jugosus* are an inch or so high the plants will be ready for repotting. Use a mixture of *Osmunda*-fibre, *Sphagnum*-moss, and partly decayed Oak leaves in equal proportions. A little sand and crushed crocks may be added with advantage. Either pots or pans may be selected, and they should be filled one-half of their depth with drainage material. A position in the cool house will suit this plant throughout the greater part of the year, but in winter it should be placed in the intermediate division. Thrips are often troublesome, and it is a good plan occasionally to dip the young growths in a weak solution of some insecticide. Another remedy is to take the plants into any houses which are being vaporised.

COOL HOUSE.—If the weather is hot it will be difficult to keep the temperature in the cool house sufficiently low. Draw the blinds early, and keep the house damped down. Ventilation must be done carefully; during the night both the top and bottom ventilators may be more or less open according to the weather. Keep a watch for thrips and other insect pests, which soon damage the young, tender leaves.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

PERPETUAL-FLOWERING CARNATIONS.—The earliest plants will now be sufficiently advanced to need the support of stakes. Green Bamboo tips are the least conspicuous, and quite strong enough for this purpose. Let the young growths have plenty of room to develop, as crowding will tend to weaken them. When the plants are well established in their flowering pots, afford them a little stimulant, but not very much until they begin to flower. Spray them occasionally with a rust specific, as a safeguard against this troublesome pest.

FERNS.—The Ferns which were repotted in the spring are still growing freely, and will require plenty of room to develop. For indoor decoration they must be well developed and somewhat hardened. When in active growth they need a moist atmosphere and plenty of overhead syringings on bright days with clear rainwater. When Maidenhair Ferns have finished their growth they must be placed in a

drier atmosphere, and syringing must be discontinued.

COLEUS THYRSOIDEUS.—The earliest plants of this species will now be growing freely in their flowering pots, and if the pots are full of roots plenty of stimulant must be given. Four or five shoots will be enough to retain on each plant if fine spikes of flowers are desired. A batch of cuttings rooted now will produce good plants for flowering in small pots. Pot them singly into thumbs, and when well rooted transfer them to 3½ inch pots.

BROWALLIA SPECIOSA.—The flowering shoots of plants coming into flower may be removed if the plants are not required to bloom now. Another sowing may be made to raise plants for flowering in late autumn.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcote, Eastwell Park, Kent.

FRUIT-PICKING.—This requires daily attention at the present time, and care should be taken that there is no waste through neglect to take advantage of suitable weather. Strawberries are a most precarious crop, the berries often decaying before they are coloured. It is best to remove decaying berries, as, if left on the plants, other fruits will rot. It is sometimes worth while to lift the berries off the ground and support the plants with small forked sticks. Advantage must be taken of any fine, dry day to gather any fruit that is fit for preserving, so that all may not be lost. The late varieties are yielding well, and if the weather proves propitious these will be exceedingly valuable. Raspberries are also easily damaged by rain, but have the advantage of being well off the ground and exposed to the sun and air. The ripe fruit should be picked every few days, as it quickly deteriorates when once it is ripe. Fruits are often damaged by being transferred from one receptacle to another, and this should be avoided where possible. When sending some distance the fruits may be packed in wide-necked glass bottles packed in an upright position. Currants are not quite so troublesome to handle. All fruit should, if possible, be picked when dry. Gooseberries are, perhaps, the least susceptible to injury by being gathered when wet; they are usually gathered for preserving before they are fully ripe, and are then firm and hard. Gooseberries left until they are ripe, for dessert purposes, require extreme care in picking. If they are pricked with the thorns, or torn off without the stem, it will be impossible to pack them properly for sending to a distance, and even for home consumption they will present an unattractive appearance.

APRICOTS.—No efforts should be spared to give Apricots every chance to ripen to perfection. It is impossible to expect good flavour without plenty of sun-heat, which has been conspicuously lacking this season, and this is an additional reason for assisting the fruit in every possible way. To give each fruit the maximum of exposure by keeping all growths tied in, or (as in the case of lateral growth) pinched back, is of great benefit. If necessary, do not hesitate to pinch off a few leaves if they are inclined to overlap the fruit. If the tree is carrying a large crop artificial manure should be given, pricked lightly into the surface with a small fork, and watered in. Give extra waterings if the trees are under a glass coping or roof. Do not put on a mulch of heavy manure in the present state of the weather, as it would keep the soil too cold. If the weather improves later on it can easily be applied. Woodlice, earwigs and other insect pests are often very troublesome. These can be trapped by placing pieces of hollow Broad Bean stalks amongst the branches, or small flower-pots with a little dry moss or hay placed in them. The traps should be examined daily and the insects destroyed by dropping them in a pail of insecticide.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady Nunburnholme, Warton Priory, Yorkshire.

PINES.—As soon as the earliest house is cleared of fruit it will require a thorough cleansing. Whether it will be advisable to turn out the

bed depends upon whether the materials put in last autumn are still fairly sound or not, and also upon the number of woodlice present. Pine pits should be cleared at least once a year, but boiling water and hot lime-wash will destroy large numbers of woodlice at this season. Assuming that the heat has declined to 90° or a little less, the most forward Queens should be selected, top-dressed if necessary, and firmly rammed to keep the collars of the plants steady. They should be plunged about 2 feet apart each way. The treatment as regards heat, water, ventilation and moisture, may be continued. The less shading they have the better, provided the foliage can be prevented from browning.

SUCCESSION HOUSES.—The filling of the early division will necessitate a rearrangement of succession houses. If any plants are needed to make up the requisite number for the beds, they should be potted at once. Plunging here will be safe, but as the slightest disturbance may induce a flush of bottom heat, a watch must be kept on the temperature. As these plants must be kept growing until the end of September they should have plenty of room, and be kept near the glass. Ventilation must be liberal, atmospheric moisture abundant, and watering sufficient to keep the soil in a moist condition. A steady bottom heat of 85°, with a night temperature of 75° rising to 85° or 90° after closing, should be maintained. The syringe may be used if necessary, but, unless the house is very dry, damping the walls and surface of the beds morning and afternoon, with very light overhead syringing, will be ample.

SUCKERS.—The best suckers at this season are those recently taken from discarded plants. They must be trimmed and potted at once before they become dry. Pots 6 to 8 inches in diameter are not too large. The compost should be dry and firmly rammed. After re-potting water the roots and plunge the pots to the rims in a temperature of 85° to 90°. The plants will root quickly in a close frame over a manure bed, and make fine plants before autumn. A little shade should be provided, and the plants lightly dewed on fine afternoons.

STRAWBERRIES.—Plants intended for forcing should be separated as soon as the roots reach the sides of the pots, especially where the latter are packed closely together. Newly layered or potted plants are not improved by incessant waterings overhead. A cooling shower after a hot day is beneficial, but the young foliage soon burns, and becomes hard and spotted. Hand watering is the best, as the moisture which rises from the surface of the soil keeps the under-sides of the leaves fresh and free from red spider. Pot the plants as soon as possible, in a similar compost to that recommended in the calendar of June 24.

THE FLOWER GARDEN.

By W. J. GUYER, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

ROCK AND ALPINE PLANTS.—Arabis, Aubrietia, Alyssum, Cerastium, Saxifraga, and other plants of vigorous growth must not be allowed to encroach on the space of less robust subjects. Cerastiums should never be planted between choice rock plants, for they spread very quickly, and are very difficult to eradicate when well established. Remove dead flowers, foliage and seed-pods (unless seed is required) at frequent intervals, to prolong the flowering period. Stir the soil lightly with a small handfork, and top-dress it with loam, leaf-mould and sand mixed with fertiliser. The beneficial effects derived from the top-dressing will be apparent in about ten days. Examine the plants during dry weather to see if they need watering. Many rock plants may be raised from seed, including *Arenaria montana*, *Arabis*, *Campanulas*, *Coronilla iberica*, *Draba*, *Erinus alpinus*, *Globularia*, *Linaria alpina*, *Lippia repens*, *Lychnis*, *Platycodon*, *Primulas*, most *Saxifragas*, *Viola alpina*, *Verbena venosa*, *Gentians*, and others.

DAFFODILS AND TULIPS.—Lift and replant the bulbs of Daffodils forthwith, grading them in sizes. Those in beds are best left undisturbed for three or four years. In view of restricted imports the finest bulbs may be selected for forcing. The ground should be well dug and

liberally manured. The smaller bulbs will be useful for naturalising or massing in grass, along woodland walks, on banks and under trees. May-flowering Tulips should be taken up, carefully dried, sorted, spread thinly in boxes, and stored in a cool shed for planting later.

LEUCOJUM AESTIVUM.—The summer Snowflake prefers a sandy soil, but it is not exacting in this respect. The plant is admirably adapted for the mixed border—where it will become naturalised, in the same way as Snowdrops—and the rock garden. *L. aestivum* flowers in June, and is, perhaps, the best of the species for gardens. *L. vernum* flowers in spring, and is suitable for the rock garden; the white bells are spotted prettily with green. The bulbs are best left undisturbed for a few years. Replanting should be done directly after the foliage has ripened.

VIOLETS.—Syringe the plants occasionally with an insecticide to check red spider. Runners should be pinched to within two or three eyes at the base of the plant. Stir the soil with the hoe and lightly dust it with soot. The plants are growing freely, and may be stimulated by small doses of artificial manure. Let the plants have every encouragement to make good crowns for lifting and planting in frames towards the end of September. Violets are subject to several diseases, and perhaps the most destructive is *Acidium Violae*. This disease attacks the foliage and spreads rapidly. There is no cure, and much time and worry will be saved by burning the old plants if they become diseased and planting healthy stock.

PINKS.—Pinks should be propagated directly they cease flowering. Trim the lower leaves of the pipings and insert the shoots in a bell glass or shallow, airtight frame. Cut the stem close below a joint. Use sandy soil and dibble in the pipings 2 inches apart. Water with a fine rose and let the foliage dry before closing the frame. Shade the frame during the hottest part of the day. Old plants of Mrs. Sinkins, Her Majesty and the more robust growing varieties, may be propagated by division. They should be taken up and divided, keeping a few roots to each portion.

THE KITCHEN GARDEN.

By E. R. JONES, Gardener to the Rt. Hon. Lord North, Wroxton Abbey, Banbury, Oxfordshire.

FILLING VACANT SPACES.—All ground rendered vacant by the removal of early crops should be immediately recropped. Many gardeners are expected to produce the maximum amount from the land, and it is permissible to attempt to grow crops which might be considered risky, since crops not large enough for food (such as undeveloped Turnips) may be dug into the soil with great advantage. This is much better than allowing the ground to remain idle, promoting the growth of weeds. Peas of the early dwarf section may be sown as previously advised, if possible on a deeply cultivated site, but without manure. In such circumstances, providing there is sufficient root run, mildew is seldom troublesome. Make the sowings rather closer together than usual, to avoid the use of stakes. It is possible to lengthen the dwarf Bean season by sowing in boxes under glass, and transferring the plants out of doors as soon as they are ready. Make the beds as previously advised, so that they may be protected from autumn frost. Small Cabbages may be obtained during autumn provided a small, quickly hearting kind (such as Earliest or Little Gem) is employed. Sow thinly in drills, and allow the plants to grow without transference, the surplus being removed. Select the warmest possible site for Globe Beet, which well repays the trouble of sowing. Carrots of the Early Horn type may be sown. The coldest sites and those not required for other crops may be filled with Turnips. Sow now Golden Ball and Green Top Stone, following later with early maturing varieties as the season advances. Quickly maturing Cabbage Lettuces may be sown in sheltered situations; in some districts there is still time for Cos Lettuce to mature. Rich soil and plenty of moisture is essential for this crop. A further sowing of Endive, both curled and Batavian, should be made for winter use. Surplus frames may be planted with well-sprouted early Potatoes.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

FRIDAY, JULY 21—
Birmingham Hort. Soc. Show (2 days).

FRIDAY, JULY 28—
Midland Carnation Soc. Show, Birmingham (2 days).

AVERAGE MEAN TEMPERATURES for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.6°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, July 20 (10 a.m.): Bar. 29.7°; temp. 67.5°. Weather—Bright sunshine.

This magnificent Honeysuckle was originally found by Griffith in Afghanistan and, in 1879, by Dr. Aitchison in the Kurram Valley. Aitchison described it as "a magnificent climber with very handsome rose-coloured flowers." It is a deciduous twining shrub, and the young shoots are either quite smooth and glabrous or furnished thinly with fine hairs; as the branches become older the bark peels off in thin strips. The leaves are sometimes quite glabrous, sometimes thinly hairy when young, varying in shape from ovate to oblong and roundish; they are blunt at the apex, 1 inch to 2½ inches long. The lower leaves on the shoot are ovate, tapered towards the base, and have stalks up to ½ inch long; the upper leaves are rotund and almost sessile. The flowers appear in summer on a terminal inflorescence consisting of two or three whorls of blossom such as are produced by the native Woodbine, *L. Periclymenum*. The corolla is about 1 inch long, the base a slender tube hairy and glandular outside, glabrous within, the limb spreading, two-lipped. The stamens are slightly shorter than the corolla and glabrous, and the rather longer style is hairy except at the base. Rehder, in his *Synopsis of the Genus Lonicera*, makes this species constitute the sub-section *Thoracianthae*, distinguishing it from the *Peri-*

clymenum group (to which it is closely related) by the bractlets beneath each whorl of flowers being united to form a cup as high as the ovaries.

So far as we know, the only specimens in cultivation in this country are in the garden of Lt.-Col. F. G. L. Mainwaring, Wabey House, Upwey, who first collected flowering sprays in 1898, but was not successful in cultivating it until 1910, when he raised seedlings from seeds collected for him by a brother officer. Lt.-Col. Mainwaring has been good enough to send us the following interesting particulars relating to its introduction:—

In the spring of 1898, whilst marching with the Reliefs—29th Punjab Infantry (my old regiment) and the 39th Garhwal Rifles—from the Swat Valley to Chitral, we crossed over the Lowari Pass (11,000 feet), to the best of my recollection, on May 7, and camped on a spot just below the snow line, in the centre of a forest of large Fir trees (*Abies Webbiana*) on the northern slopes of the pass.

Next morning, resuming our march, whilst proceeding along rather a narrow cutting through a forest of *Cedrus Deodora* and *Quercus Ilex*, my attention was attracted by a wonderful sight. About 80 yards ahead of the column I observed, on the branches of some of the large *Ilex* trees overhanging the roadway, what at first sight appeared to be a species of Wild Briar or Cluster Rose, very similar to what I remembered having seen in my school days—in the sixties—climbing over the arbours of cottages and in old gardens at home. But on nearer approach I saw large, thick, rope-like stems climbing up and around the trunks and over the branches of the evergreen Oak trees, which certainly were not the stems of a Rose or Briar, but those of a Honeysuckle. As I could not halt, I told my syc (groom) and one of the kahars, or hospital dhoolie bearers, accompanying the troops, to climb up the *Ilex* trees and bring me down some sprays of the Honeysuckle, which they did.

On arrival at our destination (Kila Drosh) I examined the specimens. The blossoms were pink with a bright carmine centre, and the leaves a bluish-grey colour. Could anything more beautiful be conceived? If I did go into ecstasies over this revelation it was excusable. Smiling fairies with "noddins on," blushing their loudest, supported by beautifully dressed elves.

A few days after our arrival at Kila Drosh, during my leisure hours, I went for rambles and climbs up the hillside, and came across several fine plants of this beautiful Honeysuckle in full bloom which I found growing in profusion at the foot of and climbing up and over old trees and stunted bushes of *Quercus Ilex* (nearly every bush or tree seemed to have its affinity of Honeysuckle!). I collected several lovely sprays, and sent some of them, with specimens of other flowers, to Mr. F. Duthie, director of the Botanical Gardens, Saharanpur, N.-W. Provinces, India, for identification. Mr. Duthie wrote and thanked me for them, and told me the

name of the Honeysuckle was *Lonicera Griffithii* (see fig. 16). I also did some drawings of the specimens collected by me in my sketch-book, and I had hoped to have collected some seeds, but unfortunately I left Chitral in the beginning of the autumn and returned to India, on six months' leave prior to my departure for England, otherwise I might have got a few ripe seeds of the Honeysuckle. So I had to wait till the following year, when, after coming home and settling in this country, I wrote to an officer of one of the regiments at Kila Drosh, and he sent me some seeds, which I sowed, but only a few germinated, and the plants died in their infancy. Again and again I had more seeds sent me from Chitral by different officers, but I had no better luck with them. Then I wrote and had several cuttings (sealed with sealing-wax at each end) sent me. I struck a few of them and also grafted others on ordinary Honeysuckles in our garden. But, for some reason or other, when planted out-of-doors they (the cuttings and grafts) grew and flourished only for a few weeks, and then fizzled out and died, struggling in vain against the variations of the weather and temperature of our English climate.

After having for ten years annually tried and failed in growing this species of Honeysuckle I succeeded at last—in 1910—in raising some thirty very healthy plants from fresh seed sent me by an artillery officer at Kila Drosh (Chitral). Three of these plants are now well established in a cool greenhouse (being 9 to 10 feet high, with stems as thick as one's thumb, and thick foliage at the top), climbing happily up a wire trellis. They flowered for the first time in the spring of 1914, when there was only one flower on one of the three plants.

In the spring of last year—1915—there were between 40 and 50 flowers, 10 to 15 on each plant, and for two lovely sprays exhibited on May 11 at the Royal Horticultural Society's Show, Vincent Square, London. I was awarded a certificate by the R.H.S. Scientific Committee.

RESTRICTIONS ON THE IMPORTATION OF BULBS.—Owing to certain misunderstandings which have arisen on the part of nurserymen and seedsmen as to the restrictions recently placed on the importation of bulbs into this country, the Horticultural Trades Association on Monday last interviewed the Comptroller of the Imports Restrictions Department of the Board of Trade. As a result of the representations made by the former body, through a deputation consisting of Mr. W. CUTBERTSON and Mr. GEO. BARR, it was elicited that all importations from Holland, Denmark, Norway and Sweden are interdicted, the prohibition applying no less to parcel post deliveries than to the usual shipments. In regard to certain licences which were mentioned some time ago, as possible in the case of growers who actually possess bulb stocks under cultivation in Holland, we are informed that no such licences will be granted. In respect to Japanese bulbs, the Board of Trade has decided that growers may import 50 per cent. of the quantities they imported last year, provided shipment is effected not later than October 31 next. The new restrictions do not apply to bulb importations from France.

APPOINTMENT.—The President of the Board of Agriculture and Fisheries has appointed Mr. RICHARD BROWN, Walton Bank, Eccleshall, Staffordshire, to be a member of the Agricultural Consultative Committee.

AVICENNIA, A GENUS OF MANGROVES.—*Avicennia*, a very distinct genus of the Verbenaceae, is perhaps the most widely dispersed of tropical sea-coast trees coming under the designation of Mangrove. It abounds on sandy and muddy shores in Asia, Africa, Australia, and America, and extends into the extra-tropical latitudes of Bermuda, Fokien, and the north island of New Zealand. The number of species is small, perhaps not more than three or four, but they are closely related and still uncritically defined. Mr. R. T. BAKER, the Curator of the Technological Museum, Sydney, well known from his labours in vegetable morphology, anatomy, and physiology in relation to economics, has made a special study of the Australian species of *Avicennia*, for which he retains the specific name *officinalis*, though he does not commit himself to synonymy and general distribution, beyond the statement that the description in Kirk's *New Zealand Flora* most nearly agrees with the Australian species. The life history of these tidal dwellers is highly interesting, and was perhaps first popularly sketched by W. F. SCHIMPER in his little work, entitled *Die Indo-Malayische Strandflora*. *Avicennia* is one of those genera of similar habitats that produce "breathing roots" in the form of vertical, conical, or cylindrical outgrowths from the horizontal roots. *Taxodium distichum* exhibits the same phenomenon in this country when growing in swampy situations. An important point in Mr. BAKER's investigations is the discovery that the breathing roots, or pneumatophores, require shade to enable them to perform their natural function. It was noted that wherever the breathing roots became exposed for a length of time to the sun's rays they perished, and then the branches on that side of the tree died and fell off. These breathing roots are also of great value to the oyster cultivator, as the crop of oysters to be obtained from them is greater than from any material used. But it has always been found difficult to start a plantation of this Mangrove on a treeless shore, the young plants soon dying or growing so slowly as to be almost useless. Now that it is known that shade is requisite, action is to be taken to introduce artificial shade until the Mangroves attain some size, or at least sufficient foliage to make their own shade protection. It was found that the leafage of a tree was naturally produced in a direction that would shade these breathing organs. Mr. BAKER also describes the chemical composition of the ash, the peculiarities of the anatomy of the leaves and wood, and the macroscopical characters of the tree, which occurs on the shores of all the States of Australia, except, perhaps, Tasmania.

INSTRUCTOR IN HORTICULTURE AT THE UNIVERSITY COLLEGE, READING.—Mr. E. R. JANES, for the past six years gardener to Lord NORTH, Wroxton Abbey Gardens, has been appointed Lecturer and Practical Instructor in Horticulture at the University College, Reading. It will be remembered that Mr. JANES gained the *Daily Mail* prize for vegetables at the exhibition held on September 22, 1915, showing a collection that attracted general notice. Mr. JANES has contributed the articles on kitchen gardening in our "Week's Work" columns since the commencement of the present year.

MR. WILLIAM KELWAY.—Mr. WILLIAM KELWAY, eldest son of the late JAMES KELWAY, founder of the firm of JAMES KELWAY AND SON, has been appointed a magistrate for the county of Somersetshire.

* "The Australian Grey Mangrove (*Avicennia officinalis*)," by R. T. Baker, *Journal of Proceedings of the Royal Society of New South Wales*, Vol. XLIX., pp. 257-281, plates xxvii.-xli. 1916.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

SPIRÆA HENRYI.—Though introduced by Mr. E. H. Wilson as long ago as 1900, when collecting in China for Messrs. J. Veitch and Sons, this *Spiræa* is now making its presence felt in many

S. canescens from the Himalayas, and the two are certainly not distantly related, for the latter is a very variable plant. Species belonging to diverse orders in the Himalayas are linked up by related or connected forms, extending through China to Japan, and this would indicate a natural line or direction of distribution extending back to relatively ancient times,



FIG. 16.—*LONICERA GRIFFITHII*: A NEW HONEY SUCKLE FROM CHITRAL AND AFGHANISTAN. COLOUR ROSE-PINK.

(See p. 42.)

gardens. Young plants make very rapid progress after the roots get well established, by throwing up vigorous stems, at first erect, then arching. No flowers are produced by these stems the first year, and they are termed barren. They are characterised by the length they attain in one season and by the large size of the leaves they bear. In these respects the species closely resembles

and no doubt still in progress. Both these *Spiræas*, during the second season, produce short side branches terminating in a large corymb or cyme of white flowers, and when the barren shoots of the previous year are long, say 4 feet to 6 feet or more, the effect is bold and pleasing. The leaves are much smaller on the flowering twigs, and this brings

the flowers into greater prominence. On very vigorous shoots of the previous year the internodes are long, but as growth becomes more staid by a fuller occupation of the ground by the roots, the internodes are shorter and the trusses of blossom touch one another. I have noted both conditions of the shrub this year, the stronger growth in the gardens of the Royal Horticultural Society at Wisley. The habit of the species indicates that it should be planted in an open position, where the arching branches can develop equally on all sides, and not in a crowded shrubbery. *J. F.*

ORIGIN OF ROSE FORTUNE'S YELLOW AND BEAUTY OF GLAZENWOOD.—May I suggest to your correspondents who are probing the question of the parentage of Rose Fortune's Yellow (p. 11 and ante), that possibly an inquiry into the origin of that similar Rose, Beauty of Glazenwood might yield information. Beauty of Glazenwood is commonly regarded as synonymous with Fortune's Yellow, but there are those who hold that it is distinct in several points, notably in its time of flowering. However this may be, the interesting points are the different dates and sources of origin of the two Roses in this country. Beauty of Glazenwood was, I believe, introduced by Curtis, of *Botanical Magazine* fame, long before Fortune's time; it takes its name from Glazenwood, in Essex. Curtis was born in 1746, and died in 1799. Publication of his *Bot. Mag.* began in 1778; a search in its early numbers might be productive. *Harold Evans, Llanishen, Cardiff.*

COLOUR STANDARDISATION (see p. 32).—Dr. Ridgway has given us the results of much careful work in his selection of names. Yet I believe a few suggestions should be made, to avoid a neglect of some widely-known and distinctive colour names. "Peach-blossom pink" is everywhere recognised. Even in distant Japan it is momo-iro, the colour of Peach flowers. It is exactly represented in Plate I, 1, Red, tone f., being no deeper, though the reference to it in the list of intermediates not shown would imply that it was; and it would stand well at the head of all instead of the little-known name *Hermosa*, for which I have to consult Dickson's Rose catalogue, where it is described as "a China Rose, near Old Blush." "Beet-red" is omitted, yet Beetroot has pleasant associations, and is oftener seen than ox-blood red, with which this colour is practically identical. "Alice blue" should have been discarded, for it is even less intelligible than "baby blue," rightly condemned by Dr. Ridgway, and is in use only, I believe, west of the Atlantic. Its place (XXXIV., 45^b, b.) should be given, I suggest, to the name mountain blue, the bluest blue of distant mountains, important in Nature's colour-chart, and shown also in some wild berries. "Nile green" is rightly rejected, as few of us could verify the colour of the water vegetation, occurring at some seasons, from which it is named. But duckweed green would be much better understood than light bice green, the name of a little-known paint of this colour. The Ridgway reproduction of Cornflower blue is admirably exact. Two names of well-known Nature colours, belonging to America but famed beyond it, are rather surprisingly omitted. One is the (American) robin's-egg blue. The French call it *Sèvres blue* (*Répertoire*, 222), and the Italians say turquoise of *Sèvres*. But robin's-egg is well understood, and is preferable to Nile blue (XIX., 41^b, BB.—G.). The other is the blue of the blue bird, nearest to ultra-marine—beautiful in Nature as a streak of vivid colour, though not pleasing in masses. There is a brown which seems to be one of Nature's cheap colours for bird-cases or envelopes of ripening seeds or larvae. This chrysalis brown has a world-known name, "tea colour" (Japanese, "cha-iro"). It is the colour also of the brown ware well known in the cheapest and best kind of teapot. It is not very well named (XIV., 11^b, orange, tone m), Chestnut brown. The name dead-leaf colour should have a place. It is best represented in the French chart, 321: Ridgway's cinnamon-rufous. The ochraceous-buff series, XV., OV.O., should, I think, include the easily-recognised name biscuit colour. The name khaki, Hindoo by origin but now world-known, should be substituted for buffy-citrine (XVI.). "Thul-

lite pink" (XXVI.) is too far-fetched, needing the knowledge of a classical scholar who is also a mineralogist. This colour appears in many flowers. Why not saffoin pink? We need all the colour names which are both well known and accurate, and the less known names should be both explainable and explained. Let us take warning by the mistake of botanists, who in floral handbooks have almost invariably failed to add the brief glossary needed to make clear the meaning and origin of specific names. *D. F. Kerr, Kelowna, B.C.*



MR. E. R. JANES, THE NEW HORTICULTURAL INSTRUCTOR AT UNIVERSITY COLLEGE, READING.

(See p. 43.)

APPLE LORD KITCHENER.

THE new variety of Apple illustrated in fig. 17 was shown by Mr. W. Palmer, Andover Nurseries, at one of the R.H.S. meetings in December, 1915, when it was favourably commented upon. In answer to a query as to its origin Mr. Palmer writes as follows:—

"It is a seedling from one of a few pips saved from a fruit of Peasgood's Nonesuch, and sown in a pot by my late son. In size the fruit is not quite so large as Peasgood's, and is flatter in shape. The colour is very similar to that of Blenheim Pippin, and turns a dull yellow in January. The flavour is suitable for dessert, and it is an excellent cooking variety, the flesh being delicious, especially when baked. The variety keeps well until February, and is in full flavour from October. The tree is a strong grower, and I have detected no trace of canker. The original tree is a good specimen, about 30 feet high."

SOCIETIES.

ROYAL HORTICULTURAL.

JULY 18.—The meeting held in the Vincent Square Hall on Tuesday last was very successful, and the exhibition filled the large building.

The Orchid Committee recommended one First-class Certificate and three Awards of Merit to novelties, and awarded three medals to groups.

The members of the Floral Committee found plenty for their deliberations, and recommended nine Awards of Merit to novelties, whilst the group sub-committee awarded one Gold and twenty-one other medals to collections.

The Fruit and Vegetable Committee made many more awards than usual, including a Gold Medal to a collection of vegetables from the Hon. VICARY GIBBS' collection.

The National Rose Society having abandoned the provincial exhibition this season, the Council invited new varieties for award to be staged at this meeting, and large numbers of seedlings were forthcoming.

At the 3 o'clock meeting in the Lecture Room Mr. H. E. P. Hodsoll delivered a lecture on "The Use of Lime in the Garden."

Floral Committee.

Present: Messrs. H. B. May (chairman), C. 1. Druery, G. Paul, J. W. Barr, J. Green, G. Reuthe, J. W. Moorman, S. Morris, J. F. McLeod, J. Heal, T. Stevenson, J. Jennings, J. Dickson, C. Dixon, H. J. Jones, H. Cowley, C. E. Pearson, W. P. Thomson, E. H. Jenkins, C. R. Fielder, W. Cuthbertson, W. B. Cranfield, W. J. Bean, R. C. Notcutt, J. Hudson, A. G. Jackman and E. A. Bowles.

AWARDS OF MERIT.

Nemesia Orange Prince.—A dwarf variety, with large, deep orange-coloured flowers, having a few violet spots in the throat and two violet blotches on the posterior petal. The inflorescences are compact, many-flowered, and very handsome. The plants being less than 1 foot in height, they would be good for edgings to beds and borders. Shown by Messrs. DOBBIE AND CO.

Campanula Waldsteiniana.—There appears to be some confusion in connection with this Croatian plant. In *Index Kewensis* C. Tommasiniana appears as a synonym of C. Waldsteiniana, but the plant exhibited bears no resemblance to C. Tommasiniana as figured in *Bot. Mag.*, tab. 6, 590, where Sir Joseph Hooker refers to C. Waldsteiniana, "a much smaller species, with few flowers, obtuse lower leaves and a shorter, broader corolla, cleft half-way down into narrower and more acute lobes." This may be the plant exhibited, which was only about 3 inches high, had small glaucous leaves and pale violet flowers that were very numerous and almost upright, revealing purplish-coloured ovaries. Both these Campanulas were shown by Messrs. T. B. GROVE AND SONS, Sutton Coldfield.

Campanula Chastity.—A variety raised from C. carpatica × Norman Grove. The plants were about 9 inches high, and covered with pure white flowers of the carpatica type. Being a dwarf-habited, sturdy variety, the flowers are less exposed to weather injury than the taller ones.

Aconitum Napellus album grandiflorum.—A tall, strong-growing variety with white flowers. The blooms, however, are not clear white but have a suspicion of blue, especially when seen by transmitted light. Nevertheless it is a very stately plant, with handsome leaves.

Lavender Large-flowered Munstead Dwarf.—A fine form of the Munstead type, with large spikes of deep lavender-coloured flowers. The plant exhibited was almost globular in shape, very dwarf and exceedingly floriferous. Both these plants were shown by MESSRS. BARR AND SONS.

Sweet Pea Crimson Queen.—A fine crimson variety with large waved standard; the wings at the base and the keel have a trace of purple colour. The stalks are very long and wiry. Shown by MESSRS. HOBBIES, LTD.

Sweet Pea Anzac.—The general colour effects of this variety are of purple and lilac shades which appear very rich and bright in sunshine. The standard is bluish-purple, which passes into a shade towards the margin resembling bluish-lilac (see *Répertoire des Couleurs*, pl. 183, shade 3). The wings and keel are bluish-purple. From MESSRS. DOBBIE AND CO.

Sweet Pea Honour Bright.—A large, bold flower of the scarlet section with the merest trace of blue at the base of the standard and wings. It is a very bright shade, the outer surface of the wings being rich orange-scarlet.

Sweet Pea Faith.—A pale lavender variety, with waved segments. The blooms are especially effective when massed, and the variety will be valued for indoor decorations. These two varieties were shown by Mr. J. STEVENSON, Wimborne.

OTHER NOVELTIES.

Mr. H. KEMPSHALL showed from the Countess of Ilchester's gardens at Abbotsbury Castle, flowering shoots of *Prostanthera lasiantha* and *Myoporum laetum*. The former is known as Victoria Dogwood, the genus being Australian. The plant is very free-blooming. The irregular flowers are white, tinged with red and hairy in the throat. *Myoporum laetum* is a native of New Zealand. The foliage is yellowish-green and pitted all over with glandular dots that are almost transparent by transmitted light. The

flowers are regular, about $\frac{1}{2}$ inch in diameter, axillary, in clusters of about four, white, with small red dots.

A fine silvered variegated *Antirrhinum* was shown by Messrs. J. FORBES, LTD., under the varietal name *variegatum*. The leaves are narrow, pale green, with a well-defined silver margin, the undersides silvery-grey. The habit of the plant is good, and the rosy-coloured flowers are imposing.

Two forms of *Campanula lactiflora alba* were exhibited. The one named *grandiflora*, shown by Mr. J. BOX, Lindfield, resembled a beautiful white Mallow. Its companion, exhibited by Messrs. WATERER, SONS AND CRISP, LTD., named *magnifica*, had a taller inflorescence, altogether more spiky.

GROUPS.

The following medals were awarded to collections:—

Gold Medal to Messrs. H. J. JONES, LTD., Hither Green, Lewisham, for border Phloxes. The flowers were staged in large sheaves on a white ground, in a setting of Bamboos and Ferns, a few spikes of *Eulalia* among the flowers. The flowers were of exceptional quality, and the varieties represented

Campanulas in pots. This was a most meritorious exhibit, the plants being superbly grown. Each was a perfect specimen, the varieties being novelties of the exhibitor—Norman Grove, light blue; Meteor, with flattened, almost white flowers so tinged with blue at the back that it gives an opalescent effect; Abundance, with large lilac-blue flowers, and two others, that received Awards of Merit; Messrs. G. JACKMAN AND SON, Woking, for hard flowers; *Gaillardia Fairy Queen* and the old scarlet *Potentilla William Rollisson* figured conspicuously in the collection; Mr. J. STEVENSON, Wimborne, for new Sweet Peas, and an exhibit showing results in breeding these flowers. The fine varieties Hope, soft rose; Charity, crimson; Golden Glory, soft golden orange; Peace, soft pink; Warrior, maroon; and Rosy Rapture, rosy pink on a pale ground; were all shown well; Mr. MAURICE PRICHARD, Christchurch, for hardy plants; Messrs. H. B. MAY AND SONS, Edmonton, for Ferns and *Statice profusa*. There were fine plants of *Davallia fijiensis robusta*, *D. epiphylla*, a large frond like a piece of handsome lacework; *Gymnogrammas* in variety; the blue-tinted *Polypodium glaucum cripum*, many-tinted leaved *Selaginellas* and others.

Delphiniums and *Pentstemons*; Messrs. HOBBIES, LTD., Dereham, for Roses; and Mr. G. REUTHE, Keston, for hardy flowers.

Orchid Committee.

Present: Sir Harry J. Veitch (vice-chairman), Sir Jeremiah Colman, Bart., Messrs. Jas. O'Brien (hon. secretary), R. A. Rolfe, J. Wilson Potter, Pantia Ralli, T. Armstrong, Walter Cobb, J. Charlesworth, W. H. White, S. W. Flory, W. Bolton and Gurney Wilson.

AWARDS.

FIRST-CLASS CERTIFICATE.

Laelio-Cattleya Momus (*L.-C. Rubens* var. *Jambouiana* × *C. Octave Doua*), from Messrs. CHARLESWORTH AND CO., Haywards Heath.—This is a large, beautiful and perfectly formed *Laelio-Cattleya*. On a plant only a few inches high was a grand flower of fine substance, broad in all its parts. The sepals and petals are bright rose colour, and the broad lip ruby-crimson, with a lighter margin and yellow lines at the base.

AWARDS OF MERIT.

Cattleya Saturna *Orchidhurst* variety (*O'Brieniana alba* × *Gaskelliana alba*), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tun-

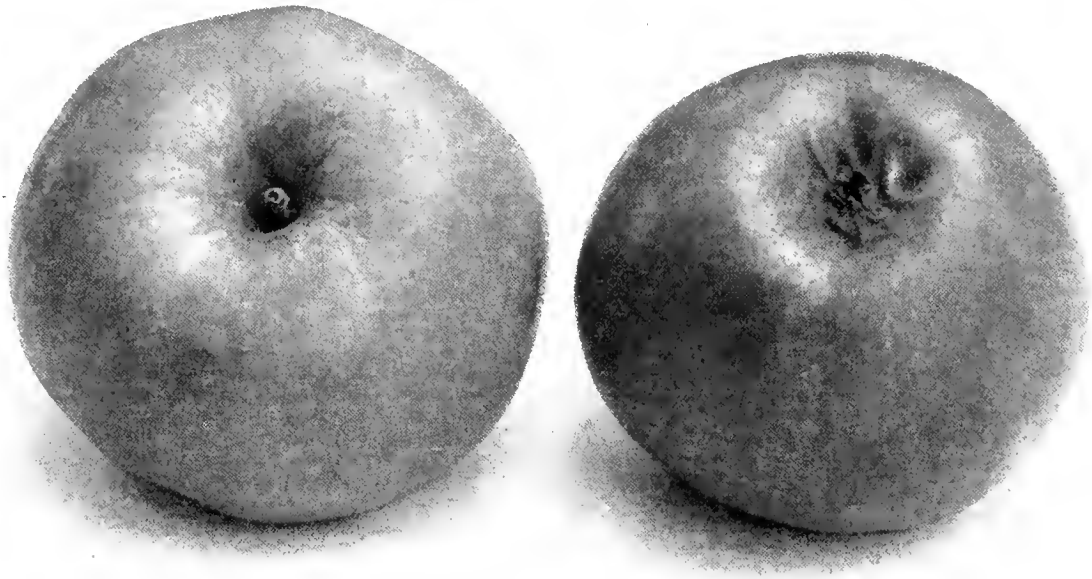


FIG. 17.—APPLE LORD KITCHENER.
(See p. 44.)

the best in cultivation, including Sheriff Ivory, white with carmine-coloured eye; Mme. Paul Durtie, blush pink; Le Mahdi, purple; Espérance, rosy-lavender and white eye; Mrs. Alder, clear soft shell pink with a light purple ring around the eye; Evangeline, deep pink, white eye; Reginald Cory, deep rose pink; W. Watson, light rose with pink eye; Violet Guest, salmon-red; and Fran Ant. Buchner, white.

Silver-gilt Banksian Medal to Messrs. BLACKMORE AND LANGDON, Bath, for *Delphiniums*. Their style of exhibiting these imposing spikes of bloom was very pleasing, large vases of the several varieties being grouped on the floor, the taller ones in the centre. The quality was superb, the finest sorts being *Statuaire Rude*, a strong spike of mauve and Cambridge-blue flowers; Fred Miles, dark blue with violet centre; Lady Hammick, clear opal blue; Capri, of the *Belladonna* type; Henri Moisson, the outer petals dark blue, mauve in the centre, and with black stamens; and Daniel Osiris, opal blue shading to mauve.

Silver Flora Medals to Messrs. B. R. CANT AND SONS, Colchester, for Roses; Messrs. CHAPLIN BROS., Waltham Cross, for Roses; Messrs. T. B. GROVE AND SONS, Sutton Coldfield, for

Silver Banksian Medals to Mr. J. ALL-GROVE, Langley, Slough, for Roses; Messrs. F. CANT AND CO., Colechester, for Roses. Messrs. J. CHEAL AND SONS, Crawley, for ornamental trees and shrubs and Star Dahlias, including the fine new variety Yellow Star; Mr. JAMES DOUGLAS, Great Bookham, Surrey, for border Carnations of good quality, the varieties Grey Douglas, lavender grey; Bookham Clove, Mrs. A. Cruwys, lavender-grey flaked with rosy-scarlet; and Fair Ellen, white with a few thin lilac lines on the margin, being a selection; Messrs. WATERER, SONS AND CRISP, LTD., Twyford, for hardy flowers, with an edging of Alpines in rockwork, including varieties of *Campanula psilla*, *Pansy Bowles' Black*, and *Thymus micans*; and Messrs. R. AND G. CUTBERT, Southgate, for large-flowered *Streptocarpuses* and *Gloxinias*.

Bronze Flora Medals to Messrs. G. AND W. H. BURCH, Peterborough, for Roses; Messrs. HARKNESS AND CO., Hitchin, for Roses; and the Rev. J. H. PEMBERTON, Havering-atte-Bower, for Roses.

Bronze Banksian Medals to Messrs. W. CUTBUSH AND SON, Highgate, for greenhouse flowers; Messrs. J. FORBES, LTD., Hawick, for Phloxes,

bridge Wells.—A charming white flower, intermediate between the parents, the pure white and fine substance of *C. O'Brieniana alba* being reproduced and amplified by that excellent parent *C. Gaskelliana alba*. The flowers are well displayed; they are pure white with pale yellow disc to the lip.

Miltonia vexillaria Dreadnought, from Messrs. ARMSTRONG AND BROWN.—A fine seedling of the same class as their *M. vexillaria* The Rev. W. Wilks, than which it is larger and broader, the labellum being over 4 inches across. The flower is bright rose-pink with white base to the labellum, on which is a yellow disc with three dark-reddish lines at the front.

Cattleya Hesta (*Suzanna Hye de Crom* × *Warsceviczii* Fr. M. Beyrodt), from Messrs. CHARLESWORTH AND CO.—Flowers large and of good form, white with a veining of violet colour on the front of the lip, which has a white margin.

GENERAL EXHIBITS.

Messrs. CHARLESWORTH AND CO., Haywards Heath, were awarded a Silver Flora Medal for a group of finely grown *Miltonia Charlesworthii*, and varieties of *M. vexillaria*, *Odontoglossums*, *Odontiodas* and *Laelio-Cattleyas*. Specially note-

worthy were *Cattleya Warscewiczii*, Mrs. E. Ashworth, a very pretty blush-white flower of perfect shape, and *Odontioda Zenobia* Ilacina (Oda. Charlesworthii × Odm. percultum), a very delicately tinted flower quite different from the dark-coloured original, but still bearing its perfect, circular form. The flowers were pale lilac with an old-gold tint on the sepals and petals.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, staged an effective group of fine forms of *Cattleya Warscewiczii*, the flowers varying much in colour and including one specimen of *C. Warscewiczii saturata* the lip of which is almost wholly deep purple and without the yellow "eyes" usually seen on each side as in other forms of the species. (Silver Flora Medal.)

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, were awarded a Silver Banksian Medal for a small group of hybrids in which were two of their new seedling *Odontoglossums* flowering for the first time, viz., *O. crispum* Admiral Beatty (*crispum* Raymond Crawshay × *crispum* Mossiae), a perfect flower heavily blotched with ruby-crimson on white ground; and *O. Promerens* Perilla, a fine white flower with the inner third of the segments dark claret-red. *Odontioda rosefieldensis* (*O. triumphans* × *C. Noezliana*), of a glowing orange-scarlet, and forms of *O. Bradshawiae* were also shown in fine specimens.

ERNEST MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), showed *Laelio-Cattleya Carmencita*, Woburn Place variety (*L.-C. luminosa* × *C. Dowiana aurea*), a showy pale yellow flower with deep claret-purple lip.

G. W. BIRD, Esq., Manor House, West Wickham (gr. Mr. Redden), sent *Odontioda Vesper* (parentage unrecorded), with flowers having the inner halves of the segments spotted with brownish orange, the margins being lilac; and a fine form of *Odontoglossum eximium*.

Messrs. FLOREY AND BLACK showed a bright scarlet seedling form of *Disa grandiflora* and three plants of their new rose-tinted *D. Blackii*; also *Odontoglossum Smithii* and *Odontioda Ethel* (Oda. Chelsiensis × Odm. percultum), with the inner parts of the sepals and petals spotted orange-red on a white ground, the margins being rosy-lilac.

Messrs. HASSALL AND CO., Southgate, showed two pretty forms of their *Cattleya Sybil* (*iridescens* × *Dowiana aurea*), the one with yellow sepals and petals and ruby-red front to the lip, and the other cream colour tinged with rose, the centre of the lip being orange colour and the front purple. Also *Odontoglossum Harryanum* with twelve flowers on the spike.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (vice-chairman), W. Wilks, W. J. Jelferies, W. Bates, E. Beckett, A. H. Pearson, A. Bullock, P. D. Tuckett, E. A. Bunyard, H. S. Rivers, W. Poupert, A. R. Allan, Geo. Kelf and J. Basham.

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett) was awarded a Gold Medal for a collection of vegetables; the produce was of such high quality that a second medal—a Silver Lindley Medal—was awarded to Mr. Beckett for skill in cultivation. The exhibit was most attractively displayed on a special stand forming a platform enclosed by a dwarf wooden railing, the various dishes being placed on wooden stands of different heights. The back was raised to permit of shelves to display large clumps of Cauliflowers, Marrows, Peas, Seakale, Beet, Celery and Artichokes, the big heaps of Cauliflowers having Lettuces grouped beneath them. The collection appeared to include every kind of vegetable, and there was not a weak dish. Amongst the more important kinds were Cauliflowers Early Giant, Marrow Favourite, Solid White Celery, Cabbage Earliest; Aubergines Long White and Long Purple; Beans Longpod, Waxpod, and Scarlet Padded; Turnips Green Top and Golden Ball; Potatos May Queen, Duke of York and Eighty-fold; Beet Globe; Tomatos Golden Ball and Golden Perfection; Cucumbers in variety; French Sugar Peas, Radishes, Capsicums, Kohl Rabi, Mustard and Cress and Onions.

Major ASTER, M.P., Cliveden, Taplow (gr. Mr. W. Camm), was awarded a Silver-gilt Knightian Medal for a dozen excellent bunches of Black Hamburgh Grapes and a few dishes of

Strawberries of the Laxton's Latest variety, a large, glossy, crimson berry of wedge, or cock's comb, shape.

Messrs. W. PAUL AND SON, Waltham Cross, were awarded a Silver Knightian Medal for fruit trees in pots, those of Jefferson and Washington Plums, also Pears Louise Bonne of Jersey, Beurré Superfin and Doyenné Boussotch, being splendid specimens and well fruited.

Messrs. SUTTON AND SOXS, Reading, had an interesting exhibit of edible Peas, demonstrating the advance made in their latest varieties compared with the older sorts, such as Sangster's No. 1, Yorkshire Hero, Glory and Fillbasket. Their large-podded varieties of V.C., Up-to-Date and Duke of Albany made the one-time favourites appear insignificant in size. A plant of the wild *Pisum sativum*, raised from seed collected by Mr. Arthur Sutton in Palestine, showed the progenitor of our garden varieties. (Silver Banksian Medal.)

A Silver-gilt Banksian Medal was awarded to Messrs. A. MORITZON AND CO., Ettrick, New Zealand, for a collection of Apples grown in that country; the varieties were not named.

Silver Banksian Medals were awarded to Mr. ALEX. W. MUIR, Penn, Buckinghamshire, for varieties of Cherries from orchard trees; and the CHURCH ARMY for vegetables grown on waste building land in Westminster.

NATIONAL ROSE.

MANY NEW ROSES AT THE R.H.S. HALL.

THE National Rose Society arranged with the Royal Horticultural Society to invite entries for new Roses at this meeting in classes in which the N.R.S. Gold Medals might be awarded to successful exhibits. This arrangement resulted in one of the finest collections of new Roses that has been seen in our times.

Between fifty and sixty varieties of new Roses were staged, occupying the whole of the northern end and eastern side of the Hall. They were of all shapes, sizes, and colours, and it may be doubted whether N.R.S. classes for new seedling Roses have ever been staged in better conditions or produced a more striking effect than those of Tuesday last.

The collection included eleven single, or nearly single, forms, and as these are often the most striking and decorative they may be taken first.

One of the most beautiful was Messrs. FRANK CANT AND CO.'S Mrs. C. E. Salmon, a flower with large, self-coloured salmon-pink petals, and bright-yellow anthers. It secured a Certificate of Merit. Mr. F. Cant has shown it once or twice before at local gatherings, and one may hazard the conjecture that it will prove of fairly uniform character and is likely to become popular.

Crimson Star is a very distinct single Wichuraiana raised by Dr. WILLIAMS, HARROW. The flowers are of a shade of crimson of the hue sometimes called ox's blood (or "Beet Root") red, and have a white eye, the edges of the petals being very clean cut. Mr. HUGH DICKSON'S Ulster Gem was awarded a Gold Medal, and is a flower of great beauty, the pale amber-yellow petals harmonising with and setting off the bright-yellow stamens. Beautiful, also, was the same raiser's Mrs. Godfrey Brown, a single flower somewhat recalling Irish Glory, but softer and yet brighter in hue. Irish Afterglow, shown by Messrs. A. DICKSON AND SONS, is a striking flower, perhaps best described as intermediate between Irish Fireflame and Irish Elegance, while the same firm's K. of K. is a bright scarlet-crimson, reminding one of Mr. Hicks' Princess Mary, and like this Rose, it is semi-single. It received a Gold Medal. We are now getting so many of these crimson singles that it is desirable to subject them to a rigorous trial in the garden in order to form an opinion as to which is the best grower and most effective garden plant.

Estelle, shown by Mr. MCGREY, is another flower of the Irish Glory type, but deeper in colouring. The most noticeable single flower, however, shown by Mr. McGreedy was Isobel, which secured a Gold Medal. The base of the petal is a bright yellow, and the upper part of the limb a flame-pink. This was noticed last year and also at Regent's Park, and cannot fail to attract attention. The only question will be

whether the contrast of colour may prove a little hard.

One of the most beautiful exhibits was a large stand of Golden Spray, also shown by Mr. MCGREY. This Rose obtained a Gold Medal in 1915, and is semi-double, perhaps a little after the style of the charming Gustave Régis, still one of the most pleasing flowers in the garden. In both the buds are most attractive, but Golden Spray is beautiful also in the open flower. If it retains these qualities in the garden it will prove a great acquisition.

Phyllis Lamplough, shown by Mr. HICKS, is another single H.T. of a rose-red shade, and quite worth looking for again. Another single flower is Mr. Hicks' Wichuraiana hybrid, Star of Hurst. The flowers are cream coloured with a rosy blush reverse to the petals, and little pink buds, which are very pleasing. This was the best of the trio with the "Hurst" patronymic, which this raiser staged in a little group together. The other two, Hybrid of Hurst and Hurst Rambler, had clusters of small white or cream-coloured flowers, recalling *R. multiflora* in general appearance.

Of the other climbing Roses exhibited, the most notable advance was Dr. WILLIAMS' Emily Gray, which received a Gold Medal. This is a Wichuraiana hybrid with fine glossy foliage and well-formed flowers of a deep orange-yellow. Dr. Williams' work among the Wichuraianas is now becoming well known, and he is to be congratulated on having found us the real yellow which does not turn white on opening, for which we have all been waiting in this section. Mr. Easlea's Little Meg was a pretty little white Wichuraiana, which secured a Certificate and might have gone higher if the flowers had been a stage more advanced. The flowers are well formed, recalling those of Fraulin Octavia Hesse, but instead of one or two in a truss, as in this Rose, they are produced in bunches. Messrs. FRANK CANT AND CO. also showed a pretty little yellowish-cream Wichuraiana variety in Golden Ray; while Messrs. PAUL AND SON (Chesbunt) gave us their Lemon Pillar, a lovely flower, but not then at its best, and Burning Bush, a red flower of the Gruss an Teplitz type, but lighter in colour, which we saw at the Botanic Gardens.

Turning to the Hybrid Teas, Mr. HICKS showed some pretty flowers in Mrs. Freddie Hunter, a pink with yellow base to the petal; Mrs. Oppenshaw, rosy-pink; Mrs. G. Roupell, containing that mixture of yellow and soft pink one associates with Queen Mary; and Mrs. Dunlop Best, a flower recalling the colour of Mme. Ravary, and perhaps the most pleasing of the group.

Mr. MCGREY'S exhibit was a wonderful sight, occupying nearly half the long wall. He is certainly a wizard in colour, and his resources seem endless. He secured three Gold Medals on this occasion for Flame of Fire, Gladys Holland, and Miss Willmott, and had previously had the same distinction for two others shown, Golden Emblem and Isobel. Flame of Fire is a flower of similar colouring to Mme. Edouard Herriot, the well-known *Daily Mail* Rose, but differs from it in the thorns and habit, which is that of the H.T. rather than of M. Pernet-Ducher's type. Gladys Holland is a Rose of exhibition type, having creamy petals with pale rosy-pink reflexes; while Miss Willmott seems also an exhibition Rose in general appearance, intermediate between Mrs. Foley Hobbs and Mabel Drew. Golden Emblem, which received the Gold Medal in the autumn of 1915, is best described as a larger Rayon d'Or—of much the same colour and, like that Rose, of no great beauty of form, the centre generally coming confused or doubled. A more pleasing flower is Christine, shown by the same raiser, which has decidedly deeper colour of a lovely golden yellow. The flower is smaller than Golden Emblem, but that matters little, and a fair proportion seem to be of beautiful form, which is most important. If it will keep its colour when transplanted to England, we may welcome it as a decorative garden flower.

A very beautiful flower, Noblesse, was staged in this group. It seems of exhibition form, and has creamy petals with a yellow base and a pale, rosy-salmon point, which colour slightly suffuses the edges of the petals. Altogether it was

a novel and pleasing Rose. It has previously received a Certificate of Merit, and many would have recommended it on this occasion.

Other flowers in this group were Mrs. Franklin Dennison, a large blush exhibition flower; Cheerful, salmon-pink, with yellow base, resembling the Lyons Rose; and Joan Hillay, also pink.

Gold Medals were also granted to Messrs. A. DICKSON AND SONS for Janet and Donald McDonald (in addition to K. of K.), and to Messrs. HUGH DICKSON, LTD., for Nellie Parker and Ulster Gem, the latter receiving Certificates for Broadwood, Souvenir de Georges Remet and Lillian Moore.

ROYAL SCOTTISH ARBORICULTURAL.

JULY 12.—A general meeting of the Royal Scottish Arboricultural Society was held at 5, St. Andrew Square, Edinburgh, on the 12th inst., Sir Andrew Agnew, Bart., of Lochnaw, the president, in the chair. There were 50 members present.

The chairman said they were justified in taking a more cheerful view of the prospects of forestry that day than they had been able to do for a long time. They had had the announcement that the Government had appointed a committee to deal with the question of afforestation, and he thought that in the changed circumstances the report of a committee of practical men was not likely to be ignored. They had also had a meeting at the House of Commons between members of the society and Scottish members of Parliament, more especially with regard to the creation of a separate Department of Forestry for Scotland, and it was intended to have the whole matter discussed in the House of Commons this session. The carrying out of a scheme of afforestation would enable discharged soldiers and sailors to settle on the land, but he believed if the Government desired to create small holdings in Scotland on economical lines with the certainty of success it must be done in connection with afforestation.

It was intimated that an action of reduction and declarator had been raised in the Court of Session against the Society at the instance of Mr. C. S. France, Aberdeen, in connection with a recently adopted resolution regarding the election of the office bearers, on the ground that it had been illegally adopted.

NATIONAL SWEET PEA.

JULY 12.—The annual outing of the National Sweet Pea Society took place on Wednesday, the 12th inst. The occasion proved entirely successful, and the members spent a most enjoyable day. The chief feature of the day's doings was a visit to the trial grounds at Boynton Hall, the residence of the president, Mr. Christy. The members took train to Chelmsford Station, and proceeded thence by motor to Boynton, where they were received by Mr. and Mrs. Christy. Lunch and tea were taken at Boynton, by the generosity of the president. The inspection of the trials was completed by lunch time, and in the afternoon a conference was held, at which the principal subject of discussion was the advisability of holding a provincial show. The question was thoroughly discussed, and many interesting points elicited.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JULY 6.—Committee present: Messrs. A. Hamer (in the chair), J. C. Cowan, J. Cypher, P. Foster, W. Gilden, A. R. Handley, A. J. Keeling, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS OF MERIT.

Cattleya Naidia var. *Mary Warsley* (iridescens × *Hardyana*), and *Odontoglossum plumptonense Carter Place* var., both from TOM WORSLEY, Esq.

Miltonia Sanderæ Beardwood var. (*Leapoldii* × *vexillaria*), from Col. Sir J. RUTHERFORD, Bart. M.P.

Miltonia Hyeana Ashlands var. (a home-raised seedling), from R. ASHWORTH, Esq.

A First-class Cultural Certificate was awarded to Mr. E. ROGERS, gardener to O. O. Wrigley,

Esq., for magnificent plants of *Phalaenopsis Rimsteadiana*.

Groups.

R. ASHWORTH, Esq., Newchurch (gr. Mr. W. Gilden), staged a group for which a Silver Medal was awarded. The collection included *Cattleya Mendelii* in variety, *C. Mossiæ Wagneri* Ashlands var., *C. intertexta* alba, *C. Gaskelliana* albens; *Miltonia Hyeana* Ashlands var., *Odontoglossums*, *Masdevallia Harryana*, *M. Courtauldiana*, *Cochlioda Noezliana* and *Oncidium abortivum*.

MESSRS. KEELING AND SONS, Bradford, showed *Anguloa Ruckeri* and *Cypripedium callosum* Sanderæ.

MESSRS. HASSALL AND CO., Southgate, London, exhibited *Cattleya Mossiæ* Wagereri.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.

JULY 12.—The annual exhibition of the Elstree and Boreham Wood Horticultural Society was held in the grounds of Aldenham House, Elstree, on the 12th inst. In holding the show as usual, the committee had in view the need for extended cultivation of fruits and vegetables in the district. A centre has been formed at Elstree for sending fresh fruit and vegetables to the Fleet, and during the past twelve months large quantities of produce have been dispatched to the sailors. In spite of the showery weather, large numbers visited the show; the grounds of Aldenham House were thrown open to the inspection of the visitors. The exhibits were staged in three large tents, which were erected in the Park, directly in front of Aldenham House, the residence of the Hon. Vicary Gibbs, who is president of the Society.

The profits from the show, including money collected in boxes, will be given to the fund for blind soldiers at St. Dunstan's.

COMPETITIVE CLASSES.—In the competitive classes the produce generally was very good, especially Roses (which were the chief feature of the show), Sweet Peas, hardy herbaceous flowers, and vegetables.

In the open class for 12 Roses, distinct, the competition was very keen. The 1st prize was a Silver Challenge Cup, and it was won by G. SPEICHT, Esq., Market Harborough; 2nd, H. R. DARLINGTON, Esq., Park House, Potter's Bar.

A class for garden or decorative Roses made a fine display; E. A. KENT, Esq., Letchmere Heath, was awarded the 1st prize; 2nd, Mr. ALLAN POTTER.

Sweet Peas were exceedingly fine. For 9 varieties, distinct, the 1st prize was awarded to Dr. E. S. LEGGATT, Salcombe, Harpenden; 2nd, Mr. W. H. HOLLOWAY, Port Hill, Shrewsbury.

The 1st prize for a collection of vegetables in Messrs. Sutton and Sons' class was won by Rev. DU F. BRYANS.

Other prizes for vegetables were keenly contested. The Rev. E. STODDEN (gr. Mr. W. Paice) was placed 1st in the Society's class for a collection; 2nd, Rev. DU F. BRYANS.

The exhibits of decorated tables were in good taste. The 1st prize was won by Miss F. E. BROWN, Shenley Hill Farm, Shenley, for beautifully arranged Carnations.

NON-COMPETITIVE EXHIBITS.—A magnificent collection of vegetables from the president's garden (gr. Mr. E. Beckett) was arranged in the centre of one of the tents, with large Palms as a background. A large gold medal was awarded to the fine exhibit.

A group of Roses in great variety was exhibited by Messrs. FRANK CANT AND CO., Colchester, who also showed a fine red decorative Rose named H. E. Richardson, a pink Hybrid Tea. (Gold Medal.)

Messrs. CUTBUSH AND SONS, Highgate, showed a good exhibit of flowers, in which Roses of the Polyantha type were exceptionally attractive. (Gold Medal.)

One end of the largest tent was occupied by a group of plants shown by Sir J. PRITCHARD JONES, Bart., "Maes-ye-Har," Elstree (gr. Mr. W. Stocks), for which a Silver-Gilt Medal was awarded.

J. B. B. WELLINGTON, Esq. (gr. Mr. J. Allen), was awarded a Silver Medal for a group of Carnations. Alpine plants arranged amongst paving stones were shown by J. THOMPSON, Esq., Bushey.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

JULY 10.—The monthly meeting of this Society was held at the R.H.S. Hall on Monday, the 10th inst., Mr. C. H. Curtis presiding. Three new members were elected. Three members were allowed to withdraw interest amounting to £3 2s. 4d., and one member withdrew £5 from his deposit account. The sum of £3 1s. 6d. was passed for payment to the nominee of a deceased member who had been killed in action. The sick pay for the month amounted to £49 13s. 5d. on the ordinary side, and on the State to £19 16s. 4d., and maternity claims to £10 10s. A letter of congratulation was sent to Sergt.-Major H. E. Davey, who had won the D.C.M. The question of opening a juvenile section is under the consideration of the committee.

ROYAL INSTITUTION.

III.—THE BREAKING OF THE RHYTHM*

(Concluded from p. 35)

THE record of an experiment with Lilac may serve to show the efficacy of this new "nutritive-salt" method:—

Branches cut in October, when leaves just thrown off, and in mid or deep rest, from which state it is difficult to awaken them:—

	Bud growth. Days.	Bud bursting. Days.	Leaf unfolding. Days.
Branch in water	32	36	48
Branch in nutritive solution	13	17	18

Previous drying (at uniform temperature of 26° for three days), then

	Bud growth. Days.	Bud bursting. Days.	Leaf unfolding. Days.
Branch in water	4	8	18
Branch in nutritive solution	2	4	6

November: Plant passed out of deep rest.

	Bud growth. Days.	Bud bursting. Days.	Leaf unfolding. Days.
Water	25	28	31
Nutritive solution	20	22	25

December: No difference.

The experiment demonstrates three facts. 1st, that drying the tissues of a plant artificially predisposes it to forcing, and it may prove that this process has a commercial future before it. Up till now, however, it has not been practised sufficiently for a confident prediction to be made. 2nd, that feeding with nutritive salts is effective in awakening the plant; and 3rd, that the winter rest of plants is not a uniform state.

This last fact had also emerged from Johannsen's work on etherisation and warm-bathing had already shown that it is possible to distinguish three phases in the winter-rest of plants.

A first phase in which the plant is going to rest. This phase may be relatively easily interrupted and changed to one of activity.

A second phase of deep sleep, not easily broken.

A third awakening phase, in which the plant begins to grow if the conditions of warmth and moisture are favourable; with this phase we are all familiar. It accounts for the readiness with which plants rush into leaf and bloom during a few days of fine weather in the spring.

The accompanying tables illustrate the difference in behaviour between plants in the first and third phases: how slow they are to begin to grow in the first phase, even in the warmth of a greenhouse, and how quick they are to develop when put in similar conditions after the turn of the year has brought about the third awakening phase.

Whether this latest method of forcible feeding with nutrient salts will prove of commercial value it is premature to say, but it is interest-

* Third lecture on "Modern Horticulture," delivered by Dr. Keeble before the Royal Institute (see *Gard. Chron.*, May 13, p. 269, June 17, p. 327, and July 15, p. 34)

ing to observe that it is effective not only with cut branches, but also with pot-plants. Thus a pot plant of *Quercus crispula* watered in its resting stage with nutrient solution had its resting phase shortened by eight or nine weeks.

In seeking to draw general conclusions we may take as our starting-point the fundamental fact demonstrated in my second lecture that by an appropriate change in external conditions, the normal rhythmic development of a plant may be interrupted and the plant compelled at the will of the experimenter to remain indefinitely in one phase or to pass inevitably into another. Thus we saw how by controlling the food supply, the fungus *Saprolegina mixta* may be maintained for years in its vegetative stage or compelled to pass in a few days from vegetative to reproductive phase. If we accept this conclusion we shall see in the natural periodic change from winter rest to summer activity, not the manifestations of an internal rhythm, but an illustration of the fact that in the life of the plant on this earth the changes of external conditions, of water and food supply and of temperature, are the signals which set going changes in the plant, and these changes result either in a slowing down or a quickening of the activities of the plant.

Encouraged by the favourable conditions in which it finds itself in spring—a rising temperature and rich store of reserve food stored in the past year, and an ample supply of water and mineral salts sucked up from the soil, the plant bursts into such exuberant growth that presently, before summer is past, the supplies of water and mineral salts are insufficient for the needs of the crown of leaves. Herein is the inexorable hint or signal which sets going the changes which prepare the plant to enter into its winter rest.

The control exercised by the outer world is no mere mechanical or direct control. It is ultimately due to the fact that the adjustment between plant and environment is never perfect, and it is as much the result of undue exuberance of growth in the spring as of failing supplies of water in summer and autumn.

On this view we are able to understand many manifestations of periodicity which would otherwise remain enigmatical.

We have learned already that in the tropics, with alternating wet and dry seasons, a seasonal periodicity as marked as that in temperate climates may be observed.

A pretty example of economic importance has recently been discovered with respect to the monthly yield of rubber in Ceylon from the Rubber tree, *Hevea brasiliensis*. Tapping records show that as soon as leaf-fall occurs in February, the yield of latex falls, and remains low until the new crown of leaves which is formed in March and early April is fully established, towards the end of May. Inasmuch as the latex from which rubber is obtained consists in part of reserve food materials (starch), as well as waste substances (caoutchouc), it is only to be expected that the quantity of latex should be decreased at a time when the tree requires all its reserves to build new tissues.

So also, admitting that periodicity is a process which serves to regulate the inevitable disharmony between plant growth and changing external conditions, we are able to understand the curious behaviour of other tropical plants.

Thus in *Amherstia nobilis*, at one and the same time, one branch may be in full green leaf, another leafless, and another just pushing forth its young pendulous and flaming red leaves. Similar erratic behaviour is to be seen when certain trees of temperate climates are introduced into the tropics. Thus in Java Apples and Pears may show at any one moment the four seasons of the year in their several branches. On the other hand, it is claimed that in the island of Reunion the Peach becomes evergreen: whereas Oaks and Alders, Almonds and Peaches introduced to the Cape of Good Hope fit themselves in with the inverted seasonal conditions, and blossom, not in spring or early summer, but in August.

Conversely, as Mr. Bowles has pointed out in his delightful books* on his garden, New Zealand plants brought to this country show a like ac-

commodation, and adjust their times of flowering to the reversed seasons.

In the case of other plants—those from the Cape and South America, e.g., *Oxalis lobata* from Chili, and *O. purpurata* from South Africa—a like adjustment is not made, and they do not begin to start into growth until our autumn is upon them.

In other regions of continuous high temperature and uniform moisture, the native vegetation either continues to grow more or less uniformly throughout the year, or, as in the forest region of the Amazon, the trees show a periodicity altogether independent of the external world. In the course of the year they may form so many as eight or nine fresh crops of leaves—each set of leaves lasts for a fortnight or so, and is then cast off, the tree remains leafless for a day or so and then bursts forth in leaf again. I think that this apparently erratic behaviour is to be ascribed to what Metchnikoff has called the disharmony in living things. The leaves of such trees make too great a demand upon the supplies of water and mineral salts which the root has to absorb from the soil. These demands increase as the leaves increase; there comes a time when they cannot be met—the leaf is faced with semi-starvation, the self-amputation process is set going, and the leaf falls. Now supply overtakes demand, and after a brief interval new leaves burgeon forth and expand. Once again demand surpasses supply, and once again the drastic remedy of amputation is applied.

Finally, as to the plants' awakening: the fact that so many different agents—frost, drying, ether or chloroform, wounding, warm water, provision from without of nutrient salts—may each curtail the winter rest, indicates that the chain which binds the plant may be broken at many, or at least several, of its links.

Frost, drying, and probably etherisation cause a loss of water from the tissues. Now it is a curious fact, well known to botanists, that the most central tissues of a plant are always suffering from a lack of water. Thus, if a piece of pith be cut out from a Sunflower or Elder it swells and elongates, and if it be placed in water it expands so much that it can no longer be made to occupy its former position in the stem. The cells of such tissue are greedy for water. If, then, the outer tissues are caused to lose water by drying or frost, and if they lose it faster than the deeper tissues, these outer tissues will no longer constrain the deeper tissues. These latter, therefore, stretch. But if the inner tissues of a bud stretch, the bud scales will be forced apart, carbon dioxide hitherto imprisoned around the cells is free to escape, the narcotic is removed, the enzymes resume activity, and the sleeper awakes. When the plant is bathed in warm water a similar stretching of the more central tissues may well take place, and so also when the cut end of a branch is stood in water. The efficacy of the nutrient salt method may then be twofold. First, by allowing of this stretching of the inner tissues, and second by releasing, as they are known to do, the specific chemical agents or enzymes which convert inert starch into soluble food material, sugar.

It may be, however, that even so the mystery of spring awakening is not yet fully revealed. The men of olden time wove from this mystery the charming fairy tale of the sleeping beauty and the fairy prince, who awoke her with the warmth of a kiss. We of a more prosaic age are still seeking for a more sufficient explanation of the recurrent mystery of spring. This, at least, we have learned, that the sleeping beauty was already more than half awake when the fairy prince espied her. Had he essayed the task at an earlier season of the year, no method more romantic nor less drastic than a warm bath would have proved effectual.

Without doubt, literary-minded men had to make during many centuries crude and imperfect sketches of the pictures they at last succeeded in drawing so perfectly. We biologists are in the same case. We are making the rough sketches which we may hope will prove not without service to the artists of a later date, who will paint us a perfect picture of the nature of life, and solve, incidentally, such problems as this—the recurrent periodicity of plant life.

Obituary.

EMILE BRUNO.—We regret to learn from our contemporary, the *Revue Horticole*, of the death of Monsieur Emile Bruno. He was for a long period a collaborator of the well-known writer on horticulture, Edouard André; he illustrated André's treatise on the order Bromeliaceæ, and also his work *L'Art des Jardins*. He took an important part in the transformation of the beautiful gardens at Monte Carlo, and was a keen lover of all forms of horticultural work.

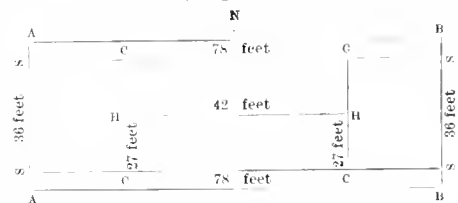
T. PERCY PEED.—We learn with regret that Second Lieutenant T. Percy Peed, 8th South Staffordshire Regt., was killed in action on the 10th inst., in his 28th year. Deceased was the youngest son of Mr. Thomas Peed, Streatham, and junior member of the firm of Messrs. John Peed and Son. Educated at Alceyn's School, he enlisted in the King's Royal Rifle Corps soon after war broke out, and rose to the rank of Corporal. After six months he obtained a commission, and was appointed to the 2nd South Staffordshire Regt., then stationed at Jersey. In the early autumn of last year his battalion was ordered to France, and after some months active service he was transferred to the 8th Battalion. A letter from his Captain states:—"He was always very popular in the battalion, both with officers and men, and personally, as his company commander, I feel his loss very deeply. . . . He was killed whilst leading his men against the German trench, and was actually on the German parapet when he was hit. He was an extremely plucky and gallant officer. We suffered many officer casualties both in killed and wounded, but few of them will be missed as much as we shall miss your son." Of a gentle and unassuming disposition, the late Mr. Peed endeared himself to all with whom he came in contact.

ANSWERS TO CORRESPONDENTS.

CARNATION: *Miss E. P.* The plant bears no evidence of disease, and the condition complained of must be due to some cultural detail only to be determined by those on the spot.

NAMES OF PLANTS: *L. Guile.* Both plants are forms of the ordinary Martagon Lily.—*J. W.* *Prunus Padus sibirica parviflora*, an Asiatic, small-flowered variety of the Bird Cherry. Our native tree has much larger flowers and longer pedicels to the flowers and fruit.—*G. Wicks.* 1, *Campanula rhomboidalis* (the same as No. 6 in your previous communication); 2, *Campanula caespitosa*; 3, *Campanula rapunculoides*; 4, *Calceolaria Bijou* (a garden variety); 5, *Erica vagans*; 6, *Potentilla argrophylla atrosanguinea*.—*W. and S.* *Digitalis lutea*.—*T. Byr.*—Rose Veilchenblau.

PLAN OF A TENNIS COURT: *W. B.* A tennis court for the single game is 27 feet wide and



78 feet long; and for the double game 78 feet long and 36 feet wide. The posts for supporting the net should be placed 3 feet beyond the sides. The service lines run parallel to the net, and are 21 feet distant from the same. The net should be 3 feet high in the centre, and 3 feet 6 inches at the posts, which are put 3 feet outside the line to allow of the net dropping.

Communications Received—*R. F.*—*G. H. B.*—*T. L.*—*H. S. T.*—*W. H. D.*—*G. W. P.*—*J. W.*, Glasgow—*W. F.*—*S. A.*—*H. J. E.*—*H. V. O.*—*J. O'B.*—*W. B. H.*—*F. W. J.*—*A. B.*—*C. P.*—*E. B.*—*W. B.*—*G. F. H.*—*O. W.*—*I. J.*—Titt and Son.

* "My Garden" Series.

THE

Gardeners' Chronicle

No. 1544.—SATURDAY, JULY 29, 1916.

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NOTES FROM A COTSWOLD GARDEN.—X.

MIDSUMMER is four weeks past, and we have not yet had a single warm day or night. The season is so late that the first dish of Green Peas only came in on July 13, and on the farm no meadow hay has been yet cut nor a single rick of seed hay completed. But the garden is beautiful, and almost everything is growing luxuriantly owing to the constant showers. It is indeed surprising how many plants which come from countries where the climate is so much hotter and drier than ours flourish in such a season; but nevertheless it is true that a cold and dripping summer suits my porous and hungry soil much better than a hot and dry one, and if we have a fine, warm autumn all will be well.

Among the most beautiful tall herbaceous plants at present are the late-flowering, narrow-leaved Eremuri of the Bungei section, of which Mr. Wallace showed such a fine lot at Holland House, but which are a fortnight later in my garden. Among the seedlings raised here are many shades of lemon- and orange-yellow running into pink, and two pure white ones, which I have not seen elsewhere. They seem much more vigorous, and able to endure rain and cold better than E. Bungei itself, or than the early-flowering, broad-leaved section; and they have this further virtue, that their stems are stiffer and stand up better. But they want a spell of hot, dry weather badly now to ripen their seed, for some of the stems are beginning to turn black owing to the continued dull weather.

Four of the five or six species of Rodgersia in cultivation are now in great beauty, by far the most beautiful being the plant which was mentioned and

figured in this journal (August 23, 1902) by Dr. Henry as Rodgersia pinnata, Franchet, which was introduced to cultivation by him from Yunnan and flowered at Kew in 1902. From Henry's description I should have supposed that my plant was distinct, as it certainly is from the plant introduced by Wilson in 1901, and mentioned in *Gard. Chron.*, August 23, 1913, by Mr. Irving as R. pinnata var. alba. This latter, both in the colour of its leaves and flowers, is much inferior to the Yunnan plant, which, however, seems to be still rare in cultivation, as several good gardeners have admired and remarked on it in my garden. It is the latest of the five to come up, and, like R. aesculifolia, R. sambucina, and R. tabularis, all of which are now in flower here, has only one defect, namely, that it is very liable to be injured by spring frost, to which its large and beautifully bronzed and crinkled leaves are very susceptible. Mr. Irving's excellent photographs and descriptions of R. sambucifolia and R. tabularis (*Gard. Chron.*, August 23, 1913) make it unnecessary to say more about them; but I may add that if the soil is deep and cool and the situation shady they both grow as freely and increase as fast in my soil as the older and better known R. podophylla.

Now I must speak of a Lily which has not yet flowered at Colesborne, but was shown at Holland House by Mrs. Berkeley of Spetchley, in whose garden near Worcester I had seen it growing, and remarked on it as being earlier in growth and different in habit from L. giganteum or L. cordifolium. The photograph (see fig. 18) taken by Miss Willmott shows this very well. Mrs. Berkeley told me that she had it several years ago from Max Leichtlin as a Chinese species, and after comparing the plant with the dried material at Kew, I find it to be probably the same as that which Franchet described as L. mirabile, *Jour. de Bot.*, VI., 310 (1892), and Baker mentioned in *Jour. Roy. Hort. Soc.*, XXVI., 335, saying that it was distinguished from L. giganteum by its centrifugal inflorescence, and was the only Lily which had that peculiarity, the top-most flower opening first. When my monograph was completed in 1880 both L. giganteum and L. cordifolium were recognised as Chinese plants, the former having been found by the Abbé David in Western Szechuen, about lat. 31° N., long. 101° E., and the latter by David near Kiukiang, and by Fortune near Ningpo. In the Kew Herbarium there is a tracing of a bad specimen which was Franchet's type, and which is the only one of L. mirabile; but there are others collected by Forrest in Yunnan and by Père Manberg at Tsekou, which Hemsley considered, as I do, to be giganteum; and there are some collected by Henry in Hupeh whose flowers are clustered into a close head unlike the inflorescence of either. An examination of a large number of L. giganteum at Wisley, in company with Mr. Hill of Kew, convinced us both that the centripetal character of L. giganteum, by which is meant that the lower flower opens first,

is too variable to be relied on as a specific character; because in most of the plants the middle flowers are the first to open. As the only other character that I could find in the dried Chinese specimens to distinguish them from giganteum, was the smaller and comparatively shorter capsule, I decline to accept L. mirabile as more than a variable form of giganteum on the evidence before us; though Mr. Grove tells me that the stems of Chinese plants are blackish. Another Lily new to cultivation was shown at Holland House as L. cernuum, by Mr. Perry, who kindly allowed me to take the specimen to Kew to verify. It is a species of the Martagon section, about 2½ feet high, with four flowers of a pinkish lilac resembling some forms of L. Martagon but with fewer spots. It agrees perfectly with Komarov's specimen from Chinese Manchuria, where it was discovered on the river of "Talu-dsian," (?) in the province of Mukden. Mr. Perry tells me that the bulb resembles that of L. tenuifolium, to which and to L. callosum Komarov says it is allied. As a horticultural plant I do not think it will have much attraction for the general public. Among the species of Lily which thrive best here, and which are now out, L. colchicum takes a leading place. It has a remarkable faculty, very rare among Lilies, of sowing itself and coming up in unexpected places, where it grows much more vigorously than when planted in a prepared bed. In the late Mr. Griffiths' very interesting garden at Chipping Campden—perhaps the most beautiful village in the Cotswolds, though some might prefer Bibury—it used to come up all over the garden, and I was astonished to find a very robust plant which had germinated and forced its head through the very dense flattened branches of a dwarf Beech tree. Here I have just found a vigorous and healthy plant with three flowers in a patch of turf which has hitherto been mown, under a Horse Chestnut tree; whilst in a shady bed under a north wall, where I planted a lot of seedlings, many of them have turned yellow and look sickly.

In the Alpine house Conandron ramondioides is in full flower, planted among stones which are kept wet during the growing season; but neither here nor at Kew is it half so vigorous as it was when I first brought it home, or as it is now in the new Alpine house at Edinburgh, planted in crevices of sandstone, just as it grows in Japan, where I found it near Atera in the beautiful valley of Kisogawa. I must here relate an anecdote to show the remarkable goodwill of the country Japanese to foreigners in places where they have not been spoiled by tourists. I was directed to the place where Conandron grows, on steep sandstone rocks dripping with moisture in the rainy season, but found that all the plants within reach had been taken by collectors. As I could get none, I started down the valley on a jinrikisha, and half a mile on the road was stopped by a man running after us, who came up and offered me some plants of Conandron. My companion, Mr. Mochizuki, explained that the man, having

heard what I wanted, had run after us to offer me some out of pure goodwill, and that he would be offended if I offered to pay him for them; but I can only say that in no other country have I found the people so friendly, and often so charming in their manners to strangers.

Another beautiful plant flowering here for the first time is *Gentiana Przewalskii*; it is apparently a perennial with a central rosette of leaves and numerous large, bright blue flowers borne on long, trailing side-shoots in the manner of the flowers of *Gentiana Kurroo*. I believe it is perfectly hardy, but have not ventured to plant it out until I have got seedlings.

Mutisia decurrens, after many failures, is at last flowering well in a pot in my Alpine house.

they died soon after planting out at Kew, as they also did here. There are many other beautiful varieties or species of *Mutisia* growing at 5,000 to 6,000 feet in the mountains of Chile, some of which have quite short stems, and grow like Alpine plants and not as climbers. Though I took particular trouble to collect ripe seed of these in 1902-3, and got off my horse many times to gather them in various places, I did not succeed in bringing home a single seed which germinated, and I imagine that a volcanic soil, on a patch of which Sir C. T. D. Acland told me that Killerton is built, may be one of the reasons why, in conjunction with the mild climate, it grows so well there.

Kniphofia Northiae (see fig. 19) and K

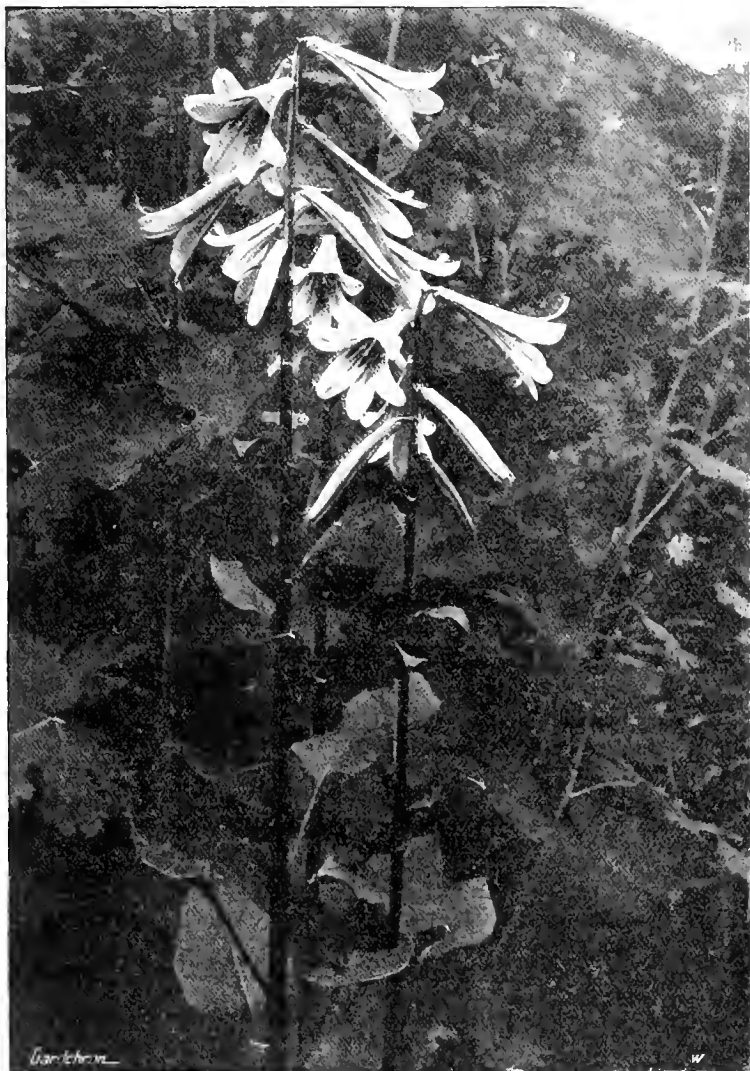
Charles Green, could pack more plants safely in a smaller box, and with less packing materials, than any professional packer. Since then it has gone through many bad winters without injury, and looks very well on the bare stones of a rockery, though it is well to pull it to pieces and replant the thick, fleshy root-stocks every two or three years.

Oreocome Candollii Edgworth is, to my eye, the most graceful plant in the often weedy and ugly family of Umbelliferae; it has very finely-cut foliage and small white flowers in broad umbels; it grows about 3 feet high, is not particular about soil, and comes from the Himalaya. According to the *Kew Hand List* its correct name is *Selinum tenuifolium* Wall, but I doubt whether this name will be generally adopted. *H. J. Elwes.*

PLANT NOTES.

YELLOW-FLOWERED RICHARDIAS.

In some of the older species of *Richardia*, such as *R. albo-maculata* and *R. hastata*, the flowers are more or less of a yellow tinge. It was not, however, till 1890 that a *Richardia* with spathes of a rich golden yellow made its appearance. This was *R. Elliottiana*, of which a single plant was shown at a meeting of the Royal Horticultural Society on May 19 of that year, and was given a First-class Certificate. It attracted a very large share of attention when shown, and various anticipations were indulged in as to its great value for decorative purposes. It seeded freely, and on June 17, 1902, a sufficient stock was obtained to be sold by Messrs. Protheroe and Morris. There was a stiff competition for the plants, the highest price realised being 17 guineas, while tiny plants fetched from 14s. to 15s. each. It proved to be very amenable to cultivation, so that it was soon generally distributed, and is now quite common. In this species the leaf-stalks are mottled after the manner of some of the *Alocasias*, though in this respect individuals vary a good deal. The translucent whitish blotches on the leaves are also in this species very pronounced. The early history of this *Richardia* that we were told at the time of its introduction is that seeds were sent from Natal to Captain Elliott, of Farnborough, and the only one that flowered proved to be this distinct species. Two years after the introduction of *R. Elliottiana* saw the advent of another species, namely, *R. Pentlandii*, first introduced by Mr. R. Wyte, Pentland House, Lee. With regard to the nomenclature of this, it may be noted that *R. Pentlandii* is in the List of Plants certified by the Royal Horticultural Society referred to *R. angustiloba*, but in the last edition of the *Kew Hand List of Monocotyledons* the two are kept distinct. The points in which *R. Pentlandii* differs from *R. Elliottiana* are in its larger and thicker leaves, which are of a very deep green colour. The spathes, too, have a dark blotch at the base, but in this respect there is a certain amount of variation. During the Boer War a considerable number of *Richardia* tubers were sent home by soldiers at the front, and I handled a considerable number of them. Many from the Natal district consisted of *R. Pentlandii*, while among them were a few which, though resembling this species in every other way, had the leaves spotted as in *R. Elliottiana*, but to a lesser extent. Perhaps the finest group of *R. Pentlandii* ever exhibited was that put up at the Chelsea Show last year, from the gardens of Sir James Horlick, West Dean Park, Chichester. When these golden-flowered species were first introduced they were often referred to as yellow counterparts of the well-known *R. africana*, popularly termed the Arum Lily. This led to mistakes in cultivation being made by some, for in reality these yellow Arums pass the winter in a dormant state, and the tubers at that



(Photograph by Miss Ellen Willmott.)

FIG. 18.—LILIIUM GIGANTEUM YUNNANENSE IN MRS. BERKELEY'S GARDEN, SPETCHLEY, WORCESTERSHIRE. (See p. 48.)

I received the plant from Edinburgh, where it grows well and spreads on the rockery in the Botanic Gardens. It is of a more orange colour than the splendid plant which grows against a wall at the door of Sir C. T. D. Acland's house at Killerton, near Exeter. That plant is finer than any I have seen elsewhere, even in Chile, its native country. There is a climber growing in the lower foothills among bushes with long, dried-up stems, which have leaves and flowers only at the ends. As I remember it some years ago at Killerton it had flowers reminding one in colour of those of *Gerbera Jamesonii*. Mr. Connts raised seedlings from it which he sent to Kew and to me; but he told me afterwards that

caulescens (see fig. 20) are two of the most stately and distinct species of that handsome genus, and are both favourite plants which remind me of their donors. The former was a present from Miss North in person, and I have succeeded in keeping it true by off-sets, but in many places, and even at Kew, there seem to be hybrids under the name of *Northiae* whose leaves are much less broad and Agave-like, without serrations on the edges. *K. caulescens* was introduced and given me more than forty years ago by the late Mr. Wilson Saunders, who in his day had one of the most complete and varied collections of living plants in England, and whose very clever gardener.

time very much suggest those of a *Caladium*. If they are shaken clear of the old soil early in the year and repotted in some good rich compost, they grow away freely and flower well. A garden variety—Mrs. Roosevelt—was sent here from the States and given an Award of Merit by the Royal Horticultural Society ten years ago. It is exceedingly floriferous, and the blossoms are of a pleasing cream tint. W. T.

ELIE METCHNIKOFF.

IN the course of an address delivered in Denmark on the occasion of Shakespeare's tercentenary the great critic, Georges Brandes, exclaimed, with reference to the elusiveness of genius, "Who shall weigh a flame?" This is the impossible task that we undertake when we seek to estimate the work of a man of genius like Elie Metchnikoff, who died in Paris at the Pasteur Institute on July 15 of this year.

Metchnikoff's work is well known; it has transformed our knowledge and has inspired discovery. To him we owe the most fertile of all conceptions as to the nature of immunity. From his studies of the lower animals, sponges, jelly-fish and water-fleas he reached the conclusion that the power of animals to resist disease is an active, living power and not an obscure form of passive resistance. This power resides in the unicellular, ameboid cells which occur in countless numbers in the blood and lymph. They—or certain sections of them—are able to take into their jelly-like bodies invading micro-organisms, and to digest them. Thus the multiplication of the parasitic disease-producing micro-organisms is prevented and the body into which these organisms have gained an entrance is saved from the ravages of invasion. As the Navy to these islands, so the phagocyte, to these our bodies, is the first line of defence.

It is not surprising that the medical profession as a whole looked askance at such sensational statements, yet no one of scientific training who read Metchnikoff's masterly account of his researches, published 25 years ago, could remain in doubt that his discoveries were valid and destined to revolutionise medical practice.

As an example of the incredible distance which those waves of mental disturbance which we call discoveries may travel, it may be observed that Dr. Russell's hypothesis of the cause of soil-sickness and of the recovery of sick soil as a result of partial sterilisation is in strict fact an inverted application of Metchnikoff's doctrine of the rôle of phagocytes in producing immunity. The body of the earth, like the body of man or of any other animal, is the seat of contention between bacteria and protozoa. The soil protozoa, like the phagocytes of the animal body, prey upon the bacteria. But in so doing they decrease the fertility of the soil, for a certain number of bacteria is necessary for the maintenance of soil fertility. The animal body, to remain healthy, must be the battleground of victorious phagocytes; the body of the soil, if it is to remain fertile, must witness the discomfiture of its phagocytes—the soil protozoa. As in former days a surgeon would cauterise a wound, so the gardener may, by treating the soil, destroy the protozoa which cause its sickness. Hence it is but natural that, just as doctors are concerned to discover the state of the blood of a patient with respect to its phagocytes, so those engaged in scientific agriculture are concerned to discover the numbers and nature of those protozoa which we may call, without any distortion of language, the phagocytes of the soil.

Hence it is fitting that the horticulturist should add his modest tribute in honour of the memory of the great Russian Elie Metchnikoff, the light of whose genius has illuminated for ever the pristine darkness which enshrouded the mysterious tragedy of human disease.

A VISIT TO WISLEY.

DURING the last few weeks the various standing committees of the Royal Horticultural Society have visited the Society's gardens at Wisley. The visits were in response to invitations addressed to each member by the Society's Council and the Wisley staff, and the committees made their visits on different days. The Narcissus and Tulip Committee was invited for Friday, July 14, and, writing after this event, it is not difficult to guess the chief reason for the invitations. In the past year or two the laboratory has been built, cottages have been constructed and much important work carried out in the gardens of which the Wisley staff may be justly proud. But it was doubtless felt that whilst certain members of the committees occasionally visit Wisley in connection with the many trials that take place there every year, others knew very little as to the present condition of the gardens, and still less of the preparations that have been made for undertaking serious work when once the national situation again admits of the normal activities. Take our own committee, for instance: one member had not seen the garden for ten years, and another for four years. It may be said that one of the chief advantages of going down in this official manner lies in the fact that each committee during its inspection of the gardens has the benefit of the company of the heads of staff, consequently any question that arises can be answered satisfactorily there and then by those primarily concerned in the matter that arouses interest. Our party travelled from Waterloo to Byfleet Station, and we were met by cars that conveyed us to the northerly end of the gardens, where the six new cottages have been built. Here we were received by Dr. Keeble, Mr. Chittenden, Mr. Wright, Dr. Horne, and Mr. Ramsbottom. The cottages, it was explained, were built at a cost of £350 each. Their appearance was generally admired, and after noting how prettily they had been connected up with each other by brick arches, providing pleasing vistas, we were invited to inspect the interior, consisting of two rooms and bathroom on the ground floor and three rooms above. The happy young mistress of this particular cottage was evidently very pleased with her abode, and the appearance of the kitchen (which we surprised during baking operations) convinced us that the Wisley cottagers are extremely fortunate, everything possible having been done to make them comfortable.

The next item of interest was found in the experiment that is being made with high tension electricity on the growth of plants. Two pieces of ground of equal size (namely, $\frac{1}{4}$ acre each) have been planted with ordinary market garden crops of vegetables, and one half is provided with overhead wires. These wires are charged with high current electricity, the ordinary 100 volts electric current being changed into high tension in a shed where we were able to inspect the machinery. The object was to see if electricity given off from the overcharged wires and passing to earth through the plants would have any accelerating influence on the growth. Somewhat favourable results have been reported from other experimental stations, but so far the Wisley trial does not encourage high expectations, for the control plot had much the better appearance. The trial will be repeated next year. We then inspected some Roses that were remarked on by *Novice* in the last issue of the *Chronicle*. Here was *Rosa Wichuraiana rubra* mildewed to the last degree, and interlaced with it was *R. Wichuraiana alba*, free, at the time of our visit, from the disease. It was an instance of present immunity on the part of the latter plant. But I must confess to being a heretic in this matter of immunity. I used to believe in it, for certain Apple trees in my own

garden with their branches thrust through other trees very badly affected with woolly aphid nevertheless remained perfectly clean for years, and appeared absolutely immune. But the time came eventually when contagion was easy and inevitable, and since then there has not been much to choose between the different varieties. Boskoop Giant Currant was immune from the Currant bud mite for some years after its distribution in gardens, but few would care to claim that it is immune to-day. I only state these facts for what they are worth, and as showing some excuse for my lack of faith. It was interesting to see that the Narcissus Committee included members that were quick to note how grandly that charming *Rose Madame Ravary* was growing on very light, sandy soil, and some of us wondered how much manure had been exchanged for such a result. The answer from Mr. Wright was: "That soil has had no manure for twelve years." And no one had any explanation to offer why Madame was so happy and prosperous! Mr. Chittenden afterwards drew our attention to some very creditable hush Apple trees. He is conducting trials involving considerable work in order to get definite results in the matter of summer pruning. He is pinching hard and less severely in different instances, and doing both on different dates, and noting whether the buds below are forced into growth the same season. It may be feared that definite rules are scarcely possible in such a matter; certainly they are not possible for different localities and soils, and even for the same district seasonal weather must always remain an uncertain but influential factor. He also drew our attention to the long-taught lesson on the folly of allowing grass to grow around the stems of young fruit trees. Nothing can excuse such ignorance or neglect in these days in the treatment of young trees, but there comes a time when the trees, having extended their roots far and wide, exert the dominant influence, and the presence of grass at that stage is not likely to cause injury to the trees.

Passing to a break of Gooseberries Dr. Horne explained the details of trials he is conducting with a view to controlling the American Gooseberry mildew. The results showed that weak spraying with Burgundy (one-eighth ordinary strength), commencing the day after the disease showed itself this season, had good results. The berries on the sprayed bushes remained clean and the shoots were less badly attacked than others. A curious point was that certain trees that had been infested with red spider suffered from the spray fluid, probably because the fluid entered the leaves through the punctures directly traceable to the spiders. Mr. Wright next drew our attention to an early Grape in the large vinery, not a new variety, but one that is not widely known, though it ripens a month earlier than Black Hamburg in the same conditions. The berries are round, the flesh rather sweet and juicy, but of only moderate flavour; still, this variety, Ascot Citronelle, which Standish raised many years ago, has much to recommend it to those desiring early Grapes. Some blue Water Lilies, *Nymphaea stellata*, were flowering abundantly in a small, rather artificial-looking pool, and the plants so flourished that they needed more room. After this point the new laboratory came into the view for the first time as we crossed the lawn, which lies between the glass-houses and the main path leading from the entrance gateway through the gardens. Many had never seen the structure, whilst others had watched its erection. But all admired it, with its half-timbered front, tiled roofed, mediaeval suggestions, with the prettiest outlines possible of no exclusive architecture, but of pretty features that may very likely be found in the older cottages of Surrey, Sussex, and Essex. The surprise of some as they looked upon it showed that the

Wisley scheme is more ambitious than the public yet realises. Then we entered the building by way of the directors' very fine office, with a window facing Mr. Wright's house, and proceeded into Mr. Chittenden's room and into others on the ground floor, and upstairs, that will eventually be devoted to studies in physiology, mycology, chemistry, and entomology. The fittings are in every way all that could be wished, and the visitor might imagine himself to be in the cloisters of some university or college. In recognition of the special objects of our particular committee, an address was given us by Mr. Ramsbottom on the plan that he will follow in making researches upon the disease that is so

with Peas than the writer. But it may be allowed me to say that I had never seen Peas in better condition, and the hundred and more rows were podded abundantly.

But these notes are becoming long, and it is evident that I shall not be able to remark on all the things we saw at Wisley, so with the Editor's permission I will only now barely enumerate one or two fine plants that were observed on the great rock-garden, which, in itself, was a huge surprise to those who had not previously seen it. First there was *Campanula garganica* W. H. Paine. Like the type, it is of a delightful shade, and it has a superior white eye; *Primula capitata*, with its velvety-purple



[Photograph by J. Edwards.]

FIG. 19.—KNIPHOFIA NORTHAE AT COLESBORNE.

(See p. 50.)

destructive to Tulips. Dr. Keeble thanked us for suggesting the research, and said that Mr. Ramsbottom and the Wisley staff would do all that was possible to solve the mysterious character of the disease. Mr. Ramsbottom showed us slides in which *Fusarium* was isolated, but he stated that he had actually found eelworm in the seed-vessels, and he would not be surprised if the disease proved to be due to other causes than *Fusarium*. The wonderful and wholly successful Pea trials (see remarks on p. 59) were observed with every sign of appreciation on the part of the visitors, but I leave them to be noticed by a member of the Vegetable Committee, or, at any rate, someone more intimate

flowers and Cowslip-like foliage; *Geranium sanguineum lancastricense*, *Lycopodium dendroides*, *Adiantum pedatum*, *Spiraea palmatum* (of more brilliant colouring than I had ever beheld in this plant), and *Dianthus deltoides* Bowell's variety, a brilliant shade of rosy-magenta. I do not mention these as amongst the best plants, for most of the best were out of flower, but merely as being in such excellent condition as to claim one's notice. But enough has been written. I will only add that, although the Narcissus Committee was the last but one on the list, it was whispered that we were favoured with the best weather, for which blessing let the powers be praised. *Jonquil*.

The Week's Work.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PEACHES AND NECTARINES.—In view of the unfavourable season, it is the more necessary to thin and regulate the growths of Peaches and Nectarines on walls in good time. Expose each individual fruit as much as possible to the sunshine. Remove entirely all gross shoots, as these tend to upset the balance of growth on the tree, and are rarely fruitful. If the tree is growing unduly strong it should be marked for root-pruning or lifting in the autumn. Such treatment will encourage the formation of fibrous roots, and the following season the growth will be of moderate length and firm. I would again emphasise the necessity of keeping all fruit trees thinly trained. One of the commonest mistakes made by beginners in the cultivation of Peaches and Nectarines out-of-doors is the practice of retaining too many shoots. The trouble usually commences by not disbudding the trees properly early in the season, with the result that when the shoots require tying, they are so numerous as to overlap each other. Each shoot should be quite clear of its neighbour and have sufficient space for the foliage to develop. Trees carrying full crops should be given a little artificial manure during showery weather; if the ground is dry, water it after the stimulant is applied, and apply a light mulch. Trees carrying light crops do not need feeding, for stimulants would only encourage the development of gross growths; nor is watering necessary in such cases unless the trees show signs of suffering from drought. Keep the trees clean by syringing them each afternoon in fine weather. Watch for the first appearance of mildew, and take measures to check the disease before it spreads. Some growers dust yellow sulphur on the foliage as a preventive of mildew, but I do not favour this method, as the sulphur is unsightly. It is preferable to use a mildew specific, such as Seride No. 2. To destroy red spider spray the trees with an insecticide and continue to do so until all the insects are exterminated.

AMERICAN GOOSEBERRY MILDEW.—Damp, close weather favours the development of this disease, therefore in neighbourhoods where it is known to be present keep a careful watch over the bushes. The fungus is usually present on the tips of the young growths; cutting off the ends of mildewed shoots and burning them is to be strongly recommended. As soon as the fruits are all gathered examine the bushes again, and after removing any shoot with mildew spray them thoroughly with a mildew specific.

THE FLOWER GARDEN.

By W. J. GUIER, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

CAMELLIA RETICULATA.—This magnificent species of *Camellia* is now forming its flower-buds, and needs plenty of water at the roots. Provide plenty of stimulant until this process is finished; artificial manure, alternated with soot-water, will meet all requirements in this respect. If the plants have made too much growth, it must be thinned.

BUDDING ROSES.—The budding of Roses should be done during the next two or three weeks. Select plump buds from shoots that have flowered recently, and cut them out cleanly with about half-an-inch of wood to form the shield. Remove the wood carefully from the back of the bud by means of a sharp knife. In the case of standards insert the bud within 1 or 2 inches of the main stock, and for dwarfs as near to the roots of the stock as convenient. The incision in the bark to receive the bud should not exceed 2 inches in length. Insert the bud and bind it firmly with raffia. If several buds are inserted on one stock, the weaker ones may be removed later. The buds should be

examined in about six weeks, and the raffia loosened a little if this appears necessary.

CLIMBING PLANTS.—It is surprising how quickly the soil dries in borders under the eaves of houses and at the foot of a wall where climbers are planted. Such plants need liberal supplies of water on frequent occasions, and a mulch of some moisture-retaining material. Any necessary thinning or training of the climbers should be attended to at frequent intervals, or the young growths will become entangled and this will make the work a difficult task. *Ceanothus*, *Cotoneaster*, *Escallonia*, *Chimonanthus*, *Garrya elliptica*, *Hedera*, *Pyracantha*, *Jasminum* and similar plants need only straggling shoots taken out to prevent overcrowding. Climbers on trees, such as *Aristolochia Siphon*, *Vitis* species, including *Virginian Creeper*, *Nepenthes*, *canadense*, and *Clematises*, especially *C. montana*, should be allowed to grow naturally, and for this reason the only pruning necessary is the removal of superfluous shoots to make room for the flowering shoots of next year. Plants growing on pergolas need more care and attention to keep them within bounds. In many gardens Rambler Roses are fast superseding such climbers as *Akebia quinata*, *Ampelopsis hederacea*, *Berchemia racemosa*, *Bridgesia spicata*, *Clematises*, *Honeysuckles*, *Humulus*, *Lycium europaeum*, *Vitis*, and *Wistarias*, for pergolas. This is regrettable, for there is room for the older favourites as well as the Roses.

BORDER CARNATIONS.—The flowering of Carnations is greatly delayed by the wet, cold summer. The layering of the plants should be proceeded with during the next three weeks. They will root well in a compost consisting of sifted leaf-mould and sand in equal proportions, placed around the base of the plants, after the soil has been forked lightly. Cut off a few of the lower leaves of the shoot, insert the knife half-way through and between the third and fourth joint (counting from the top), cutting it in an upward direction, to form a tongue of about an inch in length. Peg the layer into the compost with the tongue well open. If old dried Bracken is available plenty of layering pegs can be made from the stems in a few hours. The layers should be watered through a fine rose during dry weather. The plants should be well rooted in six weeks.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady Wantage, Lockinge House, Berkshire.

CINERARIA.—Cinerarias should be grown in cool conditions at all times. From now until severe frost is likely to occur there is no better place for them than a cold frame in a situation sheltered from bright sunshine. When the plants are well rooted water them freely and keep their surroundings moist. Repot them as this becomes necessary, using a compost consisting of loam, leaf-mould, well-decayed manure and coarse sand. As a precaution against attacks of aphid fumigate the frame about once a fortnight.

CALCEOLARIA.—Greenhouse Calceolarias also require a cool treatment and careful watering at all times. They do not need stimulants until the roots are well established in the flowering pots. Admit plenty of air at all times, but guard against cold draughts, and shade the plants from bright sunshine. Calceolarias are very subject to attacks of aphid, and need fumigating occasionally to keep them free from this pest.

HUMEA ELEGANS.—Keep the young plants growing gently in a light house of moderate warmth. Pot them on when they are well rooted, using a light compost. Let the pots be well drained and quite clean, guarding against overpotting. Humeas should not be exposed to bright sunshine at any time, neither should they be unduly hastened into growth. Good plants may be raised from home-saved seed.

BEGONIA GLOIRE DE SŒAUX.—Failures to grow this Begonia are often due to attacks of thrips, which should be watched for constantly, or they may do irreparable damage before their presence is detected. There is no better method of destroying thrips than fumigating with a nicotine compound at regular intervals. Keep the

plants growing briskly in a warm, moist house, spray them twice daily with rainwater, and shade the foliage from bright sunshine, as the leaves are very liable to become damaged by scorching.

MEDINILLA MAGNIFICA.—This handsome plant is growing freely, and requires plenty of stimulants. Cuttings inserted now will root readily; place them singly in thumb-pots and plunge the latter in a hot-bed in a propagating case. Keep the cuttings shaded and close until they have rooted, when they should be placed in the plant stove. *Medinilla magnifica* requires a moist, warm atmosphere at all times.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSOHR, Esq., Castleford, Gloucestershire.

COELOGYNE PANDURATA.—This remarkable Orchid is now growing freely, and should be kept well supplied with water until the current pseudo-bulbs are thoroughly matured. When new roots appear the plants should be repotted. The compost, consisting of *Osmunda*-fibre and *Sphagnum*-moss, should be made firm about the roots. Ample drainage material must be provided, and as the pseudo-bulbs are set rather widely apart on a strong rhizome, a long receptacle, such as a teakwood basket, should be used. During the growing season the plants should be in the warm house, where the atmosphere is moist, but when growth is finished a cooler temperature will suffice, and the plants may be kept slightly drier at the roots. When repotting is finished the useless back pseudo-bulbs must be removed, or the rhizome (immediately behind the lead or growing point) and one or two pseudo-bulbs severed. If these portions are detached with a few roots and carefully repotted they will soon become established and make good plants. The back pseudo-bulbs may be left intact, just filling up the space with soil until fresh "breaks" appear. *C. pandurata* seems to benefit by frequent propagation.

LAELIA PURPURATA will have passed the flowering stage, except, perhaps, for a few plants which were late in starting into growth, and should be repotted if necessary. The rooting medium should consist of *Osmunda* or A 1 fibre, with a moderate sprinkling of chopped *Sphagnum*-moss. The pseudo-bulbs of some specimens will have reached the edge of the pot; in such cases cut away all dead roots and superfluous pseudo-bulbs, leaving three or four behind the growing-point. The fibre ought not to be cut up very finely, and it should be pressed well between the roots. In the case of plants that do not require additional root space the top soil may be removed if it is in a bad or sour condition and replaced with fresh material.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

POT VINES.—Pot vines intended to be started early next autumn are plumping up their buds and changing to a bright brown colour, which indicates ripening. This process should not be hastened by feeding, nor should syringing be discontinued, but more air should be admitted and the atmosphere kept drier at night. As soon as the canes, which have been stopped at from 6 to 9 feet from the pots, have coloured their whole length, a few of the laterals close to the main buds may be removed, commencing at the base and working upwards. A few laterals should be left near the top of the plant to prevent the buds from breaking prematurely, and each main leaf carefully preserved to plump up the buds. If the season is good and the vines are secured to a south or west wall in the open they will ripen thoroughly, but if the weather continues unfavourable allow the plants to remain in the house and ventilate accordingly. Vines raised from eyes of the current year in 7-inch pots should be taken out of the plunging material; they will require watering more frequently and copiously. If the plants are crowded a few of the more forward ones may be removed to another house, where they should receive plenty of air and light. If intended for planting pinch the laterals, except a few at the top, to the first leaf. If buds were propagated sufficiently early in the season to make fruiting canes—

which is sharp work in one season—they must be treated in a similar manner to that recommended for pot Vines.

EARLY VINERIES.—Vines in very early houses having been cleared of their bunches should be syringed copiously late on fine evenings, adding a little soft soap and sulphur to the water occasionally if red spider has been troublesome. Inside borders which have been allowed to become dry should be watered, first loosening the hard surface with a fork. For young, vigorous Vines with laterals still growing freely use only clear water, but older plants, with weaker shoots and but few laterals, require a more generous treatment. In their case a top dressing of decayed manure or diluted liquid manure may be used freely. In due course this mulch will be cleared away to make room for the annual top dressing, but in the meantime water should be passed liberally through it. Ventilation, both day and night, should be liberal, as old and weak Vines have a great tendency to premature ripening of the wood and foliage.

SUCCESSION HOUSES.—Vineries containing ripe Grapes should be kept cool and airy. It may be necessary to lightly shade the roof glass for a few hours on bright days where black Grapes are losing colour. An airy, dry atmosphere is best for Grapes in the autumn, but for the present the floors and borders should be damped liberally. A change to damp or wet weather, when it is not advisable to admit air freely, will demand a much drier treatment and the maintenance of an even temperature assisted by a little warmth in the water pipes. If this treatment is not pursued the berries of *Madresfield Court* and similar varieties may crack.

THE KITCHEN GARDEN.

By E. R. JAMES, Gardener to the Rt. Hon. LORD NORTH, Wroxton Abbey, Banbury, Oxfordshire.

TOMATOS.—The season has been unfavourable for Tomatos in the open; the plants are very backward, and, with few exceptions, the fruit has set badly. Remove the side growths and support the leading shoot. On most of the plants foliage has developed at the expense of fruit, and in such cases it is advisable to remove more of the leaves than in normal seasons, to allow the sunlight to reach the fruits. Hoe the soil frequently and regularly between the rows. Feeding is not necessary, unless the plants have set several trusses of fruit, in which case the main shoots should be stopped and a fertiliser applied at the roots and the ground well watered. Afterwards, liquid manure from the farmyard may be used.

CAULIFLOWERS.—Caterpillars are present in unusually large numbers this season, and should be destroyed by hand-picking. If this precaution is neglected many promising breaks of Cauliflowers will be spoiled. Other Brassicas are subject to infestations of caterpillars, although not to the same extent, and if time permits all the green crops should be examined. Spraying with a distasteful specific will act as a deterrent to caterpillars, but it is not entirely preventive, owing to the difficulty of wetting the underside of the leaves.

EXHIBITION ONIONS.—Onions have made but poor progress this season owing to the cold, sunless weather. In many cases luxuriant foliage and extremely thick necks have developed at the expense of the bulbs. Remove weeds, for if these grow unchecked many partly formed bulbs may decay owing to the weeds retaining moisture, keeping the bulbs in a saturated condition and preventing sunshine and air reaching them. Take great care not to injure the bulbs or foliage in weeding, as this might cause splitting or tend to set up decay. Feeding the roots is harmful in cold or excessively wet weather. Watch carefully for the presence of mildew, and if detected use one of the specifics.

WEEDING AND HOEING.—The unusually wet season has rendered the work of hoeing and weeding very difficult. Asparagus beds especially need careful weeding by hand; if they become overgrown it is difficult to free them of weeds until the growth dies down. The hoe should not be used in these beds.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR AUGUST.

TUESDAY, AUGUST 1—

Roy. Hort. Soc. Coms. meet.; show of home-grown flower huls. Scot. Hort. Assn. meet.

MONDAY, AUGUST 7—

Evesham Hort. Soc. Show.

TUESDAY, AUGUST 8—

Aberdare Flower Show.
Walsall Hort. Soc. Show (2 days).

THURSDAY, AUGUST 10—

Roy. Botanic Soc. Anniversary meet.

TUESDAY, AUGUST 15—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

THURSDAY, AUGUST 17—

Roy. Hort. Soc. of Aberdeen Show (3 days).

TUESDAY, AUGUST 22—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, July 27* (10 a.m.): Bar. 29.8°; temp. 70.0°. Weather—Bright sunshine.

Mr. N. N. Sherwood.

The news of the death of Mr. Nathaniel Newman Sherwood, V.M.H., on the 20th inst.,

will be received with sorrow and regret in all quarters of the horticultural world. The head of the great firm of wholesale seedsmen—Messrs. Hursts—Mr. Sherwood not only played throughout a long and active life a leading part in business, but he also found time to work hard on behalf of those institutions which make provision for the poor and needy among gardeners. Mr. Sherwood was born in 1846, received his education in London, and embarked on a business career at the early age of sixteen. Six years after entering the house of Messrs. Hurst and McMullen he became (in 1868) a partner, and in 1890 sole proprietor. For thirty-four years Mr. Sherwood led a life of strenuous activity. Devoted to his business, his habit was to start work before nine each morning, and to continue with scarcely an interval until seven in the evening. Such strenuous labour could not but tax the strength of the strongest man, and in 1902 Mr. Sherwood suffered from an illness of such severity that he found it necessary to hand over the entire management of his business to his two sons, Mr. William and Mr. Edward Sherwood, and during the fourteen years which have since elapsed this arrangement was maintained.

On his partial recovery Mr. Sherwood went on a long sea voyage, and also visited many parts of the Empire—Canada, Australia, New Zealand, and

other places, and as a result of the relative rest and complete change he returned home restored to health. Although he never resumed work with the firm of which he had been the head, Mr. Sherwood was too energetic a man to pass the remaining years of his life in illnesses. Fortunately, he was already closely connected with many social and philanthropic institutions. From 1896 to 1898 he was Master of the Gardeners' Company, and was also a member of the Guild of the Vintners' Company. A prominent Freemason, he was a Past Master and Treasurer of St. Andrew's Lodge, and a founder of the Hortus Lodge.

Mr. Sherwood took an active part in the preliminary work that led up to the building of the Hall of the Royal Horticultural Society, and was a liberal subscriber

to the "Victorian Era Fund," whilst two years later he aided in similar manner the formation of the "Good Samaritan Fund." Mr. Sherwood also established two pensions—the "May Sherwood Campbell" widows' fund and the Sherwood Commemoration Gift. The Royal Gardeners' Orphan Fund also found in him a warm and generous supporter from its inception to the time of his death, and for some years he was the treasurer of this fund, an office now in the energetic hands of his son Edward. After his severe illness Mr. Sherwood's anxiety to help remediable suffering among the gardening fraternity became even more marked than it had been in his earlier years. To give help to others became the business of his life, and he pursued that noble business with the alacrity and devotion which he had previously devoted to



THE LATE NATHANIEL NEWMAN SHERWOOD, V.M.H.

to the Purchase Fund. He also took an active part—as a director—in the organisation of the International Horticultural Exhibition in 1912. He was instrumental in establishing the National Sweet Pea Society, and acted as president of that Society in 1910. From early youth Mr. Sherwood had been keenly interested in gardening charities, and was connected for fifty years with the Gardeners' Royal Benevolent Institution, both as a member of the committee and a Trustee, which latter position he held at the time of his death. In 1886 he presided at the Anniversary Festival Dinner of the Benevolent Institution, and was instrumental in raising a large sum in aid of its funds. His generosity was unbounded, and in 1897 he helped in the establishment of the "Vic-

torian Era Fund. He also took an active part—as a director—in the organisation of the International Horticultural Exhibition in 1912. He was instrumental in establishing the National Sweet Pea Society, and acted as president of that Society in 1910. From early youth Mr. Sherwood had been keenly interested in gardening charities, and was connected for fifty years with the Gardeners' Royal Benevolent Institution, both as a member of the committee and a Trustee, which latter position he held at the time of his death. In 1886 he presided at the Anniversary Festival Dinner of the Benevolent Institution, and was instrumental in raising a large sum in aid of its funds. His generosity was unbounded, and in 1897 he helped in the establishment of the "Vic-

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work of his firm. In April last he commemorated his seventieth birthday by giving a sum of £500 to be divided equally between the two charities. So, after many years' strenuous labour enjoying as few enjoy the proper accompaniments of old age—"love, honour, and obedience, troops of friends"—Mr. Sherwood died, passing away peacefully in the presence of his family just before midnight on the date already mentioned. Mr. Sherwood married in early life the youngest daughter of the late Mr. William Hurst, and he leaves three children—a daughter, Mrs. Campbell, and two sons, Mr. William and Mr. Edward Sherwood, who as we stated above, have had the sole management of the business of Messrs. Hurst and Son for the past fourteen years.

ROYAL HORTICULTURAL SOCIETY.—We are informed that at a general fortnightly meeting of the Royal Horticultural Society, held on the 18th inst., one hundred and three new Fellows were elected. A meeting of the committees will be held on Tuesday, August 1, in the Vincent Square Hall. The first exhibition of dry, British-grown bulbs will take place in conjunction with the meeting. In view of the Government restrictions on the importations of flower bulbs, a meeting will be held in the Lecture Room from 3 p.m. to 3.30, at which prominent speakers will emphasise the importance of this new opportunity for the further development of British trade.

FLOWERS IN SEASON.—We have received from Messrs. TITT AND SON, excellent spikes of Ten Week Stocks, accompanied by the following letter:—We send for your inspection some blooms of the Mammoth Pyramidal Ten Week Stocks. The strains have been grown on from year to year not only without deterioration but with an improved percentage of double flowers, the proportion of double to single being quite equal to the best German-grown seed.

WOMEN'S HELP IN THE WAR HORTICULTURAL RELIEF FUND.—The secretary informs us that the ladies' work in connection with the War Horticultural Relief Fund is having good results, and that the total sum subscribed and promised amounts to, approximately, £9,000. A cheque for £10 has been received from Lady PRICE-FOTHERGILL, being the amount collected for fishing in the grounds of her residence, Hensol Castle.

ACCIDENT TO A GARDENER.—We regret to learn that Mr. JOHN GARDEN, gardener to Lord SEMPLL, Fintray House, Aberdeenshire, met with severe injuries on Sunday, the 23rd inst., as the result of a cycling accident. His machine was run into by a motor-cycle, breaking his right leg and several of his ribs.

JAM.—In view of the difficulty of obtaining sugar, and its increased cost, the Board of Agriculture recommends the use of glucose, which has the same preserving and energy-giving qualities as sugar, for jam-making. Glucose is known as Corn syrup, and should be used in the proportion of one part to two or three parts of sugar. It can be obtained in small quantities of about 5 lbs., and is cheaper than sugar.

WAR ITEMS.—We regret to read of the death of M. AUBERT-MAILLE, nurseryman, of Tours, a Territorial sergeant, who was killed at Verdun. It will be remembered that on the occasion of the French Chrysanthemum Society's Congress, held at Tours in 1908, M. AUBERT-MAILLE had charge of the excursion that the members made to some of the grand old chateaux in the valley of the Loire.

The last number of our contemporary, *L'Horticulture Française*, contains the fifth list of French gardeners, nurserymen, and their sons who have fallen in the war. Among the dead and wounded we do not notice the names of any who are well known in England. Another heading, entitled "News from Friends," contains extracts from horticulturists to the Editor. We notice a few lines from M. LUCIEN CHARLES BALTET, to which the Editor adds, "Captain BALTET, we are proud of you." The same journal contains a selection of citations or names specially mentioned in regimental or divisional Orders of the Day. The death of M. DEBRIE'S son, the conferring of decorations upon RENÉ MOSER, EMILE RIPARD and GEORGE TRUFFAUT have already been noticed in these columns. Much of the literary matter of this issue deals with the attitude of the French nurserymen towards their German rivals, now and in the future.

EUCALYPTUS.—The twenty-fifth and twenty-sixth parts of Mr. MAIDEN'S *Critical Revision of Eucalyptus* have reached us. So far 140 species have been described, and these are illus-

trated by 111 plates. Of special interest is the elucidation of *E. Perriniana* and *E. Gunnii*, both natives of Tasmania and both extending northwards to the highlands of Victoria and the southern extremity of New South Wales, at elevations of 5,000 to 6,000 feet, in the Australian Alps. To *E. Perriniana* MAIDEN refers *E. Gunnii* var. *montana*, as figured in the *Botanical Magazine*, plate 7,808, excluding figures 3 and 4. The synonymy of these two species is complicated, and, according to MAIDEN'S classification, a third species is concerned. This is *E. rubida*, under which ten synonyms are cited, and three plates are devoted to its illustration. It is recorded from all the States except West Australia. *E. alba* is one of the two or three species of *Eucalyptus* extending beyond Australia, being a native of Java, Timor and Papua, and it has also a wide range in Northern Australia. LEICHHARDT often mentions it in his travels under the name of "Poplar Gum," in reference to the foliage. In this connection it may be added that Mr. MAIDEN, replying to our inquiries respecting the maximum known girth of Gum trees, especially in relation to *E. nitens*, described as attaining a diameter of 17 feet, wrote that this measurement was quite correct. He continues: "I have several times measured *Eucalyptus* 50 feet and over in circumference, among them *E. pilularis*, *E. microcorys*, *E. diversicolor* and *E. nitens*."

ZELKOVA SERRATA.—*Zelkova serrata*, or, as it is more generally known, *Z. keaki*, *Keaki* being the Japanese name for this tree, is one of the important trees of Japan. Although no longer very common or of a large size in the Japanese forests, it is one of the largest of Japanese trees, for specimens 100 feet high, with trunks from 8 to 10 feet in diameter, are not uncommon in temple gardens and by village roadsides. The wood is more valued by the Japanese than that of any other tree; it is tough, elastic and durable both in the ground and when exposed to the air, and is considered the best building material in the Empire. *Keaki*, however, has now become so scarce that it is not used for building except in temples in which the large, round, light brown, polished columns which support the roof are always made of this wood; it is universally used in the manufacture of *jirikishas*, and it is still much employed in cabinet-making and turnery. *Zelkova* is a genus related to *Ulmus*. The leaves resemble those of some of the small-leaved Elms; the male and female organs, however, are in separate flowers on different parts of the branch; the fruit is a small drupe, and the bark is more like that of a Beech than of an Elm tree. The *Keaki* is probably worth general cultivation as a timber tree in some parts of the United States. That it can flourish here at least for many years is shown by the trees planted in Warren, Rhode Island, in 1862, by the late Dr. George R. Hall. Thirty years later these trees were 50 feet high with trunks a foot in diameter, and were producing large crops of seeds from which seedling plants were growing spontaneously in large numbers. Two of these seedlings can be seen in the Arboretum in the *Celtis* Group on the slope below the right-hand side of the Bussey Hill Road above the group of *Sassafras* trees. Here may be seen, too, a young plant of the Caucasian species, *Z. crenata*. This has been a difficult plant to establish in the Arboretum, but there is a picturesque old specimen in the Harvard Botanic Garden. *Arnold Arboretum Bulletin of Popular Information*, Vol. 2, 11, No. 4.

PUBLICATIONS RECEIVED.—*Nature, Mode of Dissemination and Control of Phloem-Necrosis (Leaf-Roll) and Related Diseases.* By Dr. H. M. Quanjer. (Wageningen: H. Veenman.)—*The Chemistry of the Garden.* By Herbert H. Cousins. Revised edition. (London: Macmillan & Co.) Price 1s.

THE BOTANY OF FORMOSA.

THE fifth volume of *Icones Plantarum Formosandarum*, recently received, is really the seventh volume of a monumental work on the flora of Formosa, which has been issued by Dr. Hayata in the years 1908 to 1915. The two first volumes, similar in size and appearance to the later ones, were entitled *Flora Montana Formosae*, and *Materials for a Flora of Formosa*; and these succeeded another volume, published in 1906 by Dr. Hayata and Professor Matsumura with the title of *Enumeratio Plantarum in Insula Formosa*. These eight volumes, well printed and copiously illustrated with figures in the text and full-page plates, deal with no fewer than 3,325 species of flowering plants and Ferns, belonging to 914 genera and 160 families.

This is a wonderful record for a small island like Formosa, which covers an area of 15,000 square miles, about half that of Scotland. The explanation lies in the diversity of the climate and other physical features of the island. Its southern end lies well within the tropics, and has a rich Indo-Malayan flora. An immense mass of mountain ranges, culminating in the lofty peak of Mt. Morrison (Arisan of the Japanese)—14,000 feet altitude—occupies the eastern half of the island, the cliffs attaining a stupendous elevation, 5,000 to 6,000 feet, along a long line of the Pacific coast. Here there are extensive forests, with the upper zone characterised by strange Conifers like *Taiwania*, two new species of *Cunninghamia*, *Keteleeria*, several Pines, and the wonderful Formosan Cypress, *Cupressus formosensis*, which occasionally girths 60 or 70 feet round the trunk (see *Gard. Chron.*, March 2, 1912, fig. 54). Dr. Hayata, in vol. v., p. 204, tab. xv., describes and figures a new species of Douglas Fir, *Pseudotsuga Wilsoniana*, a remarkable discovery. This seems to me to be identical with the rare Chinese *Pseudotsuga sinensis*, which has recently been found in Yunnan by Père Maire and Mr. Forrest, and of which seedlings have been raised in M. Chenault's nursery at Orleans. This illustrates the striking similarity of the mountain flora of Formosa with that of Western and Central China. There are many rare plants inhabiting both regions, such as *Koelreuteria bipinnata*, *Liquidambar formosana*, *Fatsia papyrifera*, *Idesia polycarpa* and *Libocedrus macrolepis*.

Dr. Hayata considers his best discovery to have been that of a Fern which he refers to *Archangiopteris*, belonging to *Marattiaceae*. He states: "The genus was first found in Yunnan by Professor A. Henry. It was published in 1899 as a new genus by Christ and Giesenhagen, and the discovery was widely considered to be one of the most striking in the flora of East Asia." This new Fern is called *Archangiopteris Somae*.

The present volume comprises 213 species, illustrated by 149 text figures and 17 plates. Most of these plants were collected by Dr. Hayata and other Japanese botanists; but it is gratifying to note that several new species were gathered by Mr. W. R. Price, who travelled in Formosa in 1911 and 1912. Mr. Price also obtained seeds of some of the very rare Conifers, which are now growing in England; but of the many beautiful herbs and shrubs peculiar to the mountains of Formosa, and likely to be hardy in this country, scarcely any have been introduced; and an expedition for the purpose would be fruitful. *Alpinia Elwesii*, introduced from Formosa by Mr. Elwes, flowered at Colesborne in 1915, and was figured in *Bot. Mag.*, t. 8651. Dr. Hayata describes a new species of this genus as *A. Pricei*. Mr. Elwes, who accompanied Mr. Price on the earlier part of his trip, gave an account of the forests of Formosa in the *Quarterly Journal of Forestry*, October, 1912, pp. 267-279. The only other recent literature dealing with

this subject are articles by Dr. Hofmann in *Centralblatt für Forstwesen*, 1911, pp. 1-18, and in his interesting work on the forests of Japan and Formosa, *Waldungen des Fernen Ostens*, pp. 66-74, with two coloured plates of Formosan woods, published at Vienna in 1913.

For all detailed information about the plants of Formosa, Dr. Hayata's admirable work will remain for years the standard textbook. How

plants being also given in the case of the commoner wild and cultivated plants. This useful list was compiled by T. Kawakami, whose untimely death in 1915 has been a great loss to the prosecution of botanical study in the Island of Formosa. His services, especially in the economic field, were very considerable; and his courtesy to foreign correspondents was unremitting. *A. Henry.*

named a seedling from *C. corymbosa* crossed with *C. plantaginea*, *C. Hopeana*, after his master. Young, of Tooting, obtained stock of this and other seedlings for distribution. *C. Wheeleri*, a very dark purple, appeared in 1831 as a cross between *C. corymbosa* and *C. purpurea*. Spotted varieties seem to have originated from *C. crenata*. A gardener named Menzies, residing near Halifax, secured a scarlet variety, which he named after himself, and in 1835 the long-popular *C. anrantia* appeared, and ten years later Lobb's introduction, *C. amplexicaulis*.

It is worth noting that the earliest introductions were propagated from seeds. Some species being rather difficult to increase by this means, Morrison, already mentioned, conceived the idea that by crossing the various species he might be more successful in obtaining plants. The result exceeded his expectations, and it will be noted that this forgotten gardener was remarkable as being one of the earliest hybridists, and antecedent to Darwin in practising cross-fertilisation as a means to an end. New varieties in the "thirties" were produced by the dozen, and the practice of raising plants from seeds, except by those who were aiming at new forms, for a time gave place to propagation by cuttings, as well of the herbaceous section derived from *C. corymbosa* as of the shrubby section from *C. integrifolia*, and it was due to the business aptness of a London florist, about 1848, that the practice of raising the herbaceous section from seeds was revived. He, moreover, grew his stock quite cool, and by a system of selection rapidly improved the size and quality of the flowers. At the same period immense specimens of the shrubby section were being produced for exhibition, Green, a noted plant-grower, being famed for the strain of plants he exhibited. Some idea may be formed of what these must have been like, and the sensation they made, from the large plants of *C. Burbidgei* and *C. Clibranii* with which we are all familiar. Those who know only the wonderful flowers of the present day must not suppose that the earlier growers obtained anything like these. *The Floricultural Cabinet* for 1835 has a plate of seedlings remarkable only as indicating the poverty of the varieties of that date. In or about the year 1845, Plant, a then well-known florist, of Cheshire, secured striped flowering seedlings which in the markings were similar to those in the florists' Tulip, but these seem not to have become popular, the spotted, an earlier type of herbaceous *Calceolaria*, having captured the affections of the growers. Still, it seems strange that at this date one of Glenny's publications condemned these as being less worth the attention of growers than the shrubby kind.

Calceolarias were early admitted to the flower garden, at first being employed in a great variety of colours and kinds, but as the "bedding" requirements swayed to the employment of a few selected plants, so all were eliminated save a very limited number. One of the exciting additions was a very large-flowered brown-coloured variety, introduced by Sang, of Kirkecaldy, about 1864-5. In the North, at least, it caused as great a sensation as Mrs. Pollock Pelargonium, but it proved a failure as a bedding plant, and soon dropped out of cultivation. Then occurred a stem-rot which destroyed plants by the thousand, and for a time the *Calceolaria* as a garden flower went out of cultivation, to be reintroduced some years back in the form of *C. amplexicaulis*.

The herbaceous section has all along retained its popularity as a gay plant for the greenhouse. Its cultivation and requirements are simple, and enable it to be successfully cultivated by the amateur with the little greenhouse. In the South I used to raise the seedlings in the open, the flats standing in the shade of a building. Coolness, with damp, comprise the main features of their requirements. *R. P. Brotherston.*

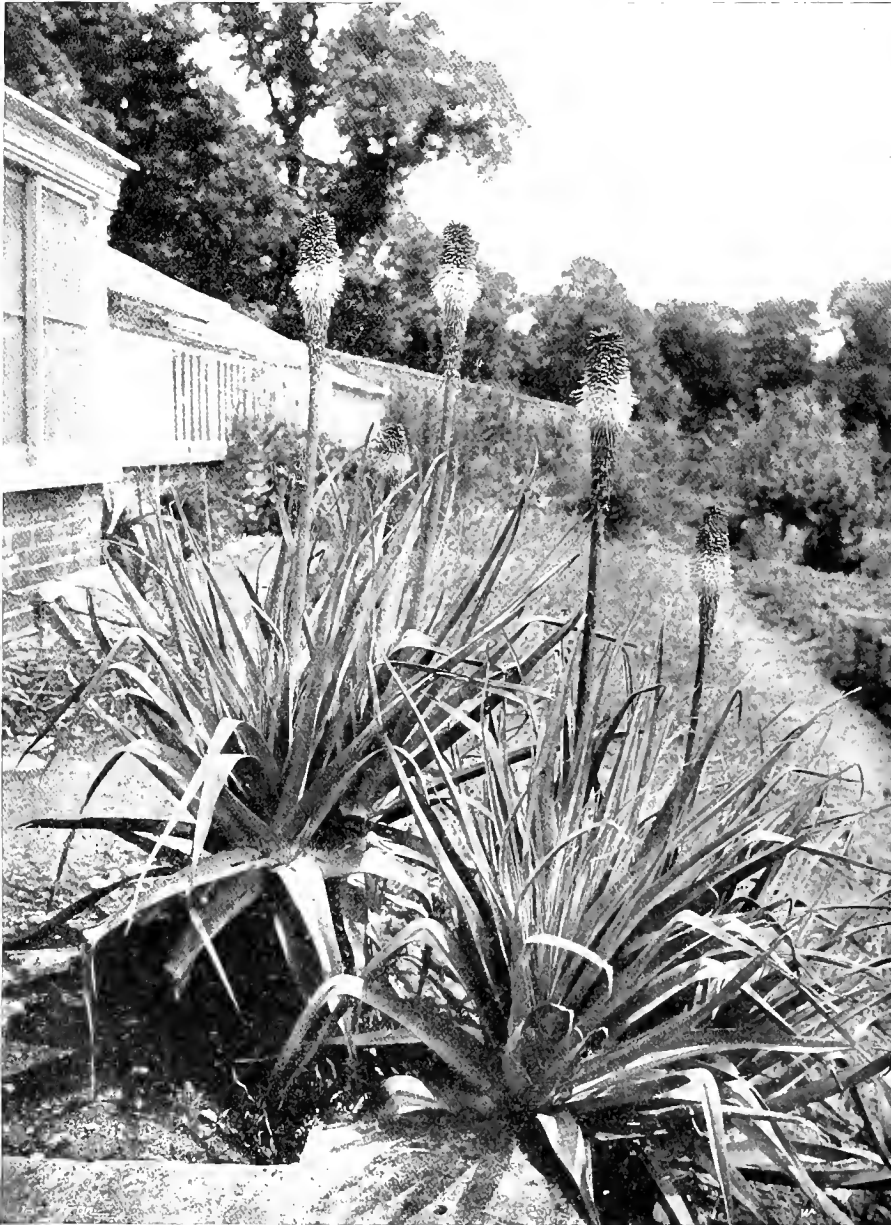


FIG. 20.—KNIPHOFIA CAULESCENS AT COLESBORNE.

(See p. 50)

much our knowledge of this marvellous flora has been increased by his labours is evidenced by comparing these thick volumes with the first connected account of the botany of Formosa, which was a paper of 118 pages, by Professor A. Henry, entitled *List of Plants from Formosa*, that was published in 1896 by the Asiatic Society of Japan. Travellers in Formosa should procure this paper, which gives notes on the economic plants and adds, where known, the Chinese names. Another useful volume, published in 1910 by the Government of Formosa, is similarly entitled *A List of Plants of Formosa*. It comprises 2,369 species, all with their Latin and Japanese names, the Chinese equiva-

FLORISTS' FLOWERS.

CALCEOLARIAS.

THE early history of the *Calceolaria*, like that of other old garden plants, teems with interest. All species are known to be just within the border-line of non-hardy vegetation, and yet for a long series of years *C. pinnata*, the first species to be introduced, was cultivated for preference in Pine pits. It was fifty years later, or in 1822, that *C. integrifolia*, a valuable garden species, was introduced, and the earliest crosses seem to have been effected by one Morrison, near Edinburgh, in 1830, who

NOTICES OF BOOKS.

HOOKER'S "ICONES PLANTARUM."

THIS publication has reached its thirty-first volume, the first part of which has recently appeared. It contains plates 3,051-3,075, and illustrates plants from nearly all the great divisions of the world, but chiefly from New Guinea and Africa. *Geissos Imthurnii* is an Australasian type new to Fiji. *Pappobolus* is a new genus of Compositae, native of Bolivia, Colombia, allied to *Helianthus*. Other new genera are: *Mischopleura* (Ericaceae), two species from New Guinea. *Neowollastonia* (Apocynaceae), also from New Guinea, is re-

Plates 3,068-3,075 represent new grasses, including several new generic types, mostly tropical African, and two species of *Digitaria* of economic value. An account of the economic uses and value of *Digitaria exilis* and *D. Iburua* may be found in the *Kew Bulletin* for 1915, pp. 381-386. *Microcalamus* and *Chloachne* are genera of the Paniceae, having the habit of *Puellia* and other dwarf Bamboos of the West African region.

FLORA OF CHINA.*

THE woody plants of Central and Western China seem to be endless! Professor A. Henry secured an immense booty of novelties, including numerous useful and ornamental kinds; but Mr Wilson's totals, both of dried specimens and living plants (or seeds), exceed those of any col-

the *Plantae Wilsonianae* is devoted to the Salicaceae—*Populus* and *Salix*, classified and described by Camillo Schneider. These two genera are very fully developed in Eastern Asia, and numbers of the handsome novelties are in cultivation in Europe and America. Seven species of Poplar are recorded from China, and twenty-one from the Himalayas and Eastern Asia combined. Four species of *Populus* are apparently endemic in China, among them the distinct *P. lasiocarpa* (*Botanical Magazine*, t. 8, 625-1915) and *P. adenopoda*, both in cultivation. Nearly 200 species of Willow are recorded from North India and Eastern Asia, including some highly remarkable new types. Some of the forms given the rank of species hardly merit the distinction perhaps, yet it is a better course than



FIG. 21.—A GROUP OF MODERN CALCEOLARIAS.
(See p. 56.)

markable in having very strongly oblique corolla-lobes of sickle shape, and describing more than half a circle. *Dalziella* (Asclepiadaceae) is a new type from Sierra Leone. *Polypompholyx multifida* is a West Australian type belonging to the same family as the Bladderworts—*Utricularia*.

Interesting among Orchids is *Pteroglossaspis eustachya* from tropical Africa; interesting because the genus is one of many belonging to various families, now known, from comparatively recent explorations, to be common to Africa and America. Altogether six species have been described, four of these from the African region, one from Florida, and one from the Argentine Republic. This is a very unusual distribution for a genus of Orchids. *Eriolopha* is a proposed new genus of the Zingiberaceae, from New Guinea, hitherto treated as a section of *Alpinia*.

lector of any period in any part of the world—at least from the horticultural standpoint, if not in all respects from the botanical one. This first part of the third volume, devoted to the elaboration of collections made for his American patrons, contains the Smilacaceae, the Dioscoreaceae, the Chloranthaceae, the Salicaceae, and the Juglandaceae, by various botanists, with the valuable collaboration of the collector. It should be mentioned that the elaborations are not always limited to Chinese material, the Himalayan and North Asiatic species being included. Apart from a few pages occupied by the smaller families named above, this part of

* *Plantae Wilsonianae: An Enumeration of the Woody Plants collected in Western China for the Arnold Arboretum of Harvard University during the years 1907, 1908, and 1910 by E. H. Wilson.* Edited by Charles Sprague Sargent. Vol. III., Part I. Pp. 1-188. (Cambridge [U.S.A.]: The University Press, 1916.) Price \$2.50.

establishing composite species. To this category belong three or four forms closely allied to the very distinct *Salix magnifica*. But it should be acknowledged that Schneider's Synopsis is a most valuable contribution to the literature of this difficult genus. Points of special interest are offered by the small family of Juglandaceae. The members are *Platycarya strobilacea*, *Pterocarya stenoptera*, *P. hupehensis*, *P. Paliurus*, *P. insignis*, *Juglans regia*, *J. cathayensis*, *Engelhardtia chrysolepis*, and *Carya cathayensis*. Mr. Wilson nowhere saw the common Walnut (*J. regia*), undoubtedly spontaneous, and he considers it highly improbable that it is indigenous to China; yet it is generally cultivated in Hupeh and Szech'uan for its fruit and wood. *J. Duchouxiana*, *J. Orientis*, *J. sinensis*, and *J. sigillata*, of Dode, are reduced to *J. regia*, without receiving even varietal status. *Carya*

cathayensis, discovered by Mr Meyer, in the province of Chekiang, is a notable addition to the genera restricted, in recent vegetation, to eastern North America and China. This is the first record of a genuine Hickory from China, as *Carya sinensis*, Dode, is, on the authority of Prof. Sargent, certainly not a member of that genus, but probably *Aleurites triloba*, the Candle-nut tree of Southern China. In this connection it may be mentioned that Mr. Wilson's unparalleled collection of 500 photographs of Chinese trees and landscapes admirably illustrates his dried and living contributions to our knowledge of the flora of China. The numbers of the photographs are cited under the respective species. W. Botting Hemsley.

Gardeners' Chronicle, sent home from South America, where he was travelling, seeds of a white-flowered shrub, which, when it bloomed in this country, proved to be the true *Tricuspidaria dependens*, while the bright rich crimson kind so long known under that name became *T. lanceolata*. As may readily be understood, considerable confusion existed for a time, especially as the true *dependens* has not the markedly drooping character of *T. lanceolata*. Viewed from an ornamental standpoint, this last is much superior to the other. In common with most natives of Chile, both these *Tricuspidarias* succeed best in a moderately mild and moist climate, such as along the western shores of England and Wales, as well as the south-west of Scotland.



FIG. 22.—HYBRID TEA ROSE JANET.

Awarded the National Rose Society's Gold Medal on the 18th inst. (See p. 59.)

TRICUSPIDARIA LANCEOLATA.

ACCORDING to *Hortus Veitchii* this plant was first introduced by William Lobb when travelling in South America on behalf of Messrs. Veitch, and successively reintroduced both by Downton and Pearce, collectors for the same firm. Very few plants have had such a confused nomenclature as this, for it was, I believe, distributed by Messrs. Veitch under the name of *Crinodendron Hookerianum*, while it has also been known as *Crinodendron Patagua*. Nicholson, in the *Dictionary of Gardening*, where it is illustrated, calls it *Tricuspidaria hexapetala*. Then follows a curious reversion in names, as for many years it was known as *Tricuspidaria dependens*, which specific title was, from the drooping character of its blossoms, a most appropriate one. So matters stood, and no one questioned their correctness till the year 1901, when Mr. H. J. Elwes, so well known to readers of the

In Ireland, too, where the humid atmosphere meets their requirements, some grand specimens are to be met with. In the true *T. dependens* the white flowers are somewhat bell-shaped, with the ends of the petals toothed, whereas in *T. lanceolata* they are urn-shaped, with a very narrow mouth. The flowers make their appearance in the autumn, but do not open until the following year. W. T.

CHERRY FRUHESTE DER MARK.

THE culture of this Cherry is rapidly extending in France, and in the district of Lyons the fruits ripened this year on May 18. The size of the fruit is not large, but in France the quality is very good and extremely sweet. As the variety has been distributed in England for some years past, it would be interesting to know the opinion of your readers as to its merits in this country. E. A. Bunyard.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE LATE MR. SHERWOOD.—A great man has passed away in the late Mr. N. N. Sherwood, of Prested Hall, and of Messrs. Hurst and Son, Houndsditch, London. The seed and allied trades will miss a wise councillor, and the charities of all will long remember his great and boundless generosity; he was ever ready to help those in distress. His great aim in life was to give happiness and pleasure to others, and the sympathy of all who knew him will go out to his family. Wm. Atkinson, *Handsworth*.

ROSE LITTLE MEG.—In your report of the novelties at the recent Show of the National Rose Society at the R.H.S. Hall you refer to Little Meg as being a *Wichuraiana* Rose. This class is generally known as rampant climbers, but Little Meg more nearly resembles the dwarf-growing *Polyanthas*. It was obtained by crossing a Hybrid Tea with a hybrid *Wichuraiana*, and its blossoms are produced most freely and continuously throughout the season. Walter Eastea, *Eastwood, Leigh-on-Sea*.

ROSES AND LILIES IN THE NORTH-WEST.—It is a prevailing belief among farmers and gardeners that a hard winter is beneficial to crops by destroying the larvae and pupae of injurious insects. This belief, however, does not seem to be based on the evidence of fact. The winter of 1915-16 was, on the whole, the mildest in my recollection of Scottish seasons, for the snowstorm and frost of March 23 did not affect us, at least on the West Coast, yet I have seldom, if ever, known field and garden to be so free from insect pests. The Corn crops, though retarded in growth by the low temperature of June and the first half of July, have not suffered at all from the ravages of the much-dreaded leather grub—"pout," as we call it in the north—the larva of "daddy longlegs," and in the garden never have I known Roses in Scotland—Teas and Hybrid Teas—so profuse in growth and so magnificent in bloom. This is the more remarkable because, owing to shortage and absence of labour, the plants have received no attention whatever except pruning. The beds have neither been manured nor mulched: some of them have been treated to amateur weeding and forking to keep down the weeds, and all of them are now (July 22) masses of blossom, without a greenfly to be seen, and very few caterpillars. In the summer of 1895 both pests were exceedingly abundant. Notes which I kept of the summer of 1895 confirm me in the belief that winter cold has no traceable effect on insect life in summer. The winter of 1894-5 was the most severe in the experience of the present generation. I had a fishing on the Itchen at that time; the river remained ice-bound till the middle of March, and the prospect of sport in May—the angler's favourite month—was bleak indeed. Howbeit, May arrived; the ridges of ice and hoar were replaced by drifts of white water *Ranunculus*, and aquatic flies—duns, alders, spinners, etc.—were abnormally abundant throughout the whole season. Unhappily, the luxuriance of our Roses has no counterpart among the Lilies. Never have I known that dire fungus, *Botrytis cinerea*, to attack so many species as it has done of late. Its virulence is most manifest on *L. candidum* and *L. testaceum*, which have practically all succumbed. Of *L. chalcedonicum* the only clumps which have escaped have their bulbs embedded in a network of the roots of an old *Ilex*. *L. pardalinum*, hitherto regarded as immune, has suffered in some instances, though in most cases it remains quite healthy; *L. superbum* is badly hit; so is *L. Humboldtii*; but the cruellest cut of all is the appearance of the disease on some fine stems of *L. regale*. So far, *L. Sargentae* and *pseudotigrinum* (? *sutchuense*) show no signs of evil, and the following species present a clean bill of health: *L. giganteum* (about 30 flowering stems), *monadelphum*, *pyrenaicum*, *pomponicum* (true), *Henryi*, *Hansonii*, *californicum*, *canadense*, *Martagon*, and *Martagon album*. *Lilium croceum* has suffered in some clumps and escaped in others, and the general result is most disheartening, pointing, as it does, to the conclusion that the cultivation of this most fascinating genus

must always prove precarious in the humid atmosphere of the West Coast. There remain to be mentioned *L. auratum* and *L. speciosum*. Of the former, many established clumps, which flowered grandly last year, have put in no appearance this summer. The prolonged drenching of last winter seems to have done for them, though a ten-year-old group in a *Rhododendron* bed matted with roots is as vigorous as ever. *L. speciosum* is quite healthy in most cases, but is likely to flower so late as to be of little account this year. *Herbert Maxwell, Monroth, Wigtown-shire.*

PEA RIVAL.—On January 29 last I sowed seeds of Pea Rival, in boxes measuring 10 feet long and 10 inches deep and filled with loam and decayed farmyard manure. The boxes were placed on the front stage of a cold house which was fully ventilated day and night. Four months from the date of sowing, viz., May 29, I gathered one peck of fine pods with 7 and 8 Peas in each. Had I closed the house and used a little sun heat when the Peas were beginning to form I should doubtless have been able to pick a fortnight earlier. The haulm grows about 2 feet high under glass; in the open it is only 1½ foot high. I am also growing Rival as my first early Pea in the open. *C. Davis, Holy Wells Park Gardens, Ipswich.*

ELSTREE HORTICULTURAL SHOW.—As supplementary to the report on p. 47 of the *Elstree and Boreham Wood Horticultural Society's Show*, the Silver Challenge Cup presented to the Society for the best collection of vegetables in competition, was awarded to the Rev. E. Stoddon (gr. Mr. J. A. Paice). *W. J. Pritchard, Hon. Secretary, Elstree.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

JULY 18.—*Present:* Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the chair), Dr. A. Voelcker, Messrs. A. Worsley, W. Hales, E. J. Allard, A. Hill, H. J. Elwes, Col. Rawson, and F. J. Chittenden (hon. sec.).

Fasciation in Tropaeolum majus.—Col. Rawson showed a fasciated specimen of *Tropaeolum majus*, which he had had growing for two years and ten months, and which had hitherto grown normally. When, however, it had been moved to a different aspect it had become fasciated. Col. Rawson attributed this to change in illumination.

A Curious Meconopsis.—Mr. H. J. Elwes showed a *Meconopsis* from the garden of Mr. Dimsdale, of Ravenshill, Eastleach, Lechlade. It was thought to be a seedling which Mr. Elwes had given him from *Meconopsis latifolia*, but it bore curiously-shaped leaves. Sir David Prain, to whom it was referred, said it was a form which he had not seen before, but save for the absence of bracts on the pedicels it agrees in essentials with Mr. Hay's *M. decora*, with blue flowers. It has the peculiar hairs of *M. decora*, which look simple at first sight, but which have very minute protuberances as seen under a low power. Sir D. Prain considers it probable that *M. decora* is a hybrid between *M. latifolia* and *M. Wallichii*. Mr. Elwes wrote later that he had seen a specimen in Mr. Grove's garden which had thrown out side-shoots very like Mr. Dimsdale's plant, and the pistil resembling that of *latifolia*.

Various Plants.—Mr. Elwes also raised the question as to which flower opened first in *Lilium giganteum*, and said that at Wisley he had found that the bottom flower did not first open, as had been reported, nor did it in the specimen he showed. He also showed *Crimum lineare*, which he thought was probably a desert form of *C. capense*; *Iris Taitii*, from the Tagus valley; a late-flowering form of the *Niphium* group, with an exceedingly short tube; *Campanula alliariaefolia*, which, he said, makes a decorative plant when starved in a pot; Burbank's hybrid Lily (*L. Parryi* × *L. pardalinum*); *Blandfordia princeps*; *Arisaema curva-*

tum, hardy at Colesborne; and some hybrid *Calceolarias* raised in the John Innes Horticultural Institution at Merton.

Hybrid Calceolarias.—Mr. Allard said that the hybrid *Calceolarias* which Mr. Elwes showed had for one of their parents *Calceolaria cana*, a Chilean species, obtained from plants raised at Kew from Chilean seed. Crossed with *C. angustifolia* × *C. herbacea*, it gave pink spotted flowers, while the same hybrid crossed with *C. integrifolia* × *C. cana* gave dwarfier forms. *C. integrifolia* × *C. alba* gave cream unspotted forms, since *C. alba* behaves as a dominant white.

Fasciated Plants.—Mr. Hales showed fasciated shoots of peloric *Antirrhinums*. The peloric form of *Antirrhinum majus* had been grown at Chelsea Physic Garden for many years, and had been propagated by cuttings. It had now for the first time produced fasciated plants. Mr. Allard referred to the fasciated Rose shoot which Dr. Bateson took last year, and which, on being propagated from, had produced only normal shoots.

Papaver nudicaule with carpellody of stamens.—Mr. E. M. Holmes sent a flower of *Papaver nudicaule* in which many of the stamens had become carpels, in the same way as is often seen in *Papaver orientale*.

PEA TRIALS AT WISLEY.

No more interesting and instructive trial of culinary Peas has been carried out in this country in recent years than that which has been conducted this year at Wisley. For reasons not very apparent the season has been most favourable to the growth of mid-season varieties, and although the Peas are about two weeks late the crops of the hundred or more varieties under trial are almost without exception extraordinarily large. To choose the best among so many heavy croppers must be a difficult task for the judges.

Inspection of the trials brings out several facts of interest. In the first place, almost all the varieties have grown 1 foot or even 2 feet beyond their normal height. This is, of course, most striking in the dwarf and mid-races, although it is common also to the tall varieties. In the second place, the rows give a clear answer to the question of whether Peas shall be sown thickly or thinly. For the purpose of comparing characters of haulm, the Peas at one end of each row were thinned, whilst the others were set at the distance apart, 2 inches, at which they were sown. As was the case last year, so is it this—that the plants possessed of more space have done less well, grown less vigorously and fruited less prolifically than those which were closer together. It seems evident that Peas require the mutual shelter which close proximity gives, and that although sowing closer than 2 inches is not to be recommended, sparser sowing is unprofitable.

In the third place, it is curious to notice that whilst the season has been particularly kind to Peas of medium-sized pods, it has been distinctly unkind to the large-podded section. The pods are there, and large enough—Victor Cross easily first in point of size—but in all cases they have filled but very slowly. Fourthly, several of the varieties under trial are more or less uniformly three-podded. So far, attempts to confer this property on a race that shall have the other necessary qualities have not apparently met with success, but for our part we hope that growers will not be disappointed with the imperfect success which they have achieved in this direction. It is true that it is asking a good deal of a Pea to fill three pods at one time, but by putting the three-podded character on an appropriate haulm we think that a prolific race of three-podded mid-season Peas might be built up. It would be interesting for the authorities at Wisley to ascertain how many curved and how many straight pods of approximately equal size go to a peck.

Lastly, it remains to mention the fact—infinity to the credit of the senders—that among the many thousands of plants in the trial there are not, except for the occasional and inevitable bare-leaved forms, a dozen rogues. Occasionally, of course, as is well known, a variety occurs in forms with dark and light straw or pods, and it is evident that of these forms the dark is

recessive. It should, we think, be possible to obtain the light form also pure—if it be worth while.

Our visit was made before the later of the mid-season varieties had been judged, and it is clear that, just as early varieties must be subdivided into 1st and 2nd, so also must the mid-season varieties be grouped into similar classes recording the time of maturing.

NATIONAL ROSE.

NEW ROSES AT THE R.H.S. HALL.

(Continued from p. 47.)

BESIDES the varieties referred to on p. 46, Mr. MCGREY secured a Certificate of Merit for the variety Mrs. C. E. Shea. This Rose is of the same type as Donald McDonald shown in Messrs. ALEXANDER DICKSON AND SONS' group and awarded a Gold Medal. Both flowers are of the decorative type, being of medium size and well formed, but they differ slightly in colour, Mrs. C. E. Shea being rosy-cerise and Donald McDonald bright rosy-carmine. It is a flower of much promise, though some thought it was not so well staged on this occasion as it had been previously. Messrs. A. Dickson and Sons' H.T.s also included Janet (see fig. 22), a yellow flower between Gloire de Dijon and Mrs. Ambrose Riccardo in colouring, which received a Gold Medal; Clarice Goodacre, the white flower seen at the spring show. C. V. Haworth, illustrated in *Gard. Chron.*, July 22, 1916, p. 39, is a flower evidently somewhat variable in colour, but often a dark velvety crimson. Jose Margaret Walker is an exhibition flower of pink and cream colouring of large size, not very beautiful; and a very curiously-coloured flower called Mons. The colour of the last is a mixture of blue, purple and carmine, and the variety was doubtless shown as something of a curiosity. It recalled somewhat the old H.P. Pierre Notting, which dates from 1863, and had a trace of this curious blue shading. It was Foster Melliar's opinion that the blue Rose, when it comes, would be derived through a flower of this character.

Next came a group of five H.T.s from Messrs. B. R. CANT AND SONS. Joan is a pale apricot shade and cream; Florence Spaul is a large rounded flower rather like a big incurved *Chrysanthemum* of deep pink with paler edges. Its size may possibly commend it to the exhibitor. A more beautiful flower is the decorative H.T. Chrome, of good shape and a pleasing nankeen yellow with apricot-yellow centre. It received a Certificate of Merit, which it well deserved, for it made a striking and attractive feature in the group. *Colcestria* has already won some notice in the competition for the Clay Cup by reason of its delightful fragrance. It is a light clear pink, and the plant is a vigorous grower, if one may judge from the grand plant which accompanied the exhibit; perhaps it may prove a semi-climber. The last Rose in the group, Mrs. R. C. Grosvenor, is of most delightfully delicate colouring, being of that pale pinkish apricot one occasionally finds in Mme. Ravary, so soft and delicate was the colouring that it was a pleasure to stand and look at the flowers. Roses of these very refined shades are sometimes rather easily spoiled by wet weather, and though it is not always so, anyone who tries it should be prepared to find Mrs. R. C. Grosvenor among the fine weather Roses; but it is so attractive that anyone who is fond of decorative Roses should certainly wish to possess it.

Mr. HUGH DICKSON'S group was headed by a finely-formed exhibition Rose Nellie Parker, which received a Gold Medal. The colour is white, with a pale blush centre and a trace of green at the base of the petals; Dominion being another white exhibition form, and Mrs. Hugh Dickson a flower with orange centre and creamy edges to the petals, somewhat like one sometimes seen in that very variable flower Sunburst Lillian Moore, which obtained a Certificate of Merit, is understood to be the Rose which obtained the \$1,000 prize at the Panama Exhibition. The flowers are cream-coloured with a pinkish-buff centre. Mr. Hugh Dickson showed two red Roses which were very similar in general character, but of different shades, the lighter one,

Souvenir of Georges Pernet, receiving a Certificate of Merit; C. K. Douglas is of a darker crimson, and perhaps looked the better of the two in the afternoon. Mrs. Willie Dickson is a large Rose of the type of Mrs. Theodore Roosevelt, and Mrs. J. A. Wyllie cream and blush.

Messrs. MERRYWEATHER AND SONS exhibited a self-coloured decorative Rose, Henrietta, of pretty salmon-pink colouring, which, judging from its appearance, may have some affinity with the China Roses. This exhibit deserves some notice, for it was one of the few in which the flowers were staged in a natural manner without wires, so that visitors were able to judge of the pose of the flower on its stalk—often a very important matter in a decorative Rose. Nearly all the other exhibits of H.T.s had the flower heads held stiff and upright by means of wires thrust through the receptacle of the flower—a method of staging which often leads visitors to the show to go away with an entirely false idea of the habit of the flowering plant. In the case of Roses intended to take a place as exhibition Roses this is of trifling importance, for exhibition Roses in boxes are always shown in tubes supported by a wire. In the interest of the public who are anxious to learn as much as possible of the qualities of new Roses a regulation forbidding the use of wires in the case of Roses of a decorative character is much to be desired.

NATIONAL CARNATION AND PICOTEE (Southern Section).

JULY 20.—The annual show of the National Carnation and Picotee Society was held on the 20th inst., in the R.H.S. Hall, Westminster. The exhibition was a small one, but the quality of the blooms was good. The secretary informs us that the small competition was partly due to the fact that many of the members are now in the Army, and were in consequence unable to compete; Mr. PAINTER's flowers were especially missed; this exhibitor last year won the Martin Smith Challenge Cup. Mr. JAMES DOUGLAS, Great Bookham, won all the 1st prizes in the first ten classes, which were open to all competitors; Messrs. A. R. BROWN, LTD., King's Norton, were placed second in Classes 1–5 and 9, and Mr. H. LAKEMAN second in Classes 6, 7, 8 and 10.

In the second division, comprising Classes 11–26, for blooms shown in vases, Miss SHIFFNER, Lewis, won 1st prizes for (a) three blooms of one variety, (b) three blooms of a pink or rose self variety, (c) three blooms of a white self variety, (d) three blooms of a red or scarlet self variety (e) three blooms of a buff or terra-cotta self variety, (f) three blooms of a yellow or buff ground fancy variety. (This exhibitor also won five 2nd prizes in these classes.) Mr. H. W. FROSTICK, Norbury, won 1st prizes for (a) three blooms of a white ground Picotee, (b) three blooms of a yellow self variety, (c) three blooms of a self variety, any other colour, and (d) six distinct varieties of selfs, fancies, and yellow-ground Picotees. Mr. FROSTICK won four 2nd prizes in this section; Mr. MORTON, Woodside Park, won two 1st and two 2nd prizes; Mr. J. J. KEEN, Southampton, won two 1st and three 2nd prizes, and Mr. J. FAIRLIE, Acton, was awarded two 1st and one 2nd prize. Mr. S. C. WEBB, Thornton Heath, was the most successful exhibitor in the amateurs' classes, open to those who cultivate fewer than 300 plants in pots.

TRADE NOTE.

THE nursery and seed business of Messrs. Thomas Methven and Sons, Edinburgh, was recently transferred to Mr. Peter Macfarlane Greig and Mr. Herdman Thomson, who will continue to use the firm name of Thomas Methven and Sons. Mr. Greig has been associated with the business for the past thirty-five years. For the past eleven years Mr. Thomson has been associated with the business of the late Mr. David W. Thomson, nurseryman and seedsman, Edinburgh.

Obituary.

N. N. SHERWOOD (see p. 54).—The funeral service for Mr. N. N. Sherwood was held in the parish church of Messing, near Kelvedon, on Tuesday last. Canon Hubert Curtis, in the course of an address, said that the deceased gentleman was successful in business beyond most men, and he used his wealth, not for selfish aggrandisement, but for giving happiness to other people. He was always the same genial companion and kind friend. The little church was filled to overflowing. Amongst those present were Sir Thomas Mackenzie (High Commissioner for New Zealand), Sir Harry Veitch, Rev. W. Wilks, Messrs. Arthur W. Sutton, W. Binley, E. A. Ebbelwhite (clerk to the Worshipful Company of Gardeners), W. Haslar (President of the Seed Trades Association), W. W. Bunting, H. T. Huggins, W. Miskin, J. Brydon (Darlington), H. Hicks, W. G. Innes, W. Atkinson (Handsworth), H. R. Nutting, J. Kay, J. F. McLeod, J. McKeerchar, G. Messer, R. J. Cuthbert, G. Ashton, C. W. Pennell (Lincoln), G. J. Ingram (secretary of the Gardeners' Royal Benevolent Institution, T. A. Newby (late manager of Hurst and Son), and G. F. Tinley (*Gardeners' Chronicle*). The remains were laid to rest in the little churchyard adjoining, in the presence of his tenantry, the staff from Messrs. Hurst and Son, and others.

FRED READER.—We regret to have to record the death of Mr. Fred Reader, only brother of Mr. Frank Reader, chief cashier at the Royal Horticultural Society. Deceased had been employed in the R.H.S. office for the past eight years, but was obliged through illness to relinquish his work in May last. He died in a nursing home from cancer on Tuesday, 18th inst. He was fifty years of age and unmarried. The funeral was at Shirley Church, and the burial service was conducted by the Rev. W. Wilks, M.A., secretary of the R.H.S., and late vicar of Shirley.

ANSWERS TO CORRESPONDENTS.

ANTIRRHINUMS DYING: *Nelrose*. The trouble is due to eelworm. See reply to *Miss H.* in next column.

CELERY DISEASED: *A. S.* The plants are affected with the disease known as Celery blight or rust, caused by a fungus—*Septoria Petroselinii* var. *Apii*. The disease is becoming widespread in this country, although of comparatively recent introduction. It attacks the plants very early in the season, even in the seedling stage. It is late to attempt remedial measures, but spraying with Bordeaux mixture will probably check the complaint from spreading. See illustrated article in *Gard. Chron.*, June 21, and July 5, 1913.

GRAPES SPOTTED: *H. L.* The berries have been first punctured by insects, and disease has followed. Spray the bunches with an insecticide and keep the atmosphere of theinery drier, as damp conditions favour the spread of the fungus.

LARGE BLACK CURRANT FRUITES: *R. W. R.* The specimens received are much larger than usual, though probably not unique specimens. They weigh eight to the ounce, and go to show the appropriateness of the name "Boskoop Giant." We trust the bushes are free from the bud mite? Many thanks for the information respecting local gardens.

NAMES OF PLANTS: *W. H. Sharpe*. 1, *Helianthemum formosum*; 2, *Olearia stellulata*.—*Pyr.* Why send such scraps? 1, *Cladrastis amurensis*; 2, *Larix europaea* var. *sibirica*; 3 and 4, Too meagre to identify; 5, *Salvia coccinea*.—*F. Green*. 1, *Thalictrum flavum*; 2, *Spiraea japonica* (Bumalda); 3, *Lychnis chalcedonica*; 4, *Mentha rotundifolia variegata*; 5, *Epilobium hirsutum*; 6, *Centranthus ruber* (Red Valerian); 7, *Anaphalis margaritacea*, or Pearly Everlasting (sometimes named *Antennaria margaritacea*); 8, *Achillea filipendulina*; 9, *Stachys lanata* (Lamb's Ear).—*Shenstone*. 1, *Valeriana sambucifolia*, or Elder-leaved

Valerian; 2, *Melilotus officinalis*.—*W. C. Eltham*. *Ceoloyne speciosa*. The species varies much in colour, your plant being the darkest form. The hairs on the ridges on the lip are very interesting if examined with a strong lens, as they bear clusters of stellate expansions of very delicate structure.—*J. C. Allium Ampeloprasum*; wild Leek.—*J. W. H.* 1, *Gaultheria Shallon*; 2, *Escallonia rubra*; 3, *Spiraea Douglasii*; 4, *Rubus odoratus*.—*Dendron, Servnoaks*. 1, *Atropa Belladonna* (Deadly Nightshade); 2, *Centaurea scabiosa* (Greater Knapweed).—*J. B. Mullingar*. The bell-shaped flower is *Codonopsis ovata cuspidata*; the raceme of pale yellow flowers is *Aconitum vulparia*.

NECTARINES DECAYING: *T. N.* The trouble is caused by the fungus *Botrytis*, which can only attack the fruits where there is a superabundance of moisture and lack of light.

PALMS TURNING YELLOW: *G. F. H.* The fumes from the gas would have the effect you mention, but the trouble may be due to other causes. A more frequent reason of Palm leaves turning brown is improper watering—either insufficiently or too frequently. An excess of moisture would keep the compost so waterlogged as to prevent aeration of the soil, causing a check to growth. Drought at the roots would have much the same effect.

PLANTS UNHEALTHY: *Cordiff*. We cannot trace any specific disease in the plants to account for their unsatisfactory condition. The trouble is probably due to unfavourable weather.

PERENNIAL FLOWERS DYING: *Miss H.* The trouble is caused by eelworms, which are present in the roots. Burn the affected plants. There is no method of destroying eelworms in soil beyond sterilising it by heating or steaming. Subsequent crops are likely to be attacked unless this is done.

POT-POURRI: *A. M.* One of the many receipts for making pot-pourri is as follows: Take the rind of two Lemons (cut thinly), one pound of bay salt, one ounce of powdered Orris root, one ounce of gum benzoin, one ounce of Cinnamon, one half-ounce of Cloves, one ounce of Nutmegs, one grain of musk, 12 Bay leaves, a few Sage leaves, Rosemary and Lavender, cut small; one ounce of Lavender water, one ounce of Eau de Cologne, and one ounce of Bergamot. Mix all together in a pan, and add sweet flowers in their natural state as they come into blossom; stir up frequently—at least once a day. Put into a covered stoneware pot, with a wooden spoon to stir it. At the end of two months this will be a fragrant mass ready to fill a number of Japanese Rose jars. From time to time throw in fresh Rose leaves.

PRUNING OF BOX TREES AND HEDGES: *W. B.* The present is a good time to prune large hedges of Box and other evergreens. In the case of younger trees it is advisable to trim them in June and again about September.

ROSES WITH BLACK MARKINGS: *Mrs. B.* The markings on the leaves are not "Black spot," as you suggest, but are due to insects. Spray the bushes with quassia extract.

VINE LEAVES DISCOLOURED AND CARNATIONS TURNING YELLOW: *Miss P.* The discoloration of the vine leaves has been caused by too much exposure to sunlight, the trouble being known as scalding. The Carnations have been over-watered. No specific disease is present in either case.

WATER LILIES DISEASED: *J. L.* The leaves are attacked by a fungus—*Phoma nymphaea*. It is too late in the season to effect a cure. Next year spray the plants with half-strength Bordeaux mixture when the leaves appear. The decayed leaves fall to the bottom and carry the fungus with them, which infects the young leaves the following spring. The soil should be removed and replaced by fresh during the resting season.

Communications Received.—I. J.—W. B.—J. L.—W. S.—J. J. H.—J. H.—R. H.—E. S.—H. T.—C. P.—W. S.—A. L.—W. R. G.—A. S.—E. A. H.—L. H. B. Thaca, N.Y.—R. H. S.—E. R. J.—A. W. H. P.—Subscriber.

THE

Gardeners' Chronicle

No. 1545.—SATURDAY, AUGUST 5, 1916.

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THE WISTARIAS OF CHINA AND JAPAN.

AMONG hardy climbing plants Western gardens have received no greater gift than that of the Asiatic Wistarias. These have been known for just a century, and are deservedly popular wherever gardens are appreciated in the temperate regions of both hemispheres. Four species and a number of varieties or forms are in cultivation under various names, and although gardeners have no difficulty in recognising them, botanists have found these plants puzzling, and the synonymy is much involved. In these Wistarias, as in certain other popular garden plants, the confusion began through botanists assuming that the floras of China and Japan were one and the same, and that species ranged promiscuously over the thousands of miles of land which make up these empires. Gradually we are learning that the floras of the two countries are as distinct as the peoples, but it is difficult to unravel the confusion which has so long obtained. My travels in China and Japan have afforded opportunities to investigate a number of our favourite garden plants. In Sargent's *Plantae Wilsonianae*, II., 509 (1916), my colleague, Mr. Alfred Rehder, and self have published the results of a critical study of the Asiatic Wistarias with a full synonymy. But in the case of such popular plants it is advisable that certain information be given the widest circulation possible, hence this note, the object of which is to place before gardeners the proper names of the species and forms, with their distinguishing characters, and a few historical facts of general interest.

Whether the Wistarias of the Far East were all referable to two or three species has been much debated in the past, but the consensus of opinion has been that three were represented. It is now known that there are four species, and there is a remote possibility of a fifth having to be recognised when proper material is available. The four species and their forms may be distinguished as follows:—

- I.—Leaflets in 5 to 7 pairs, glabrous at maturity; racemes 10 to 30 cm. long; flowers 2.5 cm. long, 2.5 cm. broad.
 - a. Flowers pale purple, *Wistaria sinensis*.
 - b. Flowers white, *W. sinensis f. alba*.

- II.—Leaflets in 7 to 9 pairs, glabrous at maturity; flowers 2 cm. long, 2 cm. broad.
 - a. Racemes 10 to 35 cm. long, flowers pale purple, *W. floribunda*.
 - b. Racemes 35 to 160 cm. long, flowers pale purple, *W. floribunda f. macrobotrys*.
 - c. Racemes 30 to 60 cm. long, flowers white, *W. floribunda f. alba*.
 - d. Racemes 30 to 45 cm. long, flowers pink, *W. floribunda f. rosea*.
 - e. Flowers violet-purple, double, *W. floribunda f. violacea-plena*.
 - f. Leaves variegated, *W. floribunda f. variegata*.

III.—Leaflets in 5 to 7 pairs, softly hairy at maturity; racemes 10 to 15 cm. long; flowers white, 2.5 cm. long, 2.5 cm. broad, *W. venusta*.

IV.—Leaflets in 5 to 7 pairs, glabrous at maturity; flowers pale yellow, *W. japonica*.

The first known of these Wistarias was *W. sinensis*, the identity of which remained unobscured until comparatively recent years, when the Japanese Wistaria was confounded with it. The Chinese Wistaria was first introduced to England in 1816 by Captain R. Wellbank, of the East-Indian "Cuffnells," who presented it to Charles Hampden Turner, Esq., of Rook's Nest, Surrey. In 1818 it was sent by Mr. John Reeves from Canton to the Chiswick Garden of the Royal Horticultural Society.* From these two introductions have descended virtually all the plants of this Wistaria in cultivation to-day; indeed, there is no evidence to prove that any others have since been introduced to Europe. On a house situated on the edge of the Arnold Arboretum there is growing a fine specimen of *W. sinensis*, which was raised from seeds received from Shanghai in January, 1887. This is the only plant of independent origin that I am cognisant of in America.

Wistaria sinensis is peculiar to China, and is not uncommon at low altitudes in Western Hupeh and in Eastern Szech'nan, but is rare in Western Szech'nan, even in gardens. It is much cultivated in Shanghai, Soo-chou, Han-chou, and other centres of wealth and culture in Eastern China. Fortune says it is a common wild plant on the Island of Chusan, and elsewhere in the province of Chekiang, but there is no record of it growing wild in the regions north of Shanghai. In Japan, where it was unknown, even as a cultivated plant until quite recently, it has been introduced, and is now grown and sold by the Yokohama Nursery Company. It is less hardy, opens its blossoms about two weeks earlier, and has larger flowers than the Japanese *W. floribunda*.

The white-flowered form (*W. sinensis f. alba*) was introduced by Robert Fortune to the Chiswick Garden of the Royal Horticultural Society in May, 1846, where it flowered for the first time in 1849. This plant is very rare in cultivation, and is not known to have been subsequently introduced. Fortune first met with it in a Chinese nursery at Soo-chou, and afterwards in a garden near Shanghai, and again in Ningpo. I have seen occasional plants wild on the cliffs near Ichang in Western Hupeh.

The common Wistaria of Japan is *W. floribunda*, known in the vernacular as the Yamafudzi, i.e., Mountain or Wild Wistaria. The species is endemic, and is abundant on the margins of woods, in thickets, and by the sides of streams and lakes from Northern Hondo southward. It is much cultivated in temple grounds, parks, and gardens, where several distinct forms have originated. Its smaller flowers, which open a couple of weeks later, readily distinguish this species from *W. sinensis*, and it is also a much

* The Chiswick Gardens were established in 1822. See note on the Chiswick Wistaria in *Gard. Chron.*, Oct. 28, 1882, p. 500.—E.H.S.

hardier plant. According to Spae (in *Ann. Soc. Agric. Bot. Gard.*, III., 49, t.(1847), this Japanese Wistaria was introduced to the Botanic Gardens at Ghent by von Siebold in 1830, but it appears not to have been known in gardens until much later, and probably it was confused with the Chinese species. In more recent years, and especially since the establishing in Japan of nurseries of international repute, there has been enormous exportations of Wistarias, and in late years all having single and purple flowers have been called "Wistaria multijuga." This blunder has resulted in the widespread confusion which obtains to-day in gardens.

In the first volume of their *Flora Japonica*, Siebold and Zuccarini figure two Wistarias (*W. sinensis*, t. 44; *W. brachybotrys*, t. 45). The first-named is the long racemed form of *W. floribunda f. macrobotrys*, so commonly cultivated in Japan, and Siebold and Zuccarini's mistake is explained by the fact that they knew nothing of the Chinese species except from books. The second has proved a Mrs. Harris among the Asiatic Wistarias, and many futile efforts to identify this plant have been made; nevertheless the vernacular name given by Siebold and Zuccarini should have established its identity long ago, for vernacular names are remarkably constant in Japan. It is nothing but a condition of *W. floribunda*, and I have collected from wild plants in the spring season specimens in which the inflorescence measures from 10 to 35 cm. The very short racemes (10 cm.) are rare on plants in the spring-time, but they may commonly be seen in the late summer, when some plants bear a sparse second crop of flowers.

The several garden forms of the Japanese Wistaria (*W. floribunda*) are sufficiently characterised by their names, but a short notice may be given of the form *macrobotrys*. This differs in its phenomenally long racemes, although under cultivation in the Occident there is no record of the inflorescences equalling in length those produced in Japan. In Tokyo this Wistaria is commonly cultivated, and many fine examples may be seen. In the garden of Mr. Tokoën, at Kasukabe, there is a magnificent specimen, which covers an arbour of latticed Bamboo one-sixth of an acre in extent, and from this plant I gathered specimens on which the racemes measured 64½ inches in length.

In Japan *W. floribunda* and its form are usually planted by the side of water, and the abundant water supply at the roots is responsible for the wealth of blossoms and their perfect development. That this species is fond of water is a point to be borne in mind by those who wish to grow it in perfection.

The new *W. venusta*, the identity of which has so long been obscured, is the most distinct species of its group, and is well characterised by its short racemes, its very large flowers, and by its leaves, which are softly pubescent at maturity. Its habitat is not known, but the evidence available points to it being the albino form of the Wistaria which grows in Southern Mongolia and Mandshuria, and which is cultivated in and around the city of Peking. In Japan, *W. venusta* is here and there cultivated in temple grounds under the name of Shira-fudzi (White Wistaria), and in Japanese nurseries as "Wistaria sinensis var. brachybotrys" and as "*W. brachybotrys*." Under one or other of these names, in recent years it has been introduced in quantity to Europe and North America, and is mentioned by Bean (*Trees and Shrubs, Brit. Isl.*, II., 680, 1914) under *W. brachybotrys* Siebold, as a doubtful albino form. For forcing purposes this new species is the most valuable of the genus. Its flower-buds are very prominent in the autumn, and, in consequence, out-of-door plants are apt to suffer during the winter.

The fourth species, *W. japonica*, is well distinguished by its pale yellow flowers, and is

somewhat anomalous, since it approaches very markedly the genus *Milletia*. It is native of the more southern and warmer parts of Japan, and so far has proved disappointing under cultivation in the gardens of Europe and North America. *E. H. Wilson, Arnold Arboretum.*

NOTES FROM SWITZERLAND.

The following notes are taken almost direct from a letter, dated June 28, from my friend George Flemwell, who is spending the season at Zermatt and preparing a book thereon:—

"Zermatt, in spite of the language and in spite of all the foolish stories circulating about it, is more pro-Allies than pro-German. About 80 French prisoners from Germany are as well re-

of him in my album: he posed for me one evening, chatting all the while of flowers and insects and studying your book. . . . Before he left he handed me a fat envelope containing 'A few remarks about the Zermatt district' (6 MS. pages crammed full of authority and interest), which he hoped would be of use to me as I was writing a book on the district. I gave him a copy of my *Chamonix*, and since his return he has sent me his *Der Alte Bauerngarten* (Old Peasant Garden).

"Then after our meeting he went up to the Lac Noir and brought me back what he called 'the greatest rarity to be found at Zermatt (*Ranunculus ruta-folius*).' I painted it, and he was good enough to say it beat every portrait of the plant he had seen."

"One interesting thing he told me, among many, was that the curious Umbellifer, *Bunium*

Piaca alpina, *Oxytropis lapponica*, and *Astragalus monspessulanus*. This last plant of southern climes is found at Zermatt at least as high as I have seen it on the plateau of Mount Cenis (6,300 ft.)

"The lovely *Erysimum Helveticum* (and *pumilum*) fascinates me everywhere. *Anemone Halleri* is now over, but was lovely in the first week of June. I first found it with *A. vernalis* and *A. sulphurea* on some rocky, steep ground by the forest near Ried—a beautiful combination. To-day I have been painting *Eritrichium nanum*, *Saxifraga biflora* and *Androsace imbricata*, a very lovely group, which Biner brought me from the moraine and rocks of the Matterhorn, beyond the Hornli. If you care to make use of these notes do so. I wish I could send you a sketch of Dr. Christ for the article, but I doubt if the Censor would pass it—all photos are refused, so I presume sketches would meet the same fate."

June 29.—"To-day on the Höhlhorn, after long and careful search, I found *Viola pinnata*, but not in flower. . . . *Androsace imbricata* was wedged into a rock as grey as itself. It had gone out of bloom, and its seed-heads were a rusty orange, the exact colour of the spots of lichen on the rock. I never saw in a plant such 'protective colouring' and protective pose—as protective as the colouring and pose of any mountain Satyre butterfly, or of any Marmot. But why should a plant thus protect itself?"

"One of the chief things to fascinate me at once here was *Juniperus Sabina*. It is the thing which gives 'local colouring' to the landscape, perhaps more than any other thing; certainly as much as the green grey-blue Serpentine rocks. . . . *J. Sabina* is a characteristic shrub of some of the hot hillsides of southern Switzerland, and on the rocky garigues of the Valais it reaches 2,500 metres and disputes the ground with the Pines. *H. S. T.*



FIG. 23.—ROSE EMILY GRAY, A CLIMBING WICHITALIANA VARIETY: COLOUR DEEP ORANGE-YELLOW. (Awarded the National Rose Society's Gold Medal, July 18, 1916.)

ceived here as other French prisoners are at Villars. The peasant population here is splendid. . . . French and English officers are in this hotel, and Mr. Seiler has offered to take 25 English officers, for their health, as his guests at Riffelalp. He is also at the head of an organisation to offer hospitality to tired hospital nurses. I have met no Swiss gentlemen of larger views or more generous. . . . Whimper, Tyndall, and other Englishmen connected with the foundation of the fame of Zermatt and the Matterhorn are to have a monument here as soon as peace comes."

Flemwell has had the good fortune to make friends at Zermatt with Dr. Christ, of Basle, the well-known author of *La Flore de la Suisse et ses Origines* (1883). He writes: "Dr. Christ is 84, and as keen as a boy. He has known Zermatt and its flowers since 1853, and I imagine what he does not know about the flowers and the butterflies isn't worth knowing. I have two pencil sketches

Bulbocastanum, was growing on the neglected plots upon the mountain side above the village. I had already noticed it. He said the German Government had just put it on the list of wild things which Germans might eat in this time of stress. But he was at a loss to explain its presence at Zermatt; and could only suppose that in times past the inhabitants cultivated it for food."

Mr. Flemwell has found *Astragalus exscapus*, which Dr. Christ had been looking for, and also *Androsace septentrionalis*—a little colony of it on the soil-covered top of a big boulder, on the way to Zmutt. Also the prickly *Astragalus aristatus*, which is so very rare in Switzerland. "It is supposed to have been brought down by avalanches to this proximity to the village." It is the only spiny species of this huge genus, at least in Europe, with any pretence to being Alpine. *Oxytropis Halleri* is fairly frequent on the slopes above Zermatt. Three other pretty leguminous plants found were

The Week's Work.

THE FLOWER GARDEN.

By W. J. GUEST, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

CLIMBING ROSES.—Climbing Roses are making exceptional growth this season, and flowering late. The young growths should receive attention; cut out all weak shoots and tie in a few of the more vigorous ones. Guard against overcrowding of the growths, or the wood will not ripen well, which is essential for flowering, and for withstanding the cold and wet of winter. Continue to afford the roots stimulants after the shoots have been thinned. Syringe the foliage with an insecticide occasionally to keep aphids in check.

WALLFLOWERS.—Transplant young Wallflowers at once in ground from which a crop of early Potatoes has been lifted. Rake the surface level and afterwards make the soil firm. Transplant at 9 inches apart, in rows made 12 inches asunder. This distance will allow ample space until the plants are put in their permanent quarters, and also leave room for a free use of the hoe. Well ripened shoots are essential to withstand the cold of winter, especially where the ground is heavy. Wallflowers will be especially useful for spring bedding in view of the restrictions on the importations of bulbs.

GYPSOPHILA PANICULATA.—After about four years plants of *Gypsophila paniculata* deteriorate and decay suddenly. A few plants should be raised every year, therefore, to keep up a vigorous stock. The plants grow best in light, rich soil, but young plants produce but very little bloom in their first year. Occasional waterings with liquid manure will benefit the older plants.

SEED SAVING.—Seeds of a great variety of herbaceous perennials, Alpine, and rock plants

are ripening, and those required for stock purposes should be collected carefully and placed in a light, airy room for a few days. It is a capital method to sow most of these seeds a few days after they are gathered when quite ripe. Prepare a rough frame on a border, and place in it old soil from the potting benches, incorporated with leaf-mould and sand. Sow the seeds, thinly in drills, made 6 inches apart, covering them with fine, sifted soil. Water the seed-bed through a fine rose and cover the frame with spare lights. Shade the glass until the seeds have germinated. Ventilate the frames when the seedlings appear, and increase the amount of air gradually, so that the plants will grow sturdy and strong. Directly they are large enough for shifting, transplant them in the reserve quarters, choosing a warm, sheltered border. Set the plants 6 inches apart in rows made 9 inches asunder, or at a greater distance, according to the needs of the several kinds. The results will be much better than if sown in boxes in the spring.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq.,
Castletford, Gloucestershire.

CATTLEYA.—Plants of *Cattleya Rex*, *C. Dowiana*, *C. D. aurea*, *C. Warscewiczii* (syn. *gigas*), with its variety *Sanderiana*, and the hybrid *Hardyana*, are maturing their flowering growths, and should be staged at the warmer end of the *Cattleya* house, near to the roof-glass. Keep the roots just moist. When the flowers are over and roots grow from the bases of the new pseudo-bulbs repotting may be done. For this purpose use *Osmunda-fibre*, mixed with a moderate sprinkling of *Sphagnum-moss*. After repotting, let the roots have only sufficient water to prevent the pseudo-bulbs from shrivelling. A few of them are sure to shrivel a little, but they will regain their rigidity as the roots become established. When this stage is reached the plants should be rested, and may be suspended from the roof-rafters of the intermediate house, or at the cooler end of the *Cattleya* division. Plants that are not repotted should be encouraged to consolidate their growth by standing or suspending them where they will be exposed to sunlight and air, and reducing the water supply gradually. When at rest the plants require very little root watering—just sufficient moisture to prevent undue shrivelling of the pseudo-bulbs. These *Cattleyas* need a little more sunlight than is good for the majority of the genus.

COCHLIODA NOEZLIANA.—Many plants of *Cochlioda Noezliana* have flowered recently and are developing new growths. When the shoots are about an inch high, the plants may be repotted or top-dressed, using a similar compost to that recommended for *Odontoglossums*. The plants should be suspended from the roof rafters of either the intermediate or cool house. Throughout the growing period the roots need moderate supplies of water, but when the pseudo-bulbs are completed less moisture will suffice.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE,
Lockinge House, Berkshire.

CHRYSANTHEMUMS.—The large flowered varieties are showing their flower-buds, and now that the plants are well rooted, plenty of stimulants may be applied. If there is room in the pots for a top-dressing this is the best time to apply it, making use of a very rich compost. The flower-buds should be "taken" as they appear, and the growths stopped. Earwigs are very destructive to the buds, and must be trapped and destroyed. Dried Broad Bean stalks cut into portions about 6 in. long, and placed between the stake and the stem of the plant, make simple and effective traps. Tie the shoots of bush plants regularly. If the pots are plunged in ashes much labour in watering will be saved.

ROMAN HYACINTHS AND EARLY NARCISSI.—Pot the bulbs of Roman Hyacinths and early flowering Narcissi as soon as they can be procured. If for supplying cut blooms, plant in boxes or pans. Use a rich compost, or the flowers will be weak. Plunge the pots in ashes out-of-

doors or in a cold frame until roots are formed. At that stage the plants should be grown in a cold frame until they are required for forcing.

MIGNONETTE.—Make a sowing of Mignonette to obtain plants for flowering early in the spring. Sow a pinch of seed in 5-inch pots, and germinate them in a cold frame. When the seedlings are large enough to handle, thin them to three or four of the strongest plants. Grow them near to the roof-glass and let them have plenty of fresh air at all times. When ready, pot them into 5-inch pots, in a compost of loam, leaf-mould, well decayed cow manure, and crushed lime rubble.

THE HEATING APPARATUS.—Any defects in the hot-water system should be remedied now, as fire-heat may easily be dispensed with for the next few weeks. It should be remembered that leaky valves or joints cause a considerable waste of fuel.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME,
Warter Priory, Yorkshire.

VINERY.—The berries of Muscat of Alexandria Grapes are ripe or approaching that stage, and the bunches need plenty of sunlight; it may be necessary to draw the laterals and some of the leaves aside, but this must not be done to such an extent as to allow the full force of the sun to shine upon the "shoulders." This Grape is not subject to cracking, and the borders should be kept fairly moist. Sun-heat should now suffice to maintain the temperatures, but in the event of dull, wet weather, a little fire-heat may be employed to keep the air warm and moving. Houses containing Muscat Grapes for autumn use should be kept at a temperature of 70° at night, and 85° by day, allowing a rise to 90° after closing the vinery with sun heat and moisture. Plenty of warm, diluted liquid manure, with an occasional dressing of Vine manure, will greatly improve the quality of the Grapes. Late houses containing such varieties as Lady Downe's, the berries of which have been extra well thinned, should receive similar treatment to Muscat varieties during fine summer weather. The vinery should be kept warm at night and ventilated freely by day until the berries have finished stoning. Keep the berries dry and warm towards the morning and allow the day temperature to rise gradually, so that splitting and scalding of the berries may be prevented; sudden changes in the temperature, especially in unsettled weather, is a frequent cause of Grapes scalding. Let the night temperature range from 68° to 70°, and that by day from 80° to 85°. By careful attention given now the size of the berries can be increased, and their colour improved, but treble the amount of trouble later in the season would not produce the same result.

MELONS.—Few care for very late Melons, but because of the usual scarcity of other choice fruits then many maintain a supply well into the autumn. Melons planted towards the end of June should, with good management, carry the supply through October. After that date the quality of the fruits is uncertain, but those who have heated pits should grow a good late variety as a trial crop. Pots are to be preferred for this late batch, as pot plants can be kept under better control than those planted out, the most critical periods being the setting and ripening of the fruits. Melons in frames should be well advanced, if not actually ripening. The fruits should be placed on inverted pots to keep them clear of insects and water. Do not expose fruits that are swelling to full sunshine, but once they have attained to full size let sun-heat and light reach them indirectly by pushing the leaves aside a little. As the fruits approach full size and the skin commences to set, reduce the moisture at the roots gradually. Liberal ventilation and a little extra warmth are required during the ripening stages to promote good flavour.

FIGS.—Let Fig trees in full bearing have an abundance of air, and syringe them freely about the stems; also damp the walls, but guard against a cold, damp atmosphere, especially at night. Judicious thinning of the shoots and feeding the roots are essential to obtain the best results.

Trees in unheated houses may be hastened or retarded as is necessary. Syringe the foliage freely, and feed the roots liberally.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOLE,
Eastwell Park, Kent.

RASPBERRIES.—When Raspberries have been cleared of their fruits, cut out the old, fruiting canes and burn them. In established plantations more young canes than are required usually develop, and the superfluous ones should be removed. Weed the rows and keep the soil hoed constantly during the remainder of the season. Autumn-fruiting Raspberries should also be trained thinly. If the canes of the current year were thinned as advised in the spring they will have every chance of doing well, but this cannot possibly be the case if they are crowded. In the event of a prolonged drought, plentiful supplies of water will be necessary, especially where the soil is of a light texture.

GENERAL REMARKS.—Beds or borders of Strawberries that are to be discarded should be cleared of the plants forthwith and the ground utilised for some other crop. Nets used to keep birds from the berries should be dried thoroughly, tied together neatly, labelled, and stored in a dry, well-ventilated place. If the weather be dry, cut off the plants level with the ground, and burn the foliage, together with the litter. A good crop to succeed Strawberries is winter Broccoli, which may be planted without further preparation of the ground. Cauliflowers come through severe winters much better when they are planted in very firm, and not excessively rich ground. Keep the fruit quarters clear of weeds, which are especially troublesome this season.

THE KITCHEN GARDEN.

By E. R. JAMES, Gardener to the Rt. Hon. LORD NORTH,
Wroxton Abbey, Banbury, Oxfordshire.

VEGETABLE MARROWS.—Examine Marrow plants frequently with a view to cutting the fruits when they are large enough for use. Young Marrows are the best for eating, and, in addition to this, it is not advisable to leave them until they commence to develop their seeds, which is exhaustive of the plants' energies. Regularly distribute the shoots over the available space and stop straggling growths. The roots need copious supplies of water, and should be watered liberally (excepting when they are growing on manure heaps) or the fruits will drop when quite small. Mildew generally appears on the foliage about this date; directly the disease is detected remove and burn the affected leaves.

WINTER TOMATOS.—Let the conditions in which Tomatos intended for fruiting in winter are grown be kept uniform. The roots must never be allowed to suffer from lack of moisture or become pot-bound. Drought would cause the tissues of the stems to harden, thus preventing their full development, and the internodes to elongate unduly subsequently. Cramped, starved conditions at the roots produce similar results, and also cause the flowers to drop without setting.

RUNNER BEANS.—Owing to the long spell of cold weather in early summer Runner Beans in many districts have made but poor progress. In such circumstances it is advisable to apply a stimulant, such as sulphate of ammonia, at the rate of half an ounce to one gallon of water. Thoroughly soak the soil with this solution subsequent to saturating it with clear water. Do not use the stimulant at a greater strength than recommended, or luxuriant growth will be induced prejudicial to fruiting.

POTATOS.—In this district isolated cases of disease have appeared. Affected haulm and tubers should be burned immediately the disease is noticed. Early and second early varieties may be lifted, even if the skins are not quite set, as they will soon harden after lifting. A light dusting of lime, well shaken between the tubers in the store, will assist in preventing the spread of disease to the tubers.

EARLY CELERY.—Examine Celery plants frequently to remove side growths and useless leaves. Place additional collars on plants requiring them, or, if brown paper collars are not used, earth up with soil. Maintain the roots in a thoroughly moist condition.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, AUGUST 7—
Evesham Hort. Soc. Show.

TUESDAY, AUGUST 8—
Aberdare Flower Show.
Walsall Hort. Soc. Show (2 days).

THURSDAY, AUGUST 10—
Roy Botanic Soc. Anniversary meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.2°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, August 3 (10 a.m.); Bar. 29.9°; temp. 75.0°. Weather—Bright sunshine.

Gardeners as a race are called upon to learn many salutary lessons in the school of experience, and they are thus prepared to bear with more or less cheerfulness the inevitable disappointments that every season brings in its train. Although their efforts are always directed towards obtaining from the earth the most bountiful crops possible, gardeners know only too well that, despite such efforts, the successes of one year may be the failures of another, the result of circumstances beyond their control.

A year ago we had the satisfaction of recording one of the most abundant fruit seasons ever experienced in this country, and Apples, Pears, and Plums, which are certainly amongst the most valuable crops, were particularly plentiful. This year the prospects are less rosy; indeed, it has to be acknowledged that, taking for the moment the hardy fruits as constituting one crop, the yield is likely to be extremely deficient.

Apples are reported upon in 304 returns, and as many as 209 are described as under the average, whilst 85 are average and only 10 above the average. Apples, then, are less plentiful than they have been for the past eleven years, the records showing nothing quite so bad since 1905. The summary on p. vii. shows that the returns from England are the least satisfactory. Last year, it may be mentioned, out of 326 reports only 51 were described as under the average. Pears are even rarer than Apples, for out of 301 returns there is only one over average crop, instead of the 40 of last year, while there are 245 returns showing deficient yields. Plums give us the first encouraging figures, inasmuch as they are more satisfactory than last year. There are 47 over average returns, and 142 in which the crops are deficient; and from the reports from different localities it is evident that the present season's crop does not vary greatly. Last year there were 41 over average reports, and 178 in which the average was not reached. Whilst this year's Pear crop is better than that of 1915, however, it is not so plentiful as in 1914, for in that year there were 96 returns of over average crops. Plums are always to be reckoned amongst the more uncertain bearers; there are cases this season where no fruit is now to be seen, but it is difficult to see what circumstances have been responsible for the destruction of the fair promise of spring. So far as the market value of Plums is concerned, it is important that growers get their fruits on the market as early as possible, for they realise better prices then than later, when the mid-season varieties come into bearing; consequently much interest attached to a new variety that gained an Award of Merit at the Royal Horticultural Society's meeting on Tuesday last, for it is described as ripening well in advance of the earliest Plums now in general cultivation.

Cherries have not been the abundant crop they were last year and in 1914. This year the over average returns are 21, against 104 last year and 102 in 1914; whilst the returns of under average crops are 107, against 53 last year and 40 in 1914. Of Peaches and Nectarines, we have 128 returns showing deficient crops, whilst last year there were only 61, and in 1914—one of the best of seasons for outdoor Peaches, Nectarines, and Apricots—there were only 31 unsatisfactory. The figures for Apricots show that there are 162 reports of crops that fail to reach the average, whilst last year there were 133, and in 1914 only 56. Small fruits, which include Black, White, and Red Currants, Gooseberries and Raspberries are extremely abundant. All the returns, excepting five, describe crops equal to or above the average yield. The Strawberry season in 1914 was a good one, and only fifty deficient crops were reported in the 295 returns, but last year the crop was not nearly so good, and there were 114 returns of under average yields. This year's figures, however, are better than those of either of the seasons men-

tioned, and it is satisfactory to know that the atmospheric conditions so encouraged the plants to ripen well the later fruits as to make up for some losses at the commencement of the season caused by the dull, cold weather. Nuts were fairly good crops last year, and in 1914, but this year they will be sadly deficient. There are only three cases reported of over-cropping, whilst as many as 102 reporters represent the crops in their districts as being under the average.

In the above details we learn something of the general condition of the hardy fruit crops, and in the tables can be seen the returns for each locality. It should be borne in mind that most of our correspondents have assisted us in preparing similar returns for many years past, consequently they are the better able to accurately gauge the crops. The reports are not of individual crops, but are based on observations made of the aggregate crops in the different localities.

In our next issue we propose to publish notes kindly contributed by those who have furnished the details of the tables. As bearing on the comparative failure of Apples and Pears, our correspondents point out that the unseasonably cold weather of June had injurious effects upon the fruits, whilst in many districts the ravages of caterpillars have been unusually severe.

Fruit-growers naturally deplore the scarcity of crops at any time, and especially so when the scarcity affects the principal fruits. But there are always sufficient grounds for encouragement in the knowledge that if, unfortunately, one crop should fail, another will bear more plentifully than usual. Whatever the vicissitudes of seasons may be, "seedtime and harvest . . . shall not cease."

DISA BLACKII LANGLEY VARIETY.—The pretty hybrid Disas, which form such a feature in gardens at the present day, were raised by Messrs. JAS. VEITCH AND SONS by crossing *D. grandiflora* with *D. racemosa*, thus producing *D. Veitchii*, then a further cross between *D. Veitchii* and *D. racemosa* produced *D. Luna*. Messrs. FLOYD AND BLACK, on taking over the nurseries, continued the work with much success, their best hybrid being *D. Blackii Langley Variety* (see fig. 25), which they showed at the Royal Horticultural Society's meeting on June 20. This variety differs from the ordinary forms in having the dorsal sepal spotted with purple on a white ground, the lateral sepals being purplish rose-red. The members of the whole section are desirable garden plants, for they may be grown in the cool Orchid house or in a shady part of an ordinary greenhouse. They should be watered freely with rain-water and never allowed to become excessively dry at the roots. These hybrid Disas are very floriferous, and easy to cultivate.

WAR ITEMS.—We learn with deep regret that Sergeant GEORGE HARROW, son of Mr. Geo. Harrow, for many years manager of Messrs. JAMES VEITCH AND SONS' Coombe Wood Nursery, was killed in action on July 1 last. Deceased, who was 34 years of age, had served for 18 years in the Coldstream Guards, and he possessed the South African War and Long Service Medals.

REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 64.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
0, Scotland, N.										
CAITHNESS	Under; bad	Under; bad	.....	Average;	.....	.....	Average; good	Over; good	.....	W. F. Mackenzie, Thurso Castle Gardens, Thurso.
ELGIN	Under; good	Average; good	Average; good	Under; good	Under; good	Under; bad	Average; good	Average; very good	.....	John Macpherson, Mayne Gardens, Elgin.
ORKNEY.....	Average; good	Under; good	.....	Average; good	Average; very good	.....	Under; bad	Over; very good	.....	W. Liddell, Balfour Castle Gardens, via Kirkwall.
ROSS-SHIRE	Average; good	Average	Average; good	.....	.....	.....	Over; very good	Over; very good	Average	W. Macdonald, Ben Damph Gardens, Torridon.
	Under	Under	Average	Average; good	.....	.....	Over; very good	Over; good	.....	M. Martin, Novar House Gardens, Evanton.
SUTHERLAND.....	Under	Under	Under	Under	.....	.....	Average	Average	.....	D. Melville, Dunrobin Castle Gardens.
1, Scotland, E.										
ABERDEENSHIRE.....	Under; bad	Under; bad	Under; bad	Under; bad	.....	.....	Over; good	Over; good	.....	James Grant, Rothienorman Gardens.
	Under	Under	Under	Under	.....	.....	Under	Under	.....	Simon Campbell, Fyvie Castle Gardens.
	Average	Under	Average	Under	Average	.....	Over	Over	.....	Wm. Henderson, Meldrum House Gardens, Old Meldrum.
BANFFSHIRE	Under; bad	Under; bad	Average; good	Average; good	Under; good	Under; bad	Over; very good	Over; good	.....	John McKinnon, Haddo House Gardens.
	Average	Under	Over; good	Over; good	.....	.....	Over; very good	Average; good	.....	George Edwards, Ballindalloch Castle Gardens, Ballindalloch.
BERWICKSHIRE	Under; good	Under; good	Under; good	Average; very good	Average; very good	Average; good	Over; very good	Over; very good	.....	Peter Smith, Duns Castle Gardens, Duns.
	Average	Under	Over	Average; good	.....	.....	Over	Over	.....	Robert Stuart, Thirlestane Castle Gardens, Lauder.
	Under; good	Under; good	Under; good	Under; good	Under; good	Under; good	Average; very good	Over; good	.....	Thomas Nelson, Milne Graden Gardens, Coldstream.
CLACKMANNAN-SHIRE	Under	Average	Under	Average	Under	Average	Average; good	Over; very good	Average	Alexander Kirk, Consulting Gardener, Alloa.
FIFESHIRE	Under	Under	Under	Under	Under	Under	Average	Average	.....	Chas. Simpson, Wemyss Castle Gardens, East Wemyss.
	Average	Under	Under	Average; good	Under	Under	Over; good	Average; good	.....	D. McLean, Raith Gardens, Kirkcaldy.
	Under	Under	Under	Under	.....	Under	Over; very good	Average	.....	William Henderson, Balbirnie Gardens, Markinch.
FORFARSHIRE	Under; bad	Under	Average	Average	Average	Under	Over	Average; good	.....	Robert Bell, Kinnaird Castle Gardens, Brechin.
	Under	Average; good	Average; good	Under	.....	.....	Average; good	Over; good	Under	Andrew McAudie, Ruthven House Gardens, Meigle.
HADDINGTON-SHIRE.	Under; bad	Under; bad	Under; bad	.....	Over; good	Over; good	Over; very good	Average; very good	Average; good	John Black, Smeaton Gardens, Prestonkirk.
	Average; good	Under; good	Under; good	Under	Average; good	Average; good	Over; good	Over; good	.....	R. P. Brotherston, Tynninghame Gardens, Prestonkirk.
KINCARDINESHIRE	Under	Under	Under	Average	.....	.....	Average	Over	.....	William Knight, Fasque Gardens, Laurencekirk.
	Under	Under	Average	Average	.....	.....	Average	Average	.....	William Thomson, Urie House Gardens, Stonehaven.
KINROSS-SHIRE.....	Under	.....	Average	Over	.....	.....	Over; good	Average	.....	Robert Fraser, Kinross House Gardens, Kinross.
LINLITHGOW-SHIRE	Under	Average; good	Average	Under	Under	Under	Over; good	Average	.....	John Highgate, Hopetoun Gardens, South Queensferry.
	Under; good	Average; good	Under; good	Under; good	Under; good	Under; good	Over; very good	Over; very good	.....	James Boyd, Newliston Gardens, Kirkliston.
MIDLOTHIAN	Under	Under	Average; good	Average	.....	Under; good	Over; very good	Over	.....	A. C. Scott, Oxenford Castle Gardens, Ford.
	Average; good	Under; bad	Under	Average; good	.....	Under	Average; good	Under	.....	D. Kidd, Carberry Tower Gardens, Musselburgh.
	Average	Average	Under	Average	Average	Under	Over	Over	.....	William Crichton, Dalhousie Castle Gardens, Bonnyrigg.
MORAYSHIRE.....	Under	Under	Under	Under	.....	Under	Average	Average	.....	James Whytock, Dalkeith Gardens, Dalkeith.
	Under	Under	Under	Under	.....	.....	Under	Under	.....	James Jamieson, Easter Elchies Gardens, Craigellachie.
PEEBLES	Under	Under	Average	Under	.....	.....	Over	Under; bad	.....	Wm. McDonald, Cardrona, Inverlithen.
PERTHSHIRE	Under	Under	Under	Under	.....	Under	Average; very good	Average; good	.....	Thomas Lunt, Keir Gardens, Dunblane.
	Under	Under	Average	Average	.....	.....	Over; very good	Over; very good	.....	John Robb, Milnab Terrace, Crieff.
6 Scotland, W.										
ARGYLLSHIRE	Under; good	Under; bad	Under; bad	Average; good	Under; bad	.....	Average; good	Average; good	.....	D. S. Melville, Poltalloch Gardens, Kilmartin.
	Under	Under	Average	Under	.....	.....	Average	Under	.....	Henry Scott, Torloisk Gardens, Aros, Isle of Mull.
	Average; good	Under; good	Under; good	Average; good	.....	.....	Over; very good	Average; good	Under; good	George Haig, Balcaldine Gardens, Ledarg.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
6 Scotland, W.										
AYRSHIRE.....	Under Average; good Average; very good	Under Under; good Average; good	Average Average; good Average; good	Under Under; good Under	..... Over; good .....	..... Average; good	Average; good Average; very good Over; very good	Average Under; good Over; good	..... Average; good	William Priest, Eglinton Gardens, Kilwinning. D. Buchanan, Bargany Gardens, Bailly. John McInnes, Kirkmichael House Gardens, by Maybole.
BUTESHIRE.....	Average; good	Under; bad	Under; bad	Under; bad	.....	.....	Average; good	Over; good	.....	D. Halliday, Ascog House Gardens.
DUMBERTONSHIRE..	Under Average	Under Under	Under Over	Average Average	Average Average	Average	Over Over	Over Average	..... .....	D. Stewart, Knockderry Castle Gardens, Cove. David Kerr, Ross Priory Gardens, Gartocharn.
DUMFRIESHIRE.....	Under; good Under; bad	..... Under; bad	Under; good Under	Under; bad Average	.....	Under; bad	Average; good Over	Average; good Average	..... .....	John Urquhart, Hoddon Castle Gardens, Ecclefechan. James McDonald, Dryfeholm Gardens, Lockerbie.
INVERNESSHIRE...	Average	Under	Over; good	Average	Over; good	.....	Average	Average	.....	John A. Cargill, Raasay House Gardens, Kyle of Lochalsh
KIRKCUDBRIGHTSHIRE	Under; good	Under; good	Average; good	Average; good	.....	.....	Average; good	Average	Under	F. Loughton, Cairnsmore Gardens, Palmare.
LANARKSHIRE.....	Average; good Under	Average; good Average	Average; good Over	..... Average	Over; very good .....	..... .....	Over; very good Over	Average; good Average	..... .....	Robert McGregor, Wishaw House Gardens, Wishaw. John Shiels, Carstairs Gardens, Carstairs Junction.
RENFREWSHIRE.....	Under; good	Under	Under	Average; good	Under; good	.....	Average; very good	Average; good	.....	J. Plenderleith, Blythswood Gardens, Renfrew.
STIRLINGSHIRE.....	Average; good Under	Under; good Under	Under Under	Under Average	Over; very good	Under	Average; very good Average	Average Over	..... Under	John Middleton, Callendar House Gardens, Falkirk. J. W. Cunningham, Dumtreath Castle Gardens, Blanehead.
WIGTOWNSHIRE.....	Average; good Average	Under; bad Average	Average; good Over; good	Average; good Average	..... Average	..... .....	Over; good Over; good	Average; good Over; good	..... .....	John Bryden, Dunragit Gardens, Dunragit. Samuel Gordon, Monreith House Gardens, Whamphill.
ENGLAND :										
2. England, N.E.										
DURHAM.....	Average; good Average Under	Under; bad Average; good Under	Under; bad Average; good Under	Average; good Average; good Average (Morellos)	..... ..... Average	Under; bad Under	Average; very good Over; very good Over	Average; good Over; very good Average	..... ..... .....	W. Smith, Lambton Castle Gardens. John Smith, Hylton House, North Road. E. Tindale, Ravensworth Gardens, Gateshead.
NORTHUMBERLAND.	Average; good Under	Average; good Average; good	Under; good Average	Average; good Average	Average; good Under	Under; good Average	Average; very good Average; good	Average; very good Average	..... .....	John Thomas, Bywell Hall Gardens, Stocksfield-on-Tyne Walter Thomson, Castle Gardens, Alnwick.
YORKSHIRE.....	Average; good Average; good Under; good Under; good Under; bad Average; good Average; good Under	Average; very good Under; good Under; good Under; good Under; good Under Average; good Under	Average; bad Average; very good Average; very good Average; good Average; good Under Over; good Under	Over; good Over; very good Under; good Under; good Under Under Under	Over; very good	Average; good Average; good Under; bad Under Under Under Under	Average; very good Over; very good Over; very good Average; good Over; good Under	Average; good Over; very good Over; very good Average; good Over; good Average	Under Under; bad	Sidney Legg, Balton Holme Gardens, Beverley. A. S. Galt, Rutherglen, Roundhay, Leeds. J. E. Hathaway, Baldersby Park Gardens, Thirsk. Alfred Gaut, The University, Leeds. A. E. Sutton, Castle Howard Gardens, Welburn. J. G. Wilson, Chevot Park Gardens, Wakefield. F. C. Puddle, Scampston Hall Gardens, Rillington. C. Fulford, North Riding Asylum, York. F. Jordan, Warter Priory Gardens, Pocklington.
3. England, E.										
CAMBRIDGESHIRE..	Average; good Average; very good Under; bad Under; good Under; good Under; good Under; good Under; very good	Under; good Under; good Under; good Under; good Under; good Under; bad Under	Under; good Average; good Average; very good Under; bad Average; good Under	Average; good Over; good Average; good Under; bad Average; good Average	Over; very good Under; very good Average; good Under; very good Average; good Average; good	Under; bad Under; good Under; very good Under	Over; very good Over very good Over; very good Average; good Average	Over; very good Average; good Over; very good Average; good Over; very good	Average; good Under; good	R. Alderman, Babraham Gardens. B. Goodacre, Monlton Paddocks, Newmarket. H. Head, Hatfield Park Gardens, Sandy. Arthur Sewell, The Palace Gardens, Ely. T. Spooner, Meldreth, Royston. W. Woods, Chippenham Park Gardens, Ely.
ESS-EX.....	Under; bad Under; good Under Under; good Under; good Average; good Under; very good	Under; good Under; bad Average Average; good Under; good Average; good Average; good	Over; good Under; good Average Average; good Under; bad Average; good Average	Under; bad Average; good Average Average; good Under; good Average; good Average	Under; good Under; bad Average Under; good Under; good Average; good Average; good	Under; bad Under; bad Under Under; good Under; bad Under; good Under	Average; good Over; good Average Over; good Over; very good Average; good Average	Average; good Over; good Average Average; good Average; good Average; good Over; very good	Under Under; bad Average	Arthur Bullock, Copped Hall Gardens, Epping. C. Wakely, County Gardens, Chelmsford. H. Lister, Easton Lodge Gardens, Dunmow. Edwin Guile, Shortgrave Gardens, Newport. W. Johnson, Stanstead Hall Gardens, Stanstead. Charles A. Heath, Great Hallingbury Place Gardens, Bishops Stortford. A. V. Coombe, Ramsey Abbey Gardens, Ramsey. George H. Gibbins, Abbots Ripton Hall Gardens. James Hewitt, Kimbolton Castle Gardens, Kimbolton. F. J. Foster, Grimsthorpe Castle Gardens, Linneme. F. Ynden, Harbaxton Manor Gardens, Grantham. Fred. Barton, Hainton Hall Gardens, Lincoln.
HUNTINGDONSHIRE.	Average Under; good Under	Under Under; good Average	Average Over; very good Average	Average; good Under; good Average; good Average	Over Average; very good Average	Under Under; bad Under	Average; good Over; very good Average; good Average	Over; good Over; very good Average; good Over; very good	Average	A. V. Coombe, Ramsey Abbey Gardens, Ramsey. George H. Gibbins, Abbots Ripton Hall Gardens. James Hewitt, Kimbolton Castle Gardens, Kimbolton. F. J. Foster, Grimsthorpe Castle Gardens, Linneme. F. Ynden, Harbaxton Manor Gardens, Grantham. Fred. Barton, Hainton Hall Gardens, Lincoln.
LINCOLNSHIRE.....	Over Under; good Average	Under Under; good Under	Under; good Under; good Average	Under Under; bad Under	Over; good Average; very good Average	Under Under; good Under	Over; very good Over; good Over; good Over; good Average	Over; very good Over; very good Average; good Over; very good Average	..... Under; bad	F. J. Foster, Grimsthorpe Castle Gardens, Linneme. F. Ynden, Harbaxton Manor Gardens, Grantham. Fred. Barton, Hainton Hall Gardens, Lincoln.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
5. England E.										
LINCOLNSHIRE (continued)	Under	.....	.....	Average; good	.....	.....	Average; good	Over; very good	.....	Joseph Robinson, Somerby Hall Gardens, Oakham.
	Average; very good	Under; good	Average; very good	Under; good	Average; good	Under; good	Over; very good	Over; very good	.....	E. C. Norris, Elsham Hall Gardens, Elsham.
NORFOLK	Average	Under	Under	Average	Average	Under	Average; good	Over; bad	Under	J. Wynn, Sedgeford Hall Gardens, King's Lynn.
	Average; good	Under; good	Average; good	Under	Under	Under	Over; very good	Average	.....	Isaiah Johnson, Catton House Gardens, Norwich.
RUTLANDSHIRE	Under; very good	Average; good	Over; good	Over; good	Average; very good	Under; good	Over; very good	Average; good	Under; very good	J. F. Cox, Lyndon, Oakham.
	Under; good	Average	Average; good	Average	Under	Under	Over; good	Over; good	Under	W. Dudge, Bailey Thorpe, Oakham.
SUFFOLK	Under	Under	Over	Average	.....	.....	Over	Over	.....	E. G. Creek, County Council Inspector in Horticulture, Shire Hall, Bury St. Edmunds.
	Under	Under	Over	Under	Under	Under	Average	Average	Under	W. Messenger, Woolverstone Park Gardens, Ipswich.
	Under; good	Under; good	Average; good	Average; good	Under; bad	Under; bad	Over; good	Over; good	Under; bad	Thomas Stilling, Javerne Park Gardens, Bury St. Edmunds.
	Under	Under	Average	Average	Under; bad	Under	Average	Average	.....	H. Ooster, Ickworth, Bury St. Edmunds.
	Average	Under	Average	Under	Under	Under	Over	Over	Under	Alfred Andrews, High House Gardens, Campsea Ashe, Wickham Market.
	Under; bad	Under; good	Over; good	Average; good	Average; good	Under; good	Over; very good	Over; very good	Under	A. K. Tinner, Orwell Park Gardens, Ipswich.
	Under	Under	Over; good	Average	Over; very good	Under	Average	Average; good	Under	William Low, Euston Gardens, Thetford.
	Under; good	Average; good	Over; good	Under; bad	Under; good	Under; good	Over; very good	Over; very good	Average; good	James Hillson, Elyton Hall Gardens, Bungay.
4. Midland Counties.										
BEDFORDSHIRE	Under; good	Under; good	Over; good	Average; good	.....	.....	Over; good	Over; very good	Under	W. H. Neild, Woburn Experimental Fruit Farm, Ridgmont, Aspley Guise.
	Under; bad	Under; good	Over; very good	Average; good	Average; good	Under; bad	Average; good	Average; good	.....	C. J. Ellett, Chicksands Priory Gardens, Shefford.
	Under; good	Under; good	Over; very good	Average; good	Average; good	.....	Over; very good	Average; good	Under	Wm. F. Palmer, Froxfield Gardens, Woburn.
	Under; good	Under; good	Average; very good	Average; good	Under; good	Under; good	Over; very good	Over; good	Average	T. W. Stanton, Hinwick Hall Gardens, Wellingtonborough.
	Under	Under	Under	Average; good	Average; good	Under; bad	Over; very good	Average; good	.....	Thomas Peppier, Oakley House Gardens, Oakley.
	Under	Under	Average	Over; good	Average	Average	Over; good	Average	.....	Laxton Bros., Bedford.
BUCKINGHAMSHIRE.	Under; bad	Under; bad	Under; bad	Under	Average; good	Under; bad	Over; good	Over; good	Under	James Wood, Hedsor Park, Bourne End.
	Under	Under	Average	.....	.....	Under	Average	Average; good	.....	James Macgregor, Mentmore Gardens, Leighton Buzzard.
	Under; good	Under	Average; good	Average; good	Under	Under	Over; good	Average; good	Under; good	W. Hedley Warren, Aston Clinton Gardens, Tring.
	Under	Under	Average	Average	Under	Under	Average	Average	Under	Philip Mann, Education Sub-Office, Aylesbury.
	Average; good	Under; good	Average; good	Over; good	.....	.....	Over; very good	Average; good	Under	Geoffrey Cooper, Ranworth, Malvern Road, Furze Platt, Maidenhead.
	Under	Under	Over; good	Average	Under; good	Under	Over; good	Average; good	Under	William Brooks, Missenden House Gardens, Amersham.
	Under	Under	Average	Over; very good	.....	.....	Average; good	Over; very good	Under	W. Waters, Bulstrode Gardens, Gerrards Cross.
	Under; very good	Under; good	Average; good	Over; very good	.....	Under; bad	Over; very good	Over; very good	.....	Dr. F. Johnson, Waddleson Gardens, Aylesbury.
	Under; good	Under	Under	Average	Average	Under	Average; good	Average	Under	Chas. Page, Droppmore Gardens, Maidenhead.
	Under	Under	Average; good	Under	Under	Under	Average; good	Average; good	.....	William Tarrham, Greenlands Gardens, Benley-on-Thames.
CHEESHIRE	Under; good	Under; good	Average; good	Average; good	.....	.....	Over; very good	Over; very good	.....	Alfred N. Jones, Marbury Hall Gardens, Northwich.
	Under	Under	Under	Under	.....	Under	Average; good	Average; good	Under	John Forsyth, The Gardens, Hawarden Castle, nr. Chester.
	Under; bad	Under	Under	Average; good	Average; good	Under	Average; good	Average; good	Under	Charles W. Flack, Cholmondeley Castle Gardens, Malpas.
	Under	Under	Under	Average	Average	Under	Average	Average	.....	T. A. Summerfield, The Gardens, Ablerley Park, Chelford.
	Average; good	Under	Average; good	Average; good	Under; bad	Under; bad	Over; good	Average; good	Under	Philip Bolt, Manor Gardens, Middlewich.
	Under; bad	Under; good	Under; bad	Average; good	.....	Under	Average; good	Over; good	Under	N. E. Barnes, Eaton Gardens, Chester.
	Over	Under	Under	Average	Under	.....	Average; good	Average; good	Under	James Atkinson, Torkington Lodge Gardens, Hazel Grove, near Stockport.
	Average	Under	Average	Under	.....	Under	Over; good	Average; bad	Under	William Wingfield, Duddington Gardens, Nantwich.
DERBYSHIRE	Over; good	Under; good	Over; very good	Average; good	.....	Under	Over; very good	Average; good	.....	J. Maxfield, Darley Abbey Gardens, Derby.
	Under	Under; bad	Average	Average	.....	.....	Over; very good	Under	.....	F. Jennings, Chatsworth Gardens, Chesterfield.
	Average; good	Under	Average	Under	.....	Under	Over; good	Average	.....	J. Tully, Osmaston Manor Gardens, Derby.
	Average	Under; bad	Under; bad	.....	.....	.....	Average; good	Under	Under	E. Wilson, Hardwick Hall Gardens, Chesterfield.
	Under	Under	Average	Average	Under	Average	Average	Average; good	Under	J. H. Goddard, Elvaston Castle Gardens, Derby.
	Average; good	Under; good	Average; bad	Over; very good	.....	.....	Average; very good	Under; bad	.....	F. G. Mills, Inceside House Farm, Glossop.
HERTFORDSHIRE	Under	Under	Under	Average	Under; bad	Under; bad	Average; good	Average; good	Under	Thomas Nutting, Childwick Bury Gardens, St. Albans.
	Under; good	Under; good	Average; very good	.....	.....	.....	Average; very good	Average; good	Over	Thos. Rivers & Son, Sawbridge-woth.
	Under	Under	Under	Average; good	Under; bad	Under; bad	Over; very good	Over; very good	Under; bad	Edwin Beckett, Abdenham House Gardens, Elstree.
	Under; good	Under; good	Under; good	Average; good	Under; good	Under	Over; good	Average; very good	Under	E. F. Hazleton, North Mymsms Gardens, Hatfield.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
4. Midland Counties.										
LEICESTERSHIRE.....	Under; bad	Under; good	Under; good	Average; good	Under; good	.....	Over; good	Average; good	.....	D. Roberts, Prestwold Gardens, Loughborough.
	Under; good	Under; good	Average; good	Average; good	Under; good	Under	Over; very good	Over; very good	Under; bad	W. H. Divers, Belvoir Castle Gardens, Grantham.
	Under; very good	Under; very good	Average; good	Under; very good	.....	.....	Over; very good	Under; bad	.....	W. Paterson, Swithland Hall Gardens, Loughborough.
NORTHAMPTONSHIRE	Under	Under	Under	Under	Under	Under	Average; good	Average; good	Under	F. Ibbotson, Rolleston Hall Gardens.
	Under; good	Under; good	Average; good	Average; good	Under	Under	Over; good	Average; good	Under	Robt. Johnston, Wakefield Lodge Gardens, Stony Stratford.
	Under; bad	Under; bad	Over; good	Average; good	Average; good	Under; good	Over; good	Over; very good	Average; good	C. F. Crump, Althorp Park Gardens.
	Under; good	Under; good	Under; good	Under	Average; bad	Under	Over; good	Average; good	Under	J. Meager, Harrowden Hall Gardens, Wellingborough.
NOTTINGHAMSHIRE.	Under	Under	Over	Average	.....	.....	Over; good	Average	Under	Alfred Child, Catesby House Gardens, Daventry.
	Average; good	Under; good	Over; good	Under; bad	Under; good	Under; bad	Over; good	Average; good	Under; bad	F. W. Parkes, Wollaton Hall Gardens, Nottingham.
	Average; good	Average; very good	Over; very good	Over; very good	Under; bad	Under; bad	Over; very good	Over; good	.....	James B. Allan, Osberton Gardens, Worksop.
	Under	Under	Average	.....	Under	Under	Average	Under; bad	Under	J. R. Pearson and Sons, Lowdham.
	Under	Average	Over; very good	Under	Under	Under	Over; very good	Over; good	Average	S. Baker, Chamber Park Gardens, Worksop.
	Average; good	Average; good	Over; good	Average; good	Average; good	Under; good	Over; very good	Average; very good	Under	T. P. Eyre, Wallingwells Hall Gardens, Worksop.
	Under	Under	Average; good	Average	.....	Average	Over; very good	Average	Average	James Gibson, Welbeck Abbey Gardens, Worksop.
OXFORDSHIRE	Under	Average	Under	.....	.....	.....	Over; good	Average; good	.....	Thomas Simpson, Newstead Abbey Gardens.
	Average; good	Under	Average; good	Average; good	Under	Under	Over; very good	Over; good	Under	Arthur C. Lehane, Park Hall Gardens, Mansfield.
	Under	Under	Under	Average	.....	Under	Over; good	Average; good	Average	John A. Hall, Shiplake Court Gardens, Henley-on-Thames.
	Under	Under	Average	Average; good	.....	Under; bad	Average; good	Over; good	.....	Arthur J. Long, Wyfold Court Gardens, Reading.
	Under; good	Under; very good	Under; very good	Average; good	Average; good	Under	Over; good	Average	Under	William J. Short, Middleton Park Gardens, Bicester.
	Under	Under	Under	Under; bad	Under; very good	.....	Over; good	Average; good	.....	C. E. Munday, Nuneham Park Gardens.
SHROPSHIRE	Under; very good	Average; very good	Average; good	Under	Average; good	Under	Over; good	Average	.....	T. W. Whiting, Shotover Park Gardens, Wheatley.
	Under; good	Under; good	Under; good	Under; good	.....	Under; good	Over; good	Average	.....	W. Mills, Caversham Park Gardens, Reading.
	Average	Under; bad	Average	Average; good	Under; bad	Under	Over; good	Average	Average	Ben. Campbell, Cornbury Park Gardens, Charlbury.
STAFFORDSHIRE	Under; very good	Average; good	Average; good	Under	Average; good	Under	Average; very good	Under; good	Average	Alex. Haggart, Moor Park Gardens, Ludlow.
	Under; good	Under; good	Under; good	Under; good	.....	Under; good	Average; good	Average; bad	.....	G. T. Malthouse, Harper-Adams Agricultural College, Newport.
	Average	Under; bad	Average	Average; good	Under; bad	Under	Average; good	Average; good	.....	George Adams, Lilleshall Gardens, Newport.
	Average; very good	Average; good	Average	Average	Average; good	.....	Average	Average	.....	A. Cheney, Shenstone Court Gardens, Lichfield.
	Under; bad	Under; good	Average; good	Average; bad	.....	Under; bad	Over; very good	Average; good	Under; bad	T. Bannerman, Blithfield Gardens, Rugeley.
WARWICKSHIRE	Under; good	Under; good	Under; good	Under; good	Average; good	.....	Over; very good	Average; good	Under	H. Collier, Rolleston Hall Gardens, Barton-on-Trent.
	Under	Average	Under	.....	.....	Under	Average; good	Average; good	.....	W. Halliday, Patshull Gardens, Wolverhampton.
	Under	Under	Under	Under	Average	Average	Average; good	Average	Under	M. Huntley, Old Fallings Hall Gardens, Wolverhampton.
	Average	Under	Under	Average	Under	Under	Over	Average; good	Average	Edwin Gilman, Bagestie Gardens, Stafford.
	Under; bad	Under; bad	Average; good	Average; good	Under	Under	Average; very good	Average; good	Under; bad	Chas. Harding, Ragley Hall Gardens, Alcester.
5. Southern Counties.	Under; good	Under	Under	Under	Under	.....	Over; good	Average; good	Average	H. Dunkin, Mount Pleasant Gardens, Emscote.
	Under; bad	Under	Under	Average	Average	Under	Average	Average	Under	J. Smith, Wellesbourne House Gardens, Warwick.
	Under; good	Under; bad	Under; good	Average	Under	Under; bad	Over; good	Over; good	Under; bad	W. Hartman, Newnham Paddox Gardens, Lutterworth.
	Under; good	Under	Under; good	Average; good	Under; good	Under	Over; good	Over; good	Under	W. Haylock, Ettington Park Gardens, Stratford-on-Avon.
	Under	Under	Average	Under	Under	Under	Average; very good	Average; very good	Average	Jno. Masterson, Weston House Gardens, Shipston-on-Strour.
	Under	Under	Under	Over	Over	Under	Average	Over	.....
	Under; bad	Under; bad	Under; bad	Average	Under; bad	Under; bad	Average; good	Over; very good	Under; bad	A. MacKellar, Royal Gardens, Windsor.
	Under	Under	Average	Average	Under	Under	Average	Over; very good	Average	William Tapping, Manor House Gardens, Shinfield, nr. Reading.
BERKSHIRE.....	Under; good	Under; bad	Under; good	Average	Under	Under; bad	Over; good	Over; good	Under; bad	Thomas Wilson, Castle Gardens, Wallingford.
	Under; good	Under	Under; good	Average; good	.....	Under	Over; good	Average; good	Average; good	John T. Tubbs, Bearwood Gardens, Wokingham.
	Under	Under	Average	Average	Under	.....	Over; good	Average; good	.....
	Under	Under	Under	.....	Average	.....	Over	Average	Under	J. Atkinson, Oakley Court Gardens, Windsor.
DORSETSHIRE	Under; bad	Under; bad	Under; bad	Average	Under; bad	Under; bad	Average; good	Over; very good	Under; bad	William Tapping, Manor House Gardens, Shinfield, nr. Reading.
	Under	Under	Average	Average	Under	Under	Average	Over; very good	Average	Thomas Wilson, Castle Gardens, Wallingford.
	Under; good	Under	Average; good	Average; good	Over; very good	Under	Over; good	Over; good	.....	John T. Tubbs, Bearwood Gardens, Wokingham.
	Average; good	Under; good	Under; good	Over; good	Under; bad	Under; bad	Over; very good	Under; bad	.....	J. Jaques, Bryanston Gardens, Blandford.
	Under; good	Under; good	Under; good	Under; good	Under; good	Under; good	Over; good	Average; good	.....	E. C. Parslow, County Offices, Dorchester.

CONDITION OF THE FRUIT CROPS—(continue d).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
5. Southern Counties.										
DORSETSHIRE..... (continued)	Under; good Average; good	Under; very bad Under; good	Under; good Average	Under; very bad Average	..... Under	..... Under	Under; very bad Over; good	Average; good Over; good	..... Average; good	H. Kempshall, Abbotsbury Castle Gardens, Dorchester. A. Shakelton, Fording Abbey Gardens, Chard.
HAMPSHIRE	Under; good Under; bad Average; good Under; good	Under; good Average Average; good Under; good	Under; bad Over; very good Under Under; bad	Average; good Average Average; good Under; good	Under; bad Under Under; bad .....	..... ..... Under	Over; good Over; very good Over; very good Average; very good	Under; good Over; very good Over; good Over; very good	Under; bad Under Under; very good	Lewis Smith, Cadland Park Gardens, Fawley, Southampton. L. Carsey, Stratton Gardens, Micheldever. A. J. Legge, Dogmersfield Park Gardens, Winchfield. Henry Martin, Bartley Lodge Gardens, Cadnam, Southampton. A. W. Blake, Highclere Castle Gardens, Newbury. Henry Tullett, Ashe Park Gardens, Overton, nr. Basingstoke. E. Molyneux, Swanmore Park, Bishop's Waltham. J. W. Buckingham, Milland Place Gardens, Liphook.
KENT	Under; good Under Under; good Under; good Under Under Under	Under Under Under; good Under; good Under Under Under	Average; good Under Average; good Under Average Under	Average; good Average Average; good Under Under Under	..... Under Under Under Under	..... ..... ..... ..... ..... Under Under Under	Average; good Over Average; very good Over; good Average; good Over; very good Over; very good Over; good Average; good	Average; good Under Average; very good Average; good Average; good Average; good Over; good Average	Under Under Under Under Under	George Woodward, Barham Court Gardens, Maidstone. George Bunyard, Royal Nurseries, Maidstone. William Lewis, East Sutton Park Gardens, Maidstone. Geo. Fennell, Bowden, Tonbridge. Geo. Loekyer, Mereworth Gardens, Maidstone. J. T. Shann, Betteshanger Park Gardens, Eastry. J. G. Weston, Eastwell Park Gardens, Ashford. E. Shea, The Elms, Fooks Cray. L. Spurling, Warren House Gardens, Hayes.
MIDDLESEX	Under; bad Over; very good Average	Under; bad Under Under; bad Under	Under Under Under; bad Under	Under Average Average Under; bad Average; good	Average; good Under Under	Under Under; bad Under Under	Average; good Average; good Average Over; very good Average; good	Over; good Average Average Average; good Average; good	..... ..... Average	H. Marsham, Wrotham Park, Gardens, Barnet. Wm. Pompart, Marsh Farm, Twickenham. W. Bates, Cross Deep Gardens, Twickenham. James Hudson, Gimmersbury House Gardens, Acton. John Weather's, Park View, Isleworth.
SURREY	Under Average; good Under; good	Under Under Under; good	Under Over; good Under Under	Under Over; good Under Under	Average Under Under .....	..... ..... Under Under	Average; good Over Average; very good Over	Average; good Over Average; very good Average	Under Under Average Average	S. T. Wright, R.H.S. Gardens, Wisley, Ripley. Geo. Kent, Norbury Park Gardens, Dorking. James Watt, Myntburst Gardens, Reigate. James Lock, Outlands Lodge Gardens, Weybridge. Thos. Smith, Coombe Court Gardens, Kingston Hill.
SUSSEX	Under; good Average Under; good Under; good Under	Under; bad Under Under; good Under Under	Under; good Average Average; good Under; good Under; good	Average; good Average; good Average; good Average	Under; bad Under; good Under; good .....	..... ..... ..... Under	Average; good Over; good Average; good Over; very good	Average; good Average; good Average; good Average; good Over; very good	Under Under Under Under	J. Muddell, Sedgwick Park Gardens, Horsham. A. Wilson, Fridge Castle Gardens, Tunbridge Wells. William E. Bear, Magham Town, Haslemere. W. H. Smith, West Dean Park Gardens, Chichester. W. Goaring, Education Depot, near, County Hall, Lewes. W. J. Langridge, Ote Hall Gardens, Burgess Hill.
WILTSHIRE	Under; good Average; good Under; good	Average; very good Average; good Under; good	Under; good Under; good Under; good	Average; very good Under; good Average; good	Under; good Average; good Over; very good Under	Average; bad Average; bad Under	Over; good Over; very good Over; very good Average	Average; good Average; good Over; very good Average	..... ..... Average; good Under	J. Knight, Bowood Gardens, Calne. Thomas Challis, Wilton House Gardens, Salisbury. W. C. Redfern, Compton Bassett Gardens, Calne. Thomas Sharp, Westbury.
7. England. N.W.										
CUMBERLAND.....	Under	Average	Average	Under	.....	.....	Over	Average	.....	Andrew Watt, Naworth Castle, Carlisle.
LANCASHIRE	Average Average Average; good Average; good	Average Under; bad Average Average; very good Under	Under; bad Under Under; bad Under	Average Average Over; very good Under	..... Average; good ..... ..... .....	..... ..... ..... ..... ..... .....	Over; very good Average Very good Average; very good Over; very good	Average Average; very good Average; very good Over; good	..... ..... ..... ..... ..... .....	Joseph Harris, Gawthorpe Hall Gardens, Burnley. Joseph Stoney, Roseleigh Gardens, Wootton, Liverpool. C. H. Cook, Knowsley Hall Gardens, Preston. A. J. Sowman, County Council Offices, Preston.
WESTMORELAND	Under; good Average	Under Under	Under Under	Under Average	..... Under	..... .....	Average; good Average; good	Average; good Average	..... .....	W. A. Miller, Funderley Hall Gardens, Kirkby Lonsdale. W. Canton, Helme Lodge Gardens, Kendal.
8. England. S.W.										
CORNWALL	Under Under Under	Under Under	Under Under	Average Average Under	Under Under; bad Average	..... ..... .....	Over; good Over; very good Over; good	Average Average; good Over; good	..... ..... .....	W. Andrews, Tregothnan Gardens, Truro. F. J. Clark, Tychilly Park Gardens, Camborne. J. Spilsbury, Clowance Gardens, Praze.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
8. England, S.W.										
DEVONSHIRE	Average ; good Under ; good Average ; Under ; good Under ; good	Average ; good Under ; bad Under Under ; good Under ; bad	Average ; bad Under ; bad Average Average ; good Under ; bad	Over ; good Average ; good Under Average ; good Under ; bad	Over ; good Average ; good Under Under ; good Under ; bad	Under ; bad Under Under ; good Under ; good	Over ; very good Average ; good Over Average ; very good Over ; very good	Over ; very good Under ; bad Average ; good Average ; very good Over ; very good	Average ; good Under Average ; good	E. E. Bristolow, Castle Hill Gardens, Filleigh, South Molton. T. H. Bolton, Powderham Castle Gardens, Exeter. Robert Verib & Son, Royal Nurseries, Exeter. W. Lock, Eastcliffe Gardens, Teignmouth. E. H. High, Bicton Gardens, East Budleigh, Salterton.
GLOUCESTERSHIRE	Under Under Under ; good Under Under Under Average ; good	Under Under Under Under Under Under Under	Under Average ; good Under Under Average Average	Under Average ; good Under Under Average Average	Under Under Average ; good Under Average ; good Average ; good	Under Under Under Under ; bad	Average ; good Average Average ; very good Average ; very good Average ; good Average ; good Over ; very good	Average ; good Average Average ; very good Average ; good Average Average ; good Average	Average Under Under	John Banting, Tortworth Gardens, Filleild. Wm. J. Jefferies, Cirencester. G. H. Hollingworth, County Education Office F. C. Walton, Stanley Park Gardens, Stroud. A. Chajman, Westonbirt Gardens, Tetbury. W. H. Berry, Highnam Court Gardens. William Keep, The Gardens, Bowden Hall. J. Gardner, Batsford Park Gardens, Moreton-in-Marsh.
HEREFORDSHIRE	Average ; good Over ; good Under ; good Under	Under ; very good Average ; good Under ; good Under	Average ; very good Average ; good Over	Average ; good Average ; good	Average ; very good Under ; good Under	..... ..... Under ; good Under	Over ; good Over ; good Average ; good Average ; good	Average ; good Under Average ; good Average	Under Average Under	A. Buckingham, Stanage Park Gardens, Brampton Brian. T. Spencer, Goodrich Court Gardens, Ross. G. Mullins, Eastnor Castle Gardens, Ledbury. H. E. Durham, Herefordshire Association of Fruitgrowers, Eign Hill.
MONMOUTHSHIRE	Average Under ; good	Under Average ; very good	Average Under ; bad	Average Under ; good	Under Under ; bad	Under Under ; bad	Average Over ; very good	Average Over ; very good	Under Under ; bad	Thos. Coomber, The Hendre Gardens. W. H. Beale, Llanwern Park Gardens, Newport.
SOMERSETSHIRE	Under ; very good Under Average ; good	Under ; very good Under Average ; good	Under ; very good Average ; good	Average ; good Under Under	Under ; very good Under Under	Under ; good Under Under	Average ; very good Over Average ; very good Average ; very good	Average ; good Over Average ; good Average ; very good	Under Very good Under ; bad	George Shawley, Halswell Park Gardens, Bridgwater. J. T. Rushton, Barons Down Gardens, Dulverton. E. A. Hussey, Leigh House Gardens, near Chard.
WORCESTERSHIRE	Under ; bad Under ; bad Under Under ; good Under Under ; good	Under ; bad Under ; bad Under Under ; good Under Under ; good	Over ; good Under ; good Over Under ; good Under Under ; good	Average ; good Over ; good Average Under ; good Average Under ; good	Under ; bad Average ; good Under ; good Under ; good	Under ; bad Under Under Under	Over ; good Over ; very good Average Average ; good Average Over ; very good	Average ; good Average ; good Under ; very good Average ; good Under Average ; very good	Under ; bad Over ; good Under Under	The Gardener, Witley Court. W. Crump, Madresfield Court Gardens, Malvern. Ernest Avery, Finstall Park Gardens, Bromsgrove. James Dale, Ombersley Road, Droitwich. C. A. Bayford, Davenham Gardens, Malvern. T. Watkins, The Grange Gardens, Chines.
WALES :										
CARDIGANSHIRE	Over ; very good Over ; very good	Over ; very good Average ; good	Average ; good Over ; good	Average ; good Under ; good	..... .....	..... .....	Over ; very good Over ; very good	Average ; good Average ; good	..... .....	Thomas Hazeldine, Crosswood Park Gardens, Aberystwyth. W. Phillips, Derry Ormond Park Gardens, Llangybi.
CARNARVONSHIRE	Average ; good	Under ; good	Average ; good	Average ; good	Average ; good	.....	Over ; very good	Over ; good	.....	J. S. Higgins, Glynllivon Park Gardens, Carnarvon.
DENBIGHSHIRE	Average ; good Over	Average Under	Under Under	Average Average	Under Under	Under Under	Average Over ; good	Under ; bad Average ; bad	Average Average	J. A. Jones, Chirk Castle Gardens, Ruabon. J. Martin, Bryn Estyn Gardens, Wrexham.
GLAMORGANSHIRE	Under	Under	Under	Average ; good	Under	.....	Average ; good	Under	Under	C. T. Warmington, Penlleagaer Gardens, Swansea.
MONTGOMERYSHIRE	Under ; bad	Average ; good	Under ; bad	Average ; good	.....	.....	Average ; very good	Under ; bad	.....	A. Gribble, Plas Machynlleth Gardens, Machynlleth.
PEMBROKESHIRE	Under ; good Over ; very good	Average ; good Average ; good	Under Over ; very good	Average ; good Under ; bad	Average ; very good Average ; good	..... Under ; bad	Over ; good Over ; very good	Under ; good Average ; good	..... Average ; good	F. H. Roberts, Slebeck Park Gardens, Haverfordwest. W. A. Baldwin, Glynflew Gardens, Boncath, S.O.
RADNORSHIRE	Under	Under	Average	Average	Under	Under	Average	Average	Under	J. MacCormack, Maesllwch Gardens, Glasbury.
IRELAND :										
9. Ireland, N.										
ARMAGH	Under ; good	Under ; good	Over ; very good	Average ; good	Under ; good	.....	Over ; very good	Over ; very good	.....	William H. Hall, Tandragee Castle Gardens.
CAVAN	Under ; good Average	Under ; good Average	Under Average	Under Under ; bad	Average Average ; good	..... Average ; good	Average ; good Over ; very good	Over ; good Over ; very good	..... Average	Thomas Shiels, Lanesborough Gardens, Belturbet. J. McCann, Arley, Mt. Ngent, Co. Cavan.
DOWNS	Average ; good	Average ; good	Average ; good	Under ; bad	.....	.....	Average ; very good	Average ; very good	.....	T. W. Bolas, Mount Stewart Gardens, Newtownards.
FERMANAGH	Under	Under ; good	Average ; good	Average ; good	Average ; good	.....	Over ; good	Under ; good	Average	J. Moncrieff, Florence Court Gardens, Enniskillen.
KERRY	Average ; good	Under ; good	Under ; bad	Over ; good	Under ; bad	.....	Average ; good	Average ; bad	.....	Charles Bennett, Muckross Abbey Gardens, Killarney.
LEITRIM	Average ; very good	Under ; bad	Average ; good	Under ; good	.....	.....	Over ; very good	Average ; very good	.....	Duncan McGregor, Derrycane Gardens, Promod.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
9. Ireland, N.										
MAYO	Under	Under	Over; very good	Under	Average	.....	Over; very good	Over; very good	.....	Richard Joyce, Westport
MEATH	Under	Under	Under	Under; bad	Under	Under	Average	Average	.....	Bennesse Gardens, Westport.
MONAGHAN	Under; good	Average	Under	Over; very good	Average	Under	Over; very good	Over; very good	Average; good	Michael McKeown, Juliastown, Drogheda.
TYRONE	Under; good	Under; good	Average; good	Under	.....	.....	Average; good	Under	.....	J. B. Pow, Dunsany Castle Gardens.
WESTMEATH	Average; good	Average	Average	Under	.....	.....	Average	Average	.....	J. Hepburn, Dartrey Castle Gardens.
WESTMEATH	Average; good	Under; good	Over; very good	Under; bad	Under; good	Under; bad	Average; very good	Under; good	.....	Fred. W. Walker, Sion House Gardens, Sion Mills.
10. Ireland, S.										
CARLOW	Under	Under	Average	Under	Average; good	Under; bad	Over; very good	Under	.....	Wm. Allen, Pakenham Hall, Castlepollard.
CORK	Under; good	Under; good	Under; good	.....	.....	.....	Average; good	Average; good	.....	William M. Foulds, Lisnavagh Gardens, Rathvilly.
KILDARE	Under	Under	Under	Under	.....	.....	Average	Average	.....	I. Dearnaby, 17, St. Patrick Terrace, Magazine Road, Cork.
KILDARE	Average	Average	Over	Under	.....	.....	Over; good	Over; good	.....	Maurice Colbert, Aghern Gardens, Conna.
KILDARE	Under	Under	Under	Under	Under	Under	Over	Over	Under	Pat Sheehan, Glenville Manor Gardens, Fermoy.
KILDARE	Under	Average; good	Average	Average	Under	Under	Over; good	Over; good	.....	Alex. Black, Carton Park Gardens, Maynooth.
KILKENNY	Average; very good	Under; bad	Under; bad	Under; good	Under; good	Under; good	Over; very good	Average; good	Under; bad	F. Streetor, Straffan House Gardens, Straffan.
KING'S CO.	Under; good	Under; good	Under; good	Under; bad	Under; good	Under; bad	Average; very good	Average; very good	Under; bad	T. E. Traudie, Bussborough Park Gardens, Piltown.
LIMERICK	Average; good	Under; bad	Average; good	Under; bad	.....	.....	Over; very good	Average; good	.....	E. Clarke, Clarendmont, Garry Castle, Banagher.
LONGFORD	Over; very good	Under; bad	Average; very good	Under; bad	Under; bad	.....	Over; very good	Average; very good	.....	Harry Nixon, Rockbaron Gardens, Kilmallock.
QUEENS COUNTY	Under; good	Under; good	Under; good	Average	Under	.....	Over; very good	Over; very good	.....	J. A. Boyle, Castle Forbes Gardens, Newtown Forbes.
ROSCOMMON	Average	Average	Average; good	Average	Average	.....	Over; very good	Average	Under	G. McGlashan, Abbey Lety House Gardens.
WATERFORD	Under	Under	Over; good	Under	Under; bad	Under; bad	Average; good	Average	Under	Terence Rogers, Frenchpark House Gardens.
WICKLOW	Average; good	Average; good	Under; bad	Average; good	Under; bad	Under; bad	Over; good	Over; very good	Under	H. Crombie, Curraghmore Gardens, Portlaw.
CHANNEL ISLANDS:										
GUERNSEY	Under; good	Under; good	Under	Under	Under	.....	Average; good	Under	.....	Walker Bailey, Glenmut Castle Gardens, Arkwright
JERSEY	Average; good	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Under; good	Average; good	.....	C. Smith & Son, Calveolia Nursery, Guernsey.
ISLE OF MAN:										
DOUGLAS	Under	Under	Under	Average	.....	.....	Average	Average	.....	T. Sherman, Imperial Nursery, St. Marks Road, St. Heliers.
DOUGLAS	Under	Under	Under	Average	.....	.....	Average	Average	.....	James Inglis, Brunswick Road Nursery.

SUMMARIES OF THE HARDY FRUIT CROPS.

Records	SCOTLAND.									IRELAND.									
	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Straw-berr.	Nuts.	Records	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Straw-berr.	Nuts.
Number of Records ...	(55)	(53)	(59)	(52)	(24)	(22)	(55)	(55)	(-)	Number of Records ...	(27)	(27)	(27)	(25)	(19)	(11)	(27)	(27)	(-)
Average ...	19	11	20	37	9	5	23	26	4	Average ...	11	8	11	6	7	1	11	12	3
Over ...	0	0	6	3	5	1	29	23	0	Over ...	1	0	5	2	0	0	16	10	0
Under ...	33	42	27	23	10	16	3	6	4	Under ...	15	19	11	17	12	10	0	5	5
ENGLAND.										CHANNEL ISLANDS.									
Number of Records ...	(28)	(207)	(56)	(15)	(150)	(140)	(28)	(200)	(124)	Number of Records ...	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(2)	—
Average ...	51	31	78	11	47	10	8	125	30	Average ...	1	—	—	—	—	—	1	1	—
Over ...	5	0	34	17	9	0	121	13	3	Over ...	—	—	—	—	—	—	—	—	—
Under ...	152	176	96	13	140	130	1	15	91	Under ...	1	2	2	2	2	1	1	1	—
WALES.										ISLE OF MAN.									
Number of Records ...	(11)	(1)	(11)	(11)	(-)	(5)	(11)	(11)	(5)	Number of Records ...	(1)	(1)	(1)	(1)	—	—	(1)	(1)	—
Average ...	3	5	4	9	4	0	5	6	3	Average ...	—	—	—	1	—	—	1	1	—
Over ...	4	1	2	0	0	0	6	1	0	Over ...	—	—	—	—	—	—	—	—	—
Under ...	4	5	5	2	4	5	0	4	2	Under ...	1	1	1	—	—	—	—	—	—

GRAND SUMMARY, 1916.

SUMMARY OF 1915 FOR COMPARISON.

Number of Records ...	(304)	(301)	(300)	(286)	(269)	(179)	(304)	(302)	(145)	Number of Records ...	(326)	(323)	(323)	(309)	(223)	(292)	(325)	(323)	(158)
Average ...	85	55	111	158	67	16	127	171	40	Average ...	176	161	194	152	124	55	171	147	89
Over ...	10	1	47	21	14	1	172	97	3	Over ...	99	40	41	104	33	14	117	62	19
Under ...	209	245	142	107	128	162	5	34	102	Under ...	31	122	178	33	61	133	37	114	50



FIG. 24.—*LOMATIA FERRUGINEA* AT CASTLEWELLAN, CO. DOWN.
This species gained R.H.S. Award of Merit on August 1, 1916. (See p. 68.)

He rejoined the Army in May, 1915, enlisting in the Queen's Royal West Surrey Regiment.

— The Countess of SELKIRK is organising a series of fêtes in Kirkcudbrightshire in aid of the War Horticultural Relief Fund. One will be held at Broomlands, Maxwelltown, on September 14. In Dumfriesshire Lady BUCHANAN-JARDINE of Castlemilk, Lockerbie, is receiving subscriptions, and already a good response has been made to a public appeal Lady JARDINE has issued.

VISIT TO MESSRS. DOBBIE AND CO.'S NURSERIES.—On the invitation of Messrs. DOBBIE AND Co. about forty members of the Glasgow and West of Scotland Horticultural Society, with a number of representatives of the two Edinburgh horticultural societies, paid a visit to the Edinburgh nurseries on the 29th ult. The weather was excellent, and the visit was thoroughly enjoyed, the collections of Roses, Dahlias, Sweet Peas, and many other florists' flowers being seen in the best of condition. The party was entertained to tea in the large office building, where Mrs. FIFE and a number of young ladies ministered to their needs in the absence of the president and secretary of the Western society. Mr. FIFE, who conducted the party over the nurseries, responding to a vote of thanks, expressed regret that Mr. CURTHERBERTSON was unable to be present owing to indisposition, whilst Mr. BURNIE had been called away on urgent business. It was interesting to note the presence in the company of the three veteran horticulturists, Messrs. ALEX. MACKENZIE (late of Warriston), M. TODD and JAMES FORBES (late of Overtoun), whose combined ages amounted to about 235 years.

THE DUTCH BULB TRADE IN 1915.—The *American Florist* gives details of the Dutch trade in flowering bulbs during 1915, the records being from those published by the General Society of Flower-bulb Culture, Haarlem. Consignment by parcels post are not included in the totals. The figures are given in kilos. (one kilo, equals 2.2046 lbs.) :—

Country.	1913. Kilos.	1914. Kilos.	1915. Kilos.
Exports to—			
United States and Canada..	5,413,900	7,649,000	8,100,800
British Isles	10,192,500	7,646,200	8,037,500
Germany and Austria-Hungary	5,204,900	5,266,700	5,372,800
Scandinavia and Denmark ..	2,611,600	3,706,700	3,806,200
France, Belgium, Italy, Spain, Portugal, Greece, Turkey..	1,608,000	462,300	540,000
Russia	841,600	90,300	572,300
Other countries	288,400	72,700	65,900
Total	24,960,900	24,893,900	26,415,500

Although the total for 1915 is so large the society states that scarcely enough was realised on the bulbs in 1915 to cover the cost of production, and this result was accentuated by unfavourable exchange rates with foreign countries.

GARDENER'S LONG SERVICE.—Mr. ANDREW M'CLOUNIE, gardener, Burnhead, Thornhill, Dumfriesshire, has been awarded the Russell Prize for the oldest working man in regular employment in the district of the Nithsdale Agricultural Society. Mr. M'CLOUNIE is 76 years of age.

EXPORT OF VEGETABLES FROM HOLLAND.—In order to meet the difficulties arising out of the unusually large sales of vegetables for abroad, the Dutch Ministry of Agriculture has decided not to allow any exports of this nature except under special licence. Such licences are only issued for vegetables offered in the auction markets and on the condition that a certain quantity will be sold for use in the country. The latter is determined every week, and is for most of the kinds 50 per cent. of the quantities brought to the market. In the case of Potatoes it has been 30 to 50 per cent., for Cabbages 10 per cent. It is argued amongst the growers that the percentages kept

for home consumption are unduly high. At the same time limit prices are established for the retail trade.

THE FRUIT CROPS IN BELGIUM.—According to information of German origin the prospects for the fruit crop in Belgium are as follows :—

district of Visé-Mouland-Eysden the returns were very poor for the Cherry growers. In Limburg, where the acreage under fruit trees is estimated at about 20,000 acres, only one-fifth of a normal crop is expected. It is a disappointment for those who hoped to find employment during the



FIG. 25.—DISA BLACKII LANGLEY VARIETY: DORSAL SEPAL WHITE WITH PURPLE SPOTS, LATERAL SEPALS PURPLISH ROSE-RED. [Photograph by C. W. Cole]

Apples, half crop; Pears, bad crop; Cherries, good; Plums, good; Greengages, bad; Apricots and Peaches, average; Currants, Gooseberries and Raspberries, good. It appears, however, that rains have caused much damage, especially to the Plums and Cherry orchards, and in the

picking season for the unemployed, whose number is estimated at 17,000 for this agricultural district alone.

BIRMINGHAM PARK MEN VISIT READING.—On the 27th ult. thirty members of the staff of the Parks Department of the Birmingham Cor-

poration, accompanied by the chief officer, Mr. W. MORTER, visited Reading at the invitation of Messrs. SUTTON AND SONS. They were taken over the various stores and offices of the firm, and afterwards entertained at luncheon, when Mr. MARTIN H. F. SUTTON, F.C.S., presided. After lunch motor-cars were provided, and the party was taken to the firm's trial grounds at Slough, where, under the guidance of various members of the firm, the many seed trials were pointed out and explained, after which the visitors were motored back to Reading to tea. At the completion of a most enjoyable and instructive day the party returned to Birmingham.

U.S.A. IMPORTS OF NURSERY STOCK.—Figures taken from the records of the Federal Horticultural Board, U.S.A., were quoted by the President at the recent convention of the American Association of Nurserymen, to show the large amount of nursery stock imported into the United States. The period is for the year ending June 30, 1915. The items were as follows:—Fruit trees, 3,821,547; fruit tree stocks, 21,645,672; Roses, 3,516,568; Posa stocks, 5,808,814; forest and ornamental deciduous trees, 1,287,274; ornamental deciduous shrubs, 3,612,884; evergreens, 1,732,716; field-grown florists' stock, 1,958,587; Grape vines and bush fruits, 242,200; stocks cuttings or seedlings, 9,184,840; total, 48,989,555.

TRIAL OF WINTER-FRUITING TOMATOS.—The Royal Horticultural Society will conduct a trial of winter-fruited Tomatos at Wisley during the ensuing season.

CONFERENCE ON BULB CULTIVATION IN BRITAIN.—On Tuesday last many of the leading horticultural traders attended a conference arranged by the Royal Horticultural Society in place of the customary lecture. Sir ALBERT K. ROLLIE presided, and the speakers included Mr. ARTHUR W. SUTTON, Mr. P. RUDOLPH BARR, Mr. W. CUTHBERTSON, Rev. W. WILKS, Mr. ALFRED WHITE, Mr. DUNCAN PEARSON, Rev. J. JACOB, Mr. G. W. LEAR, Mr. G. MONRO, JUN., and Mr. W. H. PAGE. The energetic action of the Society in holding the unique show of British-grown bulbs was warmly endorsed. We must postpone our report of the proceedings until next week.

AGRICULTURAL RELIEF OF ALLIES FUND. The first annual meeting of the General Committee of the Agricultural Relief of Allies Fund was held on Tuesday last at 16, Bedford Square. In moving the adoption of the report the Duke of PORTLAND said that the Fund was gradually assuming the character of an Empire movement. For some time past the committee had recognised that it would not be wise to rely only upon individual subscriptions and small collections. The best way of securing adequate financial support was by the organisation of gift sales in farming centres. So far, about one hundred such sales had been held, either wholly for the Fund, or in conjunction with the organisations of local and other funds. These sales had brought in over £52,000 out of a total sum approaching £90,000 from all sources. He mentioned that the Smithfield Gift Sale still held the record in respect of the amount raised for the Fund by such means, nearly £5,000 having been realised on that occasion. Mr. C. ADEANE (honorary treasurer) said that the approximate record of cash subscriptions and promises was £82,449, of which £62,642 had actually been received. The interest received from the invested fund should be sufficient to cover all organisation expenses, so that every penny subscribed might go to relief. In point of fact, the organisation expenses were only 1½ per cent., while the invested fund of £57,000 yielded 6 per cent. The farmers of this country had undertaken a big thing, and to do it well a much larger sum would be required.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

COLOUR STANDARDISATION (see pp. 32, 44).—A difficult problem confronts our advisers in colour standardisation in devising a method of representing typical colours—the heads of colour families—by concise symbols. The Ridgway symbols look promising when we see that O-R means a mixture of Orange and Red, and that O-O-R implies a greater percentage of Orange than Red. But when we find that the letter placed last implies thereby a higher value of the colour it symbolises, we realise with dismay that the Ridgway system of symbols, of what ought to be mathematical conceptions, is based upon the grammatical position of an adjective; and, worse still, upon our exceptional custom (a clumsy Teutonic custom) of placing an adjective before a noun instead of after it. Thus the Ridgway R-O is "Reddish-Orange," and means to imply a greater strength of orange than in O-R. A letter when doubled should imply a greater relative value than that of the single letter associated with it. But even this is not kept to; for B-B-G (Plate VII.) is the symbol of a Green which has only 25 per cent. of Blue (see Table of Percentages, page 21); so that an additional B is here intended to suggest only more blueness than in the preceding B-G, which has but 15 per cent. of Blue. If no better suggestion is forthcoming, I would venture to urge the following plan:

RO	should stand for a Red in which Orange is 50% or not less than 45%
OR	.. .. an Orange in which Red is 60% to 45%
OR ₁₀	.. .. an Orange .. Red is 45% to 35%
OR ₂₀	.. .. an Orange .. Red is 35% to 25%
OR ₃₀	.. .. an Orange .. Red is 25% to 15%
OR ₄₀	.. .. an Orange .. Red is 15% to 5%

Or these percentages might be almost as clearly and more compactly expressed in tenths—thus OR₁₀, OR₂₀, OR₃₀, OR₄₀. Such a system would be less cumbersome than that of three letters, two of which are joined by a hyphen, and would appeal to the eye better than the hyphenated word, which depends on a certain accentuation. "Things seen are mightier than things heard," and this is, above all, true in systematising a visual art to which things oral are foreign. A colour classification table, to include symbols or names of each of the 159 series shown in the vertical columns would be valuable; and, page-numbers being added, would be of great use as an index. Such a classification is, unfortunately, not among the good things that Dr. Ridgway has given us. We have to make a classification for ourselves, for to be without one is to be behind the botanist Lindley, and others, of seventy years ago. *D. F. Kerr.*

LILIU MIGANTEUM YUNNANENSE.—I am far from disputing the view taken by Mr. Elwes that this Lily is no more than a variety of *L. giganteum*, but as a garden plant it is very distinct and valuable. Last autumn I received from Messrs. C. Smith, of the Caledonia Nursery, Guernsey, a gift of two bulbs, with their request that I would grow them and compare the plants with the typical *L. giganteum*. One of these bulbs flowered well last month, and the chief points of difference are as follows:—Radial leaves are few and small as compared with the splendid cushion of large foliage whence the flowering stem of *L. giganteum* ascends. The stem leaves are deeply stained with bronze, and the stem itself was very dark, approaching black towards the top. In *L. giganteum* the upper part of the stem is sometimes, but rarely, tinged with a dark hue, the leaves never. The stem of my plant is only 3 feet 5 inches high, against stems of *L. giganteum* in the same garden, 8, 9, and 10 feet; but this may be owing to transplanting in autumn. I was not at home when the first flower opened; they were all out when I returned, so I cannot speak as to the centrifugal habit; but this I did note, that *L. giganteum* was a week or ten days later to flower, and, having examined about thirty flowering stems of that species, I could not find one that was centripetal. In every instance the opening began in the centre of the spike, the lowest bud being always the last to open. Were these the only points of difference I should consider the Yunnan

variety much inferior to the type as a garden plant, but its importance as such consists in the quality of the blossoms. These are of clear, shining white, with none of the greenish tinge that dims the radiance of newly opened flowers of *L. giganteum*. The crimson streaks on the interior are much narrower than those in the Himalayan Lily. Moreover, the flowers when fully expanded are carried horizontally, greatly adding to their grace. This characteristic does not come out clearly in the excellent illustration on page 50, because the photograph was taken before most of the flowers had opened. The only fault one has to find with *L. giganteum* is that the flowers droop too steeply, leaving an awkward apex to the spike. *Herbert Maxwell, Monreith.*

— In his "Notes from a Cotswold Garden" on p. 49, Mr. Elwes, in referring to the synonymy of *L. mirabile* and *L. giganteum*, quotes me as having told him that the stems of Chinese plants of the latter species are blackish, and to avoid any possibility of confusion I shall be glad if you will allow me to explain that this does not refer to the Chinese varieties of this Lily in general but to a Yunnanese form distributed by the late Max Leichtlin when he broke up his collection. It must not be supposed that the stems of all forms of *L. giganteum* found in Western China are dark-coloured, for that is far from being the case, indeed, that close observer, Mr. Forrest, tells me that he does not remember having specially noticed any number of dark-stemmed forms. The fact that in this country *L. giganteum* (of Indian origin) is not strictly centripetal in its flowering has long been observed, but it will be found that in normal seasons the majority of plants open their lower flowers first. *A. Grove.*

THE LATE MR. N. N. SHERWOOD.—In common with thousands of others throughout the horticultural world I have read with sincere regret and a deep sense of the loss that horticulture and horticulturists have sustained in the passing of Mr. N. N. Sherwood. The loss of his genial presence from the various meetings will be long felt and mourned by all, while gardening charities have lost in him a never-failing friend. If "the good of every good deed lives on and acts through all the ages," what a consolation is there here for his friends, and what an incentive for those who will long treasure his memory to rally to the support of those charitable institutions that ever had his best thought and benevolent support? *T. F. Barnes, Eaton Gardens, Chester.*

ROSES AT CASTLECOMER.—During my 32 years' experience, I have never seen such a magnificent display of Roses as we have here at present, the healthiness of the trees, the size, colour and quantity of bloom being absolutely superb. I enclose two photographs, one showing a bed of Lady Ashdown, and a view of part of the Rose garden. The former has only been two years planted. The beds had no special attention beyond receiving a mulching last winter with stable manure. *Henry Henderson, Castlecomer Gardens, Co. Kilkenny.*

POTATO-PLANTING FOR CHRISTMAS USE.—There should now be no delay in planting Potatos (last year's seed tubers) for use at Christmas time. There is nothing special in the planting, but the following hints may serve some useful purpose:—Plant the tubers where there is least exposure to north and east winds, even between fruit trees and flowers, if no other ground is available, and immediately there is any indication of frost in the air fill the drills with good stable manure or straw, or bed the same round the plant for at least 20 inches, for protecting the roots from getting frostbitten. The crop should not be disturbed until two or three days before Christmas, and only as many plants lifted as are required for immediate use. Care should be taken to replace the manure, as the Potatos will continue to mature well into the coming year. The skin of the Christmas Potato will be found more tough than the usual early Potato, but it is readily removed with a clean, hard brush. For home culinary purposes no venture could be more interesting and useful, but commercially the risk and labour is quite beyond the value of the land for other cropping purposes. *Joseph R. Holmes.*

SOCIETIES.

ROYAL HORTICULTURAL

AUGUST 1.—An exhibition of home-grown, dry bulbs was held in connection with the fortnightly meeting on Tuesday last in the Vincent

The Floral Committee recommended five Awards of Merit to plants, and awarded sixteen medals to groups.

The Fruit and Vegetable Committee recommended two Awards of Merit, to a seedling Plum and a variety of Red Currant respectively, and awarded two medals to exhibits of Gooseberries.

Jackman, George Paul, E. H. Jenkins, R. C. Notcutt, Sydney Morris and R. Hooper Pearson.

AWARDS OF MERIT.

Gladiolus Wraith.—A hybrid of *G. primulinus* from which is derived a hooded posterior segment and a partially arched inflorescence. The flower is delicately veined or netted with orange-



FIG. 26.—*LOMATIA FERRUGINEA*: FLOWERS BROWNISH-RED.

A Side and apex of flower, showing the four sepals x 4. B, Longitudinal section, showing separating sepal x 4. C, Stamen x 4. D, Ovary, style and basal glands, with top of stigma above x 4. E, Pollen x 400. (R.H.S. Award of Merit, August 1, 1916. See p. 68.)

Square Hall, Westminster, and the question of "bulb cultivation in Britain" formed the subject of a conference (see p. 66) of traders and others which took place in the afternoon. Sir Albert K. Rollit presided.

The Orchid Committee recommended two Awards of Merit to novelties, and awarded one Medal to a collection.

Floral Committee.

Present: Mr. H. B. May (chairman), and Messrs. J. W. Barr, G. Harrow, G. Reuthe, John Green, J. W. Moorman, C. R. Fielder, J. F. McLeod, Jno. Heal, W. Howe, W. H. Page, C. Dixon, H. J. Jones, H. Cowley, C. E. Shea, C. E. Pearson, W. Cuthbertson, W. P. Thompson, W. G. Baker, W. J. Bean, A. G.

red on a pale yellow ground; the anterior petal is clear, soft yellow.

G. Phyllis Kelway.—A beautiful self coloured variety of a shade of chrome yellow, also derived from *G. primulinus*. The young flowers show a distinct hood, but this character disappears in the older flowers. Both these Gladioli were shown by Messrs. KELWAY AND SON.

Astilbe Gloria.—This fine "Spiraea" has large plumes of soft, rose-pink coloured flowers, with cream-coloured calices and pale stalks. Shown by Mr. W. MILLER.

Delphinium Mrs. H. Kaye.—This variety has tall, graceful spikes of about 30 blooms, which are not so crowded as in some varieties, for the individual stalks are 4-6 inches long. The large flowers have outer petals of cobalt-blue, the inner ones being purplish-blue. The two filamentous processes in the centre are almost black. Shown by Messrs. W. WELLS, JUNR.

Lomatia ferruginea.—Although this Chilean Proteaceous shrub was introduced to this country as long ago as 1851 it is not often met with in gardens; indeed, its cultivation as a greenhouse shrub was more common some twenty or thirty years ago than now. In favoured districts the plant succeeds in the open, and in fig. 24 is reproduced a fine specimen growing in Castlewellan Gardens, Co. Down. The illustration in fig. 26 shows the handsome Fern-like foliage, which is dark green, and the unopened flowers, which have four dark red petals that carry golden anthers at the apex. Shown by DONARD NURSERY CO., Co. Down, under its Continental name, *L. pinnatifolia*.

GROUPS.

The following medals were awarded to collections:—

Silver-gilt Flora Medals to Messrs. H. J. JONES, LTD., Ithier Green, Lewisham, for a collection of border Phloxes, similar to their Gold Medal exhibit at the last meeting; Messrs. W. KELWAY AND SON, Langport, for varieties of Gladioli. This excellent exhibit occupied two large tables, and comprised splendid spikes of these showy flowers, of which the varieties James William Kelway, crimson, with scarlet sheen at the base; Capt. W. L. Reeves, rosy-scarlet; Painted Lady, white, with large chestnut-red blotches at the mouth; Fireflash, orange-scarlet; Miss Ada Reeve, white, stained with mauve; and Earl Compton, pink, with a yellow lip, are a selection; and Messrs. PIPERS, Bayswater, for Sweet Peas.

Silver-gilt Banksian Medal to Mr. ROBERT BOLTON, Carnforth, for Sweet Peas, including his novelties Victory, of lavender shade, and Surprise, very pale salmon-pink.

Silver Flora Medals to Messrs. H. B. MAY AND SONS, Edmonton, for 112 varieties of *Scolopendrium vulgare*; Mr. AMOS PERBY, Enfield, for hardy flowers; and Mr. JAMES BOX, Lindfield, for hardy flowers.

Silver Banksian Medals to Mr. ELISHA HICKS, Twyford, for Roses, including his new varieties Queen Mary, Joanna Bridge, Queen of the Belgians, and C. E. Shea; Mr. W. MILLER, Wisbech, for hardy plants; Messrs. PEED AND SON, West Norwood, for a table of tuberous-rooted Begonias and a floor group of Roupell's variety of *Campanula isophylla*; Messrs. R. WALLACE AND CO., Colchester, for hardy plants, principally of *Astilbes*, *Phloxes*, and *Irises*; and Mr. L. R. RUSSELL, Richmond, for pot plants of ornamental trees and shrubs.

Bronze Flora Medals to Messrs. BAKERS, LTD., Wolverhampton, for hardy flowers; Messrs. T. B. GROVE AND SONS, Sutton Coldfield, for *Campanulas* in pots; THE DONARD NURSERY CO., Co. Down, for varieties of *Dierama pulcherimum*, a fine bush of *Desfontainia spinosa* in flower, and *Lomatia ferruginea*; and Rev. J. H. PEMBERTON, Havering-atte-Bower, Romford, for seedling Roses.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, R. Broonan White, S. W. Flory, A. Dye, Chas. H. Curtis, W. H. Hatcher, J. Cypher, J. Charlesworth, Pantia Palfi, Walter Cobb, E. R. Ashton, T. Armstrong, R. A. Rolfe, and C. J. Lucas.

AWARDS OF MERIT.

Laelio-Cattleya General Leitchsky (*callistoglossa* × *blechlyensis*), from Messrs. CHARLES WORTH AND CO., Haywards Heath. A good addition to the showy *Laelio-Cattleyas*, the plant being of compact growth and the flowers of good

form and rich colour. The sepals and petals are coloured bright rose and the lip is deep purple, with a narrow lilac margin. The petals have a band of purple up the middle which adds to the effect.

Laelia-Cattleya Maqueda (L.-C. Geo. Woodhams × C. Lord Rothschild), from Messrs. ARMSTRONG AND BROWN, Tunbridge Wells. A grand *Laelio-Cattleya*, and a worthy derivative of the richly-coloured L.-C. Geo. Woodhams, of which, in the form shown, it may be said to be an improvement. C. *Dowiana aurea* twice and C. *Gaskelliana*, C. *Warsceviczii* and L. *purpurata* enter into its composition with happy results, it being one of the best almost self-coloured *Laelio-Cattleyas*. The sepals and petals are bright purplish-rose colour, with a dark line in the petals corresponding with the colour of the ruby-crimson lip.

GROUPS.

Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey (gr. Mr. Collier), showed *Laelio-Cattleya eximia* Gatton Park variety (*Cattleya Warneri* × *Laelia purpurata* Hardyana), a fine form of the showy hybrid originally raised by Messrs. Jas. Veitch and Sons, for which a First-class Certificate was awarded on June 24, 1890. The new variety has large, finely-formed flowers of a light rosy-lilac colour, with violet-purple front to the lip, which has a chrome-yellow disc.

Messrs. CHARLES WORTH AND CO., Haywards Heath, were awarded a Silver Flora Medal for a group of well-grown hybrids, the best novelties being *Laelio-Cattleya Appam* (L.-C. Scylla × C. *Dowiana aurea*), a pretty flower of a charming tint of copper-yellow with a rose shade, the lip being ruby-purple with gold lines at the base; and L.-C. General Sakhatoff (L.-C. *callistoglossa* × C. *Gaskelliana*), a very large and perfectly-formed flower, with light rose-coloured sepals and petals, the broad lip being deep rosy-mauve with a well-defined lilac margin.

Messrs. FLORY AND BLACK, Orchid Nursery, Slough, showed their new *Cattleya Nena* (*Adula* × *Dietrichiana*), flowering for the first time, and the small plant bearing a large, richly-coloured flower. As is usual with crosses into which C. *bicolor* enters, that species plays a dominating part in a majority of the seedlings. In this hybrid the species obtained strong influence through C. *Adula* (*bicolor* × *Hardyana*), and it is shown in the firm texture of the flower and the form of the lip. The sepals and petals are coloured bright rose-purple, the side lobes of the lip being of a similar tone. The margins and the front lobe are ruby-purple. *Cattleya Dietrichiana* (*Hardyana* × *superba*) can easily be traced in the flower, which is of good shape and rich colour.

Fruit and Vegetable Committee.

Present: Messrs. A. H. Pearson (vice-chairman), W. Bates, E. Beckett, W. Poupart, A. R. Allan, O. Thomas, W. J. Jefferies, E. A. Buryard, and S. T. Wright.

AWARDS OF MERIT.

Plum Early Laxton.—A small, yellowish variety, heavily flushed with red on the side next to the sun. It is a seedling from *Early Prolific* × *Fraser's Early Yellow*. The tree is a very prolific cropper, branches exhibited being laden with the small fruits, which were almost ripe. Cooked specimens showed that the seedling is a good early culinary variety.

Red Currant Laxton's Perfect.—This variety has large bunches and berries. Both exhibited by Messrs. LAXTON BROS.

GROUPS.

Mr. ALLGROVE, Langley, Slough, showed a collection of Gooseberries, for which a Silver-gilt Knightian Medal was awarded. At the back of the exhibit was a row of single, double and triple cordons, with others trained as standards and a few pyramids of Red Currants. All the plants were superbly fruited, and excellent specimens. In front were baskets of gathered berries representing 100 different varieties. Choice dessert sorts were shown in Langley Gage, Langley Beauty, Golden Gem, Warrington, Whitesmith, Ironmonger, Kepsake, Whinham's Industry, and White Champion.

Gooseberries were also shown by Mrs. SALO-

MONS, Norbury Park, Dorking, for which a Silver-gilt Banksian Medal was awarded. It was an excellent display of fine berries, representative of most of the best sorts.

Varieties of Peas from the Society's trials at Wisley were interesting, as showing the dates of maturing of the different sorts. The earliest was Sutton's Favourite, which was ready on July 8. They were arranged in their sections: dwarf races, mid-races, and tall races. It was an excellent exhibit in every respect, and was awarded a Cultural Commendation.

A Cultural Commendation was also awarded to Mr. W. T. EANES, Elstree, for fine pods of Pea Quite Content.

COMPETITIVE BULB CLASSES.

The object of holding a competition in dry bulbs was to demonstrate the excellence to which certain bulbs can be grown in Great Britain and Ireland, with a view to developing the home industry in bulb farming. For the purpose of the exhibition corms and tubers, such as *Crocuses* and *Anemones*, were considered as bulbs. There were six classes; the first two were open only to amateurs, but these brought nothing exceptional. Greater interest resulted from the three traders' classes, in which well-known bulb firms competed.

For a collection of Daffodil bulbs in not more than 20 varieties the DONARD NURSERY CO., Co. Down, won the 1st prize with the finest exhibit of all. The bulbs were of remarkable size, the varieties including Crystal, King Alfred, Mme. de Graaff, M. J. Berkeley, Mrs. H. J. Veitch, Diana, Outpost, Homespun, *Rugulosus*, White Lady, Lady M. Boscawen and Golden Spur; 2nd, Messrs. J. R. PEARSON AND SONS, Lowdham, who showed good bulbs of Emperor, Weydale Perfection, Florence Pearson, P. R. Barr, Evangelina, White Lady, Vega, and others; 3rd, Messrs. BARR AND SONS, King Street, Covent Garden; 4th, Messrs. R. H. BATH, LTD., Wisbech.

For 10 varieties of market Daffodils, to include Emperor, Empress, Sir Watkin, Victoria, Barrii conspicuous and P. ornatus, there was good competition. The 1st prize was won by Mr. GEO. MONRO, Junr., Spalding, for a collection that was very even in size and quality, the dark brown skins and solid substance indicating perfect ripeness. The varieties Emperor, Barrii conspicuous, Mme. Plemp, Mrs. Walter T. Ware, Victoria and Poeticus ornatus were well represented; 2nd, Messrs. R. H. BATH, LTD.

Mr. MONRO was also placed 1st in the class for 20 varieties of Tulips. His exhibit was arranged the best, the bulbs being attractively displayed in shallow oblong baskets on a black velvet cloth. The grading was excellent, and the skins a deep brown colour, so that they appeared the ripest, but this was because most of them were early sorts. A selection includes Bleu Cèste, Lucretia, Farncombe Sanders, Sulphur Beauty and Rose Grisdelin; 2nd, Messrs. R. H. BATH, who showed bigger bulbs, those of *Mattia* being of exceptional size. Glow, Ariadne, Fireflame, Rose of Holland and Nora Ware were also very fine; 3rd, Messrs. J. R. PEARSON AND SONS.

The class for a collection of hardy flower bulbs other than Daffodils and Tulips, in not more than 30 varieties, nor more than 30 or fewer than 20 bulbs of any one variety, proved most interesting. Diversity of genera and species was considered by the judges in awarding the prizes.

Messrs. R. WALLACE AND CO., Colchester, were awarded the 1st prize, their collection including *Camassia Leitchinii*, *Cyclamen cilicum*, *Iris bucharica*, *Fritillaria imperialis*, *Scilla campanulata*, *Lilium candidum*, *Lencojum aestivum*, *Allium Rosenbachianum*, *Colchicum Bornmulleri*, *Ixia Anemone blanda*, *Leucum*, *Ornithogolum umbellatum*, *Crocuses*, *Irises*, *Erythroniums*, *Scillas*, *Muscari*, and *Brodias*; 2nd, Messrs. SUTTON AND SONS, Reading, whose exhibit was decorated with Ferns. They had excellent bulbs of *Colchicum giganteum*, *C. speciosum*, *Fritillaria imperialis*, *Watsonia Meriana*, *Amaryllis*, *Belladonna elata*, English and Spanish *Irises*, *Lilium candidum*, *Camassia*, *Galanthus*, *Ornithogolum*, *Oxalis*, *Iris*, *Anemone*, *Allium* and *Gladiolus*; 3rd, Messrs. WATERER, SONS AND CHISP, LTD., Twyford; 4th, Messrs. R. H. BATH, LTD.

tionally fine; there should be more demand for these flowers, as they are very effective when worked in floral designs. Cattleyas and Odontoglossums are very scarce. The conditions in the plant department remain unchanged. There is no fresh subject to record, and many salverbia stands are empty. This section of the market will only be open on Tuesdays, Thursday, and Saturdays during the next few months.

Vegetables: Average Wholesale Prices.

Table listing vegetable prices such as Artichokes, Aubergines, Beetroot, Beans, Broad, Eng., Carrots, Cauliflowers, Celery, Cucumbers, Endive, English Beans, Greens, Herb, Horseradish, Leeks, Lettuce, Mushrooms, Mustard, Onions, Peas, Radishes, Spinach, Tomatoes, Turnips, Vegetable Marrows, Watercress.

Fruit: Average Wholesale Prices.

Table listing fruit prices such as Almonds, Apples, Bananas, Cherries, Cobnuts, Currants, Figs, Gooseberries, Grapes, Nuts, Oranges, Peaches, Pears, Plums, Raspberries, Strawberries, Walnuts.

Potatoes.

Table listing potato prices for Kent, Bedford, Lincoln, Queen, and Sharpe varieties.

THE WEATHER.

WEATHER IN WEST HERTS.

Week ending August 2.

The warmest, driest and sunniest week this year.— This was a very warm week, and much the warmest of the year as yet. On each day the highest reading in the thermometer-screen exceeded 77°, and on four days rose to or above 80°. As compared with the days the nights were comparatively cool, so that the range of temperature on each day was considerable, and on one day the temperature in the thermometer-screen rose to 82°, making this the hottest day of the year as yet, and on the coldest night the exposed thermometer registered 46°. The ground is at the present time 3° warmer at 1 foot deep and 2° warmer at 2 feet deep than is seasonable. It is now two months, in fact, since the end of May, when the ground at either of these depths has been above the average temperature for the time of year. No rain fell during the week, so that there has now been eleven consecutive rainless days, making this the longest period without rain that we have had this year. No rainwater at all came through either of the percolation-gauges during the week. The sun shone, on an average, for 10½ hours a day, which is 4½ hours a day longer than the mean daily duration for the time of year, and making this the sunniest week as yet recorded here in 1916. Light airs and calms alone prevailed during the week. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by 10 per cent. E. M.

GARDENING APPOINTMENTS.

- Mr. James Cluckie, for the past 9 years Gardener at Arbigland, Kirkcubrightshire, as Gardener to Mrs. SMITH, Whitechapel, Duns, Berwickshire. Mr. Carruthers, recently Gardener to Capt. N. C. R. DUNGEON, Cargenholm, Troqueur, Kirkcubrightshire, as Gardener to Mrs. BLACKETT, Arbigland. Mr. E. W. Latimer, for 4 years Gardener to Mrs. CHAGG, Wrotham Place, Kent, and previously 5 years at St. Clare, Kensing, Kent, as Gardener to Capt. JERVOISE, Herriard Park, Basingstoke, Hants. Mr. A. C. Parsons, for 5 years Gardener to Lt.-Col. AGLAND, Troyte, Hantsham Court, Bampton, Devon, as Gardener to Mrs. ABBOTT, Thong Hill, Hereford.

ANSWERS TO CORRESPONDENTS.

- APPLE TREE DISEASED: R. H. The trouble is due to white root-rot fungus. Expose the root and dress the soil with a mixture of sulphur and quicklime when filling in. It is doubtful if you can effect a complete cure, seeing that the disease has passed far up the trunk. CLOVERS: W. B. S. The red Clover is Trifolium pratense, and the white one T. pratense album. The latter is simply an albino of the former, but that would make no difference to the Clover as fodder, and both are practically identical for that purpose. White varieties also occur in fields of T. incarnatum (crimson Clover). The plant you call a Nettle is Black Horehound (Ballota nigra), belonging to the same family as the Mint and Dead Nettle, but neither of these is related to the true Nettle (Urtica dioica); the Ballota is distinctly related to White Horehound (Marrubium vulgare), and has no economic value. The other weed is Artemisia vulgaris (Mugwort), not Mudwort, a very different plant. It is aromatic, and was formerly used to flavour drinks.

CORRECTION.—See p. 49, centre column, 11 lines from foot, Père Mauberg should read Père Monberg.

GRAPES CRACKING: E. G. The berries are not affected with disease. The cracking is due to an excess of water at the roots (see article on "Fruits Under Glass," p. 64, for the management of Grapes to prevent splitting of the berries). It is impossible for you to expect success with Grapes when you attempt to grow such a varied assortment of plants in the vinery.

GRAPE MADRESFIELD COURT: A. S. The berries are affected with spot disease. Spray the bunches with liver of sulphur at a strength of ½ oz. in 2 gallons of water. This specific turns white paint black, and care must be taken to see that the spray does not wet the woodwork of the vinery. Cut out diseased berries and burn them.

NAMES OF PLANTS: Albert. 1, Cistus cypricus; 2, Geranium armenum; 3, Borago officinalis

(Borage); 4, Liliun Martagon (Martagon or Turk's Cap Lily); 5, Alstroemeria aurantiaca; 6, Alstroemeria pulchella.—W. Volter. Spartium junceum (Spanish Broom).—G. E. C. Catalpa bignonioides (Indian Bean).—J. H. 1, Elaeodendron orientale; 2, Phyllanthus atropurpureus; 3, Fittonia Verschaaffeltii; 4, Cyperus alternifolius, var. variegatus; 5, Strobilanthes Dyerianus; 6, Codiaem (Croton) variegatum var.—Amateur. Trachelium coeruleum.

ONIONS DISEASED: Hants Gardener. The fungus Sclerotinia is present in the bulbs. The ground should be trenched and mixed with quicklime, otherwise bulbs of all kinds will be attacked in future.—W. and S. The trouble is caused by a fungus—Myrosporum alliorum. Next season spray the plants with half-strength Bordeaux mixture. The disease first appears in the form of small, scattered blackish spots.

PEACHES CRACKING: L. P. Duchess of Cornwall is a very thin-skinned Peach, and more subject to splitting than most other varieties. Extra care in watering during the ripening stage should prevent the trouble, for cracking is induced by an excess of moisture or heat when the fruits are ripening, and by allowing the border to become too dry, and afterwards watering it copiously with cold water. Lightly shade the fruits in the middle of the day in hot weather when they are ripening, and maintain a little warmth in the water pipes at night with ventilation. Discontinue the use of rich stimulants a week or ten days before the fruits ripen.

SEEDS OF HYPERICUM FATULUM HENRYI AND LESPEDEZA BICOLOR: Shrub. These seeds should have germinated out-of-doors in about six weeks from the time they were sown, but they may germinate yet if kept watered and shaded from direct sunshine. It is a very common error to bury seeds too deeply; those of Hypericum, for instance, should be barely covered with sand, whilst those of Lespedeza and other Leguminosae may have a somewhat deeper covering. A safe guide when sowing seeds is to cover them to the same depth as their narrowest diameter.

STRAWBERRIES FAILING: E. H. E. The trouble is due to Strawberry mildew. When the leaves are fading, cover the bed with a litter of straw and set fire to it. Next spring spray the plants before they bloom with liver of sulphur.

SWEET PEAS FAILING: F. C. W. The probable cause of the plants of Sweet Pea withering and turning yellow is a sudden check from either drought or excessive watering. The nodules on the roots are healthy. If the plants are growing in loose ground, the effects of the check would be intensified.

VINES UNHEALTHY: E. A. H. The leaves have been scorched by the sun's rays whilst they were wet with condensed moisture. Ventilate the vinery early in the morning, so that the leaves become dry by the time the sun is strong. Too much moisture has also favoured the growth of the fungus Botrytis.

VIOLET CRESS: C. P. It is natural for the Violet Cress (Ionopsidium acaule) to become branched from the base as in your specimens, but it is quite unusual for it to grow so tall. A specimen grown by the Royal Horticultural Society in 1845, and cut in the same way as yours, was 4½ inches long. The specimen you sent was 7½ inches long. Whether this abnormal size would be permanent it would be difficult to say. It would be worth your while to sow seeds to ascertain the height and vigour of the plants next year. The Violet Cress varies in height according to soil and aspect. Some gardeners advocate sowing it in partial shade to increase the height. Two to 3 inches is the average height, but the plant will flower freely at 1 inch in height or less in a dry, exposed situation.

Communications Received.—A. B. Krishnan—Rev. W. W. T. D. B. (106 897)—Citadel, Plymouth.—W. T. G. F.—M. A. E. (telegram)—C. B.—H. J. E.—C. H. R.—T. K. R.—A. G.—T. and Co.—E. A. H.—W. R. S.—A. L.—W. Swan.—A. H. P.—W. R. G.—F. D.—L. J.—G. M.—A. L.—J. H. C.—R. S.—R. D. S.—E. M. P.—T. M.—J. O. G.—F. H.—G. M.

REMARKS.—Trade is very slow, and prices are much lower. The supply this week has exceeded the demand. Edward J. Newborn, Covent Garden and St. Pancras, August 2, 1916.

THE
Gardeners' Chronicle

No. 1546.—SATURDAY, AUGUST 12, 1916.

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purchased. It is interesting to note that the public parks movement was initiated in a great manufacturing city like Manchester, where the need for them was greater than it is in most boroughs. A good start having been made, little was done to increase the area of the parks for twenty years, when a few recreation grounds were acquired; indeed, progression was somewhat slow until the year 1890, at which time there were five parks and eight open spaces, which together covered an area of about 160 acres. By 1900 the number of parks was nine, open spaces thirty, and the total area 400 acres. From this time progression was much quicker; the value of the parks is so generally recognised that since 1900 the area has been more than doubled, the number now being seventy and the total area 1,480 acres.

We learn that the annual cost of maintaining the parks is £38,000, but allowing for the liquidation of debts, chief rents

They state that the earlier idea of the park was probably to retain or to transplant some of the familiar features of country life into that of the town. Consequently there were "Green stretches, flower beds, trees, and perhaps a pool or small lake." Play spaces were reserved for children, and walks and seats for adults. Gradually the gardener obtained the upper hand, and the ornamental and horticultural side of the park grew, and visitors were restricted to walks. The parks lost interest with the younger folk, and a change of policy was adopted when the Parks Committee realised that exercise and recreation were sought in the streets, as it was felt that more suitable places should be provided for these healthful pursuits. Bowling greens, always so popular in Lancashire, were first tried in the parks, and these soon proved to be popular. Consequently an attempt was made to constitute playing grounds of a more comprehensive nature. In size,

MANCHESTER PUBLIC PARKS.

AT the present time, when public parks on the one hand are looked upon with some suspicion by over-zealous writers on the food question, and on the other hand are being used on a large scale for the billeting and training of the New Army, it is specially interesting to turn to a pamphlet recently published by the Manchester City Council setting forth the place the parks and open spaces fill in the economy and amenities of a large city. In the first place, we are told that it was in Manchester that the idea of vesting boroughs with power to acquire land for the purpose of forming parks for the free use of the public had its origin.

It appears that soon after the incorporation of the city in 1838 a scheme was started for establishing public parks and gardens and appeals were made for public support.

Members of the Town Council led the movement and collections were made in all the factories and workshops. Meanwhile Mark Phillips, one of the two members representing the city in Parliament, succeeded in getting a Bill introduced empowering municipal authorities to acquire "land, ground or other places either in the borough or a reasonable distance therefrom, not exceeding five miles from the Town Hall," for the "use and enjoyment" of the people. Such enthusiasm prevailed that the land for the parks was purchased by voluntary contributions before the passing of the Bill, and these were laid out and opened on May 22, 1846. Five years later they were taken over by the Corporation under the terms of the new Act. The first park to be opened was Peel Park, named after the Prime Minister, Mr. Robert Peel, who contributed £1,000 to the voluntary fund. His statue now stands close to the entrance gate.

Phillips Park and Queen's Park were opened on the same day. A year later the ground for the Alexander Park was



FIG. 27.—LAKE IN BROOKDALE PARK, MANCHESTER.

and interest on loans, the parks may be said to cost £80,000 a year, whilst the number of persons employed by the Department is close on three hundred. If comparisons are made with other cities, it will be found that the parks and open spaces of Manchester are fairly well distributed over the city area, but there is still ground for regret in this matter, as is shown by the following paragraphs:—"Owing to the phenomenal growth of Manchester industries since the incorporation of the city, and the want of foresight on the part of our early municipal rulers, the inner parts of the city, including the business area, were allowed to become considerably overcrowded, with the results as seen to-day in the Old Manchester township, Ancoats, Hulme, Bradford, and the east side generally, where the cotton, chemical, and engineering industries have been established. We have had to pay dearly for the mistake of our predecessors." The compilers are at some pains to trace the evolution of the park idea and of its adjunct, the open space.

shape, and other characteristics there is every diversity in the various open spaces. Sixteen of these are under an acre in area, and seven in the inner ring have only a foundation of shale in the place of turf. In the best of the smaller spaces it is possible to have bowls, tennis, band performances, gymnasia, swings and playgrounds for the children, but it is only in fifteen of the larger parks that more serious games can be arranged on an organised basis. Such games include boating, bowling, cycling, cricket, football, golf, hockey, tennis, fishing, open-air bathing and skating, while political meetings are allowed, as in the London parks, particularly those of Hyde and Battersea. Most, or all, of these games bring in revenue. Of bowling upwards of 200,000 games are played in a season, and the fees amount to nearly £2,000. It is claimed that the city's latest enterprise at Heaton Park has resulted in the formation of the best municipal golf course in the county. Last year, on the Heaton Park links,

no fewer than 23,365 games were played by season ticket holders, and 17,453 day tickets were issued. Over 90,000 players attended the tennis courts. In some of the poorer districts organised play for the younger children has been in operation since 1913, when six lady instructors or "game leaders" were appointed.

(To be continued.)

NOTES FROM A COTSWOLD GARDEN.—XI.

NOW that at last we have had a few really hot sunny days many plants, especially those from Japan and the Himalayas, are beginning to flag where they are not shaded, and watering in the evening becomes a laborious task, not to be commenced unless one is sure of being able to do it thoroughly. I have often thought that the instinct or experience—for a little of both are necessary—which teaches one when and how to water is one of the most difficult and important parts of a gardener's art, as more plants are killed by excessive or insufficient watering than by most other causes. This statement applies especially to Orchids, which, if the air is moist enough and the temperature moderate, often want much less water under glass than they usually get during the growing season in their native habitats. Soils vary immensely in their capacity to retain moisture, and mine is particularly difficult to judge of. Deep-rooting plants are better without watering in most cases, and sprinklings overhead often do more harm than good in the case of surface-rooting ones, unless they are newly planted, when shading is more helpful than sprinkling.

Bulbs are now in many cases ready to lift, and this most interesting task should be done only by a careful and sharp-eyed person, if it is desired to keep the species true to name. One of the most difficult jobs I have had was to find the tubers of a *Tropaeolum* of the polyphyllum type raised from seeds which I collected in the Argentine Andes at 9-10,000 feet elevation thirteen years ago. These tubers had descended through eighteen inches of good soil, and wedged themselves in among the stones forming the subsoil at the bottom of a frame. I showed flowers of this plant recently at the R.H.S., which were considered by experts to be *Tropaeolum Leichtlinii*, which is a reputed hybrid between *T. polyphyllum* and *T. edule*; but though it was named *T. polyphyllum* at Kew, my note on it when I collected it was "very different in appearance from the plant grown at home, and distinct from a horticultural point of view." If anyone now possesses *T. Leichtlinii* of the original stock, I should be very glad to exchange with them for comparison. *Tropaeolum speciosum* is, where it really thrives, the gem of this genus, and one which has hitherto baffled all my efforts to get it to grow as well as it does everywhere in the west of Scotland, and even on the Cotswold Hills, where it covers a Yew hedge with its lovely flowers in Mr. Dimsdale's garden in stiff calcareous clay. I have seen it in Chile growing in dense shady forest in the Renarco Valley at 3-4,000 feet, where it climbed sparingly over bushes; but never so luxuriantly as I have often seen it in the gardens at home. It is curious how these and other Chilean and Antipodean plants, like Gunnera, *Oxalis adenophylla*, and *Ourisia coccinea*, have completely changed their season of growth in our gardens, whilst others, including all the beautiful Chilean terrestrial Orchids, which I took so much pains to introduce, and many of the Andean Alpine plants, seem unable to alter their season, and soon die out when transported to England. There is a charming little gem, namely, *Columnnea ovata* of Cavanilles, that I found in the forest on the Perez Rosales Pass in Chile at 3,000 feet, which, if we could only get it, would surpass any species of that beautiful genus that is in cultivation; but botanists are few in Chile at present. I am sure that any traveller who has the opportunity of collecting for a few days in the unrivalled scenery of the mountains round Lake Nahuelhuapi will agree with me that this region will one day become as celebrated as the Yosemite Valley of California.

Astroemerias are now among the showiest plants in the garden, and I find that *A. peregrina* and its white variety are both much harder than they are supposed to be, if planted close to a sunny wall, where their tubers are kept dry in winter, flowering well in the open air, and giving excellent flowers for cutting.

A very fine old plant which for many years has formed a great bush, supported by iron railings in my farmhouse garden, is *Lathyrus grandiflorus* of Sibthorp and Smith. This is very well illustrated in *Bot. Mag.*, t. 1,938, and correctly described as a perennial, though in Nicholson's *Dictionary of Gardening* it is called an annual. Mr. Bowles tells me that there is an ugly hybrid between it and *L. latifolius*, which is a much less beautiful plant, and that, like myself, he has never seen seed on *L. grandiflorus*. I do not know why this plant, which is the finest perennial Pea that I know, is so uncommon in gardens as it seems to be.

Now that *Lilium Martagon* is over, its place is taken by a taller and more robust plant, *L. dalmaticum*, which seems to be specifically distinct from *L. Martagon*; and which varies much in its colour and in the pubescence of its buds, as well as in the flowers. Many of my seedlings have their buds covered with whitish down, but the flowers when they open vary from pink to claret. *L. chalcidonicum*, which used to be common in cottage gardens about here, but has now become scarce, is flourishing exceedingly in a half-shaded bed among the roots of shrubs. This old garden plant is very superior to many of the newer introductions, and, where it thrives, increases fast, but is much less grown than it ought to be. If anyone could cross it with either *L. tenuifolium*, which I cannot grow at all, or with *L.*

sutchuenense, which is one of the best of the Chinese Lilies, we might get a very good thing; but so far the only hybrid Lily which is really a distinct success, and that can be generally grown, is *L. testaceum*, and this has never, so far as I know, been proved to be a hybrid, though I have little doubt of it. *Yuccas* are now coming into bloom, and I find that the hybrids, which were raised at Naples, by, I think, Messrs. Dammann, are hardier and more floriferous here than some of their parents. The finest is a hybrid of *Yucca gloriosa*, which species will not flower here, and this has produced strong, tall flower spikes at the base of its flowering stem of last year, which was over 6 feet high. *Yucca rupicola* also is flowering grandly, though I had to move the plant last year in order to divide it.

Two of the best rock plants now in perfection are a *Campanula*, which I have grown on the rockery in full sun for years as *C. Waldsteiniana*, which formed a dense mass of erect flowers, 6 inches across, and seems very amenable to pot cultivation, and a plant collected in the Tyrol by Capt. Sanderson, which he believes to be *Campanula cespitosa* of Scopoli. This has in two years formed a dense mass over a foot across, in which the flowers are crowded. The stems are slender with linear bracteate leaves 6-8 inches high, and bearing on each stem 5 or 6 bell-shaped blue flowers. Both of these enjoy sun, and do not flag like so many plants in dry weather.

This is the first year that I have had growing side by side on a dry, hot, well-drained terrace bed three dwarf trailing *Verbenas* from South America, which are all plants of neat habit, and all have so far proved hardy here. These are *Verbena tenera* Sprenger, and its supposed variety, *Mahonetii*, which, both in colour, foliage and habit, is distinct, and, as a garden plant, superior to *tenera*. I have also a white-flowered sport of *Mahonetii*. Better than either is the brilliant scarlet *V. chamaedryfolia*, from Argentina, of the colour of which the illustration in *Bot. Mag.*, t. 3,333, gives no idea. It is not so floriferous as the others, and, like them, dies down completely in the winter. It may be advisable to keep pots of each in a frame in case of a really hard winter, but they are not plants for pot cultivation.

Pelargonium Endlicherianum is a very curious plant, the only one of its genus in Europe or Asia, and few has succeeded in growing it so well as I saw it in Gen. Sir Dighton Probyn's rock garden at the base of the Round Tower at Windsor. Boissier describes it as "species pulcherrima," growing 1-2 feet high in calcareous rocks, of the Cilician Taurus, up to 4-5,000 feet. Here I have vainly tried to keep it outside, where its thick rootstock rots in winter, but have a nice plant now flowering in the Alpine house, which, though not quite so showy as Fitch painted it in *Bot. Mag.*, t. 4,946, is quite unlike any other flower that I know, and worthy of a place in any collection. *H. J. Elwes, Colesborne, Gloucestershire.*

THE MARKET FRUIT GARDEN.

No considerable downfall of rain took place in July after the 12th, and the total for eight rain days was only 0.83in. The temperature of the month was unseasonably low until the 29th, when a spell of sunshine and heat set in. This gave us one of the few periods of the season favourable for the destruction of weeds. Some orchards, hoed for the fourth time, have now become presentable, but the expense of hoeing this season has been beyond my past experience. Where Black Currants are still growing among Apple or Plum Trees, there was no room for horse cultivation after the Currants had formed, and the whole of the land had to be hoed by hand.

WANTED, A MOTOR CULTIVATOR.

An implement much needed by fruit growers is a small motor cultivator, at a moderate price. Horse cultivation is unsatisfactory after a plantation has grown for several years, because the heads of the horses and the hames of their harness knock against overhanging branches and fruit, while the whipple trees graze the bushes, and even the trunks of trees, if an attempt be made to cultivate close to them. What is needed is a very low motor cultivator, with an expanding and contracting arrangement for the tines to suit different widths between trees and bushes. A 4 h.p. motor would be quite powerful enough, and no attempt should be made to provide one powerful enough for traction work on roads, because it is of importance that the price should be as low as possible. But a motor of 4 h.p. might be detached from its cultivating apparatus for actuating a pump used for spraying. It is true that a comparatively new motor plough is in use in some fruit plantations, but it does not meet my idea of what is needed, and it is too expensive for any but extensive fruit-growers to acquire. For my own part, I do not want a plough.

BROWN ROT IN PLUMS.

As there was hardly any show of brown rot on the wood of Early Prolific Plums, it was unpleasantly surprising to find the fruit very extensively affected when it approached the ripening stage. In a mature orchard about one in twenty of the fruits was rotten from the attack of the fungus. Czar is nearly as badly attacked in the same orchard, but not Victoria, Pond's Seedling, or Monarch at present. Perhaps their turn is yet to come.

FRUIT YIELDS AND PRICES.

A striking example of high prices affording a good return on a small crop is afforded by my Early Prolific Plums. The yield was a great disappointment, partly because of the heavy loss from brown rot and partly because the fruit did not swell properly. Two years ago 4 1-10 acres of these Plums yielded 856 half-sieves of 28lb., and this year the production was only 225 half-sieves. Yet the money return is as much for the small crop as it was for the great one in 1914, when the average net market return was only 1s. 9d. per half-sieve, from which rail carriage had to be deducted. Early Prolifics were cheaper in 1914 than I have ever known them in any other season, while this year they were dearer, the average net market return being 6s. 10d. per half-sieve. The crop of Early Prolific Plums was an extremely small one over the country. No doubt Czars and Victorias will be much cheaper, as there are good crops of these varieties. In 1914 the net average market price of Victorias was only a fraction over 1s. 4d. per half-sieve. Apples have started well in price, Early Julyans having made fully 50 per cent. more than usual. This is one of the few varieties of Apples bearing a full crop.

VALUABLE, BUT TROUBLESOME.

Beauty of Bath is a valuable Apple; but it is certainly the most troublesome to deal with when it approaches the ripening stage of any variety grown by me. Before any fruits have coloured well they begin to drop off profusely. If the "drops" are picked up one day, the ground

Apples gathered every second day. Some value is sacrificed by picking closely and frequently, as a good colour is a very important point in marketing this Apple. But there is only the alternative of incurring this sacrifice, or bearing the greater loss from bruising and pecking. The best coloured fruits are pecked to a great extent



FIG. 28.—VIEW IN BOGGAUT HOLE CLOUGH, MANCHESTER.

(See p. 71.)

is littered with a fresh lot by the following morning. Many of the "drops" are pecked by birds or bruised, thus being rendered unmarketable. It is well worth while to have a thick layer of litter placed under the trees to prevent bruising; and probably it would pay to have a boy with clappers to keep birds away from the fruit on the trees and on the ground. Also it is desirable to have all the coloured

on the trees, blackbirds being the worst delinquents in this connection. No other variety grown by me suffers nearly as much from pecking by birds as Beauty of Bath does. Mr. Gladstone is a good second in bird favour; but it does not drop off the trees nearly so badly. Indeed, if the coloured Apples of this variety are picked frequently, there is very little dropping. *A Southern Grower.*

NOTICES OF BOOKS.

THE FLORA OF SAGHALIN.*

THE island Empire of Japan extends through some thirty degrees of latitude, from about 1.5° within the tropics to 51° N.; from Formosa to Kamchatka and Mid-Saghalin, with mountain peaks upwards of 12,000 feet high in the south and centre, and an area somewhat larger than that of the British Islands. After the conclusion of the war with Russia in 1895 Japan resumed by treaty possession of the southern half of the Island of Saghalin, and soon began investigating its natural resources, including its vegetable productions, and Messrs. K. Miyabe and T. Miyake now contribute a descriptive account of the vascular plants of this territory. Although lying in a lower latitude than the South of England, the island has a relatively harsh climate, and, in comparison with Central Japan and Central China, a flora comparatively poor in species and in endemic forms. With the exception of the botanical names of the plants, and the title-page, the whole of the text is in Japanese. Benth and Hooker's classification is followed, and the number of species described is approximately 800, belonging to 92 families, including Ferns and their near allies. The flora consists largely of genera and species ranging all round the humid, cold, temperate zone; less numerous represented in America. There is also a small element representative of genera characteristic of more southerly latitudes of the same region. Other genera of wide range and copiously represented in China and Japan proper are apparently absent from Saghalin. For example, Primula and Jasminum; while the only wild species of Impatiens and Lysimachia are the widely-spread *I. Nolitangere* and *L. thyrsoflora*; both members of the British flora. Indeed, the affinities of the two floras are very close—herbaceous and ligneous. Dense forests exist, and the elements are the same.

* *Flora of Saghalin*. By Kingo Miyabe and Tsutomu Miyake. Large octavo, pp. 646 + 10 + 13, with 13 plates. Published by the Government of Saghalin, 1915.

or closely related, in these two distant regions. One or more species of Alder, Ash, Birch, Elm, Maple and Oak occur, but in what proportions I am unable to say. Beech and Hornbeam are absent, as might be expected from their European distribution. Willows abound, numbering about a dozen species. Neither *Erica* nor *Calluna* is recorded, but there are seven species of *Vaccinium*, including all the British species, except *V. Myrtillus*. Pinaceae and Taxaceae include one species of *Pinus*, two of *Abies*, one of *Larix*, three of *Juniper*, and the Common Yew. *Jf. Botting Hemsley.*

ORCHID NOTES AND CLEANINGS.

CIRRHOPE TALUM VAGINATUM.

MR. W. H. BACON, gardener to Sir Marcus Samuel, Bart., The Mote, Maidstone, kindly sends us two fine spikes of this elegant species of the *Cirrhopetalum* section of *Bulbophyllum*, together with a leaf and pseudo-bulb taken from the plant, obtained from Borneo. The pseudo-bulbs are borne at intervals on the stout rhizomes, and each has a single, ovate, oblong, thick, coriaceous leaf. The scapes, which are 4 inches in height, are furnished with loose, membranous bracts, and bear at the apex clustered heads of pale yellow flowers. The thread-like continuations of the sepals extend from 3 to 4 inches, and are gracefully arranged. The flowers are furnished with bracts twice as long as the ovary. The upper sepal is extended over the column, and the narrower lateral sepals continued into slender tails. The short ovate-obtuse petals are ciliate, and the rather longer grooved labellum orange colour. The delicate structural beauty of the flower recommends it to the attention of those who are interested in "botanical" Orchids.

HYBRID ORCHIDS.

(Continued from June 3, p. 294.)

Hybrid.	Parentage.	Exhibitor.
Braas-Cattleya Crofutiana	B.-C. Digbyano-Mendellii x C. Warszewiczii	Sander and Sons.
Cattleya Helen Langley	Dusseldorferi Undine x Mrs. Myra Peeters	Mansell and Hatcher.
Cattleya Hesta	Suzanne Hyde Crom x Warszewiczii Fran M. Beyrodt	Charlesworth and Co.
Cattleya Edala	Walkeriana x Mendellii	W. H. St. Quintin, Esq., J. and A. McBean.
Cattleya Mabel	Mrs. Myra Peeters x Warneri alba	Flory and Black.
Cattleya Nena	Adula x Dietrichiana	Armstrong and Brown.
Cattleya Saturn Orchidhurst variety	O'Brienia alba x Gaskelliana alba	Rev. J. Crombieholme.
*Cypripedium Chas. J. Catt var. Petronilla	Holdenii x callosum Sanderæ	T. Worsley, Esq.
Cypripedium gloriosum	Wifrediana x luminosa	W. H. St. Quintin, Esq.
Laelio-Cattleya Aglaia	L.-C. Scylla x C. Dowiana aurea	Charlesworth and Co.
Laelio-Cattleya Appam	L.-C. Hippolytia Phoebe x C. Mossiae Wazeneri	Sir Jeremiah Colman, Bart.
Laelio-Cattleya Ceres Gatton Park variety	L.-C. Canhamiana x C. Walkeriana	W. H. St. Quintin, Esq.
Laelio-Cattleya Egeria	L.-C. Fascinator x C. Mendellii	Charlesworth and Co.
Laelio-Cattleya Fascinator-Mendellii	Helius x G. S. Ball	S. Gratrix, Esq.
Laelio-Cattleya General Brunsloff	callistoglossa x blechleyensis	Charlesworth and Co.
Laelio-Cattleya General Letchitsky	L.-C. callistoglossa x C. Gaskelliana	Charlesworth and Co.
Laelio-Cattleya General Sakharoff	Lady Miller x Martineii	Duke of Marlborough.
Laelio-Cattleya Miller-Martin	L.-C. Myra x C. Lawrenceana	Mr. A. Harrison.
Laelio-Cattleya Risdene	L.-C. Aphrodite x C. Mendellii	Dr. M. Lacroze.
Laelio-Cattleya San Juan	Véronique x Haroldiana	Stuart Low and Co.
Laelio-Cattleya Vesuvius	C. Noezliana x Odm. Amansro	De B. Crawshaw, Esq.
Odontioda Aida	Oda. Cooksoniae x Odm. Fascinator	Mansell and Hatcher.
Odontioda Bellona	Oda. Bradshawiae x Odm. Rolfeae	S. Gratrix, Esq., and Sander and Sons.
Odontioda Earl Kitchener	Oda. chelsiensis x Odm. percutum	Flory and Black.
Odontioda Ethel	C. Noezliana x Odm. crinitum	J. and A. McBean.
Odontioda Leo	C. Noezliana x Odm. illustre Theodora	De B. Crawshaw, Esq.
Odontioda Luna	Oda. Vuylstekeae x Odm. illustrissimum	Mansell and Hatcher.
Odontioda Portia	Oda. Cooksoniae x Odm. percutum	T. Worsley, Esq.
Odontioda Sir Douglas Haig	tripudians x crispo-Harryanum	De B. Crawshaw, Esq.
Odo. toglossum Astilbe	Fascinator x crispum Luciani	Armstrong and Brown.
Odontoglossum Erzerum	King Emperor x amabile	Armstrong and Brown.
Odontoglossum Farmeri	King Emperor x Wilkeanum	Armstrong and Brown.
Odontoglossum General Townshend	crispo-Harryanum x Queen Alexandra	H. Worsley, Esq.
Odontoglossum Hazeldene	Pescatorei x percutum	W. H. St. Quintin, Esq.
Odontoglossum Lucilla	Hallii x luteo-purpureum	De B. Crawshaw, Esq.
Odontoglossum megaglossum	percutum x mirina	A. J. Gaskott, Esq.
Odontoglossum merledenense	lanthe x eximium	Charlesworth and Co.
Odontoglossum Phyllis	amabile x harvengtense	H. Worsley, Esq.
Odontoglossum Ruth G. Worsley	King Emperor x eximium	Armstrong and Brown.
Odontoglossum Trebizond	amabile x mirum	H. Worsley, Esq.
Odontoglossum Worsleyi	M. Warszewiczii x Oda. Bradshawiae	Sir Jeremiah Colman, Bart.
§Vuylstekeara Colmanii	Oncidioida Charlesworthii x Odm. illustrissimum	Charlesworth and Co.
Wilsonara insignis		

* Shown at Manchester, June 1, as C. Harkeyanum var.

† Shown at Holland House as Oda. General Brunsloff.

‡ Not Odm. Baileyi as previously recorded.

§ Recorded at Holland House Show as Miltonioida Colmanii.

NOTE.—Odontoglossum Watsonianum, Manchester, June 1 = O. helfemense (harvengtense x crispum).

Odontioda Christopher, O. R., July, p. 184 = nebula.



The Week's Work.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

RETARDED LILIES.—To have a continuous display of Lilies it is necessary to pot a suitable number of retarded bulbs at intervals of a fortnight or three weeks. *Lilium longiflorum*, *L. speciosum rubrum*, and *L. speciosum album* may all be used for this purpose. Pot the bulbs in 6-inch pots filled with a mixture of loam, leaf-mould, manure from a spent Mushroom bed, and coarse sand. It is wise to fumigate the plants lightly with a nicotine compound at regular intervals, to keep them free from aphid.

SCHIZANTHUS.—Make a small sowing of *Schizanthus* to obtain plants for flowering early in spring. Sow the seeds thinly in pots or pans filled with a mixture of loam, leaf-mould and sand. Pass the soil through a sieve with a $\frac{1}{4}$ inch mesh, and make it firm. The seeds will germinate freely in a cold frame, that should be kept close and shaded. Grow the seedlings near to the roof-glass, and let them have plenty of air. When large enough for transplanting, pot them singly into 3-inch pots, and shade them until they have recovered from the shift. Of the several varieties of this beautiful flower, those of the *Wisetonensis* and *retusus* types are two of the most useful.

PELARGONIUM.—Plants of Zonal-leaved *Pelargoniums* intended for flowering late in autumn and winter have now plenty of roots, and may be given a weak stimulant, soot-water alternated with artificial manure being suitable for the present. Remove the flower-buds and stop extra strong growths. It is necessary to expose the plants fully to the sun to mature the growth.

VIOLETS.—Insert cuttings of Violets, there being plenty of suitable shoots for the purpose on the old plants. Prepare a bed of fine, sandy soil in a cold frame, and insert the cuttings rather closely together. Shade them from bright sunshine until roots form, and syringe them twice daily in hot weather. Preparations may be made for planting Violets in frames. Chop a quantity of loam into small portions, and mix with it an equal quantity of decayed leaf-mould, adding a 6-inch pot full of soot to each barrow-load of the soil. The plants should be near to the glass, and the bed must be arranged accordingly. Take special precautions to keep the foliage free from red spider. The plants should be dipped in an insecticide before they are planted.

ABUTILON SAVITZII.—This species of *Abutilon* is very useful for grouping, and specimens in small pots are suitable for table decoration. Two batches of cuttings should be rooted annually, one in the spring and one in August. Insert the cuttings around the sides of $3\frac{1}{2}$ -inch pots, and plunge the latter in a propagating frame. Old plants may be potted on if required. They are useful for arranging at the back of large groups.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

THE ORCHARD HOUSE.—As soon as the fruits in orchard houses commence to swell they develop rapidly and ripen quickly. At that stage a high temperature is necessary, and this fact necessitated the use of fire-heat before the recent hot weather. The requisite temperature can be maintained in fine weather by closing the house early in the afternoon, when the trees should be syringed freely with soft water of the same temperature as the atmosphere of the house. When the fruits are nearly ripe discontinue syringing, admit more air, and employ a little fire-heat. The roots require rich stimulants and plenty of water. Do not stop the young shoots after this date. Repot trees that require this attention soon after the fruits are gathered, with the object of

having the roots well established before the leaves fall. Commence with Peaches and Nectarines; there need be no hesitation in reducing the roots considerably and re-potting them in the same sized pots again. Trees in pots require a richer compost than those planted out, and rich, fibrous loam, mixed with a little bone meal and lime rubble, may be used. Make the soil firm by ramming. Syringe the trees on frequent occasions in sunny weather to prevent the shoots from flagging. A thoroughly moist condition of the soil is essential to root-growth, but moisture attracts worms, therefore place each pot on two bricks set a few inches apart.

CUCUMBERS.—Seeds of Cucumbers should be sown at short intervals to maintain a supply of healthy young plants to take the place of Melons. Cucumbers need plenty of top and bottom heat and an abundance of atmospheric moisture. At this season use a somewhat lighter compost than is employed earlier in summer. Plant as soon as the pits are available, for red spider and disease attack plants that are starved by excessive limitation of rooting space. The compost for winter Cucumbers cannot be too rough and open, therefore reject the finer particles of the loam and add lime rubble and a little charcoal. When the Melons are cleared from the pit thoroughly cleanse the latter and plant the Cucumbers, allowing them plenty of space. Keep the plants growing steadily, but do not feed them, as gross foliage made at the start invariably suffers early in the autumn. Old plants may still be cut over and induced to make new growth, but where small pits are available, hard cropping and quick removal of the exhausted plants give the best results. Plants in pits and frames may be kept going until plants raised in July come into bearing in the houses. Press the soil over the roots carefully, feed moderately, and ventilate freely through the early part of the day in bright weather. The temperature should be 90° after closing the ventilators at 3 p.m.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcott, Eastwell Park, Kent.

FIGS.—Outdoor Fig trees are in full growth, and it is important to thin the shoots to a moderate number, in order that those retained for fruiting may be well exposed to the sunshine. In some cases the leaves may require to be tied back in order to expose the fruits. Shoots not required for extension may be shortened to three or four leaves, according to space. Old, established trees that are carrying full crops should be fed occasionally with liquid manure, varying this by dressings of a concentrated fertiliser. Such trees also require an abundance of water in hot, dry weather. Young trees do not need much manure, for they usually make very strong growths without it. Endeavour to obtain short-jointed, firm wood, which will ripen well by the autumn, and so pass the winter with little or no damage.

STRAWBERRIES FOR EARLY BORDERS.—Where large numbers of young Strawberry plants are required each season, either for forcing or planting out-of-doors, a special bed or quarter of late-planted Strawberries should be grown solely for the purpose of obtaining runners. Such plants should not be allowed to bear fruit. Runners from such plants which were layered as advised on p. 14 should now be ready for planting. As soon as the roots can be seen around the pot, sever the layers from the parent plants, and, if the weather is hot and dry, remove them to a shady place. In hot weather damp the plants overhead several times daily to prevent them from flagging. There is considerable gain in getting the plants into their permanent quarters early. Those for fruiting early should be planted in a warm border prepared some time in advance. Fork in a little soot and wood ash, and make the surface level and firm before planting. These early fruits out-of-doors will follow the latest supplies from pot plants, and ripen a week or two in advance of the same variety in the open quarters. Strawberries grown on warm borders are best treated as annuals, discarding the plants each season as soon as they have fruited. Royal

Sovereign is the best variety for the purpose, but where high flavour and not heavy cropping is the first consideration, the older Vicomtesse Héricart de Thury may be chosen if it is known to do well in the particular district. Strawberries grown as annuals do not need so much space as those in the permanent beds. A distance of 15 to 18 inches apart each way will suffice. The soil should not be excessively rich, or the foliage may grow too rank for such close planting, and especially in wet seasons. It is an easy matter to feed the roots when the berries have set.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

EPIPHRONITIS VEITCHII.—This Orchid is a hybrid between *Epidendrum radicans* and *Sophranitis grandiflora*, and may be described as a small edition of the former. It is not an easy plant to cultivate, and often develops spot disease, especially when grown in a moist atmosphere. The plant succeeds best in a light and fairly dry position in the intermediate house, or the cooler end of the Mexican house is suitable. The pot or pan which will accommodate several of the growths may be half filled with drainage material. The compost should consist of a mixture of *Osmunda*-fibre or peat, and *Sphagnum*-moss. Pot firmly and keep the growths in position by the use of a few thin stakes. To maintain a healthy stock, propagate fresh batches from time to time from the young top growths.

DISA.—When the flowers of *Disa grandiflora* are over, remove the spikes and keep the roots drier, but do not withhold water entirely. *D. Luna*, which blooms earlier in the season, is the most easily-grown species of the genus. Others belonging to this group are *D. racemosa*, *D. Veitchii*, *D. Kewensis*, and *D. tripetaloides*. *D. sagittalis*, a pretty dwarf species, with almost white flowers, should receive similar treatment to *D. Luna*. There is a difference of opinion amongst growers as to when re-potting should be done; it is my practice to repot a few weeks after the flowering, whilst others prefer to do the work in February. Plants potted in February do not become sufficiently established to produce strong flower-spikes the first year, whereas those that receive attention earlier bloom satisfactorily. A suitable rooting medium consists of rich fibrous loam, mixed with good quality peat, with a moderate sprinkling of *Sphagnum*-moss, crushed crocks, and sand added. Surrey or Banstead loam is suitable, also almost any loam which contains plenty of fibre. Plants in small pots with plenty of roots may be shifted into receptacles two sizes larger. Large specimens with weak growths should be divided, with a tuber attached to each portion. Pot each piece in a small-well-drained pot, and when the roots have filled the receptacle transfer the plant to a larger pot, irrespective of season. As a general rule they will flower in two years from the time they are divided. Plants that are not re-potted should receive copious supplies of water. *Disas* grow freely, more or less, throughout the year, and the roots should never be very dry. The pots may be plunged in moss or any moisture-holding material, at the cooler end of the *Odontoglossum* house, and for preference immediately below a ventilator, for plenty of air is essential. In spring and summer spray the plants overhead once or twice daily in fine weather, and allow the ventilators to remain open a little, both day and night. Some cultivators grow the plants in cold frames from June to September, where the surroundings are kept moist, and the plants shaded from strong sunlight. I have tried this method, but have noticed no difference in the plants. At Hackbridge, where the late Dr. Smeed had a choice collection of Orchids, many of the cool-growing species were placed on a stage over a running stream of water, but I could never see that the plants derived any benefits from this treatment. When the house is vaporised, remove the *Disas*, for the leaves are very tender and susceptible to injury from the fumes. To destroy insect pests, spray or dip the plants in an insecticide. The chief points in the cultivation of *Disas* are careful watering, freedom from insect pests, a good rooting medium, and free venti-

lation both day and night throughout the year. These remarks apply exclusively to *D. racemosa*, *D. Luna*, and their allies, and not to those of the grassy or narrow-leaved section, of which *D. graminifolia* is an example.

THE FLOWER GARDEN.

By W. J. GUYER, Gardener to Mrs. DEMPSTER, Keel Hall, Staffordshire.

ANTIRRHINUM.—Hoe the ground between seedling *Antirrhinums* raised from seed sown early last month. There is still time to make a final sowing of these plants if seedlings are required for flowering early next year. The flowers are making a fine display in the beds and borders. Remove all dead and faded blooms to prevent seed-pods forming.

NEMESIA.—The plants of *Nemesia* should receive attention occasionally to remove seed-pods; stir the soil lightly around them with a small hoe, and water the roots in dry weather. *Nemesias*, like most flowering plants, require good cultivation or they will soon cease to flower. There is no difficulty in obtaining home-saved seeds, which should be gathered only from the choicest plants.

LAVENDER.—Cut the flower-spikes of Lavender before the blossoms are fully expanded, or the perfume will be inferior. A few blooms give a delightful and refreshing perfume to pot-pourri.

VIOLAS AND PANSIES.—To prolong the flowering season of Pansies and Violas remove the seed-pods and faded flowers. Lightly fork the soil around the plants, and apply small dressings of fertiliser or weak manure water at intervals.

SWEET PEAS.—Stir the soil occasionally around the clumps or along the rows of Sweet Peas, as the case may be. Feed the roots with liquid manure or a fertiliser, but not in strong doses, or the flower-buds will turn yellow. In saving seed, take every care to keep the varieties true, for rogues will appear, and varieties may revert, especially in the Spencer type.

TRANSPLANTING.—Transplant such plants as Alyssum, Arabis, Armeria, Anubria, Daisy, Campanula, Myosotis, Pansy, Polyanthus, Papaver nudicaule, Viola, and Brompton Stocks in the reserve garden or on vacant borders, in ground that has been prepared for them. Lift the plants carefully a few hours after the roots have been watered. Plant in rows, allowing sufficient room for development and a free use of the hoe. In dry weather water the plants in the evenings and shade them during the hottest part of the day.

THE KITCHEN GARDEN.

By E. R. JAMES, Gardener to the Rt. Hon. LORD NORTH, Wroxton Abbey, Banbury, Oxfordshire.

SPRING CABBAGE.—Make another sowing of Cabbage to obtain plants for spring use. This sowing may be relied on to supply the main batch of plants, which will need extra care if the weather continues hot and dry. Much watering will be necessary unless rain falls, and for this reason it is best to sow in drills and not broadcast, as watering will favour the growth of annual weeds, which generally develop more rapidly than the Cabbage seedlings. Take the same precautions against fly as advised on p. 321 for Turnips. Guard especially against mildew, which spreads rapidly in very hot weather; unless the disease is checked immediately the whole crop of seedlings may be destroyed in a few days.

WINTER CUCUMBERS.—Make a sowing of Cucumbers for use in early winter. Plants intended for winter use should not be grown in so high a temperature as those now cropping. Aim at obtaining strong growth of a somewhat hard nature, that will be capable of withstanding the cooler conditions in the houses in winter. It is advisable also not to employ much fire-heat in germinating the seeds or in growing on the plants, but the latter should be exposed to full sunlight. Plants raised at this season frequently develop fruits at an early stage, but they should be removed as soon as they are noticed. Every Day and Tender and True are two good varieties for winter cropping.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, AUGUST 15—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

THURSDAY, AUGUST 17—

Roy. Hort. Soc. of Aberdeen Show (3 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, August 10 (10 a.m.); Bar. 29.6°; temp. 71.0°. Weather—Bright sunshine.

Bulb Cultivation in Britain.

The exhibition of dry bulbs held last week in the Royal Horticultural Society's Hall was doubtless the first of its kind that has taken place in London. Its objects, we may assume, were, first, to bring to the public notice the fact that what we call "Dutch" bulbs can be grown satisfactorily in the British Isles, and, secondly, to encourage cultivators to extend their operations with a view to materially increasing the home supply. The question has recently assumed increased importance for gardeners, owing to the prohibition now placed on all importations of bulbs from Holland and other countries. But the exhibition was not the outcome of recently imposed restrictions, as is proved by the fact that the arrangements were made before anything was known of the Government's intention. It is pretty clear, therefore, that our growers were sufficiently satisfied with the results obtained in the bulb fields to encourage them to undertake fair competition with the best of those produced abroad. This is satisfactory, inasmuch as it goes to show that there is room for the industry to expand, whatever may happen after the war in regard to the importations.

The conference which took place during the holding of the show is reported on another page, and we strongly advise all horticulturists to read the practical remarks of the speakers on the points under discussion. Certain facts seemed to come out fairly clearly. For instance, Daffodils give better results generally in these Isles than any other bulb, and some specimens that were shown from Ireland appeared even more productive than they are usually seen in Holland. Further, as Mr. Arthur Sutton pointed out in the course of his interesting speech, it is the general experience that they give better flowers when forced than those obtainable from imported bulbs. Tulips come next, and Mr. Monro's fine exhibit of these was a revelation to many, not only in regard to weight, but in finish and appearance. This question of appearance will no doubt receive careful attention. At present, it is said that whilst the quality of British bulbs is often superior, in appearance they seldom equal the smooth-skinned bulbs imported from the Continent. How far this is a matter of soil has yet to be proved, and trials should be undertaken, in order to see whether or not by soil amelioration something may be done to remove or lessen this defect. In regard to both Daffodil and Tulip cultivation, but especially the latter, Mr. Barr expressed the belief that they were often cultivated primarily for supplying cut flowers, the sale of bulbs being only of secondary consideration. Mr. White referred to the point, and led his hearers to the conclusion that he was not prepared to say that bulb cultivation alone would be remunerative. Mr. Monro, who has great experience, both as a bulb grower and flower salesman, said that the trade in cut flowers gave the bulb cultivators an advantage over the foreigner, but, like Mr. White, he was not sure that any great extension of the industry would not cause a glut of flowers in the market, and seriously influence prices. In respect to this aspect of the case, there is just one point that may encourage growers to have more regard for the bulbs than the flowers, namely, that thereby they will avoid mistakes in the selection of varieties. Mr. Barr stated that some of the largest growers selected their varieties according to their value for supplying the market. Consequently, when later the bulbs are offered, it is not always the case that they are the particular sorts bulb purchasers require. By carefully selecting only the most saleable varieties, might it not be possible to become altogether independent of the flower returns? The old questions of sample and grading were introduced by Mr. Leak, and it was disappointing, after all that has been said and written on these questions, that Mr. Leak, with his experience of trade customs, could state, in the presence of such a meeting, that British traders were sadly to blame both for deficient grading and want of care in keeping the bulk true to sample. Fortunately, these failures are capable of being remedied, and with the general improvements in trade methods we all look for after the war, they will surely be eliminated.

We may mention that few of the speakers referred to Hyacinths, but Mr. Barr expressed his conviction that in the case of Hyacinth cultivation British growers will never be able to compete with those grown in Holland, where he was sure the soil was more suitable. Crocuses he would class with Hyacinths as being more suited for Continental cultivation, but he proceeded to mention many other kinds of less common bulbs that would grow here just as well as Tulips.

Now that public attention has been drawn to the industry, we hope that continued efforts will be made to popularise the British-grown bulb as an article of good quality and one that will improve from year to year.

Frederick Moore.

In the death of Mr. Frederick Moore, at the ripe age of eighty-two years, horticulture loses a veteran of unusually wide experience, and ourselves a respected colleague, for he was a member of the editorial staff of this journal for twenty-one years. Descended from gardening parents, he was born in 1835 at Stanley Grove, now St. Mark's College, Chelsea, where he was subsequently educated. He turned his attention to gardening directly his studies were completed, and in course of time obtained experience in many of the largest and best known establishments. In subsequent years he filled the position of head gardener in several places in Britain, including Encombe, Isle of Purbeck, Shirley Park, Croydon, and Normanhurst, Sussex. In 1873, on the recommendation of Messrs. J. Veitch and Sons, he proceeded to Austria to take up the position of Obergartner to the reigning Prince at Eisgrub, in Moravia. The duties of this post involved unusual responsibilities. Mr. Moore had a very large staff to control, and his task was the more difficult owing to the fact that many on the estate and in the neighbourhood thought that the appointment should have gone to a German or Austrian. Circumstances connected with this aspect of the management eventually led up to Mr. Moore's return to England in 1879.

The climatic conditions there were very different from those that deceased had been familiar with at home, especially in winter, when the cold was more severe, rendering it essential to give protection to many plants that are perfectly hardy in England. He adapted himself well to the new conditions; first, by learning the German language during a preliminary stay in Vienna, and, secondly, by mastering the special gardening difficulties of the locality, showing a resourcefulness that won conspicuous success. On his return to England, Mr. Moore was employed for some time by Messrs. Veitch and Sons in their landscape gardening department, and during this period he helped to lay out some of the principal gardens in the Home Counties.

In 1883 the late Dr. Masters gave deceased an appointment on the editorial

staff of this paper, and shortly afterwards he became sub-editor. In this capacity he laboured faithfully for twenty-one years, only relinquishing the office at the end of 1903, when he was no longer equal to the exacting work inseparable from modern journalism.

His straightforward character and unswerving conscientiousness gained for him the respect of his colleagues, many of whom have long since passed away. After his retirement Mr. Moore lived for a time at Brighton, but he removed subsequently to Fulham, and a year or two ago to Ilford, where he died on the 4th inst., in his eighty-third year. He was twice married, and is survived by a widow and three daughters. The interment was on Tuesday last at Fulham Cemetery.

FRUIT AND GARDEN PRODUCE IN THE NETHERLANDS.—The Board of Agriculture and Fisheries is informed by his Majesty's Consul-General at Rotterdam that on July 15 the condition of fruit crops was only moderate on the whole. Apples and Pears were suffering rather seriously from scab, which cannot be checked to any extent owing to the scarcity of copper sulphate. Insects were doing damage in Limburg, and Cherries had suffered from the wet weather. Generally prospects for Apples vary from bad to fairly good, the best reports coming from Utrecht, Nymegen, and the district around Wyk-on-Sea; Pears are nowhere better than moderately good, and have practically failed in the Lower Betuwe. Late Cherries vary from moderate in the Meyery and Limburg to very good in the district around Houten. Plums are good in the western part of Utrecht, but only moderate elsewhere. Raspberries are almost a failure in North Brabant, the principal district for this crop, moderate about Winschoten, and good in other parts of the country. Tomatos are generally good, especially in Groningen, prospects being moderate in only a few districts.

MR. W. G. PIRIE.—The Earl of DALHOUSIE has appointed Mr. W. G. PIRIE, Gardener at Dalhousie Castle, factor of his Dalhousie estates. Mr. PIRIE is president of the Scottish Horticultural Association

GARDENING IN THE WAR AREA.—In an interesting article by Lord NORTHCLIFFE, entitled "The Army Behind the Army," published in the *Times* of Monday last, it is stated that gardening is one of the hobbies of the men, and from the casualty clearing stations at the front to the workers' huts at the bases are to be counted thousands of English-made gardens. "The French, who know as little of us as we do of them, were not a little surprised to find that wherever he sojourns the British workman insists on making himself a garden. At a great veterinary hospital at one of the bases the men living a considerable distance from a town and away from other pastimes, have planted for themselves gardens that would be a credit to any prosperous London suburb in peace time."

WAR ITEMS.—We regret to learn that Sergt. L. A. ICETON, 5-6 Battalion, Seaforth Highlanders, second son of Mr. W. ICETON, The Nurseries, Roehampton Park Lane, was killed in action on the Western front on the 25th ult.

—The *London Gazette* of the 7th inst. contains the announcement that Lieut. H. G. F. MACDONALD has been promoted to the rank of Captain in the A.S.C. Captain MACDONALD is the son of Mr. JAMES MACDONALD, Harpenden. In the early days of the war he was Company Sergeant-Major of the 1st Battalion of the London Scottish, and took part in the famous

attack in September, 1914. In the issue for September 21, 1914, we published particulars of this fight, together with Sergeant-Major MAC DONALD'S portrait.

—We regret to learn that Captain HENRY DRUMMOND, a director of the firm of Messrs. W. DRUMMOND AND SONS, LTD., seed merchants, Stirling, has been killed in action. Captain DRUMMOND was a son of Mr. JAMES W. DRUMMOND, Wentworth, Stirling, and received a commission soon after the outbreak of war in the Argyll and Sutherland Highlanders.

TREES AND SHRUBS.

BUDDLEIA COLVILEI.

WHEN visiting Monreith recently Sir Herbert Maxwell called my attention to a plant of *Buddleia Colvilei* in bloom, which has this season produced short racemes of flower. The plant is growing against a warm wall, and in an apparently good position, but much of its beauty has been lost by the shortness of the racemes, which resembled mere bunches. I wonder if this condi-



THE LATE FREDERICK MOORE.

tion has been observed anywhere else this season; if so, it might be possible to arrive at the probable cause. Had it not been that there has been a good rainfall at Monreith this season I should have been inclined to attribute the inferior spikes to drought at the roots. The late frosts experienced further east in Wigtownshire and Kirkcudbrightshire have not been troublesome, and the plant itself, so far as its growth and foliage were concerned, was in the best condition. *S. Arnott.*

SALVIA WARLEYENSIS.

THE new variety of *Salvia* illustrated in fig. 29 was exhibited by Miss Ellen Willmott at the Holland House Show on June 4 last, when the Floral Committee gave it an Award of Merit. The plant is a robust grower, the spike being some 2 feet tall and stout in proportion, whilst the leaves are large and cordate in shape, suggesting *S. turkestanica* as a parent. But the habit of the novelty is not so stiff as in *S. turkestanica*. The flowers are a deep shade of violet, with white lip and pistil.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables, Supplement, *Gard. Chron.*, August 5.)

O. SCOTLAND, N.

ROSS-SHIRE.—Strawberries were an extra good crop. Red, Black, and White Currants are exceptionally plentiful. Apples are very much under the average; the weather was very dull, wet, and stormy when they were in flower. Early Pears are a very poor crop, but late varieties are an average one. Plums are about average, the best variety being *Victoria*. *M. Martin, Novar House Gardens, Evanton.*

SUTHERLAND.—The weather in spring and early summer was cold, wet, and inclement, with wind mostly from the north-east, north, and north-west. There was no summer weather until July. The present season is the worst I remember. *D. Melville, Dunrobin Castle Gardens.*

I. SCOTLAND, E.

ABERDEENSHIRE.—The fruit crops are very late, and, owing to lack of sunshine, are of inferior quality, with the exception of Strawberries and small fruits. *James Grant, Rothie-norman Gardens.*

—The fruit crops are, on the whole, of good average quantity and quality. Owing, however, to the continued rains, lack of sunshine, and, in consequence, a much lower temperature than usual, they are quite a fortnight late. *John M'Kinnon, Haddo House Gardens.*

BANFESHIRE.—The fruit crops in general are promising well, although they are three weeks later than usual. In the absence of spring frosts the fruits set well in most cases. With good weather from now the crops should be well up to the average. *George Edwards, Ballindalloch Castle Gardens, Ballindalloch.*

BERWICKSHIRE.—Apples bore a fine crop of bloom; but, owing to cold winds, the fruit set very badly. Cherries set well; Plum blossoms were very scarce; Apricots and Peaches set fairly well. Small fruits, such as Raspberries, Strawberries, Gooseberries, and Black and Red Currants bore good crops. *Peter Smith, Duns Castle Gardens, Duns.*

—The fruit crops are a month later than usual. Apples have made an average set. Plums on walls and standards are both heavy crops. Cherries are also good. The earlier sorts of Strawberries yielded a record crop. Black Currants bore heavily, and the trees are free from mite. Gooseberry bushes and Raspberries are heavily laden. Our soil is a heavy, red loam. *Robert Stuart, Thirlestane Castle Gardens, Lauder.*

FIFEHIRE.—The fruit trees were smothered with blossom, but frost destroyed it to a great extent. Large trees are bearing very poor crops, especially Pears, Plums and Cherries. Some Apple trees are good, but most have poor crops. The soil in the gardens here is good, but with a cold clay subsoil. *W. Henderson, Balbirnie Gardens, Markinch.*

FORFARSHIRE.—Owing to the exceptionally cold and wet weather in spring, Apples, Pears and Plums set badly. The scarcity of bees, owing to Isle of Wight disease, has probably been a factor in the non-setting of the fruit; and especially on walls trees. Strawberries were a fortnight late. *Robert Bell, Kinnaird Castle Gardens, Brechin.*

—There are good average crops of small fruits, but the Apple crop is almost a failure, although the trees looked very promising in April. Gooseberry mildew is more prevalent, and is causing serious damage. The soil is loamy, with a sandy subsoil. *Andrew M'Audie, Ruthven House Gardens, Meigle.*

HADDINGTONSHIRE.—Apples will yield a good average crop, though some trees are not bearing. Pears are cropping only on young trees. Some of

the Plums are bearing good crops, while other trees are sterile. Apricots required scarcely any thinning; of all the fruit trees it can be said that the leafage is large and healthy. Strawberries and small fruits were abundant and fine. The heavy rainfall in June had a good effect on these fruits. *R. P. Brotherston, Tynninghame Gardens, Prestonkirk.*

KINROSS-SHIRE.—The promise of a good season for Plums and Apples was spoiled by cold, frosty weather during the first three weeks of June. Bush fruits are better than they have been for many years past, and Strawberries were satisfactory. Our soil is very light and sandy. *R. Fraser, Kinross House Gardens, Kinross.*

KINCARDINESHIRE.—All hardy fruits are three weeks late. A severe gale on June 12 did much damage to Black Currants and other bush fruits. Early Strawberries were very promising in June, but the berries were late in ripening. *William Thomson, Urie House Gardens, Stonehaven.*

MIDLOTHIAN.—Apples are disappointing, after a fine display of blossom. The crops of Pears and Apricots are also light, but the fruits are of good quality. Strawberries yielded a heavy crop, but the berries were small owing to want of sunshine. Gooseberries and Currants are both excellent crops. The soil is a deep, rich loam on gravel. *A. C. Scott, Oxenfoord Castle Gardens, Ford.*

— Strawberries were spoiled by heavy rains and want of sunshine. Gooseberries and Black and White Currants were all excellent crops. The soil here is a very heavy clay. *W. Grighton, Dalhousie Castle Gardens, Bonnyrigg.*

— Fruit trees of all kinds bore more than the usual quantity of blossom, but the continuous wet weather in spring and early summer, with cold, north-east winds, has resulted in the poorest crop of hardy fruit experienced here for many years past. The soil is of light nature on a subsoil of gravel. *James Whytock, Dalkeith Gardens, Dalkeith.*

MORAYSHIRE.—All fruit trees blossomed freely, but heavy rains and frost at night destroyed most of the flowers, so that the crops are poor. The local soil is kindly in favourable seasons. *James Jamieson, Easter Elchies Gardens, Craigellachie.*

6. SCOTLAND, W.

AYRSHIRE.—There was promise of an abundant fruit crop up to the middle of May, but cold weather afterwards spoiled the Apple crop. There were frequent frosts in the mornings up to June 14. *William Priest, Eglinton Gardens, Kilwinning.*

—The fruit crops in general promised exceedingly well during the month of April or blossoming season while we had favourable weather conditions, but a change to cold and backward weather early in May with 5° frost on the morning of the 10th of that month did considerable damage to most kinds of fruits, and especially Pears, which dropped badly a few days afterwards. *D. Buchanan, Burgany Gardens, Dailly.*

DUMBERTONSHIRE.—Apples, Pears and Plums made a good show of blossom, but cold, wet weather and east winds destroyed it. Small fruits, however, have yielded large crops. *D. Stewart, Knockderry Castle Gardens, Cove.*

DUMFRIESHIRE.—Apples are bearing a very thin crop. Apricots are a failure. Cherries, even Morellos, are thin. Blossoms were very abundant, but they fell to the ground before setting. Strawberries yielded a full average crop of good quality. Gooseberries and Currants (Black and Red) gave an average yield of fine quality. *John Urquhart, Hoddon Castle Gardens, Ecclefechan.*

STIRLINGSHIRE.—All fruit trees blossomed freely, but the weather at the time was wet, and to this fact I attribute the failure of the fruit crops. *J. D. Cunningham, Duntreath Castle Gardens.*

2. ENGLAND, N.E.

NORTHUMBERLAND.—The promise of a good fruit year has been spoiled by the weather conditions. Fruit trees and bushes flowered and set well, but cold winds have been very prevalent this year and have caused the fruit to drop. *John Thomas, Bywell Hall Gardens, Stocksfield-on-Tyne.*

— Apples are scarce; many of the trees were almost bare of flower. Pears are a good average crop, and are looking well. Plums are variable; many fruits have failed to develop and have dropped. This applies also to Peaches and



FIG. 29.—SALVIA VARLEYENSIS: FLOWERS DEEP VIOLET WITH WHITE LIP.

(See p. 77.)

Cherries, caused no doubt by the cold and sunless weather experienced up till a fortnight ago. Small fruits are good average crops. Many Strawberries were damaged by slugs and the wet weather. Our soil is of a light nature, resting on sand and gravel. *Walter Thomson, Castle Gardens, Alnwick.*

YORKSHIRE.—Orchard trees, generally, produced large quantities of blossoms, but a period of frost prevailed, and reduced to an average

what would otherwise have been a heavy crop. Strawberries were good and firm, but very late. Aphid has been troublesome on wall trees, but frequent heavy rains have kept orchard trees clean. The soil is a medium loam of good depth resting on chalk. *Sidney Legg, Dalton Holme Gardens, Beverley.*

— Apples, Pears, and stone fruits generally bloomed well and the flowers set freely. Severe hailstorms in late June did much damage to Apples and Pears, and the yield of these fruits will not be so good as it promised to be. Frosts have also done some damage. But for these troubles 1916 would have been an excellent fruit year. Gooseberries, Red, White, and Black Currants, Strawberries and Raspberries were all excellent crops. The yields of Gooseberries and Currants were the greatest for the past four or five years. Insect pests have not been so troublesome as usual, probably owing to the cold weather in June. *A. S. Galt, Rutherglen, Raundhay, Leeds.*

— Apples are a very poor crop. The cold weather and frosty nights seemed to prevent the fruits from setting, as there was a good show of blossom. The trees were also attacked by caterpillars, which destroyed a lot of fruit. Pears are yielding a thin crop, but Plums are plentiful. Strawberries, Gooseberries and Raspberries were all splendid crops. Black and Red Currants were also good. The soil is a rich, heavy loam on clay over red sandstone. *J. E. Hathaway, Boldersby Park, Thirsk.*

— The Apple crop is variable. In some orchards and gardens there are scarcely any fruits; in others the crop is abundant. The Plum crop set well, but it is doubtful how it will pass through the stoning period. Morello Cherries are the chief crop in Yorkshire; these seem to be doing well. Strawberries were an abundant crop. *Alfred Galt, The University, Leeds.*

— Apples are very poor; the trees bloomed profusely, but the cold winds and frosty nights gave the trees a check, from which they have never recovered. Pears are very scarce, but Plums, especially Victorias, are carrying very heavy crops. All bush fruits are good. Apricots look well. Strawberries were a heavy crop, but owing to the dull, sunless weather very backward. *A. E. Sutton, Castle Howard Gardens, Welburn, York.*

— The Apple crop, which promised well, was saved by the timely rain, after we had almost given up all hopes of a crop. The drought was more severe owing to prevailing winds, but there was not the average amount of sunshine. *J. G. Wilson, Chevet Park Gardens, Wakefield.*

— The fruit crops are on the whole good. Apples, considering the heavy crops borne last year, are very promising. Pears, Apricots and Peaches have not set well, owing to the dull, cold weather at the flowering periods, but Plums, especially Victorias, are the heaviest crops of my experience. Sweet Cherries are a failure, but Morellos are a fair crop. Small fruits are all good. *F. C. Puddle, Scampston Hall Gardens, Rillington.*

— The fruit crops are partial; some are good and others very unsatisfactory. In many places Apples, Pears and Plums have fallen wholesale, and those that remain are not swelling properly. All small fruits—Strawberries, Raspberries, Gooseberries and Black and White Currants—are bearing exceptionally heavy crops; the trees are clean, and the fruit promises to finish well. The season is late, but has been favourable to many crops, though marked by extremes of temperature, accompanied by heavy showers of hail. Our soil is shallow, and rests on chalk. *F. Jordan, Warter Priory, Pocklington.*

CAMBRIDGESHIRE.—The Apple and Pear crops are very light. There is a heavy crop of Plums, both on standards and wall trees. Strawberries, Gooseberries and Red and Black Currants all yielded well. *H. Head, Hatley Park, Sandy.*

(To be continued.)

VEGETABLES.

WINTER SPINACH.

SPINACH for winter use should be grown in ground that has been well manured for previous crops, not for one season only, but for several. Rich soil is necessary, as the plants occupy the ground for a longer time than Summer Spinach. The prickly seeded kind may be sown at any time from the beginning of August until September. In dry autumns the seeds are often slow in germinating unless the drills are watered before sowing the seeds, and if this be done, no matter how dry the soil or season, germination will be rapid and sure.

A frequent error is sowing thickly, and this applies both to the summer and autumn sowings. It is essential to thin the seedlings early, that the plants may grow robust and be capable of withstanding the cold of winter. They should be thinned lightly at first, and more rigorously subsequently until the plants are 6 inches apart. The plants of the later thinnings are frequently useful in the kitchen, and should not be wasted. In regard to cultivation, not much can be done by the grower, but he may hoe the soil between the plants frequently. In spring they will produce a heavy crop of leaves if they are fed with liquid manure or a dressing of soot; either application should be followed by a thorough hoeing. Plants that are apparently exhausted, if afforded a stimulant, frequently grow again freely, and yield heavily for a short time. In gathering the leaves, take the plants row by row in succession and secure the largest leaves from each one in rotation. By the time the whole bed is gone over in this way the plants that gave the first pickings will be carrying useful foliage again. *James A. Paice.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CALCEOLARIAS.—The articles on florists' flowers which occasionally appear from Mr. R. P. Brotherston are always full of interest. When the florists' flowers of a bygone period are dealt with, I, as befits one of the old school, read them over and over again. In his notes on Calceolarias on page 56 your correspondent refers to *C. pinnata* as the first species to be introduced. According to the *Dictionary of Gardening* this is an annual, whose pinnate leaves are clothed with clammy hairs. The flowers are pale yellow. A Calceolaria, which I take to be the same as this—for the description fits it in every way—was in the early 'eighties of the last century sent to the late Mr. William Bull of Chelsea as *C. glutinosa*. The seed germinated readily, and large quantities of young plants were raised. Some were put outside in the Asbburnham Park Nursery, where they seeded so freely that the following year young plants cropped up here, there and everywhere. As some were allowed to develop, this Calceolaria perpetuated itself year after year, a few still making their appearance till 1893, when the site of the nursery was handed over to the builders. The second species referred to by your correspondent—namely, *C. integrifolia*—would appear to have been lost, or nearly so; at all events, for a time. Speaking from memory, it is, I should say, about fifteen years since the late Mr. Wyndham Fitzherbert called attention to the great beauty of this species when grown as an outdoor shrub in the West of England. It was certainly then but little known, and I believe I am correct in saying it was not represented at Kew. At all events, the name does not occur in the *Kew Hand List* of 1900. The *Dictionary of Gardening* gives *rugosa* as the correct specific name of the plant now grown as *C. integrifolia*. *W. T.*

CULINARY PEAS.—The remarks on p. 59 on the trial of culinary Peas at Wisley show that the plants which were set at 2 inches apart grew

more vigorously, and fruited more prolifically than those in the same rows which were thinned to a greater distance. The result is opposed to the teaching of writers, who generally say, "give ample room for leaf and haulm development." To obtain pods for exhibition some growers recommend growing the plants of strong sorts 10 inches apart in double rows, setting the plants alternately. Others recommend a distance of 4 to 6 inches for such varieties as Duke of Albany. Peas are given these distances when pods of exceptional size and quality are required, but the question is whether this method of cultivation is as advantageous as thicker sowing in the production of a crop for

SOCIETIES.

ROYAL HORTICULTURAL
Scientific Committee.

AUGUST I.—*Present:* Mr. E. A. Bowles, M.A. (in the chair), Sir Everard im Thurn, Colonel Rawson, Messrs. E. Allard, J. Fraser, E. M. Holmes, W. C. Worsdell, W. E. Ledger, H. J. Elwes, J. Ramsbottom, W. Fawcett, F. J. Baker, and F. J. Chittenden (hon. sec.), with Mr. Allwood (visitor).

Meconopsis.—With reference to the *Meconopsis* shown at the last meeting by Mr. Elwes, Mr.



(Photograph by C. W. Cole.)

FIG. 30.—H.T. ROSE FLAME OF FIRE: A SMALL FLOWER COLOURED APRICOT SUFFUSED WITH ORANGE. (Awarded the National Rose Society's Gold Medal, July 18, 1916.)

ordinary purposes. One constantly sees large crops of Peas in cottage gardens, where thin sowing is not practised. One of the finest crops of Peas I ever saw was at Aldenham. The variety was *Quite Content*—a single row, measuring 100 yards. The seed was sown 6 inches apart in heavily manured, deeply-trenched ground. The plants grew vigorously up to 7 feet high, and the shoots were not stopped. The plants were firmly supported and allowed to grow naturally. The pods averaged 6 inches long, and contained generally 10 large, deep-green Peas. As many as twenty bushels of Peas could have been gathered from this row at one time. It is common to see rows of Peas sown so thickly that the haulm grows puny with a small crop of inferior pods. Varieties differ in their cropping; some give pods in triplets, whilst too many others bear but single pods. *E. M.*

Bowles said he had a plant almost exactly like the one Mr. Elwes showed. Sir David Prain also wrote further that he had seen Mr. Grove's plant to which reference had been made, and that had "upraised" bracts on the pedicels, of which there is no trace on the piece of Mr. Dimsdale's plant.

Hybrid Carnations and Pinks.—Mr. M. Allwood showed a long series of hybrids between the perpetual-flowering *Carnation* and garden *Pinks*, varying considerably in colour from white to purplish pink. He said, also, that the habit varied very much from plants about 4 inches in height up to 2 feet 6 inches, while many were of the perpetual-flowering type. A question of nomenclature arose, but was deferred for further enquiries. A Certificate of Appreciation was unanimously recommended to Mr. Allwood for his work in connection with the raising of these hybrids.

Grasses, etc., on a London Green.—Mr. J. Fraser referred to a discussion which had taken place regarding the Grasses which occur on London greens, and said that he had recently examined Kew Green with the following result. Common: *Poa annua*, *P. pratensis*, *Lolium perenne*. Frequent: *Dactylis glomerata*, *Cynurus cristatus*, *Koeleria cristata*. Less frequent: *Poa trivialis*, *Agrostis stolonifera*, *Festuca rubra*, *F. elatior*, *Allopecurus pratensis*, *Hordeum murinum*, *Holcus lanatus*. Casual: *Poa compressa* polynoda. Among other plants were *Plantago major*, *P. lanceolata*, *Trifolium repens*, *T. dubium*, *Achillea millefolium*, *Capsella Bursa-pastoris*, *Taraxacum officinale*, *Spergularia rubra*, and *Silene latifolia*.

Colours of Flowers in Tropaeolum majus.—Colonel RAWSON showed a further series of specimens illustrating the range of colour in this plant, which he attributed to alterations in the amount and kind of light falling upon it. Mr. Allard said that a similar series of colours had occurred at the John Innes Institution during the intercrossing that had been done there during experimental investigations.

Hollyhock Rust.—Mr. Ramsbottom remarked upon the death of Hollyhocks through attacks of rust (*Puccinia malvacearum*) commenting upon the supposed falling off of virulence in that fungus, or the gain of resistant power in Hollyhocks, which had evidently not occurred in all races.

Fasciation.—Mr. E. M. HOLMES showed a fasciated piece of *Verbascum virgatum* in which the upper 2 feet of an 8-foot stem only showed the fasciation. Mr. A. WILSON, of Shovell, Bridgwater, sent a piece of fasciated *Delphinium* which had occurred on a plant in his garden, one side of which, year after year, showed this fasciated growth.

Proliferation in Salsify.—Mr. WORSDELL showed a proliferated head of Salsify (*Tragopogon porrifolius*) from Mr. Miller Christy's garden at Chelmsford. Each floret, which was stalked, had produced a secondary capitulum.

Stapelia Leendertiae: N. E. Brown.—Mr. W. E. LEDGER exhibited *Stapelia Leendertiae*, and commented upon it as follows:—

"The plant exhibited first flowered in England in August, 1912 (the only other specimen flowering subsequently at Kew), and was figured at t. 8,561 of the *Botanical Magazine* for June, 1914.

"It is remarkable for its large, purple-crimson campanulate flowers. Both in shape and colour it differs. I believe, from all other species of the genus, although *S. nobilis*, N. E. Br., figured at t. 7,771 of the *Bot. Mag.*, is also campanulate, but the tube is considerably shorter.

"The flowers of *S. Leendertiae* are about 2½ in. deep, 2 in. across the tube, and over 4 in. to the tips of the spreading lobes. The interior of the flower is beset with long, purple-crimson hairs, and the flowers emit the evil smell common to the genus.

"The stems are erect, decumbent at the base, 3 to 5 inches or more long, about ¼ inch thick, velvety-puberulous, the sides rather hollowed, and the angles furnished with small, soft, erect teeth or leaflets. The follicles are large, 4 to over 5 inches in length.

"The shape and colour of the flowers are so distinct that the species might well constitute a separate sub-genus or section.

"The plant was discovered in 1909 by Miss Leendertz, now Mrs. Pott, curator of the Transvaal Museum at Pretoria, growing among sunny rocks near Heidelberg in the Transvaal, and is said to flower freely and over a long period.

"I received the plant exhibited from Mr. G. Thornecroft, of Barberton, in August, 1910, and so it was just two years in my collection before flowering.

"The species was first described by Mr. N. E. Brown in *The Annals of the Transvaal Museum*, Vol. II., p. 168; the only other account of it is the one accompanying the figure of my plant in the *Bot. Mag.* for June, 1914.

"In the *Kew Bulletin* for 1903, p. 17, is an interesting article on the ecology of the genus by Mrs. M. E. Barber, the well-known artist and African botanist. According to this lady, in spite

of their extraordinary power to adapt themselves to the varying and uncertain climate, these plants appear to be rapidly disappearing from all parts of S. Africa. She says: 'Civilisation and colonisation are both dead against them. They are eaten up by "all kinds and conditions" of cattle. For instance, if an ostrich finds a *Stapelia* plant he seldom leaves without taking nearly the whole of it with him. Cattle, sheep, and goats, in like manner, feed upon them greedily. The native tribes during years of severe drought and famine use these plants as food, and native children delight in their sweet, young succulent branches. The florist and gardener go hand-in-hand with the rest in the work of destruction, for you will hear them exclaiming, "Oh! here is one of those curious *Stapelias*," and it will speedily be pulled up and planted in some flower-bed, where, for want of care, it will be overgrown by other plants and lost.'

"Nevertheless, though dependent on insect agency for fertilisation, and, according to Mrs. Barber, they do not as a rule seed freely, the species before you, judging from follicles, sent to me by Mrs. Pott some time ago, is in no danger of extinction. Though the species is so rare in cultivation, the large follicles I received were abundantly packed with their beautiful winged seeds, so it may be hoped that this plant, at least, will not soon die out."

Sir Everard Im Thurn said that in the case of some of the very evil-smelling Aroids the scent was evident in the tropics only during the day, and the plants could be brought into the house and used for room decoration after dark. Mr. Ledger subsequently wrote that he found at 8.50 p.m. the offensive smell of the flower had gone, and at 10.15 it was still absent. The plant remained in the dining-room all night, and in the morning, at 9.30, it had not reappeared, the sun having not yet been upon it.

Various Plants.—Mr. ELWES showed *Rodgersia* with bronzy foliage, later flowering than other types and retaining the pink in its flowers for a long time. He had grown it for some time as *R. pinnata*, though the name was somewhat in doubt; *Allium macranthum* from Sikkim, which had proved perfectly hardy at Colesborne, and which, like the other Himalayan *Alliums*, had a compressed and sharply-angled stem; a very dark-leaved Fennel, which originally came from Mr. Howard Baker's garden, but which, Mr. Bowles said, reverted in seedlings to the normal green of the common Fennel; *Campanula Vidalii*; *C. longistyla*, with tall stems; a *Hemerocallis* from Japan, collected there in 1904, but only now reaching its full flowering state; *Allium pulchellum*; *A. sphaerocephalum*; *Ceropegia Saundersonii*, a hybrid *Ceropegia*; and a beautiful white form of *Campanula Hostii*.

Spiral Torsion in Mint.—Mr. C. H. CURTIS sent a curious, very tightly twisted Mint from the garden of Mr. Malcolm, of Duns, Berwick. Spiral torsion does not seem uncommon in opposite-leaved plants.

Humogen.—Mr. Chittenden said that a further small test of humogen, obtained this time through Messrs. Sutton, from the Manchester Corporation, had been made at Wisley, with the result that previous findings had been confirmed, viz., that the material is not standardised (this like three other samples, but unlike the first received) gave no increase in yield, and that large doses are apt to have a bad effect upon germination.

Radishes were used for the test, which was upon poor, sandy soil. Each treatment was repeated four times, the plots similarly treated being scattered over the ground, and the same weight of seed was sown on each of twenty-four plots. The weights from the four similarly treated plots are added together in the following summary:—

Plots.		Plants.	Weighting Grms.
7, 9, 18, 24...	Nothing added	920	11,250
1, 12, 15, 22...	Humogen at rate of ½ ton to the acre	947	10,820
2, 11, 17, 20...	Do. at 1 ton to the acre	812	10,415
3, 6, 16, 21...	Do. at 2 tons to the acre	646	9,565
4, 5, 14, 23...	Do. at 4 tons to the acre	498	6,525
8, 10, 13, 19...	Dune at rate of 20 tons to the acre	943	21,470

The humogen thus reduced the crop, while a light dressing of dung almost doubled it.

CONFERENCE ON BULB CULTIVATION IN BRITAIN.

AUGUST 1.—As noted in our last issue, the R.H.S. Conference on the cultivation of hardy bulbs took place in the Society's hall.

Sir Albert Rollit, who presided, referred to the initiative of the Council in holding the conference and show, remarking that it was an entirely new departure. He felt that all who valued the Society would press for an extension of the great commercial and educational work it was already engaged in.

Mr. Arthur W. Sutton, remarking that the cultivation of hardy flower bulbs was a comparatively new industry in this country; and that it showed an enormous increase during the past twenty years, claimed that home-grown bulbs yield better cut flowers for market purposes than do the foreign bulbs. There were numerous districts—notably in Lincolnshire, Cambridgeshire, Essex, Wiltshire, Somersetshire, Devonshire, Cornwall, Anglesea, many parts of Ireland, and the Channel Islands—where excellent Daffodil bulbs are grown. These places, he remarked, have the benefit of constant sea-breezes, which play a great part in the production of good bulbs.

The leading growers were laying down stocks of choice sorts to meet the demand which they confidently anticipate in the near future, and had invested enormous sums of money in the purchase of improved varieties. Mr. Sutton claimed that British bulbs have better constitutions than the Continental produce, and as they usually have several shoots instead of the single shoot of the foreign bulb, are much more floriferous. He reminded the meeting that several British growers had raised more new varieties than all the Dutch growers put together. The home-raised seedling Tulips—the beautiful Cottage and Darwin varieties—surpassed in beauty of form and colouring all the Dutch varieties. In conclusion, Mr. Sutton expressed his appreciation of the Royal Horticultural Society's movement in respect to bulb cultivation.

Mr. P. Rudolph Barr said he thought the exhibits of British-grown dry bulbs shown in the hall that day afforded a pleasing example of the suitability of our soils and climate for producing crops of many kinds which up to now we have been importing in such large numbers from Holland. The recent prohibition of imports of Dutch bulbs caught us unawares, and in consequence there were some sorts, such as Early Single and Double Tulips, which would be very scarce this season, while of Hyacinths, Crocuses and Scilla sibirica, to name a few other popular kinds, there were few or none in the country. Had growers known last autumn the intentions of the Government they could have arranged their plantings and have secured an abundance of these special bulbs. He was convinced that if the large bulb growers in this country, especially those in the Eastern Counties, would devote themselves a little more to producing the kind of bulb required by the retail bulb merchant for his customers, they would find it a profitable industry. At present their cultures were conducted principally for the purpose of providing cut flowers for the market. To provide a bulb required by the public and such as could compare favourably with a Dutch-grown bulb, necessitated a somewhat different method of culture.

Let me, said Mr. Barr, briefly state the qualities of a bulb required by the retail bulb merchant:—(1) It must be true to name and description. (2) It must contain a strong flower bud. (3) It should have a clean, healthy skin. (4) It should be properly graded; in other words, the bulbs should be of even size.

Mr. Barr remarked on some of the principal bulbs which can be successfully grown in the United Kingdom.

Daffodils, he said, we might justly claim as being English flowers. The best-known varieties which fill the florists' shops in spring were raised by English hybridisers, Emperor, Empress, Horsfieldii, and Barrii conspicuous were household names. They were now largely cultivated in Holland, but nevertheless the British supplies are very great and are grown all over the country. He remembered that in the year 1893 the whole stock of Barrii conspicuous consisted of about a

bed at his firm's Tooting Nurseries, and the price of this variety was then 25s. per dozen. He supposed there must be millions now spread over Great Britain and Holland, while the price has come down to 30s. a thousand.

"The cultivation of Tulips in Great Britain is becoming a great industry, especially of the May-flowering Darwin and the so-called Cottage Tulips. Vast areas of these in bloom in May may be seen in the West and East of England, while in Ireland they are grown very successfully. It is, however, mainly for the cut bloom at present that these bulbs are grown here. Where the culture is for producing suitable bulbs for sale to the bulb merchant the flower is not cut, the produce of saleable bulbs being thereby increased. Although an English-grown Tulip may not always have the same bright appearance as that from Holland, and may not, perhaps, be so large, the flowers are certainly better. I have noticed the difference for many years in our own nurseries, where imported Dutch and our own-grown Tulips have been planted side by side. The English bulbs make a slightly taller growth, come into bloom earlier, and have larger flowers.

"The early-flowering Gladioli are successfully grown in the Channel Islands, and lately we have had some very satisfactory corms from Ireland. The large-flowered, late Gladioli do well in England. We know that in the West of England Messrs. Kelway and Sons are very successful with their Gladioli. The corms grow freely in an ordinary light loam. At the Taplow Nurseries very good late Gladioli are grown, and they increase freely.

"Of Bulbous Irises, the English and Spanish grow well in Lincolnshire, but the Dutch cultures are so large and worked on such an economical scale that Holland will probably always be able to beat us in price.

"Crocuses can be successfully grown here, though the corms are smaller than the Dutch; but in Holland the cultures are large and the prices so low that he thought we may very well leave our friends over the water to supply our wants.

"Quite as satisfactory bulbs of Scillas can be grown in Great Britain as in Holland, particularly the well-known blue *Scilla sibirica* and the later Scillas or Wood Hyacinths. I doubt, however, whether we could produce the *Scilla sibirica* quite so cheaply as the Dutch. With regard to the Wood Hyacinths, care must be taken to ripen off these bulbs properly. When lifted they should be laid in a shallow trench and be covered with a little soil so that they can colour and properly mature. They should then keep sound until Christmas.

"The Heavenly Blue variety of Muscari is now largely grown in England, and as hardly any *Scilla sibirica* bulbs will be obtainable this year I strongly recommend this beautiful Hyacinth to take its place.

"All species of Anemone are successfully grown all over the country. In Cornwall, Ireland, and the Channel Islands large quantities of *Anemone fulgens* and *A. coronaria* St. Brigid are cultivated.

"Ranunculuses are specialised in the Channel Islands, while *Ixias* can be grown as successfully in Guernsey and Ireland as in Holland, and *Montbretias* grow well in many parts of the country."

Mr. Barr added that British growers would never be able to compete with Holland in growing Hyacinths, as, except in very few parts of the country, we have not the suitable soil conditions.

Mr. H. Duncan Pearson supported Mr. White's remarks concerning the small proportion of the bulb crop which is saleable as bulbs. In his opinion not more than 25 per cent. of the bulbs grown here were of the size and appearance demanded by the seedsmen, whereas nearly all are flowering bulbs.

The Rev. Joseph Jacob thought the R.H.S. might do good work in holding trials of Daffodils to ascertain their relative values for forcing. Few private growers, he remarked, recognised the easiness with which Daffodils force when the bulbs have been grown in an early district as compared with the same variety from a late locality. He suggested that the Society might

procure such sorts as Golden Spur, Obvallaris, Sir Watkin and Empress, and force them under suitable conditions at Wisley, and then in due season exhibit the plants, if possible, or cut flowers in the Hall. It was also worth considering if the various districts could not be induced to specialise in the sorts best suited for their localities, as this would ensure cheaper production. The Channel Islands, Mr. Jacob suggested, might specialise in Golden Spur and Obvallaris, which do so well there, while in other districts later sorts could be grown in specialised quantities. To the suggested forcing test might well be added trials of the better or less common sorts to determine their value for forcing.

The Rev. W. Wilks informed the meeting that he believed that the Rev. J. Jacob was the real projector of the show of British bulbs.

Mr. Alfred White said that as his father had been referred to as being one of the oldest in

at the present time there are five hundred acres of bulbs in the Spalding district. Mr. Alfred White was of the opinion that the same thing might be done in other places, but he hoped no one would come to Spalding, which "was quite thick enough." Besides the large stock they possess, he said tons of bulbs had been sent to Holland, where they were propagated and sent back to England—to the Dutchman's profit. Mr. White was emphatic in his opinion that the future of bulb-growing in this country is for flower-production, and not for bulbs alone. At recent prices of the cheapest varieties it would not pay to grow for bulb-production alone. Protection would be necessary to enable growers to be independent of the flower market. Few persons besides those engaged in bulb cultivation realised the small proportion of bulbs that are fit for the seedsmen. Mr. White also contended that prices should be regular, so that the grower could rely



FIG. 31.—HYBRID TEA ROSE GLADYS HOLLAND: PETALS CREAM COLOURED, WITH PALE ROSE-PINK REFLEXES.

(Awarded National Rose Society's Gold Medal, July 18, 1916.)

the bulb-growing trade, it might be of interest if he said how the business started. Some forty years ago his father collected Snowdrop bulbs from the surrounding cottagers in Spalding, and eventually collecting from a million to a million and a half bulbs a year. Amongst the Snowdrop bulbs were occasional bulbs of the old double Daffodil, and, after selling some to the trade the surplus were planted, and in spring the cut flowers were marketed. In this way his father commenced as a grower of bulbous flowers. Foreseeing the possibilities of cultivating the choicer Daffodils, he invested £300 on bulbs of Emperor and Empress at a time when they were quoted at a shilling each. These bulbs were planted on a plot about the size of the Lecture Room, much to the amusement of Mr. White's friends. But a large stock was worked up, and the venture proved an unequalled success. Some twenty years later Mr. White had about five acres planted with bulbs, while

on a regular income. If the prices are good enough, bulbs can be grown well in England where there is plenty of suitable soil.

Mr. W. Cuthbertson outlined the steps which the Horticultural Trades' Association had taken, and said that if we could compete with the foreigner in price, quality and service, there was a great future for the industry in this country. As regards the quality, that, he knew, was right, and so do the large forcers of bulbs, but our bulbs have not the refined appearance of the Continental produce. In the matter of service he was of the opinion that there were no insuperable difficulties, but price was a ruling factor in all kinds of commerce.

Prefacing his remarks by mentioning his personal objection to tariffs, Mr. Cuthbertson said that he believed that two-thirds of the horticultural traders were strongly in favour of a tariff, and suggested that a standing joint committee

should be appointed at an early date to consider the question. He expressed the opinion that to bring back a prosperous countryside many changes were necessary.

Mr. G. W. Leak insisted on the necessity for education even with bulb culture. In Holland there are finely equipped extension schools, where the lads on leaving the elementary schools receive expert training on subjects which will be of value to them in their work. He said that if we hope to successfully compete with the Dutch we must produce bulbs of equal quality to theirs. We also must pay more attention to sales by sample. Here bulbs in quantity are rarely anything like the sample, whereas the Dutch are much more particular, and purchasers can rely on the sample being observed. This was in part due to the metrical system of measurement. He regretted that there was no uniformity of sample in England. One man's first size of bulb might be comparable with another's second size, and vice versa. There were, Mr. Leak continued, labour troubles in Holland as well as in Britain, and there labour is scarce and wages increasingly high. In order to cope with the increased cost of production some Dutch growers had come over to study our methods of cultivation, especially with regard to ploughing in the bulbs. Mr. Leak concluded by advising growers to go abroad and study other methods if they would succeed.

Mr. George Monro, junr., apologising for unavoidably arriving late, said he was under the disadvantage of not having heard any but the previous speaker. He remarked that the large cut-flower trade gave the home grower a great advantage over the Dutch, but there was a great danger in over-production with flowers as with other things. He felt that the Government should grant a little protection to the home grower. Then, as we can produce bulbs of equal merit to the Dutch, it would be a profitable industry. He spoke in favour of co-operation. In the past he thought the R.H.S. had scarcely considered the trade sufficiently, but had rather confined its energies to the requirements of the private grower, though the trade owed a great debt to the Council for their action with regard to the investigations which they have initiated into the streak disease. The question of samples was a vexed one, and any failures were due to human nature. In his opinion that remark applied as much to Holland as to England, but the Continental packing was much better than ours. He did not agree with Mr. Leak that the adoption of the metrical system would get over the trouble. He rather advocated adopting a system of selling bulbs according to their weight per thousand.

SCOTTISH HORTICULTURAL.

AUGUST 1.—The monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on the 1st inst. Mr. Pirie, the president, was in the chair, and there was an attendance of 40 members.

A paper on "Dwarf Flowering Shrubs and Planting the Rockery for Effect," was read by Mr. MUNGO CHAPMAN, St. Ninians, Stirling.

Messrs. DOBBIE AND Co., Edinburgh, exhibited Sweet Peas, for which they were awarded a silver medal. Dishes of Strawberries, "British Queen" and "King George V.," were shown by the CITY OF EDINBURGH DISTRESS COMMITTEE from their farm at Murieston, by Mr. R. Cairns, manager; they were awarded a Cultural Certificate.

THE APIARY.

By CHLORIS.

REMOVING SUPERS.—As the section racks are filled and the cells sealed, they should be removed even if a few sections are incomplete, as they can be placed in another super for the bees to finish. Too often sections are left in the hive too long, with the result that the cappings become badly stained, which detracts from their appearance, although the honey is no worse. When the majority of the sections are well sealed remove the rack. To do this successfully use little, or, better still, no smoke, for the excited bees, in their fear, puncture cell after cell to

obtain the honey with which they always gorge themselves when smoked for manipulation. A better plan is to take a cloth saturated with a weak carbolic solution (performing the operation as quietly as possible), place it over the super, whether sections or shallow frames, gently raise the rack, and place a board, in the centre of which is a Porter Bee Escape, underneath; if this operation be performed in the evening the super will be clear next morning and not a single cell pierced. However, it is always advisable to have the smoker fully charged and lighted in case the bees become unmanageable, for nothing can equal smoke in such contingencies.

PREPARING SECTIONS FOR SALE.—When sections have been removed from the supers the woodwork should be cleaned thoroughly of all adhering propolis; a small piece of glass, with the broken edge straight and sharp, will be found useful for scraping off the propolis. If the wood is clean the honey will look more appetising, and realise a better price. With so many colonies destroyed by disease, no reasonably good section should be offered at less price than 1s., and good extracted honey ought to command 10d. to 1s. per lb.

RE-QUEENING.—Perhaps the rearing of queens artificially has brought about a weaker race of bees, which may be responsible for the continued existence of Isle of Wight disease. At this time of the year there are always plenty of "casts," as late second and third swarms are termed. These small swarms are of little use, and are generally carefully examined, the queens removed (often destroyed) and the bees put back in the hive from which they escaped. These queens, raised under natural conditions, may be purchased from cottagers for a few pence, and often for nothing, if the beekeeper undertakes to remove these casts. If the queens are placed with stocks needing a young queen excellent colonies will result next year. In many instances the casts may be purchased very cheaply. If they are placed on frames with full sheets of foundation—wired to make them quite secure—and fed with good cane sugar syrup, a fine stock will have been secured for 1917 at a very small outlay and headed by a queen in her prime.

ENQUIRY.

Will readers of the *Gardeners' Chronicle* interested in Bamboos kindly answer the following questions? 1, *Bambusa Quiloi*; 2, *Hindii* var. *gramica*; 3, *Simonii*; 4, *aristata*. 1 and 2 seem to do badly in shade here; 3 seems to do better in shade than in sun; 4 seems to thrive up in the sun. Does it want a shade situation like *nitida*? I am not sure whether my plant is *Quiloi* or *Phyllostachys flexuosa*. It was sold as *Quiloi*, but must, I think, be *flexuosa*, as the leaves are small. It is 10 feet high. Why do some Bamboos, notably *B. mitis*, lose most of their leaves in April? Many Bamboos do so here after passing quite unharmed through the mild winter we have. Has it something to do with the sap rising? *B. fastuosa* and *B. nitida* never do so. *Dorset Gardener*.

ANSWERS TO CORRESPONDENTS.

DAPHNE AND SHAMROCK: *E. M. P.* 1, The *Daphne* is *D. odora*. Matured shoots or side-shoots should be taken in September or October, with a small heel of old wood if possible, and inserted in pots containing a compost of two parts peat, one part loam, and half a part of sand. Cover the pots with bell-glasses, and keep them in a greenhouse, from which frost is excluded, till March. Then place pots and bell-glasses in a gentle heat to encourage the production of roots. If a callus has been formed in winter, the cuttings will root. This *Daphne* may also be grafted upon *D. Laureola*, established in pots, in March, in gentle heat. The flower is *Oxalis floribunda*. Any species of *Oxalis* may be called a Shamrock at times, but if *Oxalis* be

accepted as a Shamrock it would be more correct to apply the name to *O. Acetosella*, whether you call it Irish Shamrock or Scotch Shamrock.

GRAPES CRACKING: *J. Q.* See reply to *E. G.* in the last issue, p. 70.

NAMES OF PLANTS: *W. R. Godbeer.* *Amorpha fruticosa* (False Indigo).—*Frank Hubbard.* *Linaria pallida*.—*G. M., Newmarket.* *Euphorbia Lathyris* (Caper Spurge).—*D. Wright.* The double white-flowered shrub is *Deutzia crenata flore pleno extus purpurea*; the pink flower is *Claytonia sibirica*; the green flower with milky juice is *Euphorbia Lathyris*; the Orchid without flowers appears to be a small specimen of *Epipartis latifolia*.—*H. C.* *Staphylea pinnata*, Bladder-nut tree.—*W. 2.* *Muehlenbeckia complexa*; 3, *Tibouchina semidecandra* (syn. *Lasiandra macrantha*); 4, *Dieffenbachia nobilis*; 5, *Dracaena Sanderiana*; 1 and 6, next week.

NECTARINE LORD NAPIER: *A. L.* The decay in the fruits has been caused by condensed moisture, which has favoured the growth of a fungus. Keep the trees drier, and ventilate the house freely in the morning.

PEARS DROPPING: *J. C. B.* The fruits are attacked by the Pear midge—*Diplosis pyrivora*. All diseased fruit, both from the trees and the ground, should be gathered and burned. Remove the top layer of soil from under the trees during the winter, and replace it by fresh soil.

PEAS UNHEALTHY: *G. F. and Sons.* The trouble is not due to disease or insect pests. The appearance suggests a check from improper watering. If the roots are dry, water them copiously at intervals; do not give them a little surface watering.

POTATOS AND ONIONS: *S. G. and Son.* The Potatos are affected with the common Potato blight—*Phytophthora infestans*—and not black-stem rot, as you suggest. Spray the foliage with Bordeaux mixture. There is nothing organically wrong with the Onions to account for their flowering.

RED SPIDER ON VINES: *Q.* Spraying the foliage vigorously with clear water on frequent occasions will keep the pest in check.

RHODODENDRONS AND GRAPES: *R. R. G.* The galls on the Rhododendron leaves are caused by a fungus—*Exobasidium rhododendri*. Collect and burn all diseased leaves. There is no organic disease in the Grapes. The trouble is probably due to wrong conditions at the roots.

ROCKERY POOL: *A. H. P.* Paraffin is harmful to plants. Empty and thoroughly cleanse the pool. After the trough has been emptied, refilled, and emptied again once or twice, it should be sufficiently free of the paraffin to make use of for watering the rockery plants.

SALVIA AND CAMPANULA: *C. B.* The scarlet flower is *Salvia coccinea*, which commences to bloom in July out-of-doors and continues to flower until September, or cold weather checks the growth. It is quite suitable for bedding purposes. You might delay its flowering in pots by pinching, but it is not so suitable for winter flowering as *S. splendens* and *S. rutilans* (Apple-scented Sage). The Bellflower is *Campanula garganica*, which is hardy, and suitable for planting on rockeries.

TOMATO WITH YELLOW PATCHES: *J. O. G. and W. R. C.* The fruits are not affected with organic disease. The hard, yellow patches around the stalk part are due to an excess, and consequent granulation, of one of the constituents of the fruit. Apply sulphate of potash to the roots.

VINES UNSATISFACTORY: *R. D. S.* The leaves of your Muscat of Alexandria Vines are injured by scorching. Keep the house drier in the morning, and ventilate the house early, in order that there may be no condensed moisture on the foliage by the time the sun gains power. The Vines of Black Hamburg have been kept too moist at the roots.

Communications Received.—*O. B.* Queensland—*I. J.*—*W. L.*—*E. D.*—*T. M.*—*A. B.*—*J. H. C.*—*W. E. L.*—*J. H. T.* and *Co.*—*W.* and *B.*—*E. H.*—*A. X.*—*H. P.*—*G. S.*—*H. C.*—*A. P. M.*—*J. C.*—*W. C.*—*A. M.*—*W.* and *B.*

THE

Gardeners' Chronicle

No. 1547.—SATURDAY, AUGUST 19, 1916.

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EELWORM IN DAFFODILS.

DAFFODIL growers will be glad to hear that a thorough investigation of Daffodil diseases is to be made at Wisley. Undoubtedly there are diseases which are causing considerable losses among Daffodils, and it may be hoped that in the course of the investigation it will be found possible to determine which are chiefly responsible. At present it seems that there is some doubt, and the losses attributed to one disease may be, at any rate in part, due to another.

With regard to Fusarium bulbigenum, there is an article (XLIX.—A Disease of Narcissus Bulbs) by Mr. G. Massee in the *Kew Bulletin*, No. 8, 1913, with plate, giving a very clear description and account of Fusarium in Daffodils. (It is now issued as a leaflet, No. 256, by the Board of Agriculture.) But though the outward appearances, both on the leaves and in the bulbs, there described, are very closely similar to those observed in some of my Daffodils, I have been unable myself to determine with certainty the presence of Fusarium, and so far it has not been detected in any of my bulbs or in the foliage submitted to the R.H.S. Scientific Committee in three successive years. This may, however, be due to the material not being at the right stage for determination, and in view of the investigation now being made, it must remain an open question, in my case, as in others with a similar experience, whether Fusarium may not be present, and may even perhaps be a contributing cause of the losses, though apparently not the main cause. When I submitted bulbs for the first time in 1913, though no Fusarium was detected, Mr. Chittenden noted that eelworm (*Tylenchus devastatrix*) was found in nearly all of them, and suggested that this was perhaps the cause of most of the trouble. It was not, however, until the following year, when the report on the further bulbs sent was precisely the same, that I was convinced. I then took up my collection, and examined microscopically every obviously diseased or doubtful bulb (several hundreds), many of them more than once, at intervals before replanting. The great majority of the diseased bulbs, about 90 per cent., were found to contain eelworm in all stages. In most of them, and especially in all which were in the earlier stages of infection, there was no visible sign of any other disease present, and the eelworms were feeding at the limit of the

injury, which is distinguishable by a slight difference of colour of the scales, due to the breaking down of the tissue. In some bulbs there was also a fungus present, whether Fusarium or a saprophytic *Penicillium* I cannot say, but probably the latter, as nearly all such bulbs were in the later stages of infection. In a few bulbs, less than 5 per cent. of those diseased, there was a fungus present and no eelworm. It may also be noted that I have found eelworms in the leaves an inch or more above the soil, having evidently been carried up by the growing leaf. The attack has always started at the neck of the bulb, or so nearly always that it is evidently the normal course, and the few doubtful exceptions are probably due to accidental injuries giving the eelworm other access to the bulb.

As there may be some question whether the eelworms observed were in all cases *Tylenchus devastatrix*, and not the saprophytic eelworm *Rhaddites*, it may be noted that *Tylenchus* was found associated with a fungus (*Sclerotinia triflorum*) in Clover, as stated in the Board of Agriculture leaflet No. 46. On the contrary, it is also stated that in Onions, which are more comparable with Daffodils, "the eelworms (*Tylenchus*) were found in large numbers in the growing parts of the bulbs, but not in the decayed parts," exactly as observed in my bulbs. In some instances the eelworms in my *Narcissus* were certainly *Tylenchus*, and though I did not use a powerful enough lens to observe the spear-shaped point within the gullet—it would have been impossible to do so in the time—it appears to me that there are other differences between *Tylenchus* and *Rhaddites*, notably the much thinner thread-like tail of the latter, as observed in all the eelworms found in rotting Iris rhizomes, which presumably were the saprophytic species. Taking all the circumstances into consideration, it is most probable that it was *Tylenchus devastatrix* in all the bulbs, and even if eventually it should be found that Fusarium was also present, there is no doubt that the eelworm was the chief cause of the losses. Nor is mine an isolated case. Accounts in the gardening Press and from other growers of the loss of bulbs from disease attributed to Fusarium describe very precisely the stages and results of an attack of eelworm as I have experienced it. And on two or three occasions I have found eelworms in newly-acquired bulbs before planting. Whatever may be the effects of Fusarium, they can hardly be more serious than the losses caused by eelworm. After six years' experience, I am satisfied that if a bulb is infected with eelworm, even quite slightly, nothing can save it. If this be not recognised, and the bulbs left in the ground, all the bulbs near by may be infected the following season, and these again form centres of ever-widening devastation.

Detection of Eelworm in the Lifted Bulbs.—All growers should get the Board of Agriculture and Fisheries' leaflet No. 46. But this does not give any direct information as regards Daffodils. After the examination of a dozen or so, a bulb strongly infected with eelworm can be recognised more or less certainly from the appearance. But it is difficult to describe the appearance in detail. Generally the substance of the scales at the neck is of a greyer tone of brown than when the disease is due to fungus, and is soft and pulpy. When the whole bulb is invaded, and the eelworms have progressed down to the base (and from thence up into the adjoining scales), there is no mistaking the appearance. The whole bulb becomes soft, the base plate splits away from the scales, and what looks like a fringe of very fine cotton-wool protrudes through the crack. This has the appearance of the mycelium of a fungus, but it really consists of masses of eelworms—hundreds of thousands—which, if the bulb were in the ground, would pass into the soil. When the infection is in its earliest stage it can only be

certainly detected by a microscopic examination, and the least streak of the characteristic grey tone at the neck should be considered suspicious. The eelworms can be seen with quite a low power lens in a drop of water, when they become very active, and when abundant they can be detected even with a strong pocket-lens.

Detection in the Bulbs in the Ground.—When a gap occurs and no leaves appear above ground at all, the only thing is to take the bulb up at once. If it is wholly rotten very likely no eelworms will be found in it, as they will all have passed into the ground, and in such cases it is advisable to take up later all neighbouring bulbs and examine for eelworm before replanting. In cases where the leaves come up weakly, showing something is wrong, it is difficult to be sure whether the cause is eelworm or Merodon or fungus; the only certain sign is if the base of the leaves be soft and pulpy, and if eelworms be found there. It is best to take up all such bulbs and examine microscopically some of the substance of the scales at the neck.

Preventive Measures.—From the observation of eelworms under the microscope it seems probable that they can only travel (by a sort of swimming or wriggling) through the soil when it is water-laden. When the soil or the tissue of the Daffodil scales on the glass slide is merely moist and not liquid they become quiescent and huddle together. From observation on the ground, with plans kept of the areas of infection, they appear able to travel or spread in a normal season, and in a medium loam, throughout an area of 10 inches radius from the original infected bulb. In a wet season, like the autumn and winter of 1911-12, they undoubtedly spread farther, but I am not certain of the centres of infection in that year, and the areas merged into one another, so that it is not possible to give the maximum. But these observations suggest, and so far it is confirmed by my subsequent experience, that in well-drained and raised borders in which the soil would never, except in abnormal circumstances, be water-laden for long, the eelworms would not be able to spread far, and would therefore be easier to eradicate. It is also likely that a light and sandy soil would be much less liable to be infested with eelworm than a heavy one. Comparatively shallow planting, so that the top of the bulb is not more than 1 inch below the surface, would probably be advisable, as it is practically certain that the eelworm enters by the neck. Any injury to the base of the leaves due to their being broken down by the wind, or cut in hoeing, would probably contribute to the chances of a bulb becoming infected if eelworms are already in the soil. Strong growers, and varieties which have strong, tight-sheathed leaves at their base, such as *Maximus*, appear to be much less liable to attack by eelworm than others. Soil fumigants are of no use, for they do not kill eelworms. In fact, it seems not improbable that by killing off other soil organisms which naturally prey upon eelworm, they may contribute to an increased intensity of attack. The plots in which by far the worst attack occurred had been twice dressed with Vaporite and Alphol—once the previous year and again just before planting the Daffodils. These plots were separated by an alley-way only 3 feet wide from other plots which had been planted two years before, and which were entirely free from eelworm.

The development of an attack by *Tylenchus* is most insidious; it may be introduced by a newly-acquired bulb so slightly affected as to appear perfectly healthy. Or the original cause may very often be due, in ground that has been previously free of it, to the use of infected manure, or loam from an infected pasture. As stated in leaflet No. 46, the young eelworms can survive two or three years "in a perfectly dry condition" in dead tissues or in dry soil. But probably when enclosed in dead tissues, or in the soil, some slight moisture would be retained. Some eel-

worms on a glass slide were allowed to dry, and kept in a room uncovered. Tested by wetting at intervals they were found to be alive up to six weeks, but at the end of two months they appeared to be all dead, and gave no signs of life after being kept moistened for 24 hours.

To sum up: Choose a light and sandy soil, and so far as possible make sure that the ground does not contain eelworm. See that it is deeply dug and well drained, and raise the borders at least 3 inches above the pathways. Use no farmyard manure at all—not even three years previous to planting. Examine most carefully any newly-acquired bulbs, and if in the least doubtful plant them for a year in an observation plot. Plant

have given above, more or less strictly applied for four years, I have now got rid of eelworm—or at any rate got it in hand, having found no eelworm in any bulb in the general plots, and only in two or three in an observation plot in which all the doubtful bulbs had been planted. *A. J. Bliss.*

ORCHID NOTES AND CLEANINGS.

AERIDES FIELDINGII.

INTRODUCED from Shillong, India, by Messrs. Jas. Veitch and Sons, through their collector, Thomas Lobb, in 1850, *Aerides Fieldingii* was

Mr. Jones, the Orchid grower, and all other eligible men on the estate having joined the Army, the Orchids are now in the care of Mr. Alfred Wright, who for many years had charge of the important collection of the late Sydney Courtauld at Docking Place, Baintree.

BRASSO-LAELIO-CATTELEYA SYLVIA.

THIS new and pretty hybrid between *Cattleya Eldorado* and *Brasso-Laelia Digbyano-purpurata* is flowering for the first time at The Warren House, Stanmore. The variety is a worthy addition to the *Brassavola* hybrids of medium size. It is nearest to *Brasso-Cattleya Pocobontas*, a variety raised from *C. Eldorado* and *B. Digbyana* in the gardens of the late Mr. Joseph Chamberlain. The plant has an erect habit and leaves of thick texture as in *C. Eldorado*, whilst the delicately perfumed flowers of the hybrid also show the influence of that parent. The sepals and petals are silver-white tinged with pale lilac-pink, the darker shade being on the sepals. The front of the white labellum is expanded in a less degree than in the larger hybrids of its class and is finely fringed, white, tinged with lilac, the disc being light greenish-yellow.

THE ROSARY.

ROSA JACKII.

ACCORDING to the *Bulletin of Popular Information*, issued by the Arnold Arboretum, U.S.A., this beautiful Rose was introduced into the Arnold Arboretum from Korea several years ago by Mr. J. G. Jack, after whom it is named. It is one of the *Multiflora* Roses, and has long stems which lie flat on the ground, lustrous foliage, and pure white flowers in wide, many-flowered clusters. The flowers have the delicate fragrance of the Musk Rose. The hybridiser should be able to find in it a good subject from which to raise a race of hardy, late-flowering Rambler Roses.

TREES AND SHRUBS.

RHODODENDRON MAXIMUM.

ONE is apt to feel tired of *Rhododendrons* after midsummer, for the series has been long and profuse since *R. nobleanum* opened the ball before Christmas. No doubt the early-flowering species and choicer hybrids are the most interesting and beautiful; still, there is something to be said for the American *R. maximum*, which defers its display till the middle of June, and lasts in beauty for a month. It is not often seen at its best in this country, whither it was brought from North America so long ago as 1756. It has been eclipsed by innumerable showy hybrids, which have been indiscriminately planted in all kinds of places, whether suitable or not. When Linnaeus gave his *Rhododendron* (the Rose-bay, as it is appropriately named in America) the high-sounding title of *maximum*, the far taller Indian and Chinese species had not been discovered. It is said, indeed, that the plant reaches a height of 50 feet in its native country, but with me it has taken thirty years to attain the stature of 10 feet. The flowers are rose-coloured or white, grouped in rounded trusses of moderate size, and very freely produced on clammy stalks. Like most members of the genus *R. maximum*, it flourishes best in free humus or peaty soil, well drained, but with abundant moisture. Much disappointment is incurred by planting *Rhododendrons* too deeply. They are all shallow-rooting plants, though the large-leaved kinds, when well established, respond generously to a mulch of well-rotted manure, sifted peat or even grass clippings. *Herbert Maxwell, Mowith.*



FIG. 32.—*CUPRESSUS THYOIDES*, SHOWING FOLIAGE AND CONES.

(See p. 85.)

shallow, in rows at least 12 to 15 inches apart. Stir the soil frequently between the rows, but take especial care not to injure the base of the leaves below ground. If, in spite of all precautions, an attack of eelworm should appear, or be suspected, not only the suspected bulbs, but all the bulbs within a radius of 12 inches from them should be taken up and examined. It is advisable to re-plant all such bulbs, even if no eelworm has been detected, in an observation plot for the following season. An attack of eelworm is very disastrous, especially if not recognised or understood, but it is not inevitable; it can be prevented—even, I believe, if the eelworms are already in the soil—and if taken in time the losses can be minimised. By such methods as I

for many years one of the most prized members of the genus. In recent times the plant has become scarce, but a well-flowered specimen still commands attention by reason of its beauty. A plant is flowering in one of Mrs. Bischoffsheim's Orchid houses at Stanmore. The pendulous inflorescence is more than 3 feet in length, and has one basal lateral branch. In all, the plant has 156 flowers, each $1\frac{1}{2}$ inch across vertically; they are white suffused with amethyst-purple, and the granulated surface has a frosted appearance. The species is known in gardens as *Aerides Fox Brush*, a name suggested by the long inflorescence. Mrs. Bischoffsheim's plant is growing in a cool house principally occupied by *Vanda coerulea*.

NOTES ON CONIFERS.

XV.—CUPRESSUS THYOIDES.*

This species of Cupressus, known as the White Cedar, was introduced into English cultivation by Peter Collinson in 1736, but in common with many other trees that are natives of Eastern North America, it has never flourished in this country, and has little to recommend it as an ornamental Conifer. It may easily be known from the other species of the section *Chamaecyparis* by the flattened fan-shaped branchlet systems and small glaucous cones, which do not exceed $\frac{1}{4}$ inch in diameter (see fig. 32).

As a native tree, *Cupressus thyoides* has its headquarters in the Atlantic and Gulf States. It flourishes in maritime swamps which are liable to be inundated by the sea during a portion of the year. It grows from 50 to 80 feet high, and up to 4 feet in diameter. According to Sargent,† its range of distribution extends from Maine to Northern Florida, and westward to Pearl River, Mississippi, but it does not occur far inland. In the northern part of its area it forms pure forests, being associated with the deciduous Cypress (*Taxodium distichum*) and other moisture-loving species in the South.

In England no large specimen of the White Cedar is known. In Loudon's time there was said to be a specimen at Pains Hill, which in 1837 was 50 feet high, with a trunk 2 feet in diameter. Loudon also records a tree of about the same dimensions in the Duke of Devonshire's grounds at Chiswick. Both these trees have long since disappeared. The two best specimens I have seen are growing in moist soil by a lake at Woburn. The taller of these was 47 feet high by 4 feet 5 inches in girth when measured in 1914, and bore cones in 1916. At Arley Castle the late Mr. Robert Woodward recorded in 1907‡ two trees 44 feet by 2 feet 7 inches and 35 feet by 2 feet 9 inches respectively, which were probably planted by Lord Mountmorres in 1820. Elwes mentions a tree at Strathfieldsaye which was 38 feet by 3 feet 10 inches in 1907. In 1909 I measured a specimen at Pencarrow which was 27 feet by 3 feet in girth. There are several trees at Kew: one of these, which is about 25 feet high, is illustrated in fig. 33. I have seen other specimens at Bayfordbury and High Canons, Hertfordshire, but have not noticed any young trees in nurseries, and it is evident that this Cypress has long gone out of fashion, for few seem to think of planting it nowadays. Elwes§ refers to several fine specimens 50 feet or more high which he found in a plantation at Catros, near Bordeaux, some years ago. He also noticed several self-sown seedlings there.

Submerged‖ forests of this tree are found in swamps near Dennisville and elsewhere in New Jersey. Some of the trees were found to be nearly 20 feet in girth, which is larger than any known living specimen, whilst trees 4 feet through were not uncommon. Although the timber in these swamps has been buried hundreds of years, it appears to be perfectly sound.

Cupressus thyoides shows little variation in the wild state, but several varieties have arisen in cultivation. One of the most noteworthy of these is var. *leptoclada* Masters, Veitch's *Manual of Coniferae*, 232 (1909). It is shrubby in habit with closely set branches terminating in flattened branchlet systems bearing partly adult foliage and partly juvenile acicu-

lar leaves, the latter soon disappearing. The variety originated in a French nursery in 1850, and came into commerce in 1861. At Kew it is seen as a compact bush, and has little ornamental value.

There are also varieties with glaucous and variegated foliage. A. Bruce Jackson.

WEEDS.

A SPECIAL leaflet (No. 112) dealing with weeds is issued by the Board of Agriculture, from which we extract the following:—

Weeds absorb from the soil moisture and plant food which would otherwise go to nourish and increase the crop which is being cultivated; they "crowd" the crop, restricting the amount of light, heat and air necessary for healthy growth and for the proper assimilation of plant food. Weeds, especially such climbing kinds as Bindweed and Cleavers, hamper the harvesting of corn crops, both as regards cutting and drying. Weeds interfere with, and render more expensive, proper and thorough cultivation, and the "singling" of root crops. Weeds may harbour, or favour the development of, insect and fungus pests. Some weeds—*e.g.*, Garlic—taint the milk of cows which eat them, whilst others—*e.g.*, Meadow Saffron and Water Hemlock—are poisonous to stock generally. Other weeds (Dodder, Broomrape, Yellow Rattle) are parasitic or semi-parasitic, and directly feed upon the crops they infest. The underground stems and roots of weeds may cause the stoppage of drains.

The manner of distribution is very varied, but amongst the commoner processes are:—(a) Distribution by means of the wind. Many seeds, like those of the Poppy, are so small that they are readily scattered considerable distances from the parent plant. (b) Distribution by means of a special parachute-like apparatus, or other arrangement, of fluffy hairs and flattened wing-like projections, by which seeds, such as those of the Thistle, Dock and Groundsel, are rendered buoyant, and easily carried about in a light breeze. (c) Distribution by means of farmyard manure. Screenings from threshing and winnowing-machines, and sweepings from barns and haylofts, often find their way to the manure heap, while manure from cattle fed on inferior hay is also likely to contain weed seeds. Many seeds of weeds may be uninjured by the heat of fermentation, and will in due course pass on to the fields. Some seeds may even germinate better after lying in the manure heap, or after passing through the stomach of an animal. Well-rotted farmyard manure will, however, contain fewer germinable weed seeds than fresh manure, and is therefore less liable to introduce weeds. (d) The use of impure seed is a potent means of introducing weeds. (e) Some weeds—*e.g.*, Creeping Thistle, Couch, Field Bindweed, Onion Couch—are spread by means of broken portions of the rootstock.

Weeds may be annual, biennial, or perennial, and must be combated by somewhat different methods according to their habit of growth.

The most obvious means of suppressing weeds is to prevent them from seeding. When it is recognised that an ordinary Charlock plant produces from 1,000 to 4,000 seeds, and a moderate-sized Poppy 10,000 to 15,000, and large plants 50,000 seeds, the force of the adage that "one year's seeding is seven years' weeding" is obvious. Further, as many weeds produce seeds which do not germinate uniformly, the mischief is greater than appears at first sight, for they may lie dormant in the soil and grow after several years. In destroying weeds of this type the frequent recurrence in the rotation of root and other crops which permit thorough cleaning is an advantage. Seeding of weeds growing in hedgerows, on road-sides and waste places, and round farm buildings, should similarly be prevented.

Under no circumstances should imperfectly cleaned seed be either purchased or sown.

Many seeds rot when deeply buried. Others, however, remain dormant under such conditions, without losing their vitality, and may subsequently be brought to the surface. Where practicable, shallow cultivation and the preparation of a good tilth prior to the sowing of a crop will encourage the seeds to germinate, when they may be destroyed by further stirring of the soil. Such a method will help to clear the ground of many annual and biennial weeds, such as Poppy, Charlock, and some species of Thistle.

The eradication of perennials, such as Couch, Field Bindweed, and Creeping Thistle, needs careful and well-directed effort. These plants are propagated by underground runners bearing buds, and the object should be to remove the rootstocks as far as possible unbroken. This will usually be best accomplished by shallow ploughing, followed by grubbing or cultivating, rolling and harrowing. The weeds should be collected and either be burnt or made into a compost with lime. Sometimes, however, as in fallowing, they may first be brought to the surface and left to the drying effects of wind and sun.

Hand-pulling, digging with fork or spade, and total removal of weeds are efficient means of destruction. In every case the weeds collected should be burnt.

Any perennial weeds may be cut down frequently to exhaust the supplies of food stored up in their root-stocks, and prevent storage of further supplies. Judicious cutting with spade, hoe, or scythe will destroy all weeds if the cutting is repeated often enough. Many weeds when cut near the ground send up new stems, and these are produced at the expense of food stored below ground in the previous season. The growth of these secondary stems weakens the plant as a whole, and if, when produced, they are immediately cut off, and the process repeated, total destruction will be the result, no matter what the plant may be.

The first cutting should be made early in the year, and as often after that, during the summer, as new shoots appear. If left too long the weeds may either seed, or again store up food in the roots in preparation for the next season's growth. One cutting in the case of perennials like Creeping Thistle, Field Bindweed, Couch, and Coltsfoot is quite valueless.

Fallowing, either bastard or bare, as a cleaning process, is largely practised with good results on the heavy classes of soils on which root crops are uncertain and expensive to produce. At present, however, bare fallowing should be reduced to a minimum, "smother" crops being introduced.

Rushes, Sedges and Horsetails are indicative of a sour soil, which can be remedied by draining and liming. A dressing of lime is, more or less, a specific against Sorrel, Corn Marigold, Spurrey, and some other weeds.

The application of dung and artificial manures induces considerable changes in the character of the herbage on pastures, and of the weeds on arable land. The application of 5 to 8 cwt. of basic slag per acre to pastures on stiff clay land often has a wonderful effect in encouraging Clovers and generally improving the herbage, while a mixture of superphosphate and sulphate of ammonia is often an effective means of reducing such weeds as Buttercups, Daisies and Plantains. Suitable manuring may so stimulate cultivated crops that many of the worst weeds will be crowded out.

Farmyard manure believed to contain weed seeds in any quantity should be allowed to rot well before application to the land. Many weed seeds may be present when meadow hay and chaff (barren glumes) of Oats are fed to stock.

Weeds may often be suppressed or much reduced by the growth of dense, heavy "smother" crops which choke them out. On foul land such

* *Cupressus thyoides*, Linn., *Sp. Pl.*, II., 1003 (1753); Loudon, *Arb. et Frut. Brit.*, IV., 2475 (1838); Masters in *Journ. Linn. Soc. (Bot.)*, XXXI., 352 (1896); Kent, *Veitch's Man. Conif.*, 231 (1909); Clinton-Baker, *Illustr. Conif.*, II., 72 (1909); Elwes and Hemy, *Trees of Great Britain and Ireland*, V., 1210 (1910); Bean, *Trees and Shrubs*, I., 451 (1914).

† *Chamaecyparis thyoides*, Britton, Steens, and Poggenburg in *Presl. Cat. New York*, 71 (1858); Sargent in *Garden and Forest*, II., 484 (1889); *Trees N. Amer.*, 82 (1905).

‡ *Silva of North America*, X., 112.

§ *Hortus Arlejenensis*, pp. 13 and 36.

‖ *Op. cit.*, V., 1213, footnote 1.

crops may be of much value before or after a well-hoed root crop. Suitable crops for the purpose are Vetches; or a mixture of Vetches, Peas and Oats or Beans; or Mustard, Rape and Maize. The latter is especially valuable, because it is not only thoroughly hoed but casts a dense shade. It can, however, be grown only in the warmer southern counties.

Finally, spraying crops with chemical substances, more especially with sulphate of copper*

FRUIT REGISTER.

BLACK CURRANTS.

In common with, I doubt not, almost all growers of this fruit, I had been disappointed with my crops of Black Currants for many years past. It is forty years ago since I first had to deal with "big bud," and this was in Lancashire, the mite being as troublesome

we had a most abundant crop—so much so, that all who have seen the bushes have been surprised at the result. There is just a possibility that if a portion only of a plantation were treated in the manner I have described the result might not be altogether satisfactory, for the new shoots might possibly become infested by the mite from the old bushes. *W. Swan, Jamnagar House Gardens, Staines.*



The Week's Work.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

THE WATER GARDEN.—Examine Water Lilies frequently and remove all dead flowers and foliage, also clearing the water of weeds. *Nuphar lutea* should not be planted in the same lake as choice *Nymphaeas*, for the plant spreads rapidly, and in time smother the *Nymphaeas*. When established in the mud the only way of eradicating the *Nuphar* is by emptying the lake or pond. Certain varieties of *Nymphaea* are very robust growers, and require considerable space. A selection of the best varieties includes *N. caroliniana*, with rosy-pink, sweetly scented flowers; *N. Ellisiana*, perhaps one of the choicest of all Water Lilies, with scented, carmine-purple coloured blossoms; *N. Froebeli*, a deep crimson variety; *N. Gladstoniana*, with white, semi-double flowers; *N. gloriosa*, deep rose colour; *N. Laydekeri fulgens*, with crimson flowers of great substance; *N. Marliacea rosea*, a robust grower, with large, soft, rose-coloured blooms; *N. sanguinea*, deep blood-red; and *William Doogue*, one of the finest of all, with flowers 5 to 6 inches in diameter, of a beautiful cup-shape and pale pink colour. A depth of water not exceeding 2 feet is suitable for Water Lilies, and the best time for planting is from April to July. In planting, tie the plants in shallow baskets, light, perforated tubs, or boxes, filled with rich, fibrous loam, and place them in the water to sink. They should not be again disturbed. A great variety of other aquatics are suitable for planting by the margin of the pond, such as *Ananogeton distachyon*, *Nuphar pumila* (suitable for small ponds), *Sagittaria sagittifolia* (white), *Pontederia cordata*, a splendid growing plant with blue flowers; *Ranunculus grandiflora*; *Stratiotes aloides*, white; *Typha angustifolia*, the Reed Mace and *Villarsia nymphaeoides*, the dwarf yellow Water Lily. In shallow water and in boggy or swampy ground the Marsh Marigold and *Eulalia* may be planted freely; whilst the banks may be set with *Gunneras*, *Iris* in variety, *Lysimachia*, *Myosotis*, *Osmunda regalis*, *Parnassia*, water-loving *Primulas* (of which the seed may be sown now), *Thalictrums* and *Spiraeas*.

HOLLYHOCK.—Plants of Hollyhock raised from seed since June should be planted in a warm, dry border in the reserve garden. Strong, healthy plants will withstand a reasonably cold winter. Those raised from seed sown now should be wintered in frames, unless an exceptionally dry, warm border is available. Plants that are flowering should not be neglected for water, and a stimulant should be afforded the roots occasionally, or a mulching of half-decayed manure may be placed over the roots. Examine the stakes and see that the central stems are secure against injury by high winds.

THE ORCHID HOUSES.

By T. W. BRISCOM, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

MILTONIA VEXILLARIA.—Towards the end of August the new growths of this Orchid and its many varieties and hybrids will be sufficiently advanced for the plants to be re-potted. Before re-potting examine the shoots for thrips and other insect pests, which may be destroyed by



FIG. 53.—TREE OF *CUPRESSUS THYOIDES* IN THE ROYAL BOTANIC GARDENS, KEW; HEIGHT 25 FEET. (See p. 85.)

(bluestone) and sulphate of iron, has been found exceedingly useful in destroying weeds.

Pericaria or Redshank and *Squirey* may respectively be killed by spraying with 4 and 5 per cent. solutions of copper sulphate; while the following weeds are more or less crippled and seeding largely prevented by spraying with a 5 per cent. solution of copper sulphate, or a 15 per cent. solution of sulphate of iron:—Poppy, Corn Cockle, Black Bindweed, Dock, Groundsel, Dandelion, perennial Sow Thistle, Cornflower, Thistle and Coltsfoot.

* This material is scarce and dear at present.

there as in Middlesex and Surrey. I used to pick off the swollen buds, burning all prunings, and dusting and syringing the bushes with lime and sulphur, but very little improvement followed. In 1914 our crop of Black Currants was so unsatisfactory that I determined to use the knife and jack shears and cut off every shoot, branch and stem level with the ground. New shoots developed rapidly the same season, and they grew to a length of 2 to 3 feet; these were stout, erect, and full of vigour. Last summer, 1915, I gathered a fair crop of fruit from these one-year-old shoots, and this season

dipping the plants in an insecticide, afterwards rinsing them in clean rain-water, and placing them on their sides to drain. *M. vexillaria* is not a deep-rooting Orchid, therefore the pots or pans may be filled to one-third of their depth with drainage material. The rooting medium should consist of Polypodium or *Osmunda*-fibre, in rather small portions, with a sprinkling of chopped Sphagnum-moss and crushed crocks. Some growers add a few partially-decayed Oak and Beech leaves, a practice to be recommended where these Orchids do not thrive well. Others succeed by potting their plants in fibre, without the addition of any other material. Over-potting must be guarded against, and the young growths should be on a level with the rim of the pot. Make the soil firm. Plants that fill their pots with roots may be re-potted again in February with advantage. Where the old soil is in a decomposed condition, it should be removed carefully and dead roots cut away. When the work of re-potting is finished, place the plants in the intermediate house, fairly close to the roof-glass. Water them with extra care. Less direct waterings will be needed if the surroundings are kept moist by occasionally syringing between the pots, and lightly spraying the plants overhead on bright days. As each plant becomes re-established the roots may be afforded water more liberally. Open the ventilators, both at the top and bottom of the house, whenever the weather is favourable. The potting of late-flowering varieties may be deferred for a few weeks until the plants begin to grow and develop fresh roots. With regard to propagation, one method is to cut away the leading pseudo-bulbs with the new growth when the latter is about to form roots. This operation must be done with care, and as many roots retained as possible. The portion thus cut away should be potted, and the remaining old pseudo-bulbs left undisturbed until a new growing point is formed, when they also may be re-potted. The portions propagated will need a little extra shade until they are established. As growth advances the leaves may adhere to each other, and unless they are separated they will be crippled. The handle of a budding knife will be found most convenient for the purpose of releasing the leaves. Examine the plants from time to time for thrips, and directly the pest is detected fumigate the house.

RENANTHERA IMSCHOOTIANA.—After the flowers of *Renanthera imschootiana* are over new roots develop from the stems, and the plants may then be re-potted. The compost should consist of *Osmunda*-fibre mixed with a sprinkling of small crocks and Sphagnum-moss. A layer of fresh Sphagnum-moss, free from weeds, should be placed on the surface. Plants that have become leggy, and have leafless stems, should be severed at the stems immediately below a few new roots and the detached portion potted. The lower part may develop new growth and make a compact plant again. Plants newly potted should be shaded from strong sunshine, and grown in a damp atmosphere, spraying them overhead lightly. They may be grown near the roof-glass of the Cattleya house.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORRUCOTE, Eastwell Park, Kent.

BLACK CURRANTS.—It is a mistake to defer the pruning of the Black Currant until the autumn or winter, for if the work is done now the wood will become thoroughly ripened during the autumn. Remove old, useless shoots and retain plenty of young growths for fruiting next season. Bushes in good health should develop a number of strong shoots from the base, and these are the more valuable for fruiting, but it may be necessary to remove some where they are crowded. Young bushes up to three or four years old require but very little pruning; only when growth is too plentiful should a little thinning be permitted. Old, neglected bushes may be rejuvenated by removing a large number of the old branches, whilst sickly bushes may be cut down to the ground level, to develop young, fruitful growth.

PEARS.—Where the shoots of Pear trees were shortened a few weeks back, lateral growth has commenced, and this should be pinched out, to allow the sun to reach all parts of the tree. By doing this the fruits also will be more exposed, and, consequently, of better colour and flavour. The earlier varieties, such as Williams' Bon Chrétien and Jargonelle, will soon be ripening on warm walls. These trees must be watched, and the fruits gathered as soon as they part readily from the tree. The fruits of these varieties will ripen quickly when taken into the fruit-room, and, as they rapidly deteriorate when fully ripe, should be constantly examined. By picking off the fruit as soon as it is ready, and growing trees in various situations, the season of these favourite varieties may be prolonged. Trees growing against walls, and cropping fairly well, may require water. Plenty of moisture at the roots will ensure the full development of the fruits. If the trees are well established, and bearing good crops, feed them with a fertiliser and liquid manure on alternate occasions, forking the fertiliser lightly in the soil. As a rule, when the trees are not carrying a crop, growth is extra strong, and in such cases stimulants should be withheld. Use the hoe constantly to keep the surface soil stirred, and spread a light mulch over the roots to conserve the soil moisture.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

SOUVENIR DE LA MALMAISON CARNATIONS.—When the layers of "Malmaison" Carnations are sufficiently rooted, they should be potted, using a compost consisting of two parts loam to one of leaf-mould, with wood ash and coarse sand added. The pots should be 3½ inches or 4 inches in diameter, according to the size of the plants. Pot firmly, and place the plants in a cold frame, shading them from bright sunshine until the roots are established. Spray the foliage with rain-water twice daily in warm, sunny weather. At a later stage the plants should receive an abundance of fresh air.

RHODOBENDRON MOLLE (AZALEA MOLLIS).—Water and feed plants of *Rhododendron molle* with great care, in order that the flower-buds may be well developed by the end of the season. Diluted farm-yard drainings, a fertiliser, and soot water may be used on alternate occasions. Syringe the foliage vigorously with clear water each evening during warm, dry weather.

CYCLAMEN.—Some of the more promising of the old plants of *Cyclamen* which were saved after flowering should be shaken out and re-potted in 6-inch pots. The compost should consist of a mixture of loam, leaf-mould, cow manure and lime rubble. Place the plants in a cold frame, and partly plunge the pots in a bed of ashes. Towards the end of August seeds may be sown for raising a fresh batch of plants. Fill pots or pans with light, sandy soil, and sow the seeds in them about 1 inch apart, lightly covering them with fine soil. Cover the pans with a sheet of glass, and place them in a moist, warm house. Shade the glass until the seedlings are through the soil, which should be soaked with water at the time of sowing the seed.

HIPPEASTRUM (AMARYLLIS).—The earliest bulbs have finished their growth, and attention should be devoted to their ripening. Water should be withheld gradually, and the pots stood in a sunny position. Admit plenty of air, and maintain a much lower temperature in the house than when the bulbs were making their growth. Later plants need plenty of water at the roots until the foliage shows signs of ripening.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

PEACHES.—Make preparations for root-pruning such trees in the early houses as need this operation. The work of replacing exhausted trees may be deferred for the present, especially

if wall trees in the open have been selected as substitutes, but few trust to such trees to supply ripe Peaches in May, as it is much better to transfer trees from a succession house. The gaps made in the latter house can be made good by wall trees with every prospect of success. The annual lifting of these reserve trees is quickly performed. Fairly stiff loam from an old pasture or the roadside contains nearly all that is necessary for the production of healthy wood and choice fruit. If the texture is too heavy, the soil may be lightened by adding wood ash and lime rubble; lime is very necessary in the case of stone fruits. If too light, add burnt clay and bone meal, or a little well-rotted manure. Manure, however, should only be used in extreme cases, as it is better to have the compost too poor than too rich. It is important to make the soil firm by ramming. When the planting is finished the soil should be watered copiously to settle it thoroughly about the roots. See that the drainage is perfect. The prepared compost should be from 24 to 30 inches in depth, according as it is heavy or light in texture. The roots should be encouraged to grow near the surface by spreading a mulch over the soil. It may not be necessary to lift the trees wholly, but if the roots have grown through the drainage materials they should be brought to within a short distance of the surface. Keep the trees well syringed with clear water, and, if necessary, shade them for a few days, or until new roots have formed.

SUCCESSION HOUSES.—Peaches in succession houses, having been cleared of their fruits in July and the early part of August, will have ample time for ripening their wood before winter. Let them have plenty of air, both night and day, keep the roots moist, and syringe the foliage freely on fine evenings. Continue to remove superfluous shoots, and re-arrange the branches in order that they may receive an abundance of air. Gather the fruits on late trees early in the day, when they are dry and cool. Trees in late houses should be trained thinly, removing all shoots that are not required. The soil in the borders should not be made excessively rich, or the wood will not mature well.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

CAULIFLOWERS.—In gardens in the Midlands and the North, seeds of Cauliflowers should be sown now to provide plants for producing early heads. In the South the sowing should be made at the end of the present month. It is essential that the plants should grow sturdily, and for this reason the seed should be sown in the open or in pans or boxes filled with loam mixed with plenty of sand and a little lime rubble. Do not add leaf-mould or manure, or the seedlings may damp off after they are transplanted. When the seedlings are large enough to handle, prick them out in frames 3 inches apart each way; or they may be grown in boxes, or singly in 3-inch pots. The finest plants are grown in pots, but this method is more laborious, and may not be practicable during the present labour shortage. Another disadvantage of using pots is that the roots dry quickly in the spring, necessitating constant watering. Expose the seedlings to the weather at every favourable opportunity in winter, but guard against damage from excessive rains and severe frosts. The variety First Crop should be chosen for the earliest crop, with Magnum Bonum and White Queen sown at the same time for a succession. In some districts Autumn Giant succeeds well if sown in the autumn.

WINTER ONIONS.—Onions should be sown in the Midlands and in the North to raise plants for producing early bulbs, and for use as salad-ing. In the South the sowing should be made ten days later. Sow the seeds in shallow drills. With few exceptions varieties suitable for spring sowing may be selected, as most of them are hardy, but White Leviathan should always be included, as the bulbs of this variety form early. The soil for Onion beds should be made very firm.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, August 17 (10 a.m.); Bar. 29.7°; temp. 64°. Weather—Raining.

Pests and Seasons.

Everyone connected with horticulture is aware that the prevalence of plant-pests varies considerably from season to season. In one year certain kinds of insect or fungous pests are common; in another year these become rare and another set of pests take up the tale and reduce or destroy our crops. As the plagues of Egypt came in sequence, so do our pests. Thus in the present year the maggot tribe has been, and is, doing its worst. Young Cabbages have turned yellow and drooped as a result of attack by the Cabbage maggot. The leaves of spring-sown Onions withered and died owing to the voracious habits of the Onion maggot, which invade and devour the bulb. Young Carrots looked promising enough until a hot day came. Then they flagged, and an examination showed that the Carrot maggot was busy in their tap-roots.

Why these several different pests should be so uniformly successful this year, no one knows. It is, of course, easy to theorise, to point to the coldness of early summer and the consequent check to the growth of plants, but we want not theories but facts, based on prolonged and thoroughgoing observation. Such knowledge ought not to be difficult to obtain. To solve the problem is of the greatest importance to horticulturists. Growers cannot themselves undertake the systematic observations necessary for building up knowledge with respect to "seasons and pests"; to acquire that knowledge requires the establishment of a special station, with outlying stations in different parts of the country.

The arbitrary appearance of pests was never better illustrated than this year, when, in the home counties at all events, some fungous pests have been common, whilst other not very distantly allied pests have been rare. Thus attacks of Rose mildew are general and heavy, but those of Gooseberry mildew (of course, a different

genus of fungi) are sporadic, and lighter than in some years.

It is not suggested that a mere recording of such facts as these would be of any use either to science or to practice. For, in the first place, what is good for the one is good for the other, and in the second place it is the clues which these observations offer, and not the observations themselves, which are valuable. It is not to be doubted that if such clues were followed our knowledge of the life histories of pests would be extended. We should learn at what moments they might be attacked with the best chance of success, and we should learn in what seasons spraying against particular pests would be likely to be profitable.

The relatively few workers in plant pathology in this country cannot cope with the multiplicity of the problems which await solution. The whole subject requires organisation, and must, if headway is to be made with it, be established on a larger basis. We require more research into life histories of known pests, and into the nature of the causes of diseases the origin of which is at present obscure. In addition, we ought to have careful and repeated tests of such remedies as have been recommended, and thorough comparison of rival remedies. As an illustration, it may be stated with confidence that growers of Roses under glass do not know what is the best means for keeping down mildew. Yet it is a simple matter to discover, and it ought to be possible to prevent mildew from appearing on any Rose grown under glass. Few outside the ranks of horticulture have any just idea of the magnitude of the horticultural trade, and fewer still realise how profitable to the nation would be the yearly expenditure of a few thousand pounds of public money in assisting the industry to overcome the difficulties under which it labours. We are not unaware of what is already being done, but we have no hesitation in saying that horticulture is not yet receiving anything like the amount of assistance from the State which, having regard to the importance of the industry, it needs and deserves.

CAMPANULA TELHAM BEAUTY.—The remarkably fine seedling form of *Campanula persicifolia* illustrated in fig. 54 was raised by Mr. F. D. THURSTON, gardener and steward at Telham Court, Battle, Sussex, owned by Capt. H. M. LAURENT, who was unfortunately killed last year on active service. The variety was exhibited by Messrs. BARR AND SONS at Holland House Show, 1916, when the novelty received an Award of Merit from the Floral Committee. The colour of the flowers is a soft pale lavender. Some of the blooms on Messrs. BARR's plant measured nearly 4 inches in diameter, and there were as many as twelve flowers expanded on the spike at one time. This handsome Bellflower grows to a height of about 4 feet. *Campanula Telham Beauty* is a good subject for the flower-border, and is very ornamental as a pot-plant.

PARK SUPERINTENDENT'S BRAVERY.—Mr. A. J. WARD, the superintendent of the Municipal Parks of Shrewsbury, is serving with the Royal Garrison Artillery at Portsmouth, and has already been able to show his courage in the face of danger. Two horses attached to a

heavily-laden trolley took fright, and bolted down one of the main streets of the town. Mr. WARD sprang at the horses' heads, and, although he was dragged a considerable distance, managed to bring them to a standstill.

GIFT OF LAND FOR THE SETTLEMENT OF SOLDIERS AND SAILORS.—It was announced in the House of Commons, on the 9th inst., that the Duke of SUTHERLAND had presented to the State about 12,000 acres of land, reserving the fishing for himself and his successors. The farm land is to be reserved for the settlement of soldiers and sailors; five or six thousand acres will be used for purposes of afforestation, and a certain amount set aside for the use of small-holders. The Duke's sheep stock will be left on the land and purchased by the Government, and the State will also acquire the other farm stock and equipments. It is estimated that the expenditure in the first two years for stock and afforestation will amount to about £20,000, and thereafter to some £1,400 a year. After fifteen or sixteen years it is anticipated that the woodlands will begin to give returns.

SUGAR SUBSTITUTE FOR MAKING JAM.—A statement has appeared in the public Press to the effect that benzoate of soda may be used to replace sugar in the preparation of jam. The Board of Agriculture draws attention to the fact that benzoate of soda is quite unsuitable for the purpose in question, and desire to warn the public against its use in jam-making. Serious results might follow an attempt to substitute this material for sugar.

GENEVA HORTICULTURAL EXHIBITION.—The Geneva Horticultural Society is holding an Exhibition during October, 1916, which will continue throughout the month. There will also be an international competition for the "Marc Estalla" prizes. Particulars may be obtained from the secretary, Monsieur JOHN WOLF, Le Pavillon, Grand Saconnex, Geneva.

QUID PRO QUO.—The *National Nurseryman*, U.S.A., says:—France and England are passing laws prohibiting the importation of plants into their respective countries. They may have good reason for it, and, perhaps due to the fact that the United States does not export very great quantities, Uncle Sam is not very much interested. At the same time, it would be quite in order for this country to pass similar laws. It may also have a tendency to extend and develop the home industry.

AMERICAN ANNUAL HORTICULTURAL CONVENTION.—The forty-first annual convention of the American Association of Nurserymen took place at Milwaukee on June 28, 29, and 30. About three hundred members attended. Instructive and interesting papers were read, including one by Mr. J. G. SANDERS, Wisconsin State Entomologist, on "The Alarming Increase in Insect and Fungous Pests."

"LES PALMIERS DE LA CÔTE D'AZUR."—The author of this work, Monsieur CHABAUD, has for years been connected with the Botanical Gardens at St. Mandrier. He gives a description of the many species of Palm he has met during his long career, with their uses and culture. He also gives details of their origin, which will assist growers in providing similar conditions as regards food, warmth, moisture, etc., to those which the plants enjoy in a natural state. The work contains thirty illustrations.

HORTICULTURISTS AND INCOME TAX.—Under the authority of the Board of Inland Revenue, a memorandum has been compiled by the Board of Agriculture, giving assistance to growers with regard to the basis on which their assessment to income tax is made, the allowances to which they are entitled, and the steps to be taken

* *Les Palmiers de la Côte d'Azur*, par B. Chabaud, 1 vol., pp. 208. Librairie agricole de la Maison Rustique, 26, Rue Jacob, Paris. Price 5 francs.

in connection with appeals. Copies can be obtained free from the Board of Agriculture, Whitehall Place, London.

THE CROPS IN AUGUST.—In the monthly report of the Board of Agriculture on the condition of the crops, it is stated:—Summarising the returns, and expressing an average crop by 100, the appearance of the crops on the 1st inst. indicated probable yields per acre which may be denoted by the following percentages: Wheat, 98; Barley, 97; Oats, 95; Beans, 101, Peas, 93; Potatoes, 101; Mangolds, 96; seeds' hay, 109; meadow hay, 107; Hops, 96.

THE FLORA OF ADEN.—In the issue for August 15, 1914, p. 129, appeared a fairly full notice of the first part of the Rev. E. BLATTER's excellent and comprehensive *Flora of Aden*, published in the seventh volume of the *Records of the Botanical Survey of India*. The third and concluding part is now to hand. It contains descriptions of the Monocotyledons, of *Ephedra foliata*, the only Gymnosperm, and a few cellular Cryptogams. No Fern has hitherto been found within the area of this "Flora." As already mentioned, the synonymy is full and often very copious with references. For example, the widely spread *Aristida Adscensionis* is accredited with nearly fifty synonyms. An index to the botanical and popular names is appended to this part.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables, Supplement, *Gard. Chron.*, August 5.)
(Continued from p. 78).

2.—ENGLAND, N.E.

CAMBRIDGESHIRE (*continued*).—Pears are practically a failure, and there are no early or late Plums, but Victorias are a heavy crop, of small inferior fruits. Apple trees, with a few exceptions, are bearing very lightly. Strawberries promised well, but the weather was dry during the early part of the season, and the berries did not swell. *Arthur Sewell, Palace Gardens, Ely.*

ESSEX.—Apples are a total failure, though the fruit-buds appeared to develop satisfactorily last autumn, and there was plenty of blossom. Aphids and other pests have been troublesome. We have a fair number of Pears, whilst Plums are yielding an abundant crop. Peaches, Nectarines and Apricots on the outside walls are failures, though the trees bore an abundance of apparently healthy flowers. Gooseberries and other bush fruits are bearing well, but, on the whole, this is the worst season for fruit in my fourteen years' experience here. *Arthur Bullock, Copped Hall Gardens, Epping.*

—The Plum and Apple crops looked very promising in the early part of the season; there was an abundance of blossom, but the cold, wet, sunless weather spoiled the prospects. Small fruits are fairly good; we had an abundance of Gooseberries. Strawberries were not good, and many of the berries rotted. The crops of Peaches, Nectarines and Apricots are the worst for years past. There are scarcely any nuts. *W. Johnson, Stansted Hall Gardens, Stansted.*

HUNTINGDONSHIRE.—Fruit trees were in a very forward condition in the early spring, when the weather was mild, but it was cold and sunless during the flowering period. Apricots, Pears, and certain varieties of Plums set badly; whilst some Plum trees are bare of fruit, others, in sheltered spots, are heavily cropped. Apples promise well, though an unusually large number of fruits are dropping. Strawberries yielded heavily, though rain in July, followed by cold, dull weather, caused the berries to ripen late. Raspberries and Currants are bearing heavy crops. The soil, apart from the low-lying fen, which is peaty, is a stiff loam over clay, with an occasional seam of gravel. *A. F. Coombe, Ramsey Abbey Gardens, Ramsey.*

—The bad weather in March and April spoilt the promise of a good crop of Apricots. Early Apples are more plentiful than the later varieties. Strawberries were very good and abundant. Plums, especially Victorias, are very plentiful. The soil is a heavy loam over a clay subsoil. *G. H. Gibbens, Abbots Ripton Hall Gardens, Huntingdon.*

LINCOLNSHIRE.—Apples are above the average, and promise well, but Pears are thin. Apricots failed to set, but Peaches and Nectarines are carrying good crops. Victoria Plums are crop-

many of the berries were spoiled by continuous rains. The soil is rather light, on a bed of white clay. *F. Barton, Hainton Hall Gardens, Lincoln.*

—There was promise early of good crops, but the cold winds at the end of May and beginning of June adversely affected those of Apples, Plums and Cherries. *E. C. Norris, Elsham Hall Gardens, Elsham.*

NORFOLK.—Owing to a cold, sunless March, two-thirds of the Peach blossom failed to set. Nectarines are bearing a better crop. Pears on

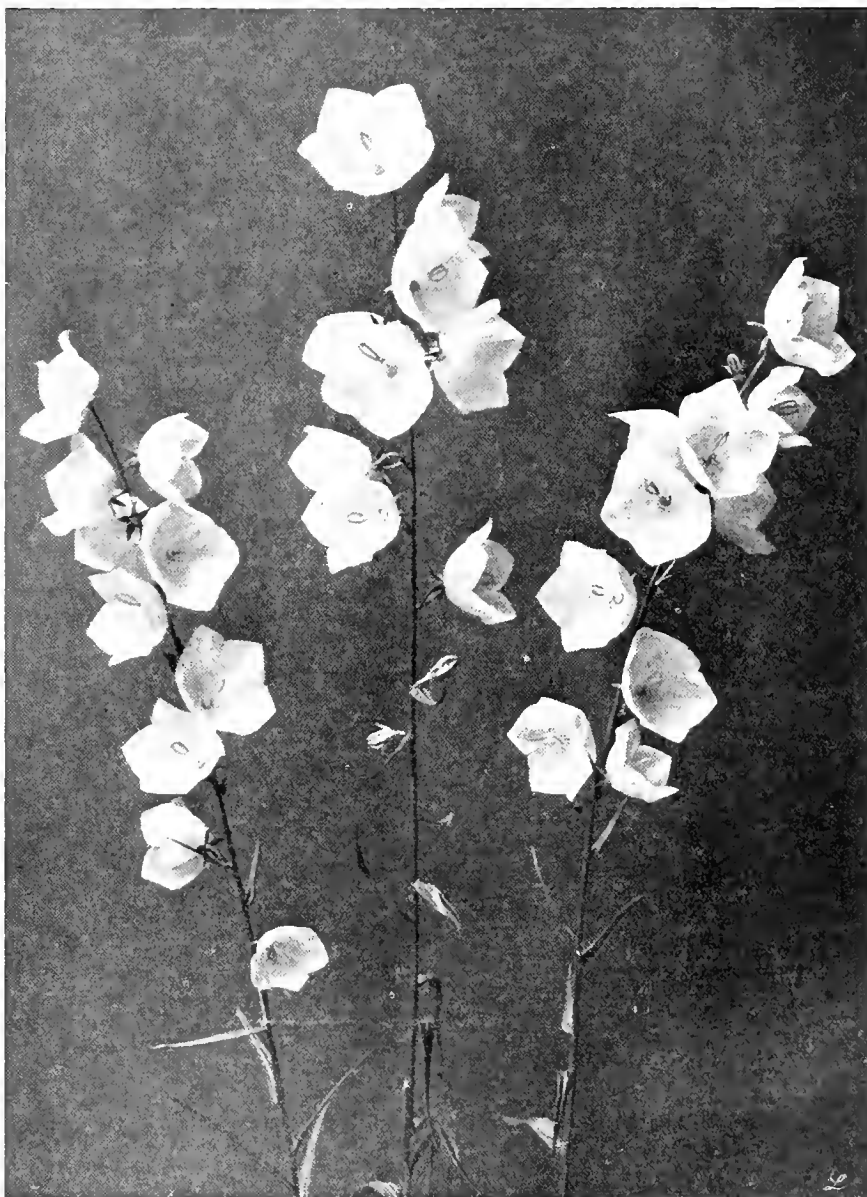


FIG. 34.—*CAMPANULA PERSICIFOLIA* TELHAM BEAUTY: COLOUR OF FLOWERS PALE LAVENDER.
(See p. 88.)

ping well, but other varieties of Plums are very scarce. Strawberries yielded a magnificent crop. Gooseberries and Currants also were very good. Our soil is a heavy loam resting on a cold clay, and the natural drainage is bad. *F. J. Foster, Grimsthorpe Castle Gardens, Bourne.*

—The fruit crops are not so good as they promised in spring. Owing to the extremely cold weather of June the bulk of the Plums and Cherries dropped. Apples, especially Bramley's Seedling, are yielding a very good crop; Gooseberries, Currants and Raspberries were all plentiful and good. Strawberries cropped well, but

walls failed to set, but standard and pyramid trees are well cropped. Apples that carried heavy crops last year have very light ones now, but those which had little fruit last season are more satisfactory. Owing to the showery weather few insect pests are seen on the trees. Strawberries were very late, and numbers of the berries were either eaten by insects or decayed through wet weather. *Isuah Johnson, Cotton House Gardens, Norwich.*

SUFFOLK.—The Apple crop is most disappointing. The trees blossomed abundantly, but the fruit failed to set, which I am inclined to attri-

bute to a lack of bees. Pears are very scarce, following a heavy crop last year. Victoria Plum trees are laden with fruits. Gooseberry and Currant bushes fruited abundantly, and Strawberries also were numerous, but they were late in ripening. *E. G. Creek, County Council Instructor in Horticulture, Shire Hall, Bury St. Edmunds.*

— Only the earliest kinds of Apples set freely, and Pears are a very thin crop. Peaches, Nectarines and Apricots outside are failures. There was a very heavy crop of Strawberries, but frequent rains caused numbers of the berries to rot. The soil is a light, calcareous loam on gravel. *Thomas Stiling, Livermere Park Gardens, Bury St. Edmunds.*

— Bush Apple trees are fairly well cropped, but there are few fruits on standards, although these trees bloomed freely. Plums are not up to the average quantity in these gardens, but there are plenty of Plums in the district. Peaches and Nectarines set well, and the fruits require thinning; the trees are making clean, healthy growth. Apricots promised well, but the blossom was injured by frost. Raspberries and Gooseberries were both plentiful. Outdoor Fig trees on a wall facing east are bearing the best crop for many years. The soil is light and sandy. *William Low, Euston Gardens, Thetford.*

4. MIDLAND COUNTIES.

BEDFORDSHIRE.—The Apple crop is very poor. There was a good quantity of bloom on most varieties, especially on Cox's Orange Pippin and Worcester Pearmain, but very few fruits set. This I consider due to a lack of bees, and to dull, cold, showery weather when the trees were in bloom. We had a record crop of Plums last year, but this season's crop will probably far surpass it. *W. H. Nield, Woburn Experimental Fruit Farm, Ridgmont, Aspley Guise.*

— With the exception of small fruits and Plums, the crops are very poor. Apricot and Pear trees blossomed profusely, but the fruits failed to set. Strawberries cropped abundantly, but the weather was wet and dull at the time of the berries ripening. The soil is very heavy in texture. *T. W. Stanton, Hinwick Hall Gardens, Wellingborough.*

BUCKINGHAMSHIRE.—The season opened with prospects of excellent fruit crops, but unfavourable weather caused the wholesale dropping of all kinds of orchard fruits. Possibly the absence of bees, and consequent imperfect fertilisation of the blossom, may have contributed towards this result. Gooseberries, Currants, Strawberries and Raspberries were all plentiful. Mildew is present on the trees in some orchards, but this is not general. Aphid was very prevalent, but heavy rains practically cleared the trees of this pest. The variety Prince Albert appears to be carrying the heaviest crops amongst Apples. Our soil is a heavy, retentive loam, resting on clay, and the natural drainage is bad. *W. Hedley Warren, Aston Clinton Gardens, Tring.*

— The crops of Apples and Pears are failures. Strawberries rotted in the beds from continued rains. Raspberries yielded a good crop, and Gooseberries and Currants also were satisfactory. Walnuts are plentiful in places, but Filberts are scarce. *William Brookes, Missenden House Gardens, Amersham.*

— We have failed to realise the promise of full crops presented by fruit trees of all kinds at the end of April. Apples were particularly promising, and the flowers were strong, with plenty of pollen, but in the majority of cases they failed to set. We have good crops of Apples Cox's Orange Pippin, Peasgood's Nonesuch, Lord Derby, Grenadier, and Lord Grosvenor, but late keeping varieties are very scarce. Pears are very variable; in some gardens there is an average crop, in others complete failures. Cherries were a good average crop, but heavy rains caused the fruits to crack. Strawberries were plentiful, but cold nights and heavy rains at the

time of ripening caused many of the berries to decay, and all the varieties were inferior in flavour. Bush fruits are plentiful and good. We have an average number of Peaches and Nectarines on wall trees which are clean and healthy. *Chas. Page, Dropmore Gardens, Maidenhead.*

CHESHIRE.—There was a remarkable display of blossoms on all fruit trees, but the spring was abnormally wet and chilly, and no bees visited the trees, with the result that we have few main crop varieties of Apples and Pears. Small fruits fared better. *Alfred N. Jones, Marbury Hall Gardens, Northwich.*

— The fruit trees blossomed freely, but there seemed to be a large number of badly formed flowers, especially of Apple and Pear. The result is that we have much lighter crops than in the two previous years. Frosts occurred during May and the early part of June, attended by very cold winds; add to this insect pests and a shortage of labour, and it is small wonder that many trees are not looking their best. Small fruits, however, were plentiful and good. *Charles Flack, Cholmondeley Castle Gardens, Malpas.*

— Apples, Pears and Plums are, save for a few varieties, almost complete failures. Plum trees blossomed freely, but the fruits set badly. Black Currants yielded more than an average crop, and the quality was good. Strawberries and Raspberries were plentiful, but they ripened badly on account of wet, sunless weather. Gooseberries were less plentiful than for some years past. *T. A. Summerfield, Alderley Park Gardens, Chelford.*

— The fruit crops are very unsatisfactory. Most of our trees are from 12 to 15 years old, the Apples chiefly from the Paradise stock. All are clean and healthy and well exposed, but although they were laden with blossom very few fruits set. *N. F. Barnes, Eaton Gardens, Chester.*

— All fruit trees blossomed freely, but owing to dull weather in spring and the fact that many bees have been destroyed by disease, the fruits did not set. *James Atkinson, Torkington Lodge Gardens, Hazel Grove, Stockport.*

DERBYSHIRE.—The weather in February was very mild, and the fruit buds on Pear and Apricot trees were much advanced by March, when frost occurred. Consequently, the crops of these two fruits are very light, but the few fruits of Pears seem to be of good quality. Apple trees bore great quantities of blossom, and we have promise of a good crop of these fruits. Plums and Cherries also are very plentiful, rain falling just in time to save them from the effects of drought. Small fruits were very plentiful and clean, especially Gooseberries. Strawberries yielded an average crop of good quality berries, but they ripened late, owing to the cold, dull weather of June. *J. Masfield, Darcy Abbey Gardens, Derby.*

— Fruits of all kinds are below the average in number, small in size, and very late. Owing to cold winds in spring many Apples, Peaches and Plums dropped. Most fruit trees are clean and healthy. The soil is heavy and retentive of moisture. *J. H. Goodacre, Elvaston Castle Gardens, Derby.*

— There was promise of good crops of Apples and Pears early in the season, but much damage was caused by east and north-east winds in May and June. Plum trees also blossomed abundantly, but only a moderate amount of fruit set. Cherries were much better than usual, and small fruits were well up to the average in number. *F. G. Mills, Laneside Home Farm, Glossop.*

HERTFORDSHIRE.—With the exception of small fruits and Strawberries the crops are the worst for many years past. There was a marked shortage of Apple and Pear blossom. Plums are better, and some varieties, including Victoria, are bearing good crops. Apricots bore very little bloom; Peaches and Nectarines were smothered

with flowers, but in many cases they developed imperfectly. The almost total absence of fruit is probably the result of the severe weather experienced during March. *Thomas Nutting, Childwickbury Gardens, St. Albans.*

— The principal fruit crops are most disappointing, after an unusually fine promise. Apple, Pear and Plum trees flowered splendidly, but in the great majority of cases the fruit failed to set, though no frost was registered during the flowering period. In the case of Peaches, both under glass and in the open, fruits appeared to set, but failed to swell. Plum trees (Victoria, Czar, Early Rivers, and Damsons) are heavily laden with fruit. Cherries, both dessert and Morellos, were good crops and of fine quality. All kinds of bush fruits were most satisfactory. Black Currants were by far the best we have had for many years past. Strawberries suffered from lack of sunshine. Nuts are a failure, and the foliage is badly eaten by caterpillars. On the whole, this is one of the worst fruit seasons for over 30 years. The subsoil is a stiff clay. *Edwin Beckett, The Gardens, Aldenham House, Elstree.*

— The crops of Apples, Pears and stone fruits are very disappointing in quantity, although the quality is good. There was plenty of blossom, and apparently the flowers set well, but a severe attack of caterpillars almost denuded the trees of foliage and fruit. Strawberries were numerous and good. Other small fruits were also plentiful and good. The soil is cold and heavy, overlying the London clay, and requires much draining. *E. F. Hazelton, North Mymms Gardens, Hatfield.*

LEICESTERSHIRE.—The Apple, Pear and Plum crops are very poor. There was a fair amount of blossom, but cold winds prevailed at the time of flowering, and the fruits did not set. Owing to continuous rains and cold winds of June and early July, many of the Strawberries rotted on the plants. Gooseberries, Red and Black Currants, and Raspberries were above the average, and the fruit was clean and good. Peach trees on walls are clean and healthy; the varieties Dymond, Early Rivers, Sea Eagle, and Waterloo are all carrying average crops of fruits. Apple trees have been infested with the caterpillar of the Winter Moth. The soil is of a loamy nature; the subsoil is red clay. *Daniel Roberts, Prestwold Gardens, Loughborough.*

— Apple and Pear trees flowered abundantly, but very few trees are bearing a full crop. Apple Warner's King is the best cropped variety, and some other sorts which did not bear last year are fruiting well. Raspberries, Loganberries, Red and Black Currants, and Gooseberries were all satisfactory crops. A general failure of the Peach crop is noticeable here, caused by unfavourable weather while the young wood was maturing last year. The varieties Sea Eagle and Princess of Wales, however, have good crops. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

— The Apple crop is a complete failure, owing mainly to the very cold, dry weather in spring. There are plenty of Plums, Raspberries, and Red and Black Currants, but very few Pears and no Apricots. *Wm. Paterson, Swithland Gardens, Loughborough.*

NORTHAMPTON.—Apple and Pear Trees flowered freely, but were attacked by the Winter Moth, which left scarcely any foliage on the branches. Strawberries gave an abundant crop, but many of the fruits rotted before they were ripe. Plums are yielding a heavy crop, and the trees are, so far, free from aphid. All kinds of Currant bushes were laden with fruits of good quality. *C. F. Crump, Althorp Park Gardens, Northampton.*

— The fruit crops in this district are generally light, especially stone fruits. We have a fair number of Plum Cox's Emperor, but very few fruits of other varieties. Cherries and Apricots are failures. There are good crops of Apples

Lane's Prince Albert, Ecklinville Seedling, Irish Peach, and Ribston Pippin, but other varieties are very scarce. Small fruits were very plentiful and of fine quality. The soil is a medium loam, overlying ironstone, varied in some parts by limestone and blue clay. *J. Meager, Harrowden Hall Gardens, Wellesborough.*

NOTTINGHAMSHIRE.—Apple, Pear, Plum and Damson trees bore abundant blossoms, but cold, sunless weather, with cold winds, prevailed during most of the flowering season, followed by a short period of heat during May, whilst June was very cold. A few Apples, such as James Grieve, Gladstone, Lord Grosvenor, and King of the Pippins have full crops. Bramley's Seedling, Newton Wonder, Lane's Prince Albert, and most late varieties are failures. Pears nearly all dropped, and many Plums fell, but there are full crops of Czar, Victoria, and Early Transparent Gage. Black Currants gave great promise, but many of the berries dropped during the hot weather in May, as did Pears and Apples. Red and White Currants gave abundant crops, and Raspberries were satisfactory. Strawberries suffered from wet in spring, cold and drought afterwards, and rain when the berries were ripening. The soil, Keuper marl, is stiff, difficult to work, and somewhat cold. *J. R. Pearson and Sons, Lougham.*

— Apples failed to set well, owing probably to the prolonged low temperature when the trees were in bloom although we did not register frost at that period. Plum trees are bearing a heavy crop of good quality fruit; this applies also to all small fruits, especially Gooseberries. Peaches and Apricots in the open failed to set well. *S. Barker, Clumber Park Gardens, Worksop.*

— The Apple and Pear crops are comparatively light. The trees bore heavily last year, which probably accounts for the deficiency. The trees are clean and healthy. Gooseberries and Currants were plentiful, and there was a good crop of Strawberries, although the berries ripened late. We registered 5° of frost on June 13, but this caused little damage to the Strawberry crop, as the foliage was well developed. *James Gibson, Welbeck Abbey Gardens, Worksop.*

— Apples promised well when in bloom, but cold weather at the beginning of June did much damage. The varieties Worcester Pearmain, Cellini Pippin, Bismarck and Warner's King are the best cropped. Our soil is very light in texture with a gravel subsoil. *Thomas Simpson, Newstead Abbey Gardens.*

— Considering the splendid show of blossom on all fruit trees the crops are very light. This applies especially to Pears and Apricots. Apples are the most plentiful, and showers in July cleared the trees of aphid, which was very prevalent this season. Small fruits of all kinds are plentiful, and of good quality, but the unfavourable weather when the berries were ripening seriously injured the Strawberry crop. Our soil is of a light nature on a subsoil of clay. *Arthur C. Lehane, Park Hall Gardens, Mansfield.*

(To be continued.)

THE MARKET FRUIT GARDEN.

FARMYARD MANURE V. ARTIFICIALS.

WHILE liberal dressings of mixed artificial manures in my orchards have never shown any striking results, and frequently have not done any obvious good at all, cow manure bought locally or from London has given some striking proofs of its beneficial action. In one plantation of Apples and Black Currants cow manure was applied in 1915 at the rate of 20 tons per acre to the greater part of the land and dug in. But none was applied to one end of the field in which the trees and bushes were growing very vigor-

ously. The orchard had been planted only seven years, and had not borne any considerable crop of Apples. The manuring was stopped after two rows of Allington Pippin and the Black Currants among them had been done by mistake, my intention having been to stop with the variety next to Allington. This season a very striking difference was noticed between the growth of the manured and that of the unmanured trees and bushes alike. Indeed, it was the great difference between the sizes of the Black Currant bushes and the crops upon them which attracted my attention before I had remembered the difference in treatment, and then it was found that there was a corresponding difference in the growths of the trees. In another orchard of Apples and Black Currants cow manure was applied on half the land, for the trees only, in 1914, while all the land was dressed on the second half in 1915, bushes as well as trees being manured. On the latter half the Black Currant crop was quite double that grown on the part of the orchard manured in 1914, trees only



FIG. 35.—CRINUM LINEARE: FLOWERS WHITE, STRIPED WITH PINK OUTSIDE.

(See p. 92.)

being dressed. Now as to the numerous trials made with artificial manures. In one orchard of Apples and Black Currants 8 cwts. per acre of mixed manures, containing nitrogen, phosphates, and potash were applied for two years in succession, one row of trees and bushes excepted. In the third year nitrate of soda alone was used, the test row being again missed. In no year when the fruit was maturing could I see the slightest difference in tree or bush growth or quantity or size of fruit between the unmanured row and the trees and bushes on either side of it. Again, in 1914, three varieties of nitrogenous manure were applied to trees and bushes in three orchards, one row in each being undressed. At the end of the season there was no noticeable difference in any one case between the manured and the unmanured trees and bushes, in growth, size and colour of foliage, or fruit. In earlier years numerous experiments were made with different artificial manures singly and in combination, careful records being kept, and no very decided differences were ever noticed in the trees, though some were seen in Gooseberry

bushes. None too soon the conclusion was forced upon me that what my land needs pre-eminently is organic manure. Before it came into my possession it had been farmed exhaustively for about half a century.

SUCCESSFUL RECLAMATION.

Some years ago an acre of down land was dug, levelled, drained, chalked, and manured, with a view of growing upon it green crops for horses. As the land in its natural state had grown scarcely anything but Fern or Furze in patches and extremely scanty grass elsewhere, there did not seem to be much prospect of success. The first crop was one of Potatoes, and it was an astonishingly heavy one to be grown on such land. Afterwards Trifolium and Rye Grass were grown on half the land, and Tares and Oats on the other half, for some years, changing the land for the two crops annually. Now the acre is planted with Apples and Black Currants, which are as flourishing as any on the farm. Later, an additional piece of down land was treated in the same manner as the first piece, and sown with Lucerne. Four good cuttings were obtained in the first season, when frequent rain favoured growth, and this year there will have been three cuttings before the end of September. Similar land on the other side of the road was acquired a year ago by a market gardener. It had been used by predecessors for cows and poultry, and the soil was mainly a very thin layer over the Tunbridge Wells sand. About two acres were dug up (bastard trenched, as in my own case), the turf, face downwards, being placed at the bottom of each trench. The result is astonishing to all who have seen it, as the crops of Potatoes, Peas, Beans, Vegetable Marrows, Celery, and various members of the Cabbage tribe are all excellent.

LEAF SPOT.

Leaf spot (Phyllosticta) is much in evidence this season on a few varieties of Apples, and notably on Cox's Orange Pippin. The attack, like that of brown rot, is worse than it has been before for some years. There was very little of the disease last season. Plum foliage is similarly affected by one or other of the diseases which cause leaf-spotting or perforation. *Southern Grower.*

VEGETABLES.

SPRING CABBAGES.

CHOOSE an open situation for the seed-bed, and ground that is not excessively rich. Sow the seeds in drills made at 1 foot apart. In dry weather water the drills before sowing the seed. Transplant the seedlings as soon as they are large enough to handle. In some parts of the country Cabbages need to be planted early in September in order that the plants may be well established before the winter. Small, sturdy plants are the best, for they may usually be relied upon to pass through an ordinary winter without serious injury.

If very early heads are required select the more forward plants and grow them in moderately rich soil in a sheltered position. But for the main crop choose an open situation and firm, but not over-rich, soil. Cabbages never grow well in poor soil, therefore choose ground that has been manured liberally for a previous crop. I usually plant after spring Onions; no further preparation of the ground is needed beyond the hoeing and cleaning. The plants, having been previously pricked out as advised, should be lifted with a ball of soil attached and planted with a trowel. Water the roots liberally until the roots are re-established.

The rows should be 2 feet apart, and the plants 18 inches asunder in the rows. The smaller seedlings may be left in the beds or dibbled 4 inches apart, to remain for the winter

and planted out in the spring. They will be useful to make good losses in the rows of the main batch.

As a preventive of damage by slugs, scatter newly slaked lime or soot about the plants soon after they are transplanted. Frequent hoeings in dry weather are very beneficial. Stimulants should not be applied in winter, but after the time of severe frosts is over the roots may be fed with soot, nitrate of soda, liquid manure, guano, and other stimulants. The following varieties are suitable for August sowing:—Harbinger, April, Flower of Spring and Imperial. *James A. Paice.*

CRINUM LINEARE.

On July 16 a *Crinum* flowered in my greenhouse which I have never seen before, and which I believe to be the species figured in *Bot. Mag.*, t. 915, as *Amaryllis revoluta*, L'Héritier, but which in Baker's *Amaryllideae* is identified with *C. lineare*, Linn (see fig. 35). The bulb was procured from Messrs. Barr two years ago with a label stating that it was collected at Mafeking by Mr. P. Barr as long ago as 1891. It has the smallest bulb and narrowest leaf of any *Crinum* from South Africa that I know, the bulb being only an inch and a quarter in diameter, covered with a hard, brown, shelly integument, which points to its being capable of enduring a long drought. The basal sheaths are about 2 inches long, above which are linear deeply-channelled leaves one foot to one foot and a half long; the peduncle is stout, and only 6 inches long. The short pedicel is concealed by scarious bracts; the perianth-tube is green, curved 2 to 3 inches long, the segments lanceolate, acute, recurved at the tip, 2 inches long, white, striped pink outside, pure white within; the filaments and anthers white, $\frac{1}{2}$ inch shorter than the pink style. The plant was originally found probably in the interior of Cape Colony, by Thunberg and Burchell, and by Masson, who introduced it to Kew in 1774.

Baker makes *Amaryllis revoluta* var. *gracilior*, figured in *Botanical Register*, t. 625, a synonym of *Crinum lineare*, in which he is probably correct, though the bulb as figured is twice as large as mine, and no sheathing spathes are shown in the figure; the other differences do not seem to be specific. Herbert says of this plant, which he calls *C. revolutum*, that it is a very ticklish plant to grow, requiring absolute drought in a cool situation during the six winter months; the bulb must not be kept above ground, but the neck just emerging; it will flower in summer in the greenhouse. It seems to have a good constitution at Colesborne, but Baker had never seen it alive, and described it from dried specimens. The only South African *Crinum* with which this species can be confounded is *Crinum aquaticum* of Burchell. *Bot. Mag.*, t. 2,352, for which Baker adopts Herbert's name of *campanulatum*, and of which he says (*Amaryllideae*, p. 270): "A most remarkable plant, very like *variabile* in habit, but the leaves less vigorous, more fleshy, and tortuous. This was found by Burchell in the East of the Cape Colony in shallow, grassy ponds liable to dry up, and is a hardy greenhouse plant not requiring constant immersion and very prone to rot if incautiously watered." I have other plants of uncertain origin under the names of *lineare* and *aquaticum*, with narrower leaves and smaller bulbs, which seem to require more heat and moisture when growing than *C. lineare*; but until they flower I cannot tell what they are, as there is nothing in Baker's *Handbook* with which they can be identified. But I am inclined to think that all the South African species of this very variable and difficult genus can be referred to three types as follows:—

1. The common *Crinum longifolium*, Thunb. = *capense*, Herb., the commonest and hardiest *Crinum* in our gardens, which has many varieties

and some hybrids, of which, perhaps, Powellii is the best.

2. The small *Crinum lineare*, which I have above described.

3. The large-bulbed, long-necked group, of which *Crinum Moorei* is the best-known, and which is also very variable. This species, if planted deep, is nearly as hardy as *C. longifolium*; it suffers little even from such cold, wet winters as the last if planted at the foot of a wall, though the flowers are often spoiled in autumn.

It is much to be hoped that Mr. Worsley will, before long, give us the benefit of his knowledge of this beautiful genus, and bring Herbert's and Baker's works up to date. *H. J. Elwes.*

A PRELIMINARY LIST OF THE SPECIES OF SEDUM IN CULTIVATION.

In this journal eighteen months ago (November 21, 1914) I drew attention to the great confusion existing in the genus *Sedum* as found in cultivation. Some examples were given of the large number of names under which some of the common species masquerade, and also of the profusion of spurious names—names, that is, corresponding to no described species—which are in frequent use.

Since that time hundreds of *Sedums* have passed through my hands, received from many parts of the world, from California on the west to Japan on the east, by the kindness of many correspondents. I should like to acknowledge particularly the help received from the Royal Horticultural Society's trial of *Sedums* at Wisley, which also passed (and is still passing) through my hands; also the valuable assistance received from the directors and staffs at Kew, Edinburgh, and Glasnevin.

Although a number of puzzling plants—some of them certainly undescribed species—still remain, and although others, not having yet flowered, cannot be named at present, perhaps a list of the species in cultivation so far definitely determined may be useful.

From the point of view of their horticultural history we may divide the *Sedums* into three groups:—

(1) Species long in cultivation. These are largely European natives, but include some from Asia (chiefly the Caucasus, Himalayas, Japan, and Siberia), and the United States.

(2) Mexican species. Recent botanical exploration has revealed a very large and varied *Sedum* flora in Mexico. A few in this section are hardy, but most require a cool house. Through the botanic gardens of Washington and New York, many of these plants have been introduced into cultivation.

(3) Chinese species. The explorations of Henry, Wilson, Forrest, and others have resulted in the description from dried material of a very large number of new *Sedums* from Western China; while some of these would be desirable for the garden, many are rather inconspicuous plants. Very few are as yet known in cultivation, though the majority would probably be hardy in our climate.

As compared with the list of cultivated *Sedums* given in Dr. Maxwell Masters' monograph in this journal for 1878, therefore, the main additions are among the half-hardy or tender Mexican species, but large numbers of miscellaneous species have also since come into cultivation. The relative frequency in gardens of the different kinds varies considerably, some being found in almost every cottage garden, while others have been received from only a single source. I have endeavoured by the following list to express frequency by the letters c. (common), f. (frequent), r. (rare), and v.r. (very rare). As the correct name of some of the plants is in gardens often replaced by some other name, I have added in parentheses the synonym most frequently met

with, but it is impossible to give here the mass of erroneous names which are used with such unfortunate frequency in this genus.

Will readers who believe that they possess species not included in this list send specimens to me at Lisnabee, Rathgar, Dublin; or send a root or cutting to the Director, R.H.S. Gardens, Wisley, where it will be grown and subsequently named.

HARDY SPECIES.

c. acre, L.	f. Middendorffianum, Maxim.
c. Aizoon, L.	v.r. monregalense, Balb.
v.r. Alberti, Regel.	r. noranense, H.B. and K.
r. alboroseum, Baker.	v.r. multicaule, Wall.
c. album, L.	f. multiceps, Coss. and Dur.
v.r. alpestre, Vill.	(murale, Hort. = album var.)
v.r. alsinifolium, All.	f. Nevii, A. Gray.
c. altissimum, Poir.	(nicæense, All. = altissimum.)
r. amplexicaule, DC.	(obtusatum, Hort. = oreganum.)
c. Anacampseros, L.	(ochroleum, Vill. = altissimum.)
v.r. anglicum, Huds.	(oppositifolium, Sims = spurium.)
v.r. annuum, L.	c. oreganum, Nutt.
c. anopetalum, DC.	r. pilosum, M.B.
(arborescens, Masters = moranense.)	f. populifolium, Pallas.
(asiaticum, Clarke = crassipes.)	v.r. Praegerianum, W. W. Smith.
(Beyrichianum, Masters = Nevii var.)	r. pruinuloides, Franchet.
(boloniense, Lois. = sexangulare.)	v.r. pruinatum, Eretost.
r. brevifolium, DC.	(pruinatum, Hort. = rupestre.)
v.r. bupleuroides, Wall.	f. pulchellum, Michaux.
v.r. Ceylan, L.	(purpureum, Link. = Telephium var.)
r. coeruleum, Vahl.	v.r. rariflorum, N. E. Br.
f. crassipes, Wall.	c. reflexum, L.
v.r. cyanum, Rudolph.	(Rhodiola, DC. = roseum.)
f. dasyphyllum, L.	v.r. rhodanthum, A. Gray.
r. divergens, S. Wats.	c. roseum, Scop.
f. Douglasii, Hooker.	c. rupestre, L.
v.r. elongatum, Wall.	r. samentosum, Bunge.
f. Ewersii, Ledeb.	v.r. Selskianum, Regel and Maack.
(Fabaria, Koch = Telephium var.)	v.r. Semenovii, Masters.
fastigiatum, H. (f.) and T.	r. sempervivoides, Fisch.
(Forsterianum, Smith = rupestre var.)	c. sexangulare, L.
(glanum, L. = hispanicum, L.)	f. Sieboldii, Sweet.
r. gracile, C. A. Meyer.	f. spatulifolium, Hook.
v.r. gypsicolum, Boiss. and Reut.	c. spectabile, Boreau.
v.r. heterodontum, Hook. (f.) and Thoms.	c. spirium, M. B.
v.r. himalense, Don. (himalense, Hort. = Douglasii.)	v.r. stellatum, L.
v.r. hirsutum, All.	r. stenopetalum, Pursh.
f. hispanicum, L.	r. stoloniferum, S. T. Gmelin.)
c. hybridum, L.	v.r. Strubni, Velen.
v.r. japonicum, Siebold.	v.r. Tatarinowii, Maxim.
c. kamschatcicum, Fisch. and Mey.	c. Telephium, L.
r. Kirilowii, Regel.	v.r. teneilum, M. B.
f. lydium, Boiss.	r. ternatum, Michaux.
r. magellense, Ten.	v.r. tibeticum, H. (f.) and T.
(Maximowiczii, Regel = Aizoon.)	r. trifidum, Wall.
c. maximum, Suter.	v.r. verticillatum, L.
(Maweanum, Hort. = acre var.)	v.r. villosum, L.
	v.r. Yunnanense, Franchet.
	v.r. Zentaro-Tashiroi, Makino.

HALF-HARDY OR TENDER SPECIES.

(Almost all very rare in cultivation.)

Adolphi Hamet.	lenophylloides, Rose.
alanosatum, S. Wats.	Liebmannianum, Hensley.
allantoides, Rose.	lineare, Thunberg.
bellum, Rose.	longipes, Rose.
Bourgaei, Hensley.	mexicanum, Britton.
chapelense, S. Wats.	medullatum, Rose.
Cockerelli, Britton.	nudum, Aiton.
compactum, Rose.	nutans, Rose.
compressum, Rose.	oaxacanum, Rose.
confusum, Hensley.	oxypetalum, H. B. and K.
cupressoides, Hensley.	pachyphyllum, Rose.
dendroideum, Moq. and Sesse.	Palmeri, S. Wats.
diversifolium, Rose.	potosinum, Rose.
elaeagnatum, Moq. and Sesse.	praetium, DC.
formosanum, N. E. Br.	retusum, Hensley.
frutescens, Rose.	rhodocarpum, Rose.
glabrum, Rose.	rubricaulis, Rose.
Hensleyanum, Rose.	Stahlii, Solms.
humifusum, Rose.	Trelasii, Rose.
	versadense, C. H. Thompson.
	Wrightii, A. Gray.

All these I have or have had in cultivation, with the exception of the Japanese *S. japonicum* and *S. Zentaro-Tashiroi* (Tokio), and the Mexican *S. Adolphi* (Berlin). I have no definite information that these three plants are still in cultivation, but they were recently in gardens.

In addition to the above lists, *S. rubens* has been several times in cultivation, though apparently it is not so at present; *S. adenotrichum* was formerly grown at Oxford; *S. englerianum* was in cultivation in Berlin, but has been lost; and the following were in cultivation at Washington, but most or all of them are there no longer:—*S. clavifolium*, delica-

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 15.—The usual fortnightly meeting was held on Tuesday last, in the Vincent Square Hall. The exhibition was probably the smallest since the hall was opened.

The Orchid Committee recommended two Awards of Merit to novelties, and awarded three medals to collections.

The Floral Committee recommended one Award of Merit to a new Dahlia, and three medals to collections.

At the 3 o'clock meeting of Fellows in the Lecture Room Mr. GURNEY WILSON gave a lecture on "Orchids."

Floral Committee.

Present: H. B. May, Esq. (chairman), Messrs. H. Cowley, E. H. Jenkins, W. P. Thomson, John Green, C. Dixon, John Dickson, W. J. Blakey, A. R. Allan, G. Reuthe, E. A. Bowles, J. W. Barr, John Heal, J. Jennings, T. Stevenson, Arthur Turner, G. Harrow, W. J. Bean, S. Morris, H. J. Jones, and J. F. McLeod.

AWARD OF MERIT.

Dahlia Bonfire.—A perfectly formed Collette flower of good average size and possessing a long stiff stalk. The pointed ray florets are of vivid scarlet colour, and the quills are of a paler shade of the same colour, slightly streaked and tipped with white. Shown by Messrs. DOBBIE AND Co.

OTHER NOVELTIES.

MESSRS. BAKER, LTD., Wolverhampton, showed a large pan of *Gentiana septemfida* var. *Lugodechiana*, which was raised from seed distributed from the Imperial Botanic Gardens, Petrograd. The plant has a spreading habit, and the flowers are of a pleasing shade of soft blue.

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), exhibited well-trained specimens of Chinese climbers in very large pots. Particularly noteworthy were *Holboellia cornacea*, with tripartite, Stephanotis-like leaves. *Vitis Vicarii*, a light green-leaved Vine; *V. Henryana*, *Sinofranchetia chinensis*, and *Rubus flagelliformis*. Adjoining this exhibit were leaves of *Gunnera manicata*, *G. scabra*, and *G. Elwesii*, also from Aldenham. The two first-named are old favourites in the bog garden; the last has white ribs, similar to those of *G. manicata*, and the foliage is about the same size as that of *G. scabra*, but the leaves are much more deeply cut than in the other two species.

GROUPS.

The following awards were made to collections:—

Silver-gilt Banksian Medals to Mr. J. Box, Haywards Heath, for a large collection of border Phloxes and other hardy border flowers. Of the Phloxes *Caran d'Ache*, salmon-rose, *Fiancee*, white; *Madame Yopelins*, blush with rosy-purple eye; *Crepuscule*, pearly-grey with rosy eye; and *G. A. Stroheim*, orange-scarlet with carmine eye, were very beautiful; and to Messrs. KELWAY AND SON, Langport, for a large collection of *Gladioli*. Those with yellow shades were very prominent, and well illustrated the advance made in raising varieties of this colour during recent years. Such sorts as *Alice Woods*, *Mrs. Graham*, *Yellow Beauty*, *Golden Ray*, and *Marie Studholme* were shown finely.

Silver Banksian Medal to Mr. J. REUTHE, Keston Park, for a collection of hardy plants, which included such uncommon shrubs as *Desmodium Dillenii* and *Berberidopsis corallina*, as well as sprays of *Buddleia variabilis* varieties and herbaceous and rock garden plants.

Messrs. J. CHEAL AND SONS, Crawley, showed their decorative Star Dahlias, and a small collection of Cactus varieties.

MESSRS. W. WELLS, JUNR., Merstham, showed handsome spikes of such *Delphiniums* as *Rev. E. Laseelles*, *Merstham Glory*, *Cossack*, and *Mrs. C. Wells*.

Orchid Committee.

Present: Sir Harry J. Veitch (in the chair, Sir Jeremiah Colman, Bart., Messrs. Jas. O'Brien (hon. secretary), R. A. Rolfe, F. J. Hanbury, T. Armstrong, Pantia Ralli, E. R. Ashton, Walter Cobb, J. Charlesworth, C. H.

Curtis, S. W. Flory, W. Bolton, Gurney Wilson, Stuart Low, and W. Thompson.

AWARD OF MERIT.

Cattleya Weedonaurca (*Weedoniensis* × *Dowiana aurea*), from the Duke of MARLBOROUGH, Blenheim, Woodstock (Orchid grower Mr. Smith).—A distinct and richly-coloured hybrid, with the general habit of *C. Hardyana*. The sepals and petals are pale rose colour, with slightly darker veining, and a shade of golden-yellow colour. The lip is ruby-crimson, with a yellow base and golden lines running into the centre. In *Cattleya Weedonensis* (*granulosa* × *Mendelii*) *C. granulosa* is dominated by *C. Mendelii* and *C. Dowiana*; in consequence the narrowing influence of its lip is not effective in the hybrid, and the more ample *C. labiata* form appears.

Laelio-Cattleya Serbia (*L.-C. St. Gothard* × *C. Endl*), from Messrs. CHARLESWORTH AND Co., Haywards Heath. One of the finest and best of the *Cattleya*-form *Laelio-Cattleyas*, and ranking with *L.-C. St. Gothard*, *Cattleya Dupriana*, and others that have *C. Warneri* in their ancestry, a parent which invariably transmits large size, fine shape, and rich colour. The broad sepals and petals are bright rose colour; the lip is coloured deep claret with gold lines from the base.

CULTURAL COMMENDATION.

To Mr. THURGOOD, gardener to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for a fine specimen of *Odontoglossum aspidorhinum*, with a large number of graceful spikes of flowers, the white labellums spotted with violet being the chief feature. In its floriferous character the species stands alone in *Odontoglossums*. The characters are set forth by its discoverer, F. C. Lehmann, in *Gard. Chron.*, Sept. 28, 1895, p. 356, where it is stated, "not only does every pseudobulb produce two flower-spikes at one time, but they do so for two or three years in succession."

GENERAL EXHIBITS.

FREDERICK J. HANBURY, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews), showed the pretty *Cypripedium* Miss Faith Hanbury (*niveum* × *glaucohyllum*), the spike bearing three wax-like white flowers, with dotted lines of purple on the petals and dorsal sepal.

Dr. MIGUEL LACROZE, Bryndir, Roehampton Lane, showed *Laelio-Cattleya Colmaniana* Bryndir variety (*L.-C. callistoglossa* × *C. Dowiana aurea*). The flowers are of fine form. The sepals and petals are lilac-rose colour, with darker veining. The lip is tubular at the base, ruby-purple in colour, with gold lines from the base to the centre.

MESSRS. CHARLESWORTH AND Co., Haywards Heath, were awarded a Silver Flora Medal for a good group of *Odontoglossums*, *Laelio-Cattleyas* and others. The best novelties were the richly-coloured *Laelio-Cattleya Appam* (*L.-C. Scylla* × *C. Dowiana aurea*), a charming combination of yellow, cherry-red, and crimson, in flowers of medium size; *Cattleya Kitty Wren* (*Fabia* × *Gaskellhana*), a good rose and purple coloured flower, formed like *C. Gaskelliana*, and having its sweet odour; the beautiful *Cattleya Hesta*, which received an Award of Merit in July 18, 1916; some fine white-petalled *Laelio-Cattleya Salonica*, *L.-C. Britannia*, and the unique *Odontoglossum ardentissimum* *Pintadeau*, with fine, broad-petalled, yellowish-red flowers, with white margin.

MESSRS. HASSALL AND Co., Southgate, were awarded a silver Banksian Medal for a group of their handsome *Cattleya Sybil* and *C. Adula*, both varieties varying much in shape and colour. *C. Sybil* Lord French is a superb form, with very handsome ruby-crimson lip; the central part is orange-coloured.

MESSRS. STUART LOW AND Co., Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for an effective group, in which their fine forms of *Cattleya Warscewiczii* constituted the main feature, one plant having twenty blooms. *Cattleya Dupreana*, *C. Wavriniana* and other showy *Cattleyas* and *Laelio-Cattleyas* were also exhibited, with *Odontiodas*, including *Odontioda Rolfei* (*Ochlioda vulcanica* × *Odm. Hunnewellianum*), an elegant, though not showy hybrid, with cream-white flowers marked with light purple.

tum, filiferum, Painteri, semiteres. submontanum. Some others are recorded as having been in cultivation, as in Dr. Masters' monograph, but there is reason to believe that the determinations were not correct. About 25 additional species in my garden or elsewhere await identification or fuller examination, bringing up the total number of *Sedums* in cultivation, so far as I have been able to determine, to about 140 species. R. Lloyd Praeger.

HOME CORRESPONDENCE.

ROSE FRAU KARL DRUSCHKI (see "Confections of a Novice," p. 39).—The original tree of Frau Karl Druschki Rose stood in the nursery of Mr. Peter Lambert, at Trier, in 1909. The owner said the seedling tree remained so long without flowering that he was considering its destruction, when its snowy blooms burst forth. Will Taylor, Osborn Nursery, Hampton.

CULINARY PEAS (see pp. 59, 79).—I inspected the trials of culinary Peas at Wisley on two occasions this season, and I may state that they were the finest trials I have seen. Apart from good cultivation, the dull, sunless days of June were doubtless favourable to plants in the light soil at Wisley. I have always maintained, and am still of the opinion, that overcrowding militates against attaining the best results with edible Peas, and, naturally, the larger and finer the variety the more room the plants require. I have been specially interested this season in a row of the variety *Quite Content*, grown by an enthusiastic amateur, Mr. T. Eames, of High Street, Elstree. The seeds were sown in a box covered with a sheet of glass in the early spring, and the seedlings were planted in ground which had been trenched three feet deep. The distance allowed from plant to plant was twelve inches, in a single line only, and single bamboo rods were used as supports. The plants commenced to crop at 2 feet 6 inches from the ground, and the laterals were not removed. The first pods were gathered on July 8; on July 12 Mr. Eames was awarded the 1st prize at Elstree Show for remarkable pods. On August 1 he was awarded a Cultural Commendation by the R.H.S. Fruit Committee for fine pods picked from the same row. To-day (August 12) I have seen the row, which is still bearing freely and has furnished sufficient Peas for home use nearly every day since July 8. The results prove the value of thin planting. Edwin Beckett.

WISTARIAS (see p. 61).—I was informed by my father that three plants of *Wistaria sinensis* were given to Mr. Turner. My grandfather was, I believe, head gardener at the time at Rooksnest, my father succeeding him. One of the plants was sent to Redleaf, Kent; another was planted at Lea Place, Godstone, where it is at the present time; and the other was planted on the gardener's house at Rooksnest. L. Squibbs, Warren House Gardens, Hayes, Kent.

GLOBE ARTICHOKE (see p. 40).—I read with interest the note by Dr. Durham on Globe Artichokes. Instead of vinegar, as recommended by the writer, I should advise using a few drops of lemon juice when the heads are served. Will Taylor, Hampton.

BUDDLEIA COLVILLEI.—I misled Mr. Arnott (p. 77) about the flowering of this plant, which is 18 feet high, growing untrained, against the wall of a house. When he was here at the end of June it was bearing only a few short racemes of flowers; but it came to its own in July, and hung out beautiful tassels of the usual length of 6 to 8 inches. Herbert Maxwell, Monceith.

••• NEW POSTAL RATES.—Contributors and correspondents are reminded that under the new postal rates, which came into operation on November 1 last, letters bearing a penny stamp must not weigh more than one ounce. The postal charge for letters exceeding one ounce, but not exceeding two ounces, is twopence, and thereafter at the rate of 3d. every two ounces.

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, showed a fine form of *Odontioda Cooksoniana* (*C. Noezliana* × *O. ardentissimum*), with a grand spike of finely-formed Indian-red flowers with lilac margin, the white lip being blotched with chestnut-red.

Fruit and Vegetable Committee.

Present: Jos. Cheal, Esq., in the chair, Messrs. Edwin Beckett, H. Markham, A. Bullock, E. A. Bunyard, Owen Thomas, Edward Harriss, and James Gibson.

The only exhibit was from Mr. H. CLOSE, Orpington, who exhibited branches of Plum to show their greater productiveness when sprayed, as against unsprayed branches.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

AUGUST 14.—The monthly meeting of this society was held at the R.H.S. Hall on Monday, the 14th inst., Mr. Chas. H. Curtis presiding. A vote of condolence was passed to the family of the late Mr. N. N. Sherwood, founder of the Convalescent Fund. Two members were allowed to withdraw interest amounting to £8 9s. 10d. The sum of £26 5s. 7d. was passed for payment to the nominees of five deceased members who had been killed in action. The sick pay for the month on the ordinary side amounted to £52 1s. 4d., and on the State £19 4s. 2d., and maternity claims £15 10s. One member was assisted from the Convalescent Fund, and one member who had reached the age of 70 years, was granted 5s. per week for life from the Distress Fund.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JULY 20.—Committee present: Rev. J. Crombleholme (in the chair), Messrs R. Ashwo, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hamner, A. J. Keeling, J. Lupton, D. McLeod, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS OF MERIT.

Laelio-Cattleya Rubens var. *Arthur* (*L. pumila* × *C. Hardyana*) and *Cattleya Hesta* (*Suzanne Hye de Crom* × *Frau Melanie Beyrodt*), both from P. SMITH, Esq.

Odontioda Sir Douglas Haig (*Od. percultum* × *oda. Cooksoniae*), from TOM WORSLEY, Esq. *Cattleya Leonora* (*aurca* × *Warneri*), from Col. Sir J. RUTHERFORD, Bart., M.P.

FIRST-CLASS CULTURAL CERTIFICATE.

To Mr. E. ROGERS, for a magnificent plant of *Cymbidium Humboldtii*, carrying a branched spike of 75 flowers and buds.

A Silver Medal was awarded to TOM WORSLEY, Esq., Haslingden (gr. Mr. T. Wood), for a group, which included *Cattleyas* of the Mendelii section and *Cypripediums*.

Obituary.

WILLIAM YEATS BAKER.—It is with great regret that we learn of the death, on the 10th inst., of Mr. W. Yeats Baker, of Aspen House, Streatham Hill. Mr. Baker was formerly proprietor of the Thames Bank Ironworks Co., Ltd., horticultural engineers. He was keenly interested in all matters connected with horticulture, and subscribed generously to a number of societies. He was especially interested in the work of the Gardeners' Royal Benevolent Institution, and gave, not only money, but much time and thought, to this charity, serving on the committee for nearly forty years. The funeral took place at Christ Church, Streatham, the interment being made in Norwood Cemetery.

WILLIAM TRICKER.—The *Florists' Exchange*, of America, records the death on July 11 of Mr. W. Tricker, horticulturist, of Arlington, N.J. He was born in Ipswich, Suffolk, in 1852, and was at one time gardener to Lady Warwick at Dunmow. In 1880 he went to America. He specialised in aquatic plants, including *Nymphaeas*, and was the author of *The Water Garden*.

ANSWERS TO CORRESPONDENTS.

BLANKET WEED IN A POND: *A. E. S.* Blanket Weed in ponds and lakes may be destroyed with copper sulphate. First ascertain the amount of water in the pond by multiplying together the average length, breadth and depth, and multiplying the number of feet thus obtained by 6 $\frac{1}{4}$, the approximate number of gallons in one cubic foot. Then, to every 100,000 gallons of water take 1 pound of copper sulphate, break it up, and enclose in a bag of loose texture. Draw the bag backwards and forwards through the pond in parallel lines 10 or 20 feet apart. The sulphate will dissolve and become diffused throughout the water, killing all the weeds. If used in the proportions given above the copper sulphate is not likely to injure fish, and may even benefit them by ridding them of parasites.

CORRECTION.—The second prize in the class for a collection of miscellaneous bulbs in the R.H.S. dry bulb competitions was awarded to Messrs. Barr and Sons.

CUCUMBERS DISEASED: *W. and B.* The Cucumber plants are attacked by *Botrytis*, in consequence of the atmosphere in which they were grown being too damp and stuffy. Grub up and burn all affected plants, and sterilise the soil in which they were growing. Preventive measures include careful attention to ventilation.

FLAG POLE AT KEW: *J. T. S.* The new flagstaff at Kew is 215 feet high. It was erected in January of this year. The old one, erected in 1861, was only 159 feet high. See *Gard. Chron.*, January 8, 1916, p. 22.

GOOSEBERRY DISEASED: *W. C. A. C. A., Ltd.* The Gooseberry bush is attacked by "collar-rot" (*Sclerotinia Fuckeliana*), resulting from the roots being planted too deeply in water-logged soil. Remove the soil from around the roots, and replace it by fresh soil mixed with sulphur and quicklime.

GRAPES DISEASED: *H. P.* The Grapes are attacked by the fungus *Anthracoze* (*Glaeosporium ampelophagum*). Remove and burn all leaves, shoots, or fruits showing the least sign of the disease, and then dust the leaves and shoots with flowers of sulphur. After an interval of ten days apply the sulphur again, this time mixed with a small quantity of quicklime, and repeat after the same interval, gradually increasing the quantity of lime until it nearly equals the quantity of sulphur, and continuing the treatment until the disease appears to have ceased to spread. In winter wash the branches thoroughly with a solution of sulphate of iron. Do not use an excessive amount of rich stable manure in the border.

GRAPES INJURED: *A. R.* The Grapes are infested with aphids, and the black patches are caused by a fungus which feeds on the "honey-dew" secreted by the insects. Pick off and destroy all the infested leaves, and then fumigate the house with nicotine compound. When the aphid is destroyed, syringe the Grapes frequently with clear water. To determine the name of the variety send a ripe bunch with a portion of the wood and a leaf or two.

LAVENDER: *I. J.* Most recipes for distilling essence of Lavender presuppose the possession of a proper still, into which the Lavender heads are put, and the essence, or "otto," drawn off by means of slow heat. The stems are not generally used, as the amount of essence obtained from them is small, and the odour is not refined. Essence of Lavender is made by mixing one gallon of rectified spirit with 6 ounces of otto of Lavender. The whole process is fully described in *Piesse's The Art of Perfumery*, published by Piesse and Lubin, 28, South Molton Street, W., but it is described from the trade point of view, and the quantities dealt in are very large.

NAME OF FRUIT: *J. P., Waterford.* Gooseberry Thumper.

NAMES OF PLANTS: *Charles Moir.* *Epipactis latifolia*, an Orchid, but not of any special value.—*G. S.* *Rubus ulmifolius flore pleno* (Daisy-flowered Bramble). It is not very

common in gardens, but not rare.—*W. 1.* *Senecio tanguticus*; 2, *Eupatorium riparium* (not quite hardy, requires a greenhouse in winter from which frost is excluded).—*J. H. 1.* *Cattleya Leopoldii*; 2 and 3, *Laelia purpurata*; 4, *Acer Negundo aureo-variegata*.

ONIONS AFFECTED: *Anxious.* The Onions are infested with the fly known as *Anthomyia ceparum*. Water the plants with petroleum emulsion, at a strength not exceeding one gill to one gallon of water; a stronger dose may injure the foliage. If the attack is a mild one, strong soap suds will sometimes kill the fly. The insect usually enters the plants after thinning the rows, and a good way of preventing attacks is to sow the seeds in boxes under glass in February, and plant out the seedlings in the open in April. By this means, strong, steady growth is assured, which enables the plants to withstand attacks of the fly.

PAEONIES DYING: *A. L. G.* The Paeonies are attacked by a fungus disease, *Sclerotinia paeoniae*. A cure is impossible, as the disease is perennial, and is seated in the underground portion of the plant. Grub up and burn all affected plants, and treat the soil with sulphur and quicklime.

ROSES DISEASED: *J. T. S.* The Roses are attacked by Orange rust (*Uredo rosae*). Remove and burn all infested leaves and shoots, and spray the plants with potassium sulphide. The autumn stage of the disease consists of little black spots on the leaves, which fall prematurely in consequence. The fallen leaves should be gathered and burned.

TOMATOS DISEASED: *A. P. M.* The Tomatos are affected by Black Rot disease (*Macrosporium Tomato*). Remove and burn all affected fruits and spray the plants occasionally with potassium sulphide. In order to prevent a recurrence of the attack ventilate the house with care, water the plants evenly and carefully, and do not use fresh manure or anything which might cause the fruits to crack. As this disease belongs to the same genus as the Potato leaf-curling disease, soil from a Potato plantation should not be used for Tomatos.—*A. X.* The hard patches on your Tomatos are not caused by fungous disease, but are due to a lack of potash in the soil. If this defect is remedied the trouble will disappear. The foliage, however, is attacked by leaf-mould, or *Cladosporium fulvum*. Remove and burn all the diseased leaves and spray the plants (but not the fruits) with weak Bordeaux mixture or potassium sulphide. Careful attention to ventilation will discourage future attacks.

VEGETABLES FOR EXHIBITION: *W. S.* The following list contains varieties of the kinds you mention suitable for exhibition. Early, mid-season and late sorts are given in their order: Peas: Early Giant, Quite Content, Gladstone. Runner Beans: Prizewinner. Dwarf Beans: Magnum Bonum. Carrots: Early Gem, Favourite, New Red Intermediate or Red Elephant, Cauliflowers: Magnum Bonum, White Queen, Autumn Mammoth. Celery: Solid White, Aldenham Prize Pink, Standard Bearer. Cabbages: Ellam's Early, Flower of Spring, Winingstadt. Potatos: Sharpe's Express, Superlative, King Edward. Onions: White Leviathan, Ailsa Craig (mid-season and late). Leeks: Prizewinner Parsnips: Tender and True or Student. Vegetable Marrows: The Sutton, Moore's Cream (mid-season and late).

WHITE FLY ON TOMATOS: *J. Q.* The Tomatos are infested with *Aleyrodes* (White Fly), which often attacks Tomatos growing in a warm atmosphere indoors. The best remedy is fumigation with hydrocyanic acid gas, according to the following formula:— $\frac{1}{2}$ ounce sodium cyanide, 3 fluid ounces sulphuric acid, 9 ounces water. Expose the plants to the gas for 40 minutes. Hydrocyanic gas is a very powerful poison and extreme care must be taken by the operator not to expose himself to the fumes.

Communications Received.—G. C.—T. W.—P. J.—J. H.—W. S.—H. M. V.—B. of A.—R. A. S.—C. M.—B. G. D. S.—"Tavern"—J. R.—J. F.—D. and Co.—"Dorset"—B. and Sons—"Down South"—W. C. and Son—S. A.—C. H. E.—A. Willing Gardener—L. McM—A. B.—E. D.—W. B.—J. H. C.—E. R. J.—E. A.—T. M.

THE

Gardeners' Chronicle

No. 1518.—SATURDAY, AUGUST 26, 1916.

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"CANKER" AND "DIE-BACK" DISEASE OF MULBERRY.

DURING the past three years branches of Mulberry trees which have died from the attacks of some disease have been sent to Wye College for examination.

The first specimens were received in July, 1914, from Bognor, Sussex. Many of the young twigs, viz., those which had been produced during the previous season, were dead, and near the base of each dead portion were pustules of a fungus. These pustules were pale reddish-brown in colour, and rather small (about 1.50th inch in diameter), and bore spores of the *Fusarium* type. The spores were usually curved (almost sickle-shaped), but sometimes nearly straight, and were septate with usually three, sometimes four, rarely two or five divisions; they measured $23.43 \times 3.5 \mu$ (see fig. 36). The owner of the tree wrote as follows: "I send you specimens of a fungus infesting some of my young Mulberry trees. During the summer the fungus attacks the season's shoots, partially or wholly ringing them about the middle. During the winter these shoots die back to the injured place, or if not quite killed they wither off soon after starting growth in the following summer, as you will see by some of the specimens sent. Generally the buds only below the injury start growth, and form the shoots of the current year." The illustrations at figs. 36 and 37 are photographs of two of the diseased twigs sent. At the base of each shoot is a ring of "cankered" bark, bearing the fungus. One shoot (fig. 36) has just been killed, as shown by the "flagging" of the young leaves; the other shoot (fig. 37) must have been dead for some time, since the leaf-buds had not grown out. Below the "canker" each branch was still alive, as seen in each case by the living shoot growing out below the injury.

In February of the present year dead Mulberry twigs bearing similar "cankers" were received from Egerton, Kent. In this instance the disease first appeared two years ago; since that time it has caused considerable damage to the tree, as most of the new growth continues to "die back" throughout the year. The fungus present on this material is similar to that previously observed, except that the spores (again typically 3-septate) are on the whole rather shorter, the length being from 15-34 μ .

Reference to Saccardo, *Sylloge fungorum*, IV., p. 695, led us to identify the fungus with

Fusarium lateritium, Nees, of which the following description is given:—"Sporodochio vario obeso erumpente intrinse lateritio, conidiis fusoides arcuatis utrinque acuminatis 30-40 x 4.5, 4.5-septatis, basiis opposito-pumosis suffultis. Hab. in ramis siccis vel putrescentibus Robinia Pseudo-Acaciae, Broussonetiae papyriferae, Mori albae et multicaulis, in gallis *Celtidis occidentalis*, in ramulis *Salicis*, *Tiliae* et *Betulae* in Italia, Austria, Germania, Gallia, Britannia et America boreali." In volume XII. of the same work *Cytisus* and *Solanum Dulcamara* are added under the "habitat."

Now, *F. lateritium* has hitherto been recorded in this country only as a harmless saprophyte, i.e., as occurring only on dead plants; in the above instances on Mulberry shoots, however, it occurred under circumstances which strongly suggested that it was parasitic, i.e., attacking a



FIG. 36.—MULBERRY-SHOOT KILLED BEFORE THE CURRENT YEAR'S GROWTH HAD COMMENCED, SHOWING THE PUSTULES OF *FUSARIUM LATERITIMUM* AT X.

living plant. While we have been unable to find among English authors any reference to Mulberry trees being attacked by *Fusarium*, in Italy—where the cultivation of the Mulberry is of considerable economic importance owing to the silk-worm industry—accounts have been published showing that *F. lateritium* is indeed a true parasite on this tree. Two Italian mycologists, Dr. G. Briosi and Dr. R. Farneti, have made a special study of the disease, and have published in Italian two articles* from which the following extracts are given in translation:—

"For some years a serious disease of the Mul-

* "Intorno all'avvicinamento dei germogli del gelso" (*Atti Istit. Bot. Pavia*, ser. II., Vol. VII., 123 (1901)); "Sul avvicinamento dei germogli del gelso: suoi rapporti col *Fusarium lateritium* Nees e colla *Gilberella moricola* (De Not.) Sacc." (*l.c.*, X., p. 65 (1904)).

berry has been in evidence, which has not only gravely interfered with the production of the leaves, but has even threatened the life of the tree. The disease was first studied in 1892, and each subsequent year it has been sent in to us from many localities in Lombardy, Emilia, the Marches, etc. The general opinion at the time was that the disease was due to meteorological agencies, because of its prevalence after hard winters and abnormal springs. In the spring of 1901 a great recrudescence of the disease was noticed, and there could be seen, in the neighbourhood of Pavia, whole rows of Mulberry trees having but a twentieth part of normal healthy shoots, while individual trees occurred which at a distance appeared to be quite dead—until an examination was made of the bark. The disease is manifested either by the failure of the buds to develop, or by the withering after a few days of the shoots which are produced; the course of the disease is irregular—sometimes the affected buds, and the shoots which wither, occur in the middle of the branch, but more often at its base, while sometimes they are irregularly distributed along its whole length. The affected branch, at the commencement of the attack, appears healthy and well developed, but attentively observed it shows certain little areas, or areolae, which are characteristic of the disease. These are elliptical or elongated in outline, of a violet-brown or livid hue on the outside, and consist of the dead cortex, which becomes depressed. These areolae, which always have a bud at their centre, usually extend longitudinally until they invade sometimes two or more internodes; sometimes they extend transversely and 'girdle' the branch, in which case the part of the shoot above dies. The bud situated in the centre of the areola does not develop in the spring, and is found to be dead; those at the contiguous nodes, especially at the superior ones, develop shoots, but these soon become arrested, wither and dry up. Also some shoots die which are situated either at distant nodes, far from any areolae on the branch, or on apparently healthy branches. The diseased branches are usually of one year's growth, but those of two, three, or more years' growth are not immune—a fact which is probably connected with the system of pruning.

"The microscopical examination of the areola round the bud shows that the underlying tissues are dead as far as the wood, and further, that the necrosis often extends beyond the outside limit of the areola, the cambium and the surrounding tissues being affected even as far as the next bud. Mycelium was found plentifully in the tissues round the areolae, and wherever necrosis was observable; it was found also in the slightly discoloured tissue underlying apparently healthy buds.

"Invariably, sooner or later, characteristic brick-red pustules appeared on the surface of the areolae, and the fungus proved to be *Fusarium lateritium*, Nees. Pure cultures were prepared on artificial media, either by taking mycelium from the diseased tissues of shoots, or by taking spores from the pustules; in some cases the mycelium was taken from buds which appeared outwardly to be quite healthy; in every case the fruiting stage of the *Fusarium* was obtained. Spores from a pure culture were then taken, and placed on a healthy bud; after some time the mycelium was found to have penetrated into the bud, and necrosis of the tissues had begun. In other experiments the characteristic areolae were produced by inoculations with spores.

"We have obtained, then, conclusive proof that *F. lateritium*, which lives usually as a saprophyte on dead or decaying branches of *Morus*, *Betula*, *Salix*, *Robinia*, etc., is able, when given suitable conditions, to become a true parasite, with power to kill buds, shoots, and whole branches.

"In the pure cultures of the *Fusarium* made on artificial media no pycnidial or ascigerous stage was observed. It was noticed, however,

that in very many cases the perithecia of the fungus *Gibberella moricola*—well known as a saprophyte—occurred on branches of the Mulberry on the depressed 'cankered' areas caused by the *Fusarium*—even in some instances where these had been produced by artificial inoculations. The proof that these two forms were genetically connected was obtained in two ways. Ascospores, taken from the perithecia of the *Gibberella* and germinated in suitable media, gave rise to the *Fusarium* stage in twenty-four hours. Also, observations showed that the *Fusarium* and the perithecia of the *Gibberella* are developed in one and the same pustule (acervulus). The pustules of *Fusarium* first lose their brick-red colour and turn brown, then finally they become black with the *Gibberella* stage."

From the above observations we can conclude that the treatment for Mulberry "canker" should be the same as that employed for Apple "canker," since the course of the disease is very similar. Affected Mulberry shoots should be promptly cut off and burnt. On no account should any dead wood be left in the tree. Spraying is likely to be of little, if any, use.

We shall be glad to hear from any gardener whose Mulberry trees have become affected, and to examine any specimens sent of old "cankers" for the *Gibberella* stage, which we have not yet seen. *E. S. Salmon and H. Wormald, Wye College, Kent.*

ORCHID NOTES AND CLEANINGS.

DENDROBIUM GLOMERATUM.

A good spike of this rare and beautiful *Dendrobium* is sent by J. J. Neale, Esq., from a plant which flowers freely in his Orchid houses at Lynwood, Park Road, Penarth, the home of many rare Orchids. The illustration in fig. 39 shows the habit of the plant and a bunch of flowers on the old pseudo-bulb. The species was imported by Messrs. Jas. Veitch and Sons, from the Moluccas, and the plant flowered with them in December, 1893. It belongs to the *Pedilonum* section, producing its showy, rose-purple flowers with vermilion-orange labellums from the old pseudo-bulbs, which continue to give flowers occasionally at various seasons. The bright and freely-produced flowers and the general distinctness of the species should recommend it to the hybridist, whose efforts in *Dendrobiums* are almost exclusively restricted to those of the larger-flowered *D. nobile* section. *D. glomeratum* should be grown in a warm house, with *D. sanguinolentum*, *D. secundum* and others of the section, and not subjected to such cool, dry conditions during the resting season as those of the *D. nobile* class.

COELOGYNE CORRUGATE.

Mr. J. J. NEALE also sends us sprays of *Coelogyne corrugate*, which has the reputation of being not a very free bloomer, although the fine plants at Lynwood are now, as in former years, well furnished with the pretty white flowers on graceful spikes. The labellums are marked with yellow, the lines extending up the side lobes. The plants are grown in a house which is freely ventilated both day and night, and but little shaded. Mr. H. Haddon, under whose care the Orchids at Lynwood have thriven so successfully for many years, has joined the Army, and the collection is now in charge of Mr. E. Swindean, who lately had the care of the Burford collection.

SOPHRO-LAELIA ORPETI.

THIS pretty hybrid between *Sophranitis grandiflora* and *Laelia pumila* was raised by Mr. E. O. Orpet, Lancaster, Mass., U.S.A., whose plant flowered in 1901. *Laelia pumila* was the seed bearer, and the hybrid, which has always been rare, well displays the fine form of that species, while the scarlet tints of *S. grandiflora* give a rich tone to the colouring of the whole

flower, and the labellum of that species appears strongly in the hybrid.

A fine flower received from Messrs. Stuart Low and Co., Jarvisbrook, Sussex, represents the hybrid in its best condition. The flower measures



FIG. 37.—MULBERRY-SHOOT KILLED AFTER THE CURRENT YEAR'S GROWTH HAD COMMENCED: AT THE BASE OF THE DYING SHOOT ARE PUSTULES OF THE *FUSARIUM*.

nearly $3\frac{1}{2}$ inches across, the petals being 1 inch and the sepals half an inch wide, the flatly arranged flower having but little space showing between the segments. The colour is dark rose-

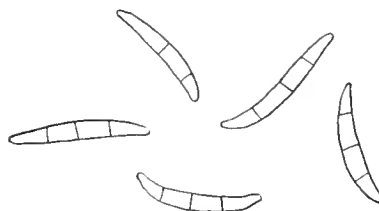


FIG. 38.—SPORES OF *FUSARIUM LATERITIMUM* × 600.

red with a violet shade, the scarlet of *S. grandiflora* also appearing in the ground colour. The three-lobed lip has a front lobe darker than the petals, the base being yellow with red lines.

THE ROSARY.

HYBRIDS OF ROSA PIMPINELLIFOLIA

THE raising of new Roses of the type of the old Scotch varieties which were much appreciated seventy or eighty years ago seems to have been suspended for many years, and most of the old named varieties have dropped out of existence. What their precise parentage was seems difficult to ascertain. In the garden of Mr. James Brown, Knockbrix, Kirkcudbright, an effort is being made to obtain new varieties by crossing *Rosa pimpinellifolia*, the Burnet Rose, which grows wild in the district, with some of the newer Roses.

So far, none of the seedlings has flowered, but one very distinct plant promises to flower next year. It shows the spinosissima parentage very markedly in the foliage, but its general growth is distinct. Seeds of these hybrids germinate very slowly, and the plants are very slow growers. The gardener at Knockbrix is Mr. Paul, late of Manchester Botanic Gardens. *S. Arnott.*

THE RAISING OF WINTER-FLOWERING BEGONIAS.

IN order to obtain plants of the tuberous section of *Begonia* for crossing with *B. socotrana*, which flowers during autumn and winter, it is necessary to make preparation betimes. Good strong growing kinds should be selected and kept in as cool a situation as possible in a cold frame, throughout the summer. The plants should be potted up late and grown in moderately small pots. The colours most wanted are a good pure white, yellow, and crimson. The other parent, *B. socotrana*, must be started early in moderate heat, and encouraged to grow on quickly. When the plants are coming into flower they should be brought into a dry, airy house, with a night temperature of about 55°. The plants should be so placed that they receive all the sunlight possible, for in such circumstances the male flowers produce pollen more freely, and fertilisation is effected more easily. It should be noted that, as a rule, the anthers of *B. socotrana* do not burst, and to this fact many failures are to be attributed. To get over this difficulty the stamens should be gathered when fully developed, and placed in a dry part of the house. When the anthers seem to be ripe, their tips should be cut in order to allow the pollen to escape. It is sometimes necessary to shake them well, to liberate the pollen. Generally, however, enough pollen is produced by one male flower to pollinate two or three female flowers. After the flower has been fertilised it should be staked, and supported with raffia or other tying material in order to keep it from drooping, as it is apt to do so late in the season.

The seed ripens fairly quickly, and as soon as the seed pods begin to turn brown they should be watched attentively in order that the seed may be gathered before the pods burst. The seeds should be sown at once, in small pots or pans, and they should produce plants which will flower in the following autumn.

I had less success with *B. socotrana* as a seed parent, for it does not seed freely with pollen of plants of the tuberous section. Of the many winter-flowering varieties which I raised, John Heal and Winter Gem are the only kinds produced from *B. socotrana* as the seed parent.

Of the many varieties raised by making the cross the other way I need not speak now. They include Acquisition, Fascination, Mrs. Heal, Syros, Exquisite, Her Majesty, Optima, Rosalind—all single flowered—and Ensign, Ideala, Julius, Winter Cheer, Elatior, Success, and the Gem, with semi-double flowers.

The only hybrid obtained by crossing tuberous *Begonias* with a winter-flowering hybrid was

Adonis, which was produced by crossing an orange-scarlet tuberous variety with John Heal. None of the new race of winter-flowering hybrids has produced seed either by cross- or self-fertilisation, and in this they are in marked contrast with the tuberous section, which seed freely. *John Heal, F.M.H.*

PRESERVING OF FRUITS AND VEGETABLES.

EXPERIMENTS in the bottling of fruits and vegetables have lately been conducted at the Agricultural and Horticultural Research Station, Long Ashton, Bristol, by Mr. B. T. P. Barker.* In sterilising fruit in water in the ordinary way, either by heating the jars or bottles in an oven or in a vessel of boiling water, it is usual to pour mutton fat on the surface of the water so as to form, when cool, a solid block of fat in the neck of the bottle.

Mutton fat, however, is not an ideal substance to use as a seal for the bottle, and experiments were conducted to find a suitable substitute. Paraffin wax alone was first tried. It failed to give satisfactory results, however, since, owing to the contraction of the liquid in the bottle on cooling, the paraffin plug became loosened in the neck.

A softer type of wax, made by melting together paraffin wax and vaseline in proportions of 3 ozs. of the former to 1 lb. of the latter, was next tried. The results with this material were much more satisfactory than with the paraffin wax alone. Being comparatively soft and plastic, the material adhered better to the neck of the bottle, and thus made a closer seal. The best plan found was to cover the liquid in the neck of the bottle with some of the melted mixture immediately the bottle was removed from the heater. After cooling, a further quantity of the melted wax was then poured on to the original lot, until sufficient was added to reach and slightly overlap the rim of the bottle, previously wiped dry. When the bottle was sealed in this fashion the contents generally remained perfectly sound indefinitely; but when the precaution to make a perfect seal between the wax and the rim of the bottle was neglected there was a tendency for the liquid in the bottle gradually to creep up between the glass and the edge of the wax plug, and mould began to grow in the contents of the bottle, which were thus spoiled. In such cases, however, the seal usually remained efficient for two or three months, and when it is a question merely of bottling the fruit for temporary purposes the method is adequate.

In order to counteract the tendency of the seal to contract from the rim of the neck of the bottle and thus to allow of the entry of moulds into the latter, an endeavour was made to check the growth of these organisms at the weak spots around the edges of the seal by painting the surface of the wax with a saturated solution of borax as soon as the seal had set after application. This treatment gave very good results, and very few cases of mould development occurred. It also had a tendency to render the surface of the seal harder, and thus more convenient to handle.

The difficulty of obtaining a perfect seal is due to the fact that a film of moisture adheres to the sides of the neck of the bottle or jar; the wax or fat is thus never actually in contact with the glass surface, and cannot, therefore, adhere properly. The bottles heated in a dry oven gave equally unsatisfactory results in this respect with those that were sterilised in a vessel of water.

A tendency of the wax or fat to fail to adhere to the glass was found when a seal made with ordinary paraffin wax was covered with about 1/4 inch of liquid paraffin. In this case the quantity of

over the neck of the bottle is fairly satisfactory; but it is impossible to fasten it on airtight, and it is therefore not mould-proof. Better results have been obtained using ordinary parchment



FIG. 39.—DENDROBIUM GLOMERATUM: FLOWERS ROSY-PURPLE. (See p. 96.)

wax added was limited so as to leave sufficient room in the neck of the bottle for the liquid paraffin, which was added after the wax seal had set.

The old method of tying a piece of bladder paper jam-covers pasted or gummed on, provided that the bottles were afterwards kept in a cool, dry place and the covers affixed while the contents of the bottle were still hot. This method gives very fair results.

* The Annual Report of the Agricultural and Horticultural Research Station, Long Ashton, Bristol, 1915.

Experiments in Methods of Sterilisation.—The fruit was placed in bottles, covered with cold water, and the bottles then placed in a vessel of cold water which was gradually heated until the temperature reached about 68° C. (140° F.). When the contents of the bottles reached that temperature, they were kept at that point for 20 minutes, and then removed from the steriliser. This treatment has given thoroughly satisfactory results, so far as the keeping properties of the fruit were concerned.

In certain cases, however, the question of the temperature used and the length of time of application are of importance on account of the tendency of certain types of fruit to split or become disintegrated, and for loss of colour to occur. A series of experiments was therefore made in which time of heating and the temperature were varied.

In the first set the temperature to which the fruit was heated was 68° C., but the length of time of application varied. The kind of fruit used was Superlative Raspberry. Some bottles were raised to that temperature in the steriliser, and, immediately it was reached, removed and allowed to cool. Others, after reaching that point, were kept there for 5, 10, 20, 30 and 35 minutes respectively. In all cases except those where the bottles were removed immediately the temperature limit was reached the sterilisation was perfect. It is possible that in these cases also the fruit was properly sterilised, but owing to an unsatisfactory seal the bottles treated in this way eventually showed mould growth. As regards colour, all the bottles showed very fair results, the best being those heated for 10 minutes. The condition of the fruit was equally good throughout.

Black Currants and Loganberries were also subsequently treated in the same way with corresponding results.

In the second series of experiments on the methods of heating the temperature at which the fruit was sterilised was varied. The bottles in the respective tests were brought to temperatures of 60, 64, 68, 76 and 88° C. When these temperatures were reached in individual cases the bottles were allowed to remain at those points for 20 minutes, and then removed and allowed to cool. Superlative Raspberry was the fruit used. In this case all were equally well sterilised, and the condition equally good. The only difference was that there was a tendency for the colouring of the fruit to get rather "washed" at the higher temperatures used.

In the case of Plums the treatment and maximum point of temperature were varied slightly. The bottles were heated to a temperature of 71° C.; and instead of the fruit being bottled in water it was conserved in a thin syrup, which was poured on the fruit while still hot. The variety of fruit used was Pond's Seedling, and the bottling was done on August 9, while the fruit was still green and hard. The times of heating adopted were 10, 20, 30, 40 and 45 minutes respectively, at 71° C. In every case the fruit kept perfectly well.

In other experiments with Plums the standard method of sterilisation used was to place the Plums in cold water in the bottles and then raise the bottles in the steriliser gradually to 71° C., taking about one hour to bring the temperature to that point and leaving them for 45 minutes at that temperature. The sterilisation in this case was invariably successful, but in view of the results just quoted the length of time of heating was clearly unnecessary.

In the case of Plums of the Gage type, such as Early Transparent Gage and Denniston's Superb, the fruit was brought to a temperature of 68° C., and heated for 30 minutes only at that point. Sterilisation in these cases was also perfect.

In view of these results it seems clear that the temperatures which have hitherto been recom-

mended for sterilising, and also the times of heating, are in many cases unnecessarily high. With small fruits, such as Raspberries and Currants, there is no occasion to use a higher temperature than 60-65° C. (140-150° F.), nor a longer exposure at that temperature than from 5 to 10 minutes. In the case of stone fruits, such as Plums, probably a rather higher temperature and a longer heating are desirable, but if the temperature of the steriliser is raised slowly there appears to be no occasion for heating the fruit for longer than 10 minutes at 71° C. (160° F.).

Trials of Varieties of Raspberries for Bottling.—Certain varieties of Raspberries have a tendency to bottle more satisfactorily than other sorts, and a comparative trial of several varieties grown at Long Ashton was therefore carried out. The varieties tested were as follows:—Abundance, Bath's Perfection, Bunyard's Profusion, Hornet, Lord Beaconsfield, Semper Fidelis, Steele's Victoria and Superlative.

The bottles in each case were heated for 20 minutes at 68° C. The chief variation in the results for the different varieties was in the colour. The best coloured samples were Semper Fidelis and Profusion. Bath's Perfection and Superlative were also fairly good. In most varieties the berries kept their form well, and showed no tendency to break up. In most cases also there was no deposit formed nor haziness in the liquid. Placing the varieties in order of merit, Semper Fidelis was slightly the best, followed by Profusion and Hornet, which were equally good, with Superlative next best.

The Bottling of Plums.—It is generally difficult to bottle Plums without some splitting of the fruit or peeling of the skin. In order to ascertain to what degree these drawbacks could be controlled by suitable treatment a number of trials of several varieties of Plums were made, the varieties used being:—Czar, Denniston's Superb Gage, Early Rivers, Early Transparent Gage, Pond's Seedling and Victoria.

In most cases the fruit was bottled either in water or syrup: in one test, however, the fruit was placed dry in jars in an oven, and heated there until the fruit showed signs of cracking. The bottles were then removed, filled with boiling water to cover the fruit immediately, and sealed. The fruit treated in this way kept as well as that bottled by the other methods, and was, perhaps, of slightly better flavour.

The results of the tests as a whole may be summarised as follows:—When the fruit is bottled in an unripe condition there is less tendency for splitting and for peeling of the skin than in the case of perfectly ripe fruit. In the case of Plums of the Gage type the tendency for the skin to peel is evidently very much greater than with varieties such as Victoria and Pond's Seedling. Pricking of the fruit before bottling did not prevent its splitting.

Bottling of Vegetables.—So far no method of bottling suitable for domestic work has given such good results as drying, in the case of Peas, and salting, in the case of Beans.

A variation of the latter method has been tried with very satisfactory results. Usually the beans, whole or sliced, are placed in an earthenware jar or pan, or other suitable vessel, in thin layers alternating with layers of salt. This treatment results in the gradual accumulation of scum and fluid above the surface of the Beans, and on that account is open to some objection. If, however, the Beans are sliced and the slices sprinkled with or rolled lightly in salt before being placed in the jar there is no occasion to add any further salt. The slices can be packed tightly in the jar, and will remain dry and in excellent condition indefinitely. Washing for an hour in running water before cooking suffices to remove all the salt, and is all the preparation necessary.

The Week's Work.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

ODONTOGLOSSUM CRISPUM AND ITS ALLIES.—

In this section are included the many varieties of *O. crispum* and *O. Pescatorei*, also the numerous hybrids of these species. In large collections a few of the plants are in bloom throughout the year, but the majority flower in spring and early summer. September is the best month for re-potting plants that need this attention. The new growths are rooting freely; before the roots are far advanced afford them fresh compost. Plants that are not disturbed at the roots should be staged together, for they will need more watering than those recently re-potted, and a little more light. Plants that have not been re-potted for several years should be relieved of some of the back pseudo-bulbs; as a general rule two pseudo-bulbs behind each lead or growing point are ample. Re-pot the leading portion of the plant in a mixture of Osmunda-fibre, or A1 fibre—cut up moderately fine—and a sprinkling of chopped Sphagnum-moss. A few crushed crocks or a little sharp sand may be added to render the mixture porous. Fill the pots one-third of their depth with material for drainage. Make the soil firm; the surface of the compost and base of the young growth should be level with the rim of the pot. Plants that are growing strongly in sweet compost, but which require more space for the new pseudo-bulbs to develop, should be shifted into receptacles one or two sizes larger. Beyond picking out a little of the surface soil and liberating a few of the roots the plant may be shifted with the old ball intact. Plants that are in bad health should be thoroughly overhauled. Turn the roots out of the pots, and wash all the soil from them. Cut away the dead portions, remove useless back pseudo-bulbs, and re-pot the plant in the smallest-sized receptacle that will accommodate it, filling the pot quite half its depth with drainage material. The back pseudo-bulbs that are removed from the various plants may be placed in small pots filled with broken potsherds and Sphagnum-moss. When the plants have developed a growing point the Sphagnum and some of the crocks may be removed and replaced with the ordinary compost. Keep the atmosphere moderately moist and admit air freely on all favourable occasions. It is necessary to shade from strong sunshine. At this season only spray the plants overhead in very hot weather, and sufficiently early in the day for the foliage to dry before sunset. Insect pests, and especially thrips, should be sought for diligently, and the house vaporised directly any are detected.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

PERPETUAL-FLOWERING CARNATIONS.—

Plants of Perpetual-flowering Carnations which were placed in the open for the summer should be brought indoors. Place them near to the roof-glass in a light, airy glasshouse, and keep the ventilators wide open so long as there is no danger of frost. Let the shoots be staked and tied neatly, using the tops of small green Bamboo canes for the purpose. Do not water the soil liberally until the pots are filled with roots; neither afford stimulants until the plants are in need of food. Lightly fumigate the house occasionally to destroy aphids, and, as a safeguard against "rust" disease, syringe the plants fortnightly with a suitable specific.

CODIAEUM (CROTON).—In order to have the foliage of these plants well coloured, let them be well exposed to the sunlight. Keep the atmosphere moist by damping the stages and other bare spaces, and spray the foliage with clean rain-water twice daily. A portion of the old stock should be discarded annually to make room

for young plants. Growths suitable for cuttings should be made use of. They will readily root in a propagating case, furnished with bottom heat.

DRACAENA.—Where a large number of plants is required for indoor decoration, plenty of *Dracaenas* will be found useful. The plants are easily raised from cuttings, or by placing portions of the stems of old plants in boxes of sand and rooting them in heat. By this latter method the stock of plants may be increased in a very short time. Plenty of young rooted growth will soon be forthcoming from these portions of old stems. They should be potted with a few roots attached, and grown in a shady part of the stove.

CALADIUM.—The foliage of *Caladium* is showing signs of ripening. Water should be withheld gradually from the roots to allow the plants a rest in cooler and drier conditions.

SALVIA SPLENDENS.—This plant is subject to attacks of red spider, which, if allowed to spread, causes irreparable damage. As a precaution, syringe the foliage with an insecticide, taking special care to thoroughly wet the underside of the leaves. The pots are filled with roots which may be afforded plenty of stimulant. If the plants are required to flower early, they should be placed in a light house.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DAMPSTER, Keele Hall, Staffordshire.

PROPAGATING BEDDING PELARGONIUMS.—The shoots of zonal-leaved *Pelargoniums* are in good condition for propagating, the wood being well ripened. Where large numbers of plants are required, and labour is scarce, root them in boxes of about fifty. The cuttings of *Raspail*, *King of Denmark*, *Paul Crampel*, and similar varieties should be dried for a few hours after they are trimmed, but those of *Mme. Crousse*, *Charles Turner*, and others of the Ivy-leaved section are not so sappy, and do not require drying. Insert the cuttings firmly in a light, sandy compost, and water them freely through a rose with medium-sized holes. Place the boxes in a sunny position out-of-doors, such as along the sides of paths or other convenient places. The flower-beds are now at their best, and care should be taken in securing the cuttings not to spoil the effect. Remove all dead flowers and foliage, stir the soil between the plants with the hoe, and, if necessary, water the bed.

TUBS AND VASES.—Plants growing in small vases require watering daily, and often twice a day; they also need stimulants. All dead flowers, foliage, and seed-pods should be picked off. Plants that have been established in tubs several years will be benefited by a mulching of leaf-mould or well-decayed manure. Weak manure water should be given the roots frequently, and soot-water occasionally. *Palms*, *Myrtles*, *Camellias*, *Oranges*, *Citrons*, *Lemons*, and ordinary shrubs that have been plunged in beds or borders should be syringed in the evening every week or ten days with very weak soot water. *Hydrangeas*, *Fuchsias*, *Pelargoniums* and similar plants that may be damaged by wind should be kept neatly staked.

ANNUALS.—Autumn-sown annuals are more or less disappointing in cold, wet districts, but they give good results on a warm, dry, sheltered border. If the soil is of a light, sandy nature, it should be made firm to promote a stocky growth. Sow in drills made a suitable distance apart, according to the kind. Early thinning of the seedlings is essential to obtain sturdy plants that will survive the winter. Among the more useful annuals that may be sown now are *Calendula*, *Candytuft*, *Centaurea*, *Chrysanthemum*, *Clarkia*, *Eschscholtzia*, *Godetia*, *Larkspur*, *Linaria*, *Nemophila*, *Phacelia*, *Saponaria*, *Silene*, and *Sweet Sultan*. Much the best results are obtained by sowing where the plants are intended to flower. If not transplanted they will give an early display of flowers, far superior to spring-sown plants. It must be remembered that autumn-sown annuals will not continue to bloom

throughout the summer, and are not intended to supersede spring-sown plants.

BORDER CHRYSANTHEMUMS.—Plants of border *Chrysanthemums* should be fed on frequent occasions. See that the shoots are securely tied to stakes. Certain late-flowering varieties need disbudding, but some sorts may be allowed to develop their flowers in sprays. Syringe the foliage occasionally to keep aphid in check.

BULBS.—The bulb order should be placed with the bulb merchant early, for supplies are limited, and some varieties may not be obtainable later.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PLUMS.—Certain varieties of *Plums* are bearing so heavily as to necessitate severe thinning of the fruits, but others have very few fruits. Make the most of the crop, allowing the superfluous fruits to remain until they are large enough for cooking. *Oullin's Golden Gage*, *Deniston's Superb*, *Early Transparent Gage*, *McLaughlin*, *Green Gage*, and *Angelina Burdett* are fine early dessert varieties, and will furnish a succession of fruit through August and September, according to the locality. Of the early culinary varieties, *Rivers' Early Prolific*, *Early Orleans*, *Belgian Purple*, *Czar*, and *Sultan* are all reliable croppers. In seasons like the present one, the value of having a number of good varieties is emphasized. As soon as the trees are cleared of their crops, remove all superfluous shoots, wash the trees with clear water, and spray them with an insecticide if this is needed. In hot, dry weather *Plum* trees on walls will need watering. Following the early varieties, *Jefferson*, *Kirk's Bryanston Green Gage*, and *Late Transparent* continue the succession, whilst *Reine Claude de Bavay*, *Coe's Golden Drop*, and *Late Orange* will furnish very late fruits. Good culinary sorts to follow the early ones enumerated above are *Victoria*, *Pershore*, *Pond's Seedling*, and *Monarch*, with *Primate* and *President* for the very latest crop. In an average *Plum* year the varieties named will furnish a constant supply of fruits throughout the season. Protect the fruit from birds early, for in dry weather birds attack *Plums* before they are ripe. If extra fine fruits are required for exhibition, place some of the best specimens in little bags of wasp-proof netting. Let trees that are carrying heavy crops be well supplied with water and liquid manure, and replace the mulches when they are exhausted of food. If the ground is inclined to cake, water it and hoe the surface when it is sufficiently dry for this operation.

PEACHES.—Gather early *Peaches* as soon as the stalks part readily from the tree. Handle the fruits with extreme care, and place them in a drawer in the fruit-room, where they will be at their best in a day or two. *Peaches* should be sent by rail or post soon after they are gathered, for they ripen quickly in a close box with packing material. The varieties *Hale's Early*, *Early Alexander*, *Rivers' Early York*, *Early Rivers*, *Duchess of Cornwall*, and *Amsden June* ripen their fruits early in favourable seasons. Keep the roots well supplied with water, or the fruits may drop prematurely.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

PINEAPPLES.—The majority of the *Pineapple plants* have filled their pots with roots and require rather more water than hitherto. Let the plants which are required to furnish ripe *Pines* next May have extra careful treatment. Those with plenty of roots should be fed with diluted liquid manure and weak guano water on every alternate watering. The minimum temperature should be 80°, and it is important to warm the water used at the roots to the same degree. Fruiting plants of the smooth *Cayenne* and *Charlotte Rothschild* varieties should, except where the fruits are approaching maturity, have liquid stimulants. Clear weak soot water is suitable for watering and syringing the plants.

SUCCESSIONAL PINES.—Plants of the main batch of later *Pines*, intended to throw up their fruits before next midsummer, having filled their pots with roots, need a partial rest. Let them receive an abundance of light; the foliage may be allowed to almost touch the roof-glass. Suckers of plants that fruited late in summer may still be taken; let them be potted at once, and the pots plunged in a bottom heat of 85° to 90°. These potted some time since may require a small shift, but unless the roots are likely to suffer from exhaustion or crowding nothing is gained by potting late in the season. Loam for use in the spring should be cut and stacked, in ridge form, where frost and air will ameliorate it.

POT STRAWBERRIES.—Young *Strawberry plants* have made rapid growth this season. As pot *Strawberries* should never be subjected to drought at the roots, watering from now onward is important. Re-arranging the plants on frequent occasions will be favourable to their growth; they may be placed fairly close together at first, and allowed more space gradually as the foliage develops. The plants should be carefully watered by hand in preference to using the hose on very hot days. Syringing in the evenings with soft water will help to keep the foliage clean and healthy. Much depends on the size of the pots and the quality of the compost as to whether stimulants are needed. As a rule, pot-bound plants are benefited by weak liquid manure and soot water through the latter part of August and September. Let the plants be exposed to the sunlight, and see that the pots are free from worms.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

ONIONS FOR EXHIBITION.—In most districts *Onions* grown specially for exhibition bulbs should be gradually removed from the beds. Where the soil is naturally heavy and wet, and growth slow in consequence, or in late districts, increase in size after this date is usually obtained at the expense of shape and solidity, for although the bulbs may become larger, they may not necessarily become heavier. It is especially important to remove all partially ripened bulbs, for the rains may cause fresh roots to develop and start the bulb into growth again, in which case it would keep badly in the store. Examine the rows daily, and remove those that are loose-necked, or with foliage that shows signs of bending over. Cut off the leaves above the neck, trim off the roots, and remove the loose, outer skin. Place the *Onions* in boxes on a layer of some soft material, and allow them to ripen in a sunny position, or on a stage in a warm, airy house.

WINTER SPINACH.—A sheltered border, with well drained soil, should be chosen for winter *Spinach*. Rich soil is necessary for growing *Spinach* in spring and summer, but not in winter, when the chief consideration is free drainage. Where the ground is heavy in texture plant on a raised bed of soil, for an excess of moisture at the roots is more to be feared than frost. Thin the seedlings to 6 inches apart to have strong plants that will be capable of withstanding the winter. Sow half the crop now and reserve the remainder of the bed for a sowing in mid-September.

WINTER LETTUCE.—Make a sowing of black-seeded *Bath Cos Lettuce* for spring use. Transfer some of the seedlings, when they are large enough to handle, to a sheltered situation, and leave the remainder in the seed-bed for transfer in spring. By this means a succession will be obtained. This variety of *Lettuce* is appreciated by many on account of its nutty flavour, which is not found in many sorts.

TOMATOS OUT-OF-DOORS.—Stop the leading shoots if this has not been done already, and expose the trusses of fruit to the light for the berries to ripen. In some cases it may be necessary to remove a portion of the foliage, and this may be carried out more drastically than in the case of indoor plants.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 60.8°.

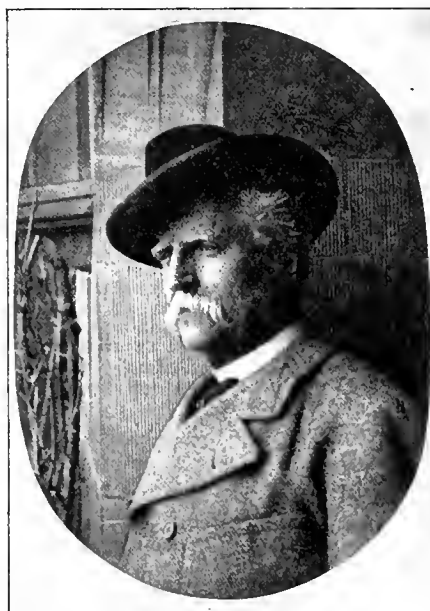
ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, August 24 (10 a.m.); Bar. 29.8°; temp. 68°. Weather—Fine.

It is with great regret that we announce the death of Lord Redesdale on Thursday, the 17th inst., at his home, Batsford Park, in his eightieth year. Among the many accomplishments of Algernon Bertram Freeman-Mitford, first Baron Redesdale, of Redesdale, in Northumberland, were a fine appreciation and knowledge of horticultural art. These were happily revealed in his lovely garden at Batsford. They were manifested also in the many and various works that he carried out when Secretary to the Commissioners of Public Works and Buildings, which office Lord Redesdale held from 1874 to 1886; and afterwards, when, as the friend of the late King Edward, he undertook the re-arrangement of the gardens of Buckingham Palace. He was also responsible for improvements in Hyde, St. James's, and other parks, and at Kew his influence and tact were put to useful account in bringing about reforms and initiating improvements which, without his aid, would probably never have been accomplished. In all these affairs Lord Redesdale was content to be a secret force. This was his peculiar characteristic. A man of great experience and cultivated taste, he knew how to get things done that were worth doing, and to prevent changes which were not progressive. It will never be known how much our Royal Parks and Gardens, including Kew, which in his time was under the Commissioners of Works and Public Buildings, are indebted

to the clever and tactful Mr. Freeman-Mitford for their development.

In the course of his diplomatic career Lord Redesdale spent several years in Japan, and thus acquired a knowledge of the people and their gardens which led him to publish an account of the Japanese as they really are. Later he collected and cultivated all the Japanese Bamboos in his garden at Batsford. His book, *The Bamboo Garden*, published in 1896, is a classical contribution to horticultural literature. The thoroughness and modesty of the author were abundantly displayed in the way he set about this work. He corresponded with every likely person respecting hardy Bamboos, and purchased plants from Japan, Algiers, France and England. These he planted at Batsford and noted their peculiarities of growth. He consulted Kew on questions of nomenclature, specific characters, and cultural requirements; yet, when finally he began to write



THE LATE LORD REDESDALE, G.C.V.O., K.C.B.

his book about these plants, his modesty was such that he was afraid to have it published lest the learned folk should laugh at him. He spent much leisure in trying to pick up a little knowledge of botany, but having to depend on books alone, which he found "often difficult and occasionally unintelligible," he complained that the learned who write botanical books "do not recognise how utterly and babyishly ignorant the unlearned are." That is characteristic of the man. Clever, clear-sighted, experienced, yet as ready to be instructed as a child. There could not be a more charming man than Lord Redesdale was. For a time he was on the Council of the R.H.S., and in 1908 he was a representative of the Society at the Ghent Quinquennial, when his charm of manner, handsome appearance, and perfect French won the hearts of all. Certainly the British members of the jury on that occasion had every reason to feel proud of their leaders.

Batsford was entirely Lord Redesdale's creation. He built the house, a palatial structure, with stone from a quarry on the estate, and he designed the garden with the assistance of the best workmen. When Batsford was in the making he engaged John Garrett from Kew as his head gardener, of whom he wrote: "Garrett is a treasure. He is so nice and pleasant to work with, and I am so much with my gardener that it is everything for me to have a sympathetic man." Batsford was famous for its Bamboos, Water Lilies, Rambler Roses, Pines and Thorns. The rock garden, constructed by Messrs. Pulham, was on a large scale, and the general plan of the garden was on natural lines. It reflected the character of its owner, for it was full of charm and essentially English.

Lord Redesdale was laid to rest on August 22 in the picturesque churchyard within the park at Batsford. The ceremony was simple, and was attended by his relatives and the tenantry and employees on the estate. The grave was lined with Bamboos from the Japanese garden, together with white Phloxes and Buddleias.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will be held in the Vincent Square Hall, Westminster, on Tuesday, the 29th inst. At the 3 o'clock meeting in the Lecture Room an address on "Bamboos" will be delivered by Mr. JAMES HUDSON.

MEDAL AWARDS AT R.H.S. DRY BULB SHOW, AUGUST 1, 1916.—The following are the medal awards to the R.H.S. Dry Bulb Show, held on August 1:—(Class 5): Silver-gilt Banksian, THE DONARD NURSERY CO.; Silver Flora, J. R. PEARSON AND SONS; Silver Banksian, BARR AND SONS; Silver Banksian, R. H. BATH, LTD. (Class 6): Silver Flora, GEO. MONRO, JUNR.; Silver Banksian, R. H. BATH, LTD.; Bronze Flora, J. MALLENDER. (Class 7): Silver-gilt Banksian, GEO. MONRO, JUNR.; Silver Flora, R. H. BATH, LTD.; Silver Banksian, J. R. PEARSON AND SONS; Silver Banksian, BARR AND SONS. (Class 8): Silver-gilt Banksian, R. WALLACE AND CO.; Silver Flora, BARR AND SONS; Silver Banksian, WATERER, SONS AND CRISP; Silver Banksian, R. H. BATH, LTD.

CENTENARY OF THE SYDNEY BOTANIC GARDENS.—The one hundredth anniversary of the opening of the Botanic Gardens, Sydney, Australia, was celebrated on June 13. The proceedings began by a historical survey of the gardens by the director, Mr. J. H. MAIDEN, who related the story of the gradual evolution of the gardens, from the simple Government farm established by PHILLIP in 1816, through all the marvellous growth of the great city which now stands by it, to the present highly efficient botanic station and public garden. Mr. MAIDEN said that where possible the features of the original farm had been preserved as a memorial. He referred in especial to the oblong beds, now filled with flowers, which were the original sites of the farm beds. "I admit," he remarked, "that they are not beautiful in a landscape sense, but they are the site of the foundation of the agriculture and horticulture of a continent. I look upon that portion as sacred ground." Mr. MAIDEN also pointed out a clump of trees presented to Governor MACQUARIE by Dr. WENTWORTH in 1814. In regard to the work now done in the gardens, he stated that the gardens were in a real sense national gardens. Every year 70,000 plants were distributed to the country, and the majority of people who visited the gardens, except in lunch time, were country people. Sir GERALD STRICKLAND, the Governor of

New South Wales, the Premier (Mr. HOLMAN), and the Minister for Agriculture were all present, and made appropriate speeches. After the speeches, memorial trees were planted by a number of representatives of different portions of the Empire, and of various European countries, after which the Minister for Agriculture, Mr. W. C. GRAHAME, laid the foundation-stone of a new Museum of Botany and Horticulture.

WAR ITEM.—The members of the Keighley Horticultural and Paxton Society contributed a large number of Sweet Peas which were made into buttonholes and sold in the streets of Keighley in aid of the fund for providing comforts for local soldiers and sailors. A sum of £19 was raised.

A GARDEN ARTIST.—The Hon. Mrs. RICHARD BOYLE, known to the public under the initials "E. V. B.," died recently at Brighton, at the

executive committee has been appointed under the chairmanship of Sir JOSEPH THOMSON, the President of the Royal Society, the other members being Dr. DUGALD CLERK, Sir ROBERT HADFIELD, Mr. A. D. HALL, Professor HERBERT JACKSON, who is the honorary secretary, Sir ALFRED KEOGH, Sir RAY LANKESTER, Professor ARTHUR SCHUSTER, Sir JOHN SNELL, Professor E. H. STARLING, Lord SYDENHAM, and Mr. R. THRELFALL.

FLOWERS IN SEASON.—From Messrs. W. CUTBUSH AND SON we have received several fine seedling Pentstemons raised in their Barnet nursery.

ALLOTMENT GARDENS AT STAFFORD.—In the borough of Stafford, according to the *Journal of the Board of Agriculture* for August, about 90 acres are let out in allotments, of which 70 acres are occupied by the Stafford Freeman

so hampering and involve so many restrictions that the tenants are not encouraged to put forth their best efforts.

JAMAICA BANANA CROP DESTROYED.—A hurricane passed over the island of Jamaica on the 15th inst., resulting in the practical destruction of the whole of the Banana plants. It is estimated that twelve million bunches have been destroyed. Much damage has also been done to Coconut trees, the nuts having been blown off the trees to a considerable extent. It is computed that from 30 per cent. to 60 per cent. of the Cocoa crop has been spoilt, though the trees themselves have not been extensively damaged.

NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.—The college farm at Craibstone, about five miles from Aberdeen, includes experimental plots, an experimental and demonstration garden and a horticultural depart-



FIG. 40.—THE "DARRAH" COLLECTION OF CACTACEOUS PLANTS IN THE ALEXANDRA PARK, MANCHESTER. (See p. 102.)

advanced age of 91. Of rare power and charm of expression, Mrs. BOYLE devoted much of her ability to the planning and laying out of the garden attached to the Manor of Huntercombe, which came into the possession of her husband in 1891. Mrs. BOYLE subsequently expressed in books, of which one of the best known is *Days and Hours in a Garden*, the experience which she gained in the Huntercombe garden.

A BOARD OF SCIENCE.—On the initiative of the Royal Society a Board of Scientific Societies has been established. It consists of representatives of 27 scientific and technical societies, with power to add to the number and to appoint to sub-committees persons who are not connected with the constituent societies. Among the objects of the board are to promote the co-operation of those interested in pure or applied science, and to supply means by which the opinion of the country may find effective expression on matters relating to science, industry, and education. An

Allotments group near Coton Hill. The administration of the allotments is in the hands of trustees, who grant the use of plots to freemen at a rent of about 2s. 6d. per year. The allotments, which number about four hundred, are usually cropped with Potatoes, but in some cases Roses and other flowers are grown for sale. Occasionally an Apple or Pear tree is to be found, but the tenants do not appear to be familiar with modern varieties of fruit trees. Artificial manures are little used, and co-operation in the purchase of manures seems unknown. Until last season an annual show was held in connection with the allotments, at which a prize of £20 was offered for the best cultivated plot. It is stated that the estate is the largest of its kind in the county, and it could easily be made a model allotment. Unfortunately, however, the rules and regulations laid down by the local Act under which the use of the land was secured for the purpose are

ment. There are extensive woods, including both Conifers and hardwood trees, which are being utilised for the purpose of the forestry department. It is proposed to institute a school of rural domestic economy for girls. For the instruction of classes in nature-study and school gardening, two acres of ground at Kepplestone, Rubislaw, have been laid out as a demonstration garden.

CARNEGIE DUNFERMLINE TRUST PRIZE GARDENS.—In connection with the Carnegie Dunfermline Trust, prizes were offered for the best gardens. The value of the prizes amounted to about £70, and an excellent competition resulted, the majority of the gardens being in good condition.

RAILWAY STATION GARDENS IN WIGTOWNSHIRE.—As in former years, the Portpatrick and Wigtownshire Joint Railways offered awards this season for the best-kept station gardens.

The judges have made their awards in this order:—Creetown, Glenluce, Millisle, New Galloway, Crossmichael, Gatehouse-of-Fleet, Parton, Kirkcowan, Stranraer, Newton Stewart, Castle Kennedy, Sorbie, Palnure.

CO-OPERATIVE GARDENING.—A scheme of market gardening on a co-operative basis is being formed under the presidency of Mr. E. F. HAWES, of the British Gardeners' Association, the secretary being Mr. CYRIL HARDING, who is also secretary of the B.G.A. The objects of the society, which is to be made a limited company, under the title of British Co-operative Gardeners, Limited, are to promote the culture of fruit and vegetables for market, with such allied occupations as poultry keeping and dairying. An explanatory prospectus has been issued, setting forth in detail the aims and intentions of the promoters of the scheme, in which it is stated that shares are being issued of the nominal value of £1, of which 5s. is payable on allotment, and the balance by 5s. a quarter until fully paid. It is considered advisable to wait to commence operations until at least £1,000 has been received, but if a satisfactory response is obtained, the management will take possession, at Michaelmas, of a site at Stevenage, which has been provisionally accepted.

NATIONAL DAHLIA SOCIETY.—The annual exhibition of the National Dahlia Society will be held on Tuesday, September 12, in the Royal Horticultural Hall, Westminster, in conjunction with the R.H.S. fortnightly meeting on that date.

SULPHATE OF AMMONIA.—The Board of Agriculture is informed by the Sulphate of Ammonia Association that sulphate of ammonia (24½ per cent. ammonia) will be offered for sale from now till the end of September at 15s. per cwt. net cash, on condition that the quantities purchased at this reduced rate are removed from the sellers' works by September 30, 1916. Quantities exceeding 15 tons are required to be taken in equal monthly deliveries during August and September. After that date, the price for home sales of sulphate of ammonia during 1916-17 season will be 15s. 6d. per cwt. net cash. The goods will be delivered free on rail at makers' works in makers' bags, 3d. per cwt. being allowed if buyers supply their own bags.

SPICES AS PRESERVATIVES.—The *Pharmaceutical Journal*, in its issue for Aug. 19, remarks that spices, as used in the kitchen in the usual amounts for flavouring purposes, such as in spiced cakes, do not exert any considerable preservative effect; but when cinnamon, cloves, or allspice are used in large amounts the growth of moulds may be retarded. This effect is greater when the spice is combined with vinegar. It seems possible that the active principles of these spices, especially cinnamic aldehyde, could be used in such dilutions as to prevent the growth of many micro-organisms, and yet in small enough quantities not to spoil the flavour of the product. Pepper and nutmeg have but little direct effect on the growth of micro-organisms. Cinnamon is the most effective spice for this purpose. Results obtained from culture experiments with the essential oils and alcoholic tinctures of the species confirm the fact that cinnamon is the most effective spice for preservative purposes, followed by cloves and allspice. Bacteria appear to be less sensitive to spices than moulds.

EXPORT OF BELGIAN PLANTS.—Many enquiries are being made in Washington, U.S.A., as to whether it will be possible in the near future to obtain Azaleas and other plants from Belgium. The reply is given that the conditions are the same as last year, namely, that Belgian horticultural products can only be shipped from Rotterdam to the States under a special arrangement with the Syndicat des Horticulteurs Belges, which involves the payment of the purchase money to the Banque Belge in London.

MANCHESTER PUBLIC PARKS.*

(Concluded from page 72.)

THE policy of the committee in regard to the provision of playgrounds, of which we have already given details, has naturally been determined in a large measure by circumstances. The smaller areas in the older and more crowded districts are most unsuitable for tree and shrub growth, excepting, perhaps, Privet, which is already far too common in the city parks; consequently many such areas are employed primarily as playgrounds, whilst some are entirely given up to purposes of this description. A little summer flower gardening that does not necessitate winter cultivation, serves to introduce the suggestion of colour, and with this the congested areas have to be content. The more serious attempts at park gardening are reserved for the Whitworth Park (whose attractions are entirely gardenesque), Marie Louise Gardens on the Didsbury side of the city, nearly six miles from the Town Hall, where there is greater diversity of tree and shrub than in any other part of the city; and Heaton Park, at the extreme north, the largest area in the control of the committee. Much might be written of this great park, of the history of its mansion during the last six hundred years, and of the many public purposes it now serves under municipal ownership, but instead we will conclude our remarks on this head by mentioning Boggart Hole Clough, which was illustrated in fig. 28. In Lancashire a "clough" is a deep valley of more or less irregular outline and possessing much natural beauty. Boggart Hole Clough certainly answers to the description. The area it covers is 171 acres, but the site may be said to include a series of cloughs rather than one—unless the deeper ravines at the edges are regarded merely as the irregularities of the great valley. The undulating, hill-and-valley character of this open space must appeal to every visitor, and its natural features have been so little disturbed that the representatives of wild animal life are as wonderfully varied as the beautiful ferns and other native plants that adorn its banks and nestle in its most sheltered corners. It is even said that the fox, hedgehog, and stoat may still find a home there—probably the only home Manchester now affords them.

THE CITY NURSERIES.

There are two other features of Manchester city gardening that deserve remark before we conclude these brief notes, namely, the Carrington Nurseries, near Sale, and the fine house of succulents that may be seen by visitors to the Alexandra Park. The Carrington Nurseries owe their origin in the fact that, the atmospheric conditions of the city being unsuitable to the growth of vegetation, the yearly casualties amongst the trees and shrubs are unusually high, and the expense of making them good was felt even twenty-five years ago, when Manchester possessed only five parks and eight open spaces. The late superintendent, Mr. Robert Lamb, a man of high capacities, who served the city faithfully for very many years, at that time suggested the leasing of four acres of Carrington Moss for commencing a municipal nursery. Carrington Moss, which is situated in Cheshire, was then a bog, part of an estate purchased by the Cleansing Committee to utilise the city's waste and refuse, including the sewage. The scheme has grown, until now the nurseries cover 65 acres. The ground has still so much the character of a bog that as one walks along the paths the feet spring as if walking on indiarubber. So far as growth is concerned, there is nothing whatever to complain of, for the system of manuring gives excellent results. The way in which it is divided into plots, with first-class paths, is shown

* *Illustrated Handbook of the Manchester City Parks and Recreation Grounds.* (Manchester Parks and Cemeteries Committee.) Price 7d., post free.

in fig. 41. It is said that the stock includes 800,000 trees, shrubs, and herbaceous plants in various stages of growth. Twenty-four thousand trees and shrubs and 70,000 herbaceous plants are distributed every year. In addition, 1,400 shrubs in tubs are distributed among various public squares and buildings where trees cannot be planted. For this latter purpose Golden Elder and Golden Privet are the first favourites. There are nearly 5,000 street trees, and all fresh ones are supplied by the Carrington Nurseries. Looking over the various plantations, it is easy to see what trees succeed best in the parks. First come Poplars, of which there are well over 100,000 specimens in all sizes suitable for planting; next in point of number is the common Ash, then the Willow, Silver Birch, Sycamore, Horse Chestnut, and Elder in the order given. Of shrubs, we have already referred to Ligustrum (Privet), and there are probably 120,000 plants now in the nurseries. Of Rhododendrons there are some 50,000, but Cunningham's White and a bluish variety very largely predominate over all others. Honeysuckles, as most gardeners know, often grow exceedingly well in town, and even in Manchester it is found that this fragrant shrub is capable of growing and flowering in a way that gives much satisfaction. The herbaceous flowering plants constitute a very important part of the stock at Carrington, and in addition to these the nurseries produce each year about 2,600 early flowering Chrysanthemums, 2,000 Dahlias, 8,000 Carnations, 1,000 Canterbury Bells, 4,000 Sweet Williams, 12,000 Wallflowers, 16,000 Violas and large quantities of various plants used in the summer bedding. Whether such a nursery is to be recommended in such cases as Manchester is a nice point for the consideration of the various committees and superintendents. It is an easy way of raising large stocks, but when extensive planting has to be done it may happen that the nature of the planting has to be decided by the stocks in the nursery, which is much less satisfactory than it would be were the superintendents in a position to select the required number from the nurseries where novelties are being continually introduced into the collections. But doubtless the system has its advantages, and we believe that the Manchester Parks Committee is exceedingly proud of its nursery.

THE "DARRAH" COLLECTION OF CACTACEOUS PLANTS.

We will conclude our notice by referring briefly to the splendid collection of cactaceous plants that is open to public inspection in the Alexandra Park (see fig. 40). Some of our older readers will remember that the collection was formed by the late Mr. Charles Darrah, of Heaton Mersey, and following upon his death in 1903 it was presented by his family to the Manchester Corporation. A special house for this collection was built by the Corporation, and it was opened on December 14, 1906, a circumstance which was duly recorded in these pages (see *Gard. Chron.*, Dec. 22, 1906, p. 427). The structure is divided into five compartments in order to provide suitable atmospheric conditions for the different groups, which vary much in the degree of heat they require. They are grouped something after the following manner:—(1) South African and Canary Islands, and most of the smaller South American species; (2) West Indian, Central American, and Mexican species inhabiting the hot coast belt; (3) South American species, including the arborescent *Cereuses* and *Opuntias*; (4 and 5) Mexican and United States. The collection comprises over 1,300 specimens. The illustration in fig. 40 will give some idea of the size of the plants, many of them being amongst the best of the particular species to be found in Europe, though naturally in the majority of cases magnificent specimens occur in the succulent house in the Royal Gardens, Kew. We

believe that Manchester is proud of the "Darrah" collection, and well it may be, for there is none similar in the possession of any municipal authority in these islands.

About two years ago Mr. W. W. Pettigrew, of the Cardiff Park, was elected to fill the position of Superintendent of the Parks and Open Spaces in Manchester. He has taken over a vast concern that was managed well by his predecessor, but in this, as in every instance of the kind, there is constant need for progression, and Mr. Pettigrew will doubtless find it no less interesting than useful to make careful trials, with a view to relieving the monotony of the parks caused by the want of variety in trees and shrubs.

VEGETABLES.

WINTER SALADS.

EVERY effort should be made during the next few weeks to ensure a plentiful supply of fresh

winter fruiting include Winter Beauty and Red and Yellow Sunrise. Strong plants of suitable varieties of Cucumber should be planted in light, well-heated houses, and allowed to make good growth before they develop their fruits. Make a sowing of Globe Beet in a heated pit for cutting up into mixed salad; the roots will be superior to the large summer ones. Chicory and Dandelion are two useful salads. The plants should have every encouragement to make a free growth during the next six weeks by hoeing the soil frequently and applying small dressings of a suitable fertiliser during showery weather. Attend to the blanching and trimming of Celery plants. Let the roots have copious supplies of liquid manure and dressings of soot. The earthing-up of plants intended for late use should be deferred for as long as possible.

WINTER CARROTS.

Young Carrots are appreciated all through the year. Make two or three sowings of this vegetable in frames or heated pits in light, porous

blue variety originated in gardens, and was named *C. l. coerulea*. One or both of these forms were planted by the side of a ditch on the northern aspect of some shrubs in the gardens of the Royal Horticultural Society at Wisley, where they have been left undisturbed. Numerous seedlings have come up and now form a long line, with colours varying from pure white to bright blue, with every intermediate shade. On a bank not far off is a deeper and richer blue, so that the species has progressed in an upward direction from the palest hue to a rich dark blue. It would be futile to give names to all the colours, but the series shows an excellent example of evolution without artificial aid or selection. The loose panicles are graceful and informal for cut flower decorations, and in cases where they have varied like these they would fit into various colour schemes in the home. Any desired length of stem can be cut, for the plants vary from 3 feet to 6 feet in height according to shade or exposure, to the fertility or otherwise of the soil, and the amount of rainfall. *J. F.*



FIG. 41.—MANCHESTER PUBLIC PARKS: THE CARRINGTON NURSERIES, NEAR SALE. (See p. 102.)

salading for use in the coming winter and early spring. Portable cold frames are especially useful in this connection; they should be grouped together in the driest and sunniest position in the frame yard, the best place to set them being on disused hotbeds. Lettuce and Endive should be sown and planted during the next four or five weeks at intervals to ensure a constant supply. Quick-maturing Radishes should be sown every ten days for the next six weeks or so. A small sowing of Chervil should be made under glass, and one or two lights devoted to Onions of the Queen type for pulling in winter, as required. Tomato plants for winter cropping should be ready for transference to the pots in which they will fruit; they should be grown in cool conditions until the time for planting them in heated glasshouses. Varieties suitable for

soil, arranging the soil to within about 1 foot from the glass. Syringe the frame and close the light early in the afternoons to promote a quick growth. One of the short, stump-rooted varieties should be selected for the purpose. *E. Beckett.*

PLANT NOTES.

CAMPANULA LACTIFLORA.

USUALLY the typical form of a Campanula is dark in colour, either blue, purple, or some intermediate shade, but the first described or typical form of *C. lactiflora* was milk-white with a tinge of blue. Many years ago a light

FOREIGN CORRESPONDENCE.

ACACIA BAILEYANA.

WITH reference to the notes on *Acacia Baileyana*, p. 232, Vol. LIX., I have two specimens, six years old from seed, 22 feet high, and covered with flower-buds, which, however, never open. The same is the case with *A. dealbata*, *A. linifolia*, and many others. *A. decussata* has a few flowers occasionally, notwithstanding that the specimen is 26 feet high; the only species flowering the whole year round is *A. retinodes*, but the seeds it produces do not germinate. I am interested to know the cause of my flower-buds never opening. *M. Buysman, Lawang, East Java.*

REMARKS ON THE CONDITION OF THE
FRUIT CROPS.(See Tables, Supplement, *Gard. Chron.*,
August 5.)

(Continued from p. 91.)

4, MIDLAND COUNTIES.

OXFORDSHIRE.—Apples, though only an average crop, are very good, and the trees are clean. Pears are yielding a poor crop. Gooseberries, Raspberries and Currants were all heavy crops of good fruit, but Strawberries were almost a failure. The soil is a light loam on gravel and chalk. *J. A. Hall, Shiplake Court Gardens, Henley-on-Thames.*

—The fruit crops (especially stone fruits) are unsatisfactory. There was little blossom on many of the trees, and the weather of April was unfavourable to fruit trees then in bloom. The trees are remarkably free from pests. The soil here is shallow and stony, requiring much manure and deep digging. *A. J. Long, Wyfold Court Gardens, Reading.*

—Apricot trees developed plenty of bloom, but it was damaged by heavy snowstorms at the end of March. Of Apples, Russets, Magnum Bonum and King of the Pippins are our best varieties, and these are bearing only small crops. Pears are very scarce. Jefferson's, Monarch, Victoria and Cox's Emperor are the best of the Plums, and these varieties have only thin crops. Morello Cherries are good; Black and Red Currants were very plentiful, and the fruits were clean. Of Strawberries, the varieties Fillbasket, Royal Sovereign, Late Prolific and Latest of All gave good crops. The soil is loam over limestone. *William J. Short, Middleton Park Gardens, Bicester.*

—Apples, Pears, Plums and Apricots are all scarce, but Raspberries, Currants and Gooseberries were plentiful and good. Strawberries were small in size, and many of the berries decayed before they were ripe. *C. E. Munday, Nuneham Park Gardens, Oxford.*

—There was a splendid display of bloom on all fruit trees, and there was promise of good crops, but owing to the severe weather in spring, followed by heat in May, insect pests became very troublesome. Trees in sheltered parts of the garden are bearing fair crops. *T. W. Whiting, Shotover Park Gardens, Wheatley.*

—This is the worst year for fruit which I have known. Bush Apple trees, which for the past twenty years have never failed to bear heavy crops of good fruit, are this year in some cases absolutely bare. Pear trees on walls have good average crops, but with the exception of Williams' Bon Chrétien, all standard Pear trees have very few fruits, and in many cases are entirely devoid of fruit. *W. Miles, Caversham Park Gardens, Reading.*

—The fruit crops are generally under the average. The trees blossomed freely, and there was no frost during the setting period, but cold, sunless weather caused the young fruit to drop. Apples on bush and espalier trees which were well thinned of fruit last year are bearing good crops, but standards are almost bare. Blenheim Pippin and Hanwell Souring, two of the principal sorts grown in this district, are much below the average. The soil here is not adapted for sweet Cherries. Morellos usually do well, but they are a failure this season. Pears are bearing about half an average crop. Plums are good, but insect pests are difficult to keep in check. Apricots are a failure, but Peaches are, on the whole, good. Small bush fruits were abundant and good, but they ripened three weeks later than the average. Strawberries were a full crop. The soil is a light, shallow loam on limestone brach. *Ben. Campbell, Cornbury Park Gardens, Charlbury.*

SHROPSHIRE.—There were heavy crops of fruit last year, and consequently many trees have few

fruits this season. This does not apply to Apples Worcester Pearmain, Charles Ross, Langley Pippin, Devonshire Red, Potts's Seedling, Warner's King and Yorkshire Beauty, which are bearing heavy crops. Pears are an average number. Gooseberry bushes yielded a very large crop. Damsons are almost a failure. Our soil is a retentive, clayey loam. *Alex. Haggart, Moor Park, Ludlow.*

—Early in the season there was promise of good crops of stone fruit, but generally this has not been realised, though Victoria Plum trees are heavily laden in many parts. Apples and Pears are very scarce. Small fruits cropped well, but the quality was poor, especially in the case of Strawberries, which ripened in sunless weather. Insect pests, especially aphids, are not so prevalent as last year. Apple scab has done but little harm. The soil is a clay loam. *G. T. Malthouse, Agricultural College, Newport.*

STAFFORDSHIRE.—The fruit crops are very uneven. Certain varieties of Apples are bearing good crops, but the majority of the trees have no fruit. Pears are scarce. Victoria Plum trees are well cropped, but there are few fruits of other varieties. Small fruits were plentiful. Strawberries gave a fair crop, but the berries were flavourless, owing to lack of sunshine. *M. Huntley, Old Fallings Hall Gardens, Wolverhampton.*

—The fruit crops are not so good as the trees promised in early spring. The Apple crop is a good average one; the varieties Ribston Pippin, Bramley's Seedling, Beauty of Kent and Keddlstone Pippin are carrying the heaviest crops. Pears are much below the average of the past three years. Trees of Comte De Lamy, Pitmaston Duchess, Bauré Diel and Marie Louise are the best cropped, while others are practically fruitless. Plums are under the average. Victoria being the only variety that is satisfactory. Morello Cherries are good. Gooseberries, Red, White, and Black Currants were also good, and the fruits were of fine quality. Raspberries were a good average crop. Strawberries were plentiful, the berries being sound and of good flavour, Royal Sovereign and Laxton's Latest of All having the best crops. Early Peaches and Nectarines were moderate crops, but the later varieties are poor owing to a heavy fall of snow while the trees were in full bloom. Our trees are free from disease, our only trouble being an attack of mildew on wall trees. The soil is of medium texture on a clay subsoil. *Edwin Gilman, Ingestre Gardens, Stafford.*

5, SOUTHERN COUNTIES.

BERKSHIRE.—The fruit crops are disappointing. Apples are almost a failure; many of the trees bore no flowers. The few varieties which did bear, and set their fruit, have dropped it since. Plums gave good promise, and set their fruit, but, excepting Victoria, have since cast it. Apricots are a failure, but Peaches and Nectarines are bearing good average crops. Small fruits were plentiful and good. Nuts, including Walnuts, are yielding a very light crop. *J. Howard, Benham Valence Gardens, Newbury.*

—Apple and Pear trees are bearing very light crops. The trees are remarkably clean, and making good growth. Currants and Gooseberries yielded very heavily. Strawberries were plentiful, but considerable numbers of the berries were spoilt by the wet, dull weather. The soil is clay, overlying chalk. *Walter Oliver, Park Place Gardens, Henley-on-Thames.*

—Apples and Pears are very scarce, due, to a great extent, to the enormous crops the trees carried last year. Cox's Orange Pippin, Ribston Pippin, and Worcester Pearmain are among some of the best cropped varieties. We have very heavy crops of Peaches and Nectarines, both indoors and out, the varieties Hale's Early and Waterloo being the chief exceptions. The Strawberry crop was a very good one, but cold, wet weather caused numbers of the berries to rot. *John T. Tubb, Bearwood Gardens, Wokingham.*

—All fruit trees bloomed freely, but many of the flowers failed to set. Some Apple trees are carrying good crops, these being mostly those that failed to crop last year. Pyramid Pear trees have most fruit. We have plenty of Victoria Plums, but less fruits of other sorts. Peach and Nectarine trees produced plenty of blossom, but too early, the trees being forward, due to mild weather in January and early part of February. Bush fruits were abundant, and we had a splendid crop of Strawberries. The variety Laxton's International grows well here, and is a heavy cropper. Laxton's Cropper, Main Crop, King George V., Royal Sovereign and Fillbasket also do well in our soil, which is very light and dries quickly. *F. J. Thorne, Sunningdale Park Gardens.*

DORSETSHIRE.—The Apple Crop is very variable. In the orchard, where nearly all the trees last year were bare of fruits, practically every tree is bearing an average crop, and a few varieties are very heavily cropped. Bush trees, which were over-cropped last year, are almost bare this season. Allington Pippin, Christmas Pearmain and Lewis's Incomparable are yielding good crops. Pears are a complete failure, wall trees as well as pyramids. The cold winds experienced in the third week in April, and 6° of frost on the morning of May 21, may to some extent be responsible for the deficiency of Pears. The Plum crop, with the exception of Victoria and Czar, is practically a failure. Peaches and Nectarines are very scarce; Royal Ascot Peach is bearing the best. The frost which set in on February 22 and continued for nineteen days, destroyed all the Apricot blossom. Small fruits bore average crops, and the quality was very good. The same is true of the Strawberry crop. Nuts of all kinds are very scarce. *T. Turton, Castle Gardens, Sherborne.*

—Owing to the unfavourable weather at the time when most fruit trees were in flower, they are showing poor results. A few sorts of Apples, Pears and Plums are cropping well, but the majority of varieties are very lightly cropped. Currants of all kinds, Gooseberries and Raspberries were all very plentiful. Nuts are scarce. *Thos. Denny, Down House Gardens, Blandford.*

—Considering the amount of blossom, the Apple and Pear crops are lighter than was expected. Doubtless owing to a long succession of very cold nights in May and June, many of the blossoms dropped. Strawberries were a poor crop, most of the early blossoms having been spoiled by frosts in May. Other small fruits were good and plentiful. Apricots and outdoor Peaches are poor crops, but Morello Cherries are very good. Figs promise a good crop of first-quality fruits. The soil is fairly stiff, though shallow, with a chalk subsoil. *J. Jaques, Bryanston Gardens, Blandford.*

—The flowering of fruit trees in Dorset was very poor and uneven. This applies especially to Apples, many of which had no flowers whatever. *E. C. Parslow, County Offices, Dorchester.*

—There was promise of a record fruit season, but when the trees were in bloom a very heavy sea fog prevailed for several days, which proved disastrous to the fruit crops. Some kinds, however, are very good. Ecklinville Seedling, Cox's Orange Pippin, Warner's King, Beauty of Bath and Stirling Castle are the heaviest cropped varieties of Apples. Small fruits were promising, but a period of drought spoiled the good prospects. Strawberries were better than usual. Aphid is not very prevalent so far this season. A little mildew is noticeable, owing probably to cold winds in early summer. The soil is loamy, with an ironstone subsoil. *H. Kempshall, Abbotshury Castle Gardens.*

—Apricot trees developed a lot of blossom, but glass coping and nets failed to protect them from 16° of frost on two or three nights, and the flowers turned brown. Apples and Pears have

not set so well as we expected; one reason may be the entire absence of bees during the flowering period. Outdoor Peaches are almost a failure. Strawberries were a heavy crop of large fruit. Gooseberries, Raspberries and Red Currants were good and plentiful. Our Black Currant bushes had to be cut down owing to infestation of "big bud." Aphis was present on Cherries and Plums, but one or two heavy rains kept the pest in check. The soil is dark in colour, and easily worked. *A. Shakelton, Forde Abbey Gardens, Chard.*

HAMPSHIRE.—The fruit crops are a failure. All trees, with the exception of Pears, flowered well, but the flowers were destroyed by a blizzard of snow, accompanied by severe north and north-east winds, which prevailed for three days. Those flowers which survived have not developed well, owing to lack of sunlight during the month of June. The season of 1916 will be long remembered as a very lean year for fruit. *Lewis Smith, Cadland Park Gardens, Southampton.*

—The Apple crop is a poor one. There are several orchards around here practically bare of fruit. This is a great disappointment after a fine show of blossoms. The trees are much cleaner than last year. We have an average crop of Apples, especially of the earlier sorts; later ones are very light. Plums are a scanty crop, with the exception of Czar and Victoria. Peaches and Nectarines are practically failures. This is due to the cold weather in March, when the trees were in full bloom. Strawberries promised a record crop, but the rains in June spoilt a large number of the fruits. All other small fruits were splendid crops of excellent quality. *A. J. Legg, Dogmersfield Park Gardens, Winchfield.*

—The Apple, Pear and Plum crops are the smallest for the past twenty years. All small fruits were plentiful and good, especially Black Currants. Strawberries were extra fine, and Figs are abundant. Our soil is of a heavy nature, with a clay subsoil. *H. Martin, Bartley Lodge, Cadnam.*

—The Apple crop is very small. The trees suffered during 1915 from aphis, but are now clean and healthy. The prospect for 1917 is so far good. The best crops of Apples are on trees of the varieties Lord Grosvenor, Bramley's Seedling, Mère de Ménage and Cox's Orange Pippin. Plum trees are healthy, but have dropped their fruit. Damsons, with the exception of the Merryweather variety, are a failure. Gooseberries, Currants and Raspberries were extra plentiful. Strawberries proved better than they promised to be; the fruit was of good quality, especially the variety Royal Sovereign. *E. Molyneux, Swanmore Park, Bishop's Waltham.*

SUSSEX.—All fruit trees blossomed profusely, but Apples, Pears, Plums, Peaches, Nectarines and Apricots did not set. Although no frost was registered at the flowering period, only four varieties of cooking Apple are bearing good crops, viz., Belle de Pontoise, Hambling's Seedling, Lord Grosvenor, and Lord Suffield. Dessert Apples and Pears are scarce. The quality of all fruit appears to be good. Cherries and small fruits, including Strawberries, were of average numbers, and the quality was good. *J. W. Buckingham, Milland Place Gardens, Liphook.*

KENT.—Apples promised remarkably well, but failed to set. Pears are practically a failure. Plum trees are yielding a very heavy crop, and the fruits require thinning. Cherries were an excellent crop. Peaches and Nectarines promised well, but these fruits have commenced to drop. This is probably caused by the flowers not being pollinated. For a fortnight during which my Peaches were in bloom we did not register any sunshine. Although two members of the staff were almost the whole of the day pollinating the flowers, few fruits set, owing to the pollen not being ripe. I have a house with three Peach trees of one variety. I was obliged to lift one tree and replant it, with the result that this tree was three weeks later in

flowering. Although only a young tree, it has set its fruit well. The other two trees have not a fruit between them. The fruitful tree was in bloom when the sun was shining. *G. Woodward, Barham Court Gardens, Maidstone.*
(To be continued.)

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

DAFFODIL FLIES.—Owing to the war it can hardly be expected that the investigation on the Daffodil flies *Merodon* and *Eumerus* by the Board of Agriculture and Fisheries will be completed this year, but a brief interim report would be welcome. In the case of the *Eumerus* the matter was not left an open question; it was held to be probably injurious, and we were recommended to destroy the flies and larvae as far as possible. Under the circumstances, therefore, any further facts should be useful, and I will briefly record this season's experience. Having found that eelworm was the chief cause of losses in my Daffodils, measures were taken to get rid of it, with success, and eelworms were found in only five or six bulbs this year. The rest of the bulbs were clean and healthy except for the inevitable toll of the *Merodon* and the few more or less inevitable cases of "basal canker" due to weak constitution or ungenial soil. *Eumerus* larvae were found in only five bulbs (there were none in those that had eelworm, as they were taken up early). Four of these were marked bulbs that had had a *Merodon* grub last year, which had been extracted, causing some damage and consequent rotting of a portion of the bulbs. The *Eumerus* larvae were found in the decayed portions only, the remaining part of the bulbs being perfectly clean and healthy, and making new growth. The other bulb, which was not marked, appeared also to have been attacked by a *Merodon*, or otherwise damaged, as there was no sign of any disease. No special attempt was made to destroy the *Eumerus* flies or larvae last year, and there were plenty of flies about. *A. J. Bliss.*

OLD PLANTS OF CYCLAMEN.—Mr. E. Harris on p. 87, advises shaking out the more promising, to use his own words, of the old Cyclamen plants, which, I take it, were flowered last year. May I ask when would these old plants flower; and why shake them out? Is it to keep them in 6-inch pots? Why leave the plants in their pots all these months, and why were they not potted on last April or May into 8 or 9-inch pots when they had finished flowering? My plants, which were potted in the spring, are now fine specimens from 18 inches to 2 feet across. I always put my yearling plants into 6 and 7-inch pots, and reduce the ball slightly when re-potting them; instead of plunging the pots in ashes I stand them on half-bricks in cold frames. I advise adding a little peat to the final potting soil. *M. Sargent, Rockshaw Gardens, Merstham, Surrey.*

SEEDING OF LATHYRUS GRANDIFLORUS.—Mr. Elwes, in "Notes from a Cotswold Garden," p. 72, states that he has never seen *Lathyrus grandiflorus* seeding. I have a plant of it in my garden, in a somewhat prominent position, and I have watched for a few seasons past to see if any insects visited the flowers. On only one occasion have I seen any attempt to extract the nectar—by a bumble bee, and its efforts were futile, as I thought, owing to the stubborn, fleshy character of the carina. I found, however, that by forcibly depressing the keel two or three times the pollen was pushed into view, at the same time self-fertilising the flower. Pods containing good seeds, from which I have raised young plants, were the result. *Geo. Lamb, "Mealchet," Hextable.*

MAGNOLIA CONSPICUA FLOWERING A SECOND TIME IN ONE SEASON.—In these nurseries a large tree of *Magnolia conspicua* (Yulan tree) is flowering for a second time this year. It has been in bloom during the past fortnight, and is at the present time carrying more than one hundred blooms, some of which I enclose. None of my employees can remember such an occurrence previously. *L. R. Russell, The Nurseries, Tunbridge Wells.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

AUGUST 15.—Present: Mr. E. A. Bowles, M.A. (in the chair), Col. Rawson, Messrs. W. C. Worsdell, J. Fraser, E. M. Holmes, G. Wilson, W. Bateson, W. Fawcett, E. J. Allard, W. Hales and F. J. Chittenden (hon. sec.).

Dianthus plumarius × *D. Caryophyllus*.—A letter was read from Mr. F. N. Williams, saying that he was aware of no recorded name for the Carnation-Pink cross shown at the last meeting, although two species of the sections of the genus to which these plants belong—viz., *D. attenuatus* and *D. monspessulanus*—had been found to hybridise naturally in the Department of Pyrenees Orientales and had been named *D. × Richteri*. The Carnation-Pink cross has been made in gardens, but apparently not named, and the Committee was of opinion that the name *D. × Allwoodii* proposed at the last meeting for this cross would stand and be appropriate.

Variation in Origanum vulgare.—Mr. FRASER drew attention to specimens of wild Marjoram, which he showed, and commented upon variations which he had found among wild plants of this species. The variety *megastachyum* he had found on the Surrey Downs in 1913, but cultivated in his garden it became much larger and very much greener. The variety album is fairly common, and he had found a form near var. viride of the continental botanists, but with slightly tinted bracts.

Variations in Tropaeolum.—Col. RAWSON showed further specimens of *Tropaeolum majus*, exhibiting suppression of parts which he attributed to alterations in light during growth.

Spiral Torsion in Gentiana Pneumonanthe.—Mr. BOWLES showed a spirally contorted specimen of *Gentiana Pneumonanthe* from a field near Myddelton House for comparison with the Mint shown at the last meeting. A specimen of *G. asclepiadea* had already been before the Committee.

Variation in Carduus lanceolatus and C. palustris.—He also showed a white-flowered Spear Thistle, in which the flowers were slightly tinged with pink, and purple, flesh-coloured and white-flowered specimens of *Carduus palustris*, all from near his house.

Hybrid Romneya Coulteri and R. trichocalyx.—Mr. W. H. B. FLETCHER, of Aldwick Manor, Bognor, sent specimens of *R. Coulteri*, *R. trichocalyx* and a hybrid he had raised between them, with the following note: "It will be noticed that the buds of the hybrids are intermediate, having traces of the bristly hairs of *R. trichocalyx* and the more egg-shaped form and especially the apiculate sepals of *Coulteri*. When the plants are seen in a row, as at my brother's vicarage garden near Chichester, the tint of the foliage of the cross-breeds differs greatly from that of *R. Coulteri*."

"So far as my experience goes, the *Romneyas* do not set seed unless artificially cross-pollinated. I have grown *R. Coulteri* for between twenty and thirty years, but never had any fruit set, until in 1913 I was able to use the pollen of *R. trichocalyx* for the first time. The flowers which are cross-pollinated bear fruit with the utmost freedom. Though the two forms are with me planted in actual contact, neither insect nor wind has the slightest effect in crossing them. I find *R. trichocalyx* to produce pollen very freely, but *R. Coulteri* much more sparingly."

Agapanthus Crosses.—Mr. FLETCHER also sent *Agapanthus Mooreanus* ♂ × *A. umbellatus* ♀, and *A. Mooreanus* ♀ × *A. umbellatus* (deciduous white form) ♂. Mr. Fletcher has also raised the reciprocal of the last. The hybrids seemed to be extremely floriferous, and had good flowers which varied (as do those of the form known as *A. intermedius*) considerably in colour, some forms with golden anthers being particularly pretty.

Farolove with Dialysis of Corolla.—Mr. WHITTON sent a specimen of Foxglove with the corolla deeply divided into four or five parts. This phenomenon is not very uncommon in plants with gamopetalous corollas, such as Campanulas.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AUGUST 3.—*Committee present:* Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, P. Foster, W. Gildea, D. McLeod, S. Swift, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Dowiana aurea var. *Troilus*, from R. ASHWORTH, Esq.

C. Dupræana superba (*C. Warsceviczii* × *C. Warneri*), from Messrs. STUART LOW and Co.

AWARDS OF MERIT.

C. Atalanta Carter Place var., *Laelio-Cattleya callistoglossa* var. *Worsleyi*, *Cypripedium Pytho* var. *Brutus* (*callosum* *Sanderæ* × *Mastersianum*), and *Odontioda Bruin*, all from TOM WORSLEY, Esq.

Cattleya Sibyl var. *Reine de Saba*, *C. Lord Rothschild* var. *Tiberis*, and *Odontioda Brewii* var. *Highfieldensis*, all from R. ASHWORTH, Esq.

Odontioda Brewii var. *Rainbow*, from PHILIP SMITH, Esq.

AWARD OF APPRECIATION.

Odontoglossum Promerens album (*O. oximum* × *O. crispum*), from R. ASHWORTH, Esq.

A Large Silver Medal was awarded to R. ASHWORTH, Esq., Newchurch (gr. Mr. W. Gildea), for a group.

ELGIN HORTICULTURAL.

AUGUST 16.—A successful exhibition was held under the auspices of the above society on Wednesday, the 16th inst., in the Town Hall, Elgin. All the available space was filled, and it was generally agreed that the show was the finest which had taken place locally. Visitors were favoured by fine weather. There were numerous exhibits of exceptionally good quality, the chief displays being those of Sweet Peas and Roses. In the professional classes for Sweet Peas the entries were numerous, and most of the exhibits of uniformly good quality. The 1st prize was awarded to Mr. J. A. GRIGOR, Seapark, in every class except one. The Rev. E. V. KISSACK, an amateur, entered in the professional classes, and secured the 1st prize for lavender-coloured blooms. The 1st prize in the class for Sweet Peas not yet in commerce was won by Mr. J. A. GRIGOR with a bi-color named *Excelsior*. The chief prize-winners in the amateur classes were Mr. WM. STUART, Craigellachie; Mr. J. M'GILLIVRAY, Newton; and Mr. J. H. FORSYTH, Llanbryd. The Silver Medal offered by Mr. M. H. Sinclair, Aberdeen, for the best exhibit in the professional classes was won by Mr. J. A. GRIGOR; the Silver Medal offered by Messrs. Dobbie and Co., Edinburgh, for the most successful exhibitor at the show (previous winners excluded) was awarded to Mr. R. MACDONALD, Springfield House; and the National Sweet Pea Society's Silver Medal for the best amateur exhibit of Sweet Peas to Mr. W. STUART. Mr. J. A. GRIGOR showed the best Roses. There were creditable exhibits of vegetables.

The proceeds of the show, which amounted to over £60, were devoted to the Prisoners of War Fund and the Seaforths' Clothing Comforts Fund.

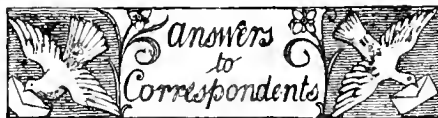
Obituary.

FREDERICK MILSON.—It is with deep regret that we learn of the death, on the 11th inst., of Mr. Frederick Milson, in his sixty-ninth year. He was for fifteen years gardener to F. G. Gledstanes, Esq., Berry Hill, Taplow. The interment was in Taplow churchyard; the burial service was conducted by the Rev. F. G. A. Phillips, in the presence of Mr. Milson's employer and numerous friends.

G. CALVERT.—We regret to record the death, on the 12th inst., of Mr. G. Calvert, gardener to the Duke of Marlborough, at Blenheim Palace, Woodstock. Deceased had suffered for a short time from acute asthma, but was not considered seriously ill, and his death was sudden and unexpected. He had been in charge of the gardens at Blenheim Palace for thirteen months.

REPLY.

IN answer to your correspondent's queries on Bamboos (p. 82), it is not surprising that *Phyllostachys Quilicii* does badly in shade. Most of the Bamboos of this group prefer a moderate amount of sunshine, and I would recommend him to move his plant to a position where it would be sheltered but not shaded. This Bamboo requires a deep, rich soil; with liberal treatment it will attain to a large size. As the plant of *Arundinaria Hindsii* var. *graminea* is not succeeding in shade I would recommend him to shift this also. The plant purchased as *Phyllostachys Quilicii*, 10 feet high, can scarcely be *P. flexuosa*. The latter is a graceful Bamboo with rather small, arching canes. *P. Quilicii* has strong, vigorous stems, but not large leaves. It is a very distinct Bamboo. *Arundinaria aristata* prefers partial shade, like *A. nitida*. The leaves are often inclined to shrivel in hot, dry weather, and the roots should be watered regularly after sunny days when this occurs. It is one of the many species that does not like a dry rooting medium. Some Bamboos, such as *Phyllostachys mitis*, lose their leaves in April, but the plant soon becomes green again. Contrary to *Dorset Gardener's* experience, I find that some plants of *Arundinaria nitida* lose their leaves when growth is about to commence; but it is more than probable that there are two forms of this plant. The more upright growing variety of the two is the chief offender in this respect. Your correspondent might move his plants at the end of September or early in May. I find that those transplanted in the autumn do not suffer a check if mulched with well-decayed manure, and they make better growth the following summer than plants moved in the spring. G.



CLIMBING ROSE: W. W. From your description we suspect that the variety is American Pillar, one of the strongest-growing climbers, producing large trusses of pink blossoms with white in the centre. American Pillar is one of the best climbing Roses.

CORRECTION.—The Curator informs us that the new flagstaff at Kew has not yet been erected, but is still lying by the side of the old one.

FILBERTS, MULBERRIES, MEDLARS, AND WALNUTS: F. (a) Medlars should remain on the tree until late in the season, i.e., the end of October. They should be gathered carefully when quite dry, and laid out thinly in a cool place to undergo a process of partial decay, called bletting. This usually takes three or four weeks; when blotted they are eaten. Some people consider that the acid flavour is very agreeable. (b) Mulberries ripen late in the season, and are at their best when fully ripe. If the tree is growing in grass land, the best plan is to shake the boughs gently and allow the fruits that are ready to drop off. If the tree stands in cultivated ground, a layer of clean straw should be placed beneath the tree; failing this, the fruits must be gathered by hand. Besides being used as dessert, or for making tarts, Mulberries may be bottled or preserved with sugar. (c) Filberts should be gathered when the nut begins to part readily from the husk, which varies according to the variety. After drying the nuts should be packed in large jars or tubs, and sprinkled with a little salt. Place the receptacles in a cool, dry room. Another method of storing nuts is to place them in an earthenware receptacle and bury the latter in the ground, or in sand. Walnuts may be allowed to fall from the trees, gathered, well cleaned of the husks, and dried before storing. These may also be placed in jars and buried in the same way as Filberts. In storing nuts, see that they are first dry, and maintain a cool, equable temperature, such as that in a cellar.

GRUBS IN BRUSSELS SPROUTS: Major E. F.

The grubs attacking the Brussels Sprouts are those of the Cabbage root fly, *Phorbia brassicae*. If you are cultivating on a small scale, the best method of destroying the pest will be to take the plants up and pick off all the grubs; badly infested plants should be removed and burned, the stumps being uprooted and also burned, to prevent the maggots from spreading from the roots to other plants. Carbolic acid emulsion is effective in destroying the eggs of the fly, and also the maggots; the formula is 1 lb. of hard soap, or 1 qt. of soft soap, dissolved in a gallon of boiling water, into which a pint of crude carbolic acid is poured, the whole being well stirred. For use, dilute with thirty equal parts of water. Where the attack has been serious, neither Cabbages nor any other cruciferous crop should follow the Brussels Sprouts; and be careful also to destroy any cruciferous weeds, as these may be infested with the pest. In order to prevent future attacks, it is a good plan to protect each plant with a round paper or card smeared with tar. The cards should be about 3 inches across, round or hexagonal, with a slit reaching to the centre, where a hole should be cut just large enough to encircle the stem. The card should be laid quite flat on the ground round the stem, and will prevent the female fly from laying her eggs, as is her custom, in the soil close to the stem. The grubs from eggs laid outside the 3 inch card are unable to approach near enough to the plant to do any harm.

LEAF MINING MAGGOT ON CINERARIAS. There is no cure for the leaf miner except hand picking, as it is impossible to reach the grubs with an insecticide. The best preventive is to make the foliage distasteful to the female, and thus deter her from laying her eggs on the plants. It is too late to do this now, but early next season spray the leaves with Quassia extract.

MARKET GARDEN TENANT: A *Grower*. According to your statement, the notices served on you on September 29, 1914, and in March, 1916, were apparently both bad. Unless there is any local custom or anything in your agreement to the contrary, you would be entitled to twelve months' notice expiring on the day when your tenancy commenced. In the case of a nursery, however, six months' notice is sufficient.

MULBERRY BARK RUBBED OFF: G. M. M. Dress the wound with Stockholm tar. If the stem is made secure and further damage prevented the tree will doubtless form a callus that will in time cover the wound.

NAMES OF PLANTS: T. Hunter, 1, *Jasione perennis*; 2, *Achillea Ptarmica* The Pearl; 3, *Rudbeckia speciosa*; 4, *Linaria vulgaris* (common Toad-flax); 5, *Veronica spicata*; 6, *Veronica spicata rosea*.—P. Johnson, 1, *Veronica spicata variegata*; 2, *Veronica incana* (the less hairy form, sometimes named *V. neglecta*); 3, *Veronica longifolia*; 4, *Campanula latifolia*; 5, *Campanula persicifolia alba*; 6, *C. persicifolia Moerheimii*; 7, *Aster sibiricus*.—T. W. Carnations H. Faulkner (fancy). *Cecilia* (yellow).—W. J. C. 1 and 2, Hybrid forms of *Veronica speciosa*; 3, *Veronica angustifolia*. The Heather is *Calluna vulgaris* var. *alba Hammondii*.—A. B. H. *Prunus Mahaleb*.—D. T. B. *Statice Suworowii*.

PEACH FOR EXAMINATION: T. M. The Peach fruit arrived in a condition of pulp, and it was not possible to determine the cause of its decay. Send another specimen with the disease in a less advanced condition.

PHLOXES FAILING TO OPEN: E. H. Phloxes are very susceptible to drought, but now that rain has fallen freely it is probable that the later flowers in the spikes will expand perfectly. It is remarkable that frost should have come so early in your district, especially as further north the nights have been warm.

Communications Received.—Down South (please send name and address, not necessarily for publication) T. O.—G. R.—H. R.—Constant Reader—E. P. & Co.—W. B.—E. A. H.—J. R.—A. Willing Gardener—A. B.—T. E. T.—W. W.—Willow—W. D.—Dorset—H. K.—R. W.—D. C. K.—W. T.—W. H. D.—E. V. Q.

THE

Gardeners' Chronicle

No. 1549.—SATURDAY, SEPTEMBER 2, 1916.

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THE POMPON DAHLIA.

HOW, when, where, and by whom the small-flowered double Dahlias, variously known as the Bouquet, Lilliputian or Pompon section (see fig. 42), originated, is a question that has never been satisfactorily answered.

Some, in dealing with the history and progress of the Dahlia have avoided the subject altogether, others have made statements that are unworthy of credence when tested in the light of historical research.

It is necessary, at the outset, to say that much of the evidence concerning the origin of the Pompon Dahlia is of a negative rather than of a positive nature, for up to the year 1860, or thereabouts, no direct mention of any such type can be found in available horticultural literature.

The late Mr. George Gordon, in his work on *Dahlias*, one of the Present-Day Gardening Series, says: "Their origin has long been a source of perplexity to those who are interested in the historical aspect of the Dahlia, and one may search in vain for direct evidence upon this point."

He adds "That Germany was the country of their origin there can be no doubt, and it may be safely assumed that they were raised at Koes-tritz, which for a long period subsequent to 1824 was an important centre of Dahlia culture. The earlier varieties were probably introduced to British gardens towards the end of the first half of the nineteenth century."

There is good foundation for Mr. Gordon's assumption, but to trace the subject fully I must begin the investigation long before the period he mentions in order to dispose of rival claims put forward by less competent and less trustworthy authorities.

To trace the history of the Dahlia in its various sections it is essential that the investigator possess a knowledge of French and German, for so much was done on the Continent in the early decades of the nineteenth century to improve the Dahlia that without this qualification an investigator has no chance of arriving at an accurate idea of the many steps that were taken by the growers and raisers abroad to improve this popular favourite.

I referred to what was accomplished in the early days of the Dahlia's history in my article on the "Evolution of the Dahlia as a Show Flower." (vide *The Dahlia Year Book*, 1915). The original Dahlias introduced into Europe in 1789 were, except *D. pinnata*, single-flowering

kinds. Even *D. pinnata*, apart from Cavanille's and Thoinin's figures, is often shown as a single, which proves that its tendency to become semi-double was anything but constant.

For a long time all the seedlings of these original Dahlias preserved their single form, as can be seen by the references I have given to them in the paper above mentioned.

During that period the results as there shown were slow and gradual, finally resolving themselves into the double globular form known to us as the Old Show and Fancy Dahlia. There is no mention anywhere of a small double form that might be considered as a Pompon.

One of the most misleading statements in connection with Dahlia history, and there have been many, is to be found in *The Dahlia: Its History and Cultivation*, a work published in 1897, and containing articles by various writers. Here for the first time I find in a chapter by Richard Dean, under the heading "Pompon or Bouquet Dahlia," the following note as to its introduction: "This type, of which we have so many

degrees. There is no instance known of a florist's flower becoming such by one change only, for the remodelling to which the florist subjects his chosen subjects is a slow and, in some respects, a tedious process."

It may be observed at this juncture that the German Dahlias of 1808 were, like the English and French Dahlias of the same period, just beginning to be raised from seed, and they had no such distinctive name applied to them as Pompon or Lilliputian. Then when, after working for many years, the Germans succeeded, as they evidently did, in producing the double small-flowering varieties which Richard Dean says were known as German Dahlias, they were no more or less German than their older precursors, the progeny of the Abbé Cavanille's introductions.

It is a curious fact that for forty years there was published no English book on the Dahlia. Between 1857, when Shirley Hibberd published in his series of "Garden Favourites" a brochure on the Dahlia, and 1897, when *The Dahlia: Its History and Cultivation*, appeared, no writer other than those in the periodical gardening Press gave any independent attention to the flower. It is not clear, therefore, where such a piece of information could have been gleaned from—probably from some chance paragraph on which Mr. Dean placed more reliance than was justified.

Subsequent writers tell the same tale in almost the same words. It is needless to quote them, for they add nothing to the bare statement given by Mr. Dean, and are evidently copied from his.

Who and what was Hartweg? Those who mention his name do not say, except one who calls him a florist. The name of Hartweg, as the name should be properly spelled, is, like that of Count Lelieur, a mere name to conjure with, for these writers evidently know nothing about either. Hartweg was the Garten-Inspektor of the Carlsruhe Botanic Garden, to which post he was appointed in 1806. Owing to the Napoleonic wars the garden was then in a very neglected condition, and the collection of plants did not, as Loudon tells us, then amount to more than 300 species. As soon as Hartweg was appointed he set about introducing from Paris, and probably elsewhere, large numbers of plants, no doubt Dahlias among them, for they were then rising favourites in France. By this means the Carlsruhe collection was brought up to a total of 6,000 species. He then published an historical account of the garden and its contents, entitled *Hortus Carlsruhanus*, 1825. Five years afterwards Hartweg died.

Garten-Inspektor Hartweg has another claim to our consideration. He was the father of Theodor Hartweg, a highly-educated, intelligent youth, as John Claudius Loudon calls him in 1835, who was then in London endeavouring to obtain a post in some Botanic Garden as a journeyman. That he succeeded is a mere matter of history, for it is well known that three years later the Horticultural Society of London decided to send a collector to Mexico, and that Theodor Hartweg, a steady, well-informed, and zealous young man, native of Germany, and then in the Society's service as Clerk at the Garden, as he is described (see *Trans. Hort. Soc.*, Vol. II., Second Series, 1842), was appointed, and that the report of his wanderings in Mexico is there given.

I now return to the father. Hartweg was no seedling raiser; the most he can be credited with is that in his desire to increase and bring to a high state of perfection the collection of plants at the Botanic Garden under his superintendence, he must, among other novelties, have included such of the Dahlias as were then obtainable. The gardeners in other towns in Germany did the same. Humboldt, on his return from Mexico, had distributed seed that he had collected in the New World, and this fact contributed materially to an extension of Dahlia cultivation. *C. Harman Payne.*

(To be continued.)

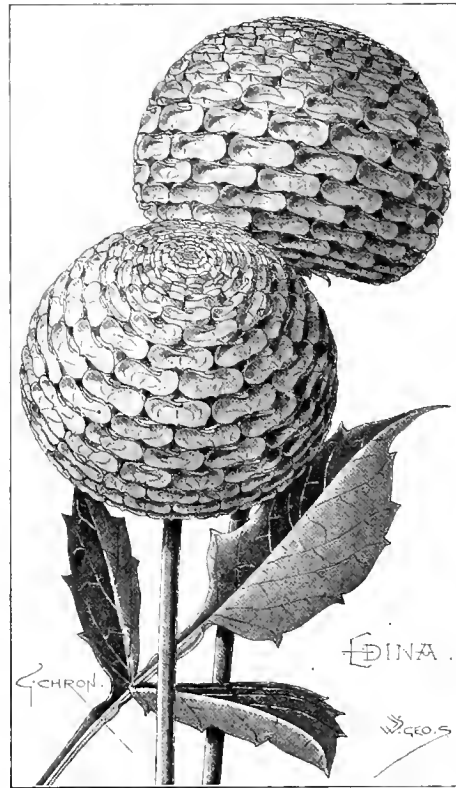


FIG. 42.—POMPON DAHLIA EDINA: COLOUR OF FLOWERS YELLOW.

beautiful varieties in the present day, is of German origin and dates from about 1808, when Hartwig, of Carlsruhe, obtained a double variety from the single scarlet Dahlia *coccinea*. . . . Hence the Pompon varieties have been known as German Dahlias."

I shall show beyond question that this assertion has no foundation in fact. And if the reader will refer to the illustration in fig. 43 he will himself have good reason to wonder how a small, single-flowered Dahlia as there depicted could suddenly jump into a double globular form when it took, as I have explained, many years of culture to secure anything approaching a double form of the larger flowers. That, I submit, is an impossible occurrence, for, as Mr. Shirley Hibberd reminds us in his paper on Dahlia history (*Jour. R.H.S.*, Vol. VIII., Pt. 1, p. 9), "The history of the flower discloses the fact that the Dahlia, in common with other pets of the florist, has attained to its grandeur of complete doubleness by

NEW OR NOTEWORTHY PLANTS.

COLLETIAS.

ACCORDING to the gardening papers, the statement has been sown broadcast that *Colletia cruciata* and *C. spinosa* are merely different forms of one and the same species. This view was first promulgated by Dr. Lindley in 1849; it was revived and considered proven by the late Dr. Masters when editor of the *Gardeners' Chronicle* in 1878, and has on several occasions subsequently been stated as being an accepted fact. As, however, I have never concurred in this opinion, it may be well that I should record my reasons for being a heretic, and give all the

plants that would be an acquisition to the already extensive collection of plants in her ladyship's arboretum, I gave him this plant, stating at the same time that it was a seedling I had raised of *Colletia horrida*, and that it seemed to be something different from it, and would possibly prove a variety. Of this circumstance I have a perfect recollection. I also perfectly recollect my turning the young plant out of the pot into the place it was growing on the pleasure-ground the year previous, at a time when I turned out a number of other old greenhouse and New Holland plant seedlings, etc. It was then about two years old; it is now grown to be a nice, healthy, curious-looking plant, at this time well covered with bloom, about four feet high and from three to four feet in diameter. It is perfectly hardy;

C. spinosa in appearance. This branch was sent from Florence, Italy. But at Kew also, in 1879, a plant of *C. cruciata* developed a similar branch resembling *C. spinosa*. The actual specimen from Florence was given to me by Dr. Masters to preserve for the Kew Herbarium, where it is at the present moment, together with the Kew specimen above mentioned. The label with the Florence specimen reads as follows:—"Sport from *Colletia cruciata*, W. Hook and Gill, received from Sig. Fenzi, of Florence, in December, 1877, and showing a branch in form like *C. spinosa*, but more slender, and showing that Mr. Barnes' original statement as to the origin of *C. cruciata* as a seedling from *C. spinosa* (see *Journ. Hort. Soc. London* . . .) was not so improbable as was at first supposed. Mr. T. Masters, Jan. 5, 1878." The figure of this remarkable branch from Florence is reproduced in fig. 44. There is a note on this plant in the *Gardeners' Chronicle* for 1886, vol. 25, p. 213; there is also a note about it in *Gard. Chron.* for 1911, vol. 50, p. 255; in both places the specific identity of *C. spinosa* and *C. cruciata* is considered as being an established fact. In *The Garden* for December 16, 1911, p. 603, in a note upon *Colletia cruciata*, the following statements occur:—"There was a specimen of *C. spinosa* which, about sixty years ago, produced seed in the garden at Bicton, and this seed being sown, one of the plants which was produced therefrom at once attracted attention from its distinct appearance." "Mr. Barnes, who was then gardener at Bicton, stated that it was a seedling from *C. spinosa*, but this was disputed by many. Time, however, proved that he was right, for in 1877 a specimen of *C. cruciata* in Italy pushed out shoots identical with *C. spinosa*. The same thing has been frequently noted since that date, thus proving that these two plants, although so unlike each other, are really but one species."

With the evidence of this figure and the statement of Mr. Barnes on which the conclusion is based, probably few would doubt that the case of the identity of the *C. spinosa* of gardens with *C. cruciata* was fully proven. However, when Dr. Masters gave me the actual specimen from which the figure he published was made, I doubted the identity of it with the real *C. spinosa*, and mentioned my doubt to Dr. Masters, but he thought otherwise. Since then I have on several occasions closely examined that specimen and living branches of *C. cruciata* resembling it, only to have my belief confirmed that they have no specific connection whatever with *C. spinosa*. It will be noted in the text I have quoted that Mr. Barnes stated "that it was a seedling I had raised of *Colletia horrida*," and in *The Garden* that "There was a specimen of *C. spinosa* which about sixty years ago produced seed in the garden at Bicton, and this seed being sown one of the plants which was produced therefrom at once attracted attention from its distinct appearance." But Mr. Barnes nowhere, so far as I can find, offered any proof that the plant of which he sent a branch to Dr. Lindley was raised from seed he himself had gathered from the plant cultivated at Bicton as *C. horrida*, nor does he mention where the seeds came from that he sowed, nor if the seedlings were labelled. The whole statement is based upon a vague memory more than three years old. There is not even a statement that this particular seedling was found growing among a batch of seedlings of the plant he knew under the name of *C. horrida*, nor any mention of its fellow seedlings. If they existed, why was not a branch from one of them sent to Dr. Lindley with the *C. cruciata* specimen for comparison and as a further proof of such a very remarkable occurrence? It is true Dr. Lindley figures a branch of the plant cultivated as *C. horrida* (or *C. spinosa*), but does not say that Mr. Barnes sent it from Bicton. In fact, there is not a particle of proof offered that the seed from which the specimen of *C. cruciata* (*C. bictonensis*) sent to Dr. Lindley was raised, was gathered from the plant cultivated as *C. horrida*. Indeed, Lindley, in the *Botanical Register*,



FIG. 43.—DAHLIA COCCINEA: MAGNIFIED POLLEN GRAIN OF *D. MEXICANA* (A); *D. COCCINEA* (B); *D. SUPERFLUA* (C); *D. CERVANTESII* (D). (See p. 107.)

facts bearing upon the case, so as once and for all to dispose of this fallacy, for such it certainly is in my opinion.

In the winter of 1849 Dr. Lindley exhibited at a meeting of the Royal Horticultural Society of London a branch of *Colletia*, and read a letter concerning it which he had received from Mr. James Barnes, head gardener to Lady Rolle, of Bicton. (See the *Journal of the Horticultural Society of London*, 1850, vol. 5, p. 29.) The following is Mr. Barnes' letter, which is dated November 27, 1849:—

"I beg to forward a small branch of a *Colletia*, observed by Sir Philip Egerton growing in her ladyship's arboretum: at the moment Sir Philip was making inquiries of me respecting it. I had quite forgotten its origin: since that time I have a perfect recollection, through being reminded of it by the foreman of the arboretum, who states that three years last spring, on our looking over the pleasure ground in search of

at least, it has never had the least protection with us since it was first turned out."

Dr. Lindley stated (at the place quoted) that the *C. horrida* alluded to by Mr. Barnes was *C. spinosa*, and published a figure of the plant known in gardens under that name and of the specimen sent to him by Mr. Barnes, which latter he named *C. bictonensis*. This, however, was quickly identified as being the same as *C. cruciata*, previously described by Hooker, of which it is a very good figure.

In the *Gardeners' Chronicle* for 1877, vol. 8, p. 617, the statement made by Mr. Barnes is discredited, and *C. spinosa* and *C. cruciata* are there considered to be distinct species. But in the *Gardeners' Chronicle* for 1878, vol. 9, p. 243, fig. 43, there is an illustrated article written by the late Dr. Masters, in which the statement made by Mr. Barnes is considered to be completely substantiated, by a branch of *C. cruciata* developing a lateral branch resembling

under tab. 1776, published July 1, 1835, says: "We have not as yet heard of its having been propagated, but it is often raised from Chilian seeds under the name of Retanilla." Nor is it at all probable that *C. cruciata* and the plant cultivated as *C. horrida* (or *C. spinosa*) should be the same species, for the latter is a native of Chili, and does not grow within 600 or 700 miles of *C. cruciata*, which is a native of the coast region of Buenos Ayres and Uruguay. So that upon geographical grounds the evidence is against these two plants being the same species, as everyone who is at all acquainted with the flora of the eastern and western sides of South America is well aware that each area contains a distinct assemblage of species. But, besides all this, when the actual shoots are examined which *C. cruciata* sometimes produces that resemble the aforesaid *C. spinosa*, including that from the Florence plant, now preserved at Kew, it is noticeable at once that they have not the appearance of those of *C. spinosa*, and the spines are laterally flattened at the base, like those of typical *C. cruciata*, whilst in the *C. spinosa* of gardens they are terete (circular in transverse section). Finally, there is no record of plants cultivated under the name of *C. spinosa* ever having developed branches at all like those of *C. cruciata*; nor is there any subsequent record of *C. cruciata* being raised from seeds of *C. spinosa* of gardens, nor of the latter from seeds of *C. cruciata*.

In my opinion *C. spinosa* of Bicton and other gardens and *C. cruciata* are totally distinct species. There is not a particle of genuine evidence to show that they are otherwise; and Mr. Barnes made a mistake in saying that he raised the plant of which he sent a branch to Dr. Lindley from seed of *C. spinosa*. But sometimes *C. cruciata* produces branches which resemble those of *C. spinosa* in superficial appearance, but are by no means identical with those of that species. It is a very interesting case of dimorphic branching, where the great breadth of the normal spines of *C. cruciata* is reduced to a slender subulate condition, possibly from some deficiency of nourishment. In the size of its flat spines *C. cruciata* varies very much. A plant at Kew at the present time has upon the same stem branches with spines $1\frac{1}{2}$ in. long and $\frac{3}{4}$ in. broad, and others with them $\frac{1}{2}$ in. long and $\frac{1}{4}$ in. broad. N. E. Brown.

(To be continued.)

THE ROSARY.

WICHURAIANA ROSE EVANGELINE.

WHAT a delightful Rose is Evangeline! Is there any of the single-flowered Wichurianas so delicate in its colour-tones and so attractive? The large creamy-white petals deepen at the edges to a blush of rosy-red, and the fresh yellow stamens in the centre brighten the whole bloom, but the beauty of the flower is not the only attraction, for it possesses a strong perfume, which is remarkably clean and refreshing, like the scent of the Lemon, and this, when the plant is in flower, is diffused into the air around to an extent which few, if any, other Roses, except the Sweetbriar, seem able to accomplish. In this respect it seems to stand among Roses in a place by itself. I often compare the perfume in my own mind to that of the Japanese Honeysuckle, another most attractive garden perfume. The fragrance, it is true, is of a different type. That of the Honeysuckle increases towards night, and, like that of the Tobacco plant, is then a heavier scent, while the fragrance of Evangeline persists all day long, and has less of an aromatic character.

In my own garden I first had Evangeline at the end of a short pergola connecting one part of the garden with another. I think it was largely this gift of perfume that caused us to duplicate and re-duplicate Evangeline until

now we have, perhaps, 8 or 10 plants in different parts of the garden; on a tripod, on fences, on a tall arch, and on the short pergola I have referred to. Space for climbing Roses

is precious, and I think no other Rose can boast of equal indulgence in the matter of garden space; I do not think we have ever grudged garden room to Evangeline. When Evangeline



FIG. 44.—DIMORPHIC BRANCH OF COLLETIA CRUCIATA, SENT FROM FLORENCE IN 1877.

was in bloom, passing under our arch became quite a special pleasure, not only from its beauty but its perfume:—

“And I that all this pleasaunt sight ay sie,
Thought sodainly I felte so sweet an aire
Com of the eglantere, that certainly
There is no heart, I deme, in such dispaire,
Ne with no thoughtes froward and contraire,
So overlaid, but it shoulde soone have bote
If it had ones felt this savour sote.”

And so delightful had it become that we thought we would distribute the fragrance during the month or so of the year during which *Evangeline* is in flower throughout the garden. This has been done, and I think with the happiest result.

The flowers of *Evangeline* have a charm rather similar to that of Messrs. B. Cant and Sons' *Cupid*, but are a shade deeper in colour than that *Rose*. The growth of the plant is strong and rapid, and plenty of young growth forms naturally from the base of the plant. The foliage is abundant and of a bright light green tone, rather near that of Messrs. Paul and Son's *Goldfinch*, and, like that *Rose*, it is free from mildew and other fungous disease.

Altogether I have found it a most satisfactory *Rose*, its only fault being that it is not perpetual. In the autumn, however, though the delightful aroma is no more, it is still pleasing, for the flowers are succeeded by quantities of small red berries. These are very bright and cheerful, and I think we are always sorry when the exigencies of garden routine require us to cut them away and tie up the new growths for flowering the following summer. *White Rose*.

TREES AND SHRUBS.

RHODODENDRON AURICULATUM, HEMSLEY.

THERE has just flowered at Kew for the first time a plant of this remarkable species of *Rhododendron*. Although it was already past the middle of August when the flowers opened, this was not merely a belated blossoming. The natural flowering time of the species in its native Chinese forests is July and August. In growth also the plant is remarkably late. At Kew, where it has been grown for eight or nine years, it has never made the least sign of moving until well into July. There seems to be in this species the genesis of a late-flowering race of *Rhododendrons*, one that would extend the season by probably six weeks. In Kew Gardens, at any rate, there was a period of that length before the flowering of *R. auriculatum* without *Rhododendron* flowers.

The species is a native of Western China, where it was discovered by Prof. A. Henry and introduced by Mr. Wilson to the Coombe Wood nursery about 1901. It is evidently one of the group comprising *Fortunei*, *decorum* and *discolor*, the corolla being usually seven (sometimes eight) lobed and the stamens numbering fourteen or sixteen. A solitary truss only was produced on the Kew plant; this carried six flowers, each 3 inches wide. They were almost pure white, but the species is said to bear them also tinged with rose. The stamens are about as long as the tubular part of the corolla, glabrous, and with pink anthers. The calyx is small and minutely ciliate. The flower-stalk, ovary and style are densely glandular. The flowers have a well-marked but not very pleasing odour. In foliage, *R. auriculatum* is one of the finest and most distinct of its race. On young plants at Coombe Wood, leaves 13 inches long by 5 inches wide have been produced, but as the plants get older the foliage is not so large. The upper surface of the midrib is hairy, as is also the whole under-surface of the leaves when young. A very marked characteristic, too, are the bristles on the leaf-stalk. The specific name refers to the two lobes, or auricles, at the base of the leaf. W. J. B.

PLANT NOTES.

SPARTINA POLYSTACHYA AUREO-MARGINATA.

THERE is a large bed of this handsome grass in the grounds of Holland House, Kensington, with the habit of *Miscanthus japonicus*, but altogether distinct in appearance from either of the two other variegated forms of this grass in cultivation. The leaves are arching, and vary in height from 3 feet to 6 feet, according to whether the plant is grown in ordinary garden soil or on the margins of ornamental water into which its roots can extend. Mr. Dixon, the gardener, has a high opinion of this *Spartina*, and it is certainly worth extended cultivation, for the golden edges to the leaves are well marked, and the wiry stalks of the plummy inflorescence are elegant when the plant is grown strongly. The species is also known as *S. cynosuroides*. J. F.

VEGETABLES.

CAULIFLOWERS.

MUCH difference of opinion exists as to the best time to sow Cauliflowers for early cutting. The old method of sowing during September and wintering in cold frames is regarded by many as a waste of time and space, and since the introduction of many forcing, quick-maturing varieties, I agree that there is some justification for their opinion. Nevertheless, I am strongly in favour of sowing now, for by making a judicious selection of varieties one can ensure a good supply of heads from May till August.

The seed should be sown from the beginning to the middle of September in a well-prepared seed-bed, and immediately the seedlings are large enough for transplanting they should be pricked out into cold frames, near the glass. The soil should not be too rich, or growth will be too rapid. Air should be admitted freely on all favourable occasions, and protection from frost afforded during severe weather.

About mid-winter a few of the largest plants of the earliest varieties should be potted or planted in orchard houses or heated pits. These early plants will produce heads of the finest quality during May. The main batch should be planted in various parts of the garden during March and April in well-prepared ground, choosing a warm border for the earliest varieties. The varieties *Early Forcing*, *Walcheren*, *Snowdon* and *Early Giant* offer a good selection for sowing.

SPRING CABBAGE.

I would urge the importance of planting Spring Cabbages freely, for they form one of the most useful and easily-grown green vegetables. Fortunately the Cabbage is very hardy, and with a reasonable amount of care will come through average winters unharmed.

Too much care can hardly be exercised in selecting only the very best varieties, and only those which were raised at the proper time should be planted, or much labour will be wasted. They should be planted twice as thickly as for permanent plants, so that every other plant may be cut and used in the early spring, when green vegetables are often scarce. Choose two or three sites for a succession, and plant as early as possible for the earliest crop. E. Beckett.

GENTIANA ASCLEPIAEOEA.—One of the most effective plants at present in blossom at Wisley is *Gentiana asclepiadea*, which is flowering freely both in the wood garden and on a bank on the outskirts. *G. asclepiadea* is one of the most tolerant of plants if allowed to fend for itself. Seed scattered broadcast comes up freely, and the plants seem indifferent to sun or shade. The graceful, leafy stems, swaying with their racemes of blue flowers, and the lateness of its flowering, make the plant an ideal subject for the wild garden.



THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq.,
Castleford, Gloucestershire.

MASDEVALLIA.—These Orchids are generally re-potted in February, but plants that were not re-potted at that time may be attended to now. *Masdevallias* require much the same treatment as the Colombian *Odontoglossums*. They may be grown at the warmer end of the *Odontoglossum* or cool houses. Plants showing signs of decay in the centre should be pulled to pieces and re-made into a compact specimen again, or each portion may be potted separately. In arranging separate portions together to form a specimen plant, see that some of the compost is placed firmly between each portion, or in a very short time the growths will become loose in the pot and fail to root satisfactorily. Let the plants have plenty of fresh air and a moderate amount of water. As winter approaches water the roots sparingly, and keep the atmosphere drier. Do not re-pot *M. tovarensis* or other late-flowering species and hybrids at this season unless the plants are in a bad condition.

CALANTHE.—The new pseudo-bulbs of deciduous *Calanthes* are growing freely, and need to be well developed before the end of the season to produce strong scapes and flowers of good quality. Stage the plants near to the roof glass, and do not shade them more than is necessary. The foliage will occupy much space, and each plant should be allowed ample room for development. Watch the plants carefully for watering, and where the pots are filled with roots use weak liquid manure from the cowsheds on alternate occasions with clear water. When the foliage begins to show signs of decay less water is needed, but the roots must be kept moist until the flower-spikes are removed. At that stage the plants need a long period of rest. Plants of the *Regnieri* section, which flower during the spring, are not so forward, and require liberal treatment for some time to come.

PLEIONE.—Like *Calanthes*, *Pleiones* are nearing the completion of their season's growth, and require different treatment than hitherto. They need plenty of light and air. When the foliage begins to change colour reduce the amount of water at the roots gradually until the soil is kept merely moist. A few weeks after the leaves have fallen the flower-spikes will develop, when the plants should be removed to a cooler and drier house.

GENERAL REMARKS.—Reduce the amount of atmospheric moisture in every division, and do not damp the bare spaces so freely as hitherto after midday. The night dews will be beneficial to most Orchids. Water the plants with extra care, especially those that are enjoying a period of rest. Spraying should almost be discontinued, for it is only needed in very hot weather. The temperatures of the houses require more attention than hitherto; the fires should always be kept clean and ready for raising the temperature when the weather turns cold suddenly. Ventilate with caution, admitting plenty of air whenever the conditions are favourable. The ventilators of the cool houses may remain open an inch or more throughout the night. Most of the re-potting having been done, there will be opportunity for cleansing plants infested with insect pests.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DRMPSTER, Keel
Hall, Staffordshire.

LILIUM CANDIDUM.—Where it is necessary to lift and replant the bulbs of *Lilium candidum* the work should be commenced as soon as the plants have finished flowering. Purchased bulbs should be planted directly they are received from the nursery. Those that were grown in pots or boxes in cool conditions may be planted in the flower borders. They will soon commence to grow, and will flower again next year. This Lily will grow well in almost any kind of soil, provided it is well drained, but a rich loam suits

it best. The finest effect is obtained by planting the bulbs in groups, setting them 4 to 6 inches deep.

CEANOETHUS.—One of the most beautiful shrubs in flower at the present time is *Ceanothus Gloire de Versailles*. It is seen at its best as a wall plant, and thrives in almost any aspect. Well-grown trees reach a height of 10 to 12 feet, giving a profusion of the rich blue flower-spikes. The current season's growths on wall trees should be shortened in April to within two or three buds. The plant may be propagated from cuttings or layers, the latter method being the better.

PROPAGATING BEDDING PLANTS.—The cuttings of *Coleus*, *Irisine*, and *Alternanthera* require to be rooted in a little bottom heat. It is advisable to place a number of the old plants in pots or boxes for stock purposes, to furnish cuttings for rooting in the spring, these often giving better results than autumn-struck plants. The cuttings of *Heliotrope*, *Salvia*, *Verbena*, and *Mesembryanthemum* may be dibbled in boxes filled with a sandy compost. The soil should be watered through a fine rose, and the boxes placed on a bed of ashes in a shallow frame that must be shaded for the present. Stock plants should be prepared a week or two in advance of lifting by cutting off the flower-spikes and straggling growths. *Lobelia* may be treated in the same manner, and the stock plants either boxed or potted to provide cuttings in the spring. The shoots of *Calceolaria*, *Pentstemon*, and *Marguerite* may be dibbled into a bed or soil in a cold frame, inserting them 4 inches apart, or even more if space is available. *Marguerites* raised in this way will make better plants than if they are kept in heated frames. In frosty weather mats placed over the lights will afford the plants protection from severe cold. In obtaining the cuttings from the plants in the beds, pick off all dead flowers and foliage, to leave the bed neat and tidy.

SUMMER-BEDDING ALTERATIONS.—The present is a suitable time to arrange the scheme of bedding for next season. The beds and borders are at their best, and notes should be made of proposed alterations. The scarcity of labour may entail some curtailment next year, or a different scheme may necessitate the use of a greater number of certain kinds of plants, which will have to be propagated accordingly. As a rule, the more simple designs are the more effective, and they require less labour. Good results are obtained with the least labour by employing *Antirrhinum*, *Ageratum*, *Alyssum*, *Calceolaria*, *Pentstemon*, *Pelargonium*, *Heliotrope*, *Lobelia*, *Verbena*, *Salvia*, and *Viola*.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

CHRYSANTHEMUMS.—Make preparations for housing these plants, but let them remain out-of-doors whilst the weather is favourable. When the flower-buds of the large-flowered varieties are showing colour protect the plants from rains or the flowers may damp. If it is desired to retard the flowering of the plants for as long as possible, let them be sheltered by glass in a northern aspect. Allow the late decorative kinds to remain out-of-doors for so long as the state of the weather permits, but make provision for protecting them from severe frost.

BEGONIA GLOIRE DE LORRAINE.—Plants of this *Begonia* are growing freely, and the growths must be kept trained to supports to retain the plants a good shape. The roots need an abundance of water, supplemented with stimulants on frequent occasions. A little weak soot water on occasions will impart a good colour to the foliage. *Begonia Gloire de Lorraine* is usually required in flower in the winter, in which case remove the flowers for the present.

LACHENALIA.—Bulbs of this useful greenhouse plant should be placed in 4½ inch pots filled with a rich compost. *Lachenalias* are very suitable for growing in hanging baskets or pans. Place the plants in a cool house or pit until there is danger of frost, and let them have a cool treatment always.

CLIMBING ROSES.—The shoots of climbing *Roses* should be tied and regulated at regular

intervals, cutting out all weak, useless growths. Trees trained to the roof rafters of cool houses should be afforded every encouragement to ripen their growth, especially if they are intended to be forced early into growth. The roots require plenty of water and suitable stimulants. Spray with a specific to prevent attacks of mildew and other pests.

GLORIOSA SUPERBA.—This climbing plant is finishing its season, and from now onwards should receive less water than hitherto. When the foliage has died down place the pots on their sides in a dry, frost-proof shed, or beneath the stage in a cool house.

THE HARDY FRUIT GARDEN.

By J. C. WESTON, Gardener to Lady NORFOLK, Eastwell Park, Kent.

MORELLO CHERRIES.—The Morello Cherry rarely fails to furnish a good crop of fruits, which ripen after most of the other kinds, and are thus especially valuable. The tree is very hardy and thrives in almost all soils and situations. It is splendid for growing on north walls and other exposed positions, where very few other fruits would flourish. The tree succeeds equally well trained as a standard or pyramid, but in these cases a different method of pruning and training is needed. The growths should be pinched back to four or five leaves, and the laterals consistently pinched back as they appear. The fruits on trees trained against north walls hang for a long time, and if they are required very late in the year the roots must not be allowed to become dry, or the fruit would shrivel and quickly deteriorate. Thin the fruits early, retaining only the very best specimens, as in thick clusters a few may commence to crack, and set up decay in the rest. No stimulants should be given the roots whilst the fruit is hanging on the tree; fertilisers are best applied after the fruit is gathered. The best time to prune the Morello Cherry is directly after the fruit has been picked. The method of pruning culinary Cherries is quite different from that of the sweet or dessert varieties. Old wood that has previously borne fruit and is not needed to furnish the wall space should be removed. Shoots of the current year which have been fastened temporarily should be unfastened, spread out, and trained thinly in their permanent places. The sun will ripen the wood during the next few weeks. Trees that have become unhealthy should be examined. If it is found that the trouble is due to poverty of the soil make preparations for top-dressing the roots. Very sickly trees should be discarded and their sites prepared for planting young trees later in the autumn. If it is decided to renew the border after the pruning is finished remove some of the old soil carefully down to the roots. If the border is dry, soak it with water before placing the new soil, which should consist of rich loam mixed with plenty of lime-rubble, a little bone-meal, and one-sixth part of its bulk well-decayed manure, in position. While the roots are exposed, cut off all that are decayed, trim those that are damaged, and sever the strong ones growing downwards in the subsoil. Some of the soil should be worked carefully amongst the roots, spreading the latter out evenly, and making the soil firm as the work proceeds. After the roots are well covered the surface should be rammed or well trodden, as a loose, rich border encourages soft and sappy growth.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

POT VINES.—See that the canes are well ripened and the wood hard before the leaves fall. The roots must not be allowed to suffer from drought: the soil will not dry so quickly if the pots are packed with moisture-holding material. The vines will not require much water after the foliage is ripe, but the ball of soil and roots should not be allowed to shrink from the sides of the pots. When the vines are defoliated they must be kept cool and dry at the roots to rest. The laterals, having been pruned as advised on p. 53, need not be shortened more for the present. Pot vines with short joints

and prominent buds are to be preferred to larger ones for very early forcing, as the wood of the former generally ripens earlier. Young vines raised from eyes in the current year are ripening and ready for transference to a light, airy house or early vinery. The plants would also do equally well against a wall. The roots must not suffer for want of water; light littery material may be used for protecting them from bright sunshine. Secure the young canes to the walls to prevent them being injured, and let the buds receive the full benefit of the sun's rays.

GENERAL REMARKS.—Make preparations for lifting or root-pruning vines that need this attention, also for top-dressing and making additions to vine borders in the early houses. The necessary loam should be cut and the compost prepared in advance. Additions to new borders are made from year to year as the roots require more room, and the best time to perform this work is immediately the Grapes are cut. An addition of 2 feet is ample at one time; the retaining walls of turf should be forked down, the roots cut back with the knife, and the fresh compost supported by a new wall of turves. The old border being solid and firm, care must be taken in building up the new part that it is not made so loose as to settle next season, for in that case the roots would be strained or broken. The same remarks apply to work in the early Peach house. All preliminary details, including the preparation of the stations and compost, may be proceeded with. Perfect drainage is essential. Trees intended for removal, having been lifted or root-pruned last autumn, may be transplanted with every prospect of fruiting next season. Trees in houses may be kept in a suitable condition for lifting by annual root-pruning, and replanting in poor rather than rich compost until they are 5 or 6 years old. It is not wise to depend upon trees from the nursery to produce fruit the following season, when they have to be obtained from a long distance.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

CAULIFLOWER.—Growers in the south should now sow seed of Cauliflowers, as recommended on p. 87, for gardens in the north and Midlands.

MAIN-CROP ONIONS.—Remove all bulbs with thick, loose necks and place them in a sunny position on a dry base to complete their ripening. The foliage of the better quality plants that is still growing erect should be bent over, for, although apparently the plants are in full growth in many cases, this growth is of a secondary nature, and if allowed to continue would render the bulbs unfit for storing. There is also a danger of the bulbs splitting after rains. Lift the crop with care, as bruised bulbs inevitably decay later.

WINTER ONIONS.—Growers in the south should make a successional sowing of winter Onions.

RUNNER BEANS.—The rows of Runner Beans should be examined daily, and all pods removed as soon as they are large enough for use, for, if only a few seeds form, the plants will become so weakened that growth will cease. Closely examine the roots to see if water is required. Watering is often necessary even during wet weather, as the large amount of foliage effectually prevents the rain from reaching the roots. The Scarlet Runner has an extensive root system, which absorbs a large amount of moisture from the soil. The first indication of drought at the roots is often apparent in the dropping of the flower-buds.

HOING AND WEEDING.—In many districts heavy rain has fallen, and due precautions must be taken to loosen the surface soil, especially where it is of a heavy texture, for such soils are liable to bake hard and crack after rains. Examine Brassicas and remove all decayed lower leaves and weeds. Brussels Sprouts especially need this attention, for these plants are often set closely together, and the air will not circulate freely between them unless weeds and rubbish are removed.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher—Our Correspondents would oblige delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

APPOINTMENTS FOR SEPTEMBER.

TUESDAY, SEPTEMBER 5—
Scottish Hort. Assoc. meet.
WEDNESDAY, SEPTEMBER 6—
Glasgow and W. of Scotland Hort. Soc. Show (2 days).
R.G.A. Executive meet.
THURSDAY, SEPTEMBER 7—
Dickson and Robinson's Vegetable Show, Manchester (2 days).
MONDAY, SEPTEMBER 11—
United Hort. Ben. and Prov. Soc. Com. meet.
TUESDAY, SEPTEMBER 12—
Roy. Hort. Soc. Coms. meet. and Nat. Dahlia Soc. Show. (Lecture at 3 p.m.)
THURSDAY, SEPTEMBER 14—
R.G.A. (Walford Branch) General meet.
TUESDAY, SEPTEMBER 19—
Nat. Rose Soc. Show, R.H.S. Hall, Westminster.
MONDAY, SEPTEMBER 25—
Nat. Chrys. Soc. Ex. and Floral Coms. meet.
TUESDAY, SEPTEMBER 26—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 59.1°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, August 31 (10 a.m.): Bar. 29.7°; temp. 61°. Weather—Sunshine.

The Micro-flora and fauna of the Soil.

Evidence is gradually accumulating that one great factor of soil fertility lies in the relation which obtains between the numbers of bacteria and of protozoa which live and move and have their being in the soil. Broadly speaking, the bacteria of the soil may be regarded as the gardeners' best friends, and the protozoa—the antagonists and destroyers of the bacteria—as his enemies. If for one reason or another the protozoa increase beyond certain limits, the bacteria fall off in numbers, and the soil, the fertility of which depends in a measure on bacterial activity, is no longer in a condition to supply plant food—it falls sick. Hitherto, the evidence in support of this interesting and important hypothesis has been presumptive rather than conclusive. It was largely of the nature of an inference drawn from the effects of partial sterilisation of the soil. As is now well known, sick soil may be restored to health—that is, may be rendered fertile once again—by exposure to a temperature of about 190° F. At that temperature the active, "thin-skinned" soil protozoa are destroyed, but the "thick-skinned," more resistant of the soil bacteria are not. Thus, when the soil cools down again, the bacteria find no opposition to their increase. They multiply rapidly, and in the course of their growth and activity set free large quantities of material—and particularly nitrogenous material—of a kind suitable for the nutrition of plants.

As is natural and proper, this hypothesis of the cause of the enhanced fertilising

value of partially sterilised soil has met with considerable criticism. The critics have asked for evidence of the existence of soil protozoa in numbers adequate for the bacteria-destroying part which the hypothesis ascribes to them. Efforts to supply this evidence failed for a long time to meet with much success. It was apparently easier to invent the protozoa than to find them. Nevertheless, as time went on, investigators became more and more expert in enticing the microscopic denizens of the soil to reveal themselves, until now it is no longer to be doubted that a rich fauna of microscopic organisms—protozoa of many kinds—exists in the soil. Nor is there any reason to doubt that these organisms feed on the bacteria of the soil. By analogy with the behaviour of the white blood cells of the body which, as Metchnikoff has shown, prey upon intrusive bacteria, the protozoa may be described as the phagocytes of the soil.

Indirect evidence of this phagocytic action has been already provided by Russell and Hutchinson, who showed that if a little unheated soil be added to partially sterilised soil, the bacteria do not go on increasing indefinitely. They multiply up to a certain point, but then show a reduction in numbers; the inference being that the phagocytic protozoan police drafted into the partially sterilised soil have, after a certain time, grown strong and numerous enough to cope with the bacteria. Direct evidence—not conclusive, perhaps, but nevertheless strong—of the truth of this interpretation of the facts has now been provided by Dr. T. Goodey.* This investigator has proved, first, that certain protozoa—notably a small amoeba (*Amoeba limax*), is able to flourish in the soil so abundantly that so many as 30,000 individuals may occur in 1 gramme of soil; that is to say, a gardener, when he turns a spadeful of earth, may be shifting something like 100 millions of this particular kind of protozoan.

Second, Dr. Goodey has succeeded in proving, by actually counting the bacteria and the protozoa present in a sample of soil at different times, that an increase in the numbers of protozoa in the soil coincides with a decrease in the numbers of soil bacteria. For example, when a small quantity of unsterilised soil is added to a bulk of partially sterilised soil, the bacteria at first go on increasing until after twenty-one days they reach the respectable number of 160 millions per gramme of soil (about 10 millions per grain). During this time the protozoa, though, no doubt, enjoying themselves at the expense of the bacteria, can, no matter how voraciously they feed, make no impression on such hordes. But their time is coming; they, too, are increasing in numbers. Thus, at the start, *Amoeba limax* occurred only at the miserably low rate of 600 per gramme; but after 43 days, *A. limax* having increased and multiplied so that it now numbers 30,000 per grain of soil, has the bacterial situation so well in hand that it

and its assistant phagocytes is able to reduce the bacteria from 100 millions to less than 100 millions per gramme of soil. It must be conceded that these results give substantial support to the brilliant hypothesis enunciated by Russell and Hutchinson, but nevertheless more work on these lines must be carried out before that hypothesis may be regarded as established.

Whether or no the hypothesis be finally vindicated, this, at least, is true—that no garden can afford to be without an installation for soil sterilisation.

A SURREY GARDEN.—The illustration in fig. 45 represents a view in the garden at Foldsdown, Thursley, near Godalming, Surrey, the residence of Mr. ALWYN PARKER, C.M.G. This part of the garden is charmingly conceived and planned, so as to harmonise with the natural surroundings, and, as far as possible, to bring the country around into the scheme. The photograph was taken from the south terrace, the long vista opening up the landscape towards Charterhouse. The central flagged pathway, set with low-growing plants between the crevices and old-fashioned border plants on either side, presents a harmonious blending of natural with formal gardening, in perfect keeping with the natural scenery.

HORTICULTURE AT READING UNIVERSITY COLLEGE.—The horticultural work at Reading University College will in future be carried on solely at the fruit station of the college farm at Shinfield. For this purpose buildings and glasshouses will shortly be erected, and additional land on the farm, which is now occupied by copses, will be utilised for the purpose. The Council has decided in future to give greater prominence to the practical side of horticulture, and to devote increasing attention to the production of fruit, vegetables, and hardy flowers.

R.H.S. TRIAL OF TOMATOS UNDER GLASS.—The R.H.S. Tomato trial at Wisley, the results of which are published on p. 118, was one of the largest ever undertaken at the R.H.S. Gardens, and included 116 stocks. The seed was sown in pots on February 28, and the seedlings pricked out into 60-sized pots and shifted subsequently into 6-inch pots. After the plants had formed their first truss and had been severely checked, they were planted in rows in a large bed in one of the glasshouses. Five plants of each stock were grown under glass, and seven were planted in the open in order that rogues and trueness to type might be more thoroughly tested. The yellow-fleshed and "fancy" varieties were grown in a neighbouring house. The plants under glass did remarkably well, and may be seen at their best during the next fortnight. In addition to the varieties sent by the trade, several first crosses raised at Wisley were included. The object of these first crosses was to ascertain whether they would give a higher yield than the parents, by the side of which they were grown. Of these, one, a first cross between Sunrise ♀ and Merrivale ♂, was "Highly Commended" by the Committee, but it has shown little, if any, superiority in yield over that of the male parent Merrivale, which it closely resembles in fruiting habit. One of the most curious results of the trial was the excellence of Winter Coral as a summer fruiting variety. It will be noted that yellow-fruited varieties received awards. Although these varieties are not of importance from a market point of view, they are well worth the attention of gardeners. The small, Plum-like Golden Nugget is of exquisite flavour and suitable for eating raw or for use in salads. It is, moreover, remarkably prolific. The larger yellow Tomato, Yellow Sunrise, is a handsome fruit of good flavour and a bountiful cropper.

* "Further Observations on Protozoa in Relation to Soil Bacteria," *Proc. Roy. Soc.*, B. 89, No. B. 616, August 1, 1916.

PRESENTATION TO A GARDENER.—Mr. E. SWINDEN, who has lately been employed as Orchid grower at Burford Lodge, Dorking, has been appointed gardener to J. J. NEALE, Esq., Lynwood, Penarth. On leaving Burford he was presented by his employers, the family of the late Sir TREVOR LAWRENCE, with a gold watch.

PRIZES FOR BOTTLED FRUITS AND VEGETABLES.—At the Royal Agricultural Society's show, 1917, which will be held at Cardiff, prizes are offered for bottled fruits and vegetables. Six classes are open to amateurs, three to fruit preservers, and one open class, for twelve varieties of fruit bottled in water. The single class for bottled vegetables is open only to amateurs, and is for three varieties of vegetables, bottled in water, to be selected from Peas, Broad Beans, Kidney Beans, and Asparagus.

MR. E. H. WILSON.—We learn with pleasure that the degree of Master of Arts has been

according to the latest published official returns, amounted to 22,942,000 hectolitres (304,724,044 gallons), or nearly 3,000,000 hectolitres (66,000,000 gallons) less than in 1913. Last year the quantity of Apples and Pears used for the making of cider and perry, as well as for distilling purposes, was 44,824,000 quintals (4,411,811 English tons), as compared with 46,614,000 quintals (4,587,992 tons) in 1915, of which 2,094,000 quintals (206,102 tons) were exported, chiefly to Germany or Switzerland. Last year the export of Apples for cider making was nil.

RHUS DIVERSILOBA.—Mr. J. B. McNAIR, writing in the *Journal of the American Chemical Society*, remarks upon the slightness of the botanical difference between *Rhus diversiloba*, the poison "Oak" of the Pacific coast, and *R. toxicodendron*, the poison "Ivy." The only botanical ground for the separation of the two

Coconut trees have been destroyed in order to replace them by rubber plants. This is the more to be regretted since the climate of the Malay States is particularly favourable to the growth of Coconut trees. Most of the trees begin flowering in the fifth year, and bear nuts in the sixth. On one estate a tree three and a half years old produced 550 nuts. The Agricultural Department is now engaged on experiments for the better cultivation of the Coconut Palm in Malaya. In view of the rapidly growing demand for copra and the produce of oil-yielding nuts of every description for the manufacture of margarine and for similar purposes, any reduction in the number of Coconut Palms grown is to be deprecated.

A BOTANICAL CURIOSITY.—A writer in the *Journal of Heredity* (July, 1916) describes and figures a remarkable example of plant symbiosis. In the court of the Great Bell Temple



[Photograph by Mrs. Frank Mead.]

FIG. 45.—VIEW IN THE GARDENS AT FOLDSOWN, THURSLEY, SURREY, THE RESIDENCE OF ALWYN PARKER, ESQ., C.M.G.

conferred on Mr. E. H. WILSON by the Harvard University. Mr. WILSON'S energy and success as a collector are known and appreciated throughout the world of horticulture, and it is to him we owe many of the best Chinese plants now in cultivation in our gardens. Born in England, Mr. WILSON was trained at the Edgbaston Botanic Gardens, Birmingham, and afterwards at Kew.

FLORA OF SEYCHELLES AND ALDABRA.—The *Journal of Botany* (May, 1916) contains Part II. of Dr. BOTTING HEMSLEY'S description of the flora of the Seychelles. The species described are those belonging to the orders Rubiaceae, Compositae, Oleaceae, Asclepiadaceae and Sapotaceae, and include several hitherto new or undescribed plants.

PRODUCTION OF CIDER IN FRANCE.—The *Journal of the Royal Society of Arts* states that the production of cider in France last year,

species is a slight difference in the shape of the leaflets. The poisonous principle of *R. diversiloba* is not a glucoside of fisetin, rhamnose and gallic acid, such as the poison of *R. toxicodendron* is said to be, and it is noteworthy that all three of these constituents are to be found in two non-poisonous species of *Rhus*—indeed, the natural glucoside of fisetin, rhamnose and gallic acid has been proved to be non-toxic. It would therefore seem that the poisonous principle of the experiments which determined the toxic properties of *R. toxicodendron* may have been a complex substance containing non-toxic glucosides.

COCONUT CULTIVATION IN MALAYA.—It is to be deplored that many growers of Coconut Palms in the Federated Malay States are cutting down their Coco trees in order to make room for rubber, which is found to be a more profitable crop. On many small holdings, well-bearing

near Pekin is a tree of *Pinus sinensis* from the side of the trunk of which, some 8 feet from the ground, is growing an Elm (*Ulmus pumila*) with a stem of 1 foot diameter. Furthermore, in a crotch of the Pine, 18 feet above the ground, there is growing and fruiting another tree, the Paper-Mulberry (*Broussonetia papyrifera*).

THE FOOD OF BIRDS.—The results of the investigations carried out by the British Association Committee in the food of birds are summarised in *Bird Notes and News*, vii., 2, 1916. The observations were made by Dr. GORDEN HEWITT, Mr. H. S. LEIGH (Manchester University) and Mr. F. V. THEOBALD (of the South Eastern Agricultural College, Wye), assisted by Mr. W. MCGOWAN. The observations made at Manchester on the rook indicate that from April to September this bird lives largely on animal food and destroys great numbers of injurious insects, particularly wireworms and leather-

jackets; but during nine months—September to May—its food includes much grain. At Wye the conclusion was reached that the bird is more harmful than beneficial. The starling is also responsible for the destruction of injurious insects; the crop of one bird contained 197 leather-jackets, and in each of other four cases 150. Though the birds feed also on grain, the percentage of animal food is high. The starling, if not too abundant, must be regarded as the farmers' friend. The chaffinch is a great devourer of weed seeds, but gardeners will not be inclined to absolve this bird from the charge of doing great damage in the garden.

VEGETABLE PRODUCTS OF SUNGPAN.—The Sungpan district of China is a part of the country which teems with opportunities for development, and will bring a rich return to the nation if it is opened up with wisdom and foresight. There are few settled agriculturists or traders at present; the country is dry and mountainous, and the few crops which are raised, chiefly cereals, are very meagre. Most of the people lead pastoral lives, and many are nomadic, their principal wealth consisting of cattle, horses and sheep. The country is well adapted to raising these animals, and it is here that one great source of wealth is seen to lie. With improved stock, and the excellent grazing afforded by the country, there seems an opportunity for the development of a large dairying industry, and it is probable that this will be undertaken by the Chinese authorities at Chengtu. The future prosperity of Sungpan will no doubt depend greatly upon the extent to which the pasture lands are utilised in producing wool of an improved quality and in greater quantity, hides, meat, butter, cheese and other animal products. It is also thought that Wheat could be grown at an altitude from 8,000 to 10,500 feet; Barley and Buckwheat would probably thrive at a much higher altitude with careful cultivation. Certain fruits thrive in the north temperate zone in the vicinity of Sungpan, some of them, notably Plums and Peaches, of excellent quality. Further, the Potatoes, Peas, and Carrots grown in the district compare favourably with those in other countries. Sungpan itself is most favourably situated as a commercial outlet for the country it taps. It lies near the source of the Min River, which enables goods to be shipped to Kwahsien, and thence to Chengtu, the provincial capital. At present the exports are restricted to sheepskins, wool, medicines, musk, fur and hides, these being exchanged for tea, rice, and Chinese wine.

FRENCH SOCIETY FOR THE PROTECTION OF BIRDS.—A new society, to be known as the French League for the Protection of Birds, has been instituted by the French National Acclimatization Society. The chief objects are the conservation and propagation of all useful birds, and their protection from destruction or injury. The president of the new League, Monsieur d'Arbustson, has written an excellent little work entitled *La Protection des Oiseaux*. There has been for several years past a movement in France in favour of the better protection of birds, and especially of insectivorous species, insect pests having increased considerably of late in that country.

LIME-WASHING.—The following points to observe in the lime-washing of fruit trees against Apple sucker and aphid of Apple and Plum are given by Mr. A. H. LEES, in the Annual Report of the Research Station, Long Ashton, Bristol. While the mixture may be improved as regards adhesiveness by the addition of certain substances, lime alone may be used with very good results if certain conditions are fulfilled:—(1) Spray as late as possible. It is still safe when the buds have just started moving. (2) The lime should be as fresh as possible. (3) It should be white lump lime of 98 per cent. purity, and not impure dirty-coloured agricultural lime, which does not give good results for spraying. (4)

Twenty pounds of lime should be used for every 10 gallons of water. (5) It should be strained before use through a sieve having sixteen meshes to the inch. (6) Slake the lime for six hours before using. Well-slaked lime sticks better than lime slaked in the ordinary way. It is a good plan to add one-third the total quantity of water immediately; then allow to slake thoroughly. For use take one pailful of the lime paste to two of water and well mix. This operation makes for economy of tubs and allows more to be made overnight if much spraying is to be done the following day. (7) The more fine particles are obtained during slaking the better the mixture, and the more adhesive. To obtain the maximum of fine particles: (a) Use fresh lime; (b) always keep the lime covered with water while slaking; (c) keep the mixture while slaking as hot as possible. Two of the Apple aphides and one Plum aphid which lay winter eggs on the trees migrate during summer to another host plant, and return for egg-laying in the trees in the autumn. It is, therefore, worth while examining Plum and Apple trees in October and November to see if there are any aphides on the under-surface of the leaves. If they are abundant, and eggs are subsequently laid, there is a great probability of a spring attack, and lime-washing in the spring is advisable. If few or none the probability is that there will be no serious spring attack, and the grower if pressed for labour in the spring might leave the trees unsprayed. At Long Ashton in the autumn of 1915 there were abundant returned migrants on the Apple, followed by many eggs laid, while the Plum trees were practically free of the pest. It is possible that observation in October and November may prove to be a safe guide as to the necessity of spraying in spring. No reliance can, of course, as yet be placed on the method, but these facts may prove of service to growers.

FLIES AND THE MANURE HEAP.—Lieut.-Col. S. MONCKTON COPEMAN has forwarded us a reprint (from the *Lancet*, June 10, 1916) of his paper on the "Prevention of Fly-breeding in Horse Manure." He demonstrates that the temperature of fermentation reached by closely-packed manure is sufficient to destroy fly larvae, and recommends, therefore, that the manure heap should be well consolidated when in course of construction. If it be not possible to make the heap on a concrete base, he suggests that the ground should be prepared by Prof. LEFFROY's method, which consists in mixing 1 gallon of "oil, mineral wood preserving," with 40 gallons of fine soil, spreading the mixture on the ground and heating it down. This quantity suffices for 100 square feet of surface. In case the heap is to stand long, a thin cover of earth and oil may be placed over it. The consolidation of the manure, however, is the point which should by no means be neglected.

PUBLICATIONS RECEIVED.—*The "Decay" of English Agriculture.* By C. F. Ryder. (Leeds: Nutt & Co., Ltd., 24, Albion Place.) Price 3d.—*Aleyrodidae, or White Flies, Attacking the Orange; Correlated Characters in Maize Breeding;* both reprints from *Journal of Agricultural Research*, Department of Agriculture, Washington, U.S.A.—*Fangoid and Insect Pests of the Farm.* By F. R. Petherbridge, M.A. (Cambridge University Press.) Price 4s. net.—*Plant Propagation in the Tropics.* By P. J. Wester. (Manila: Government Bureau of Printing.)—*Nature, Mode of Dissemination and Control of Phloem-Necrosis (Leaf-Roll) and Related Diseases.* By Dr. H. M. Quanjer. (Wageningen: H. Veenman.)—*Some Bacterial Diseases of Vegetables Found in Ontario.* By D. H. Jones, B.S.A. (Toronto: Department of Agriculture.)—*Land Settlement in South Africa.* (Cape Town: South African Settlers' Information Committee.)—*Almanac and Poultry Register for 1917.* (London: J. & J. Colman, Ltd., 108, Cannon Street.)

PLANT EXPORT REGULATIONS. I

THE Board of Agriculture announces that the American Government now requires that all "nursery stock" (an expression which for this purpose includes Orchids) shipped from this country to the United States shall be accompanied by a certificate from a duly authorised officer of the Board that the plants have been examined and found to be free from injurious plant diseases and insect pests. Nursery stock shipped between May 31 and October 1 must be examined at the time of packing, but the stock shipped during the remainder of the year must be examined on or after October 1, after which no further examination is necessary till June 1 following.

Growers who desire to export to the United States should advise the Board as early as possible in the year, so that arrangements may be made for a preliminary inspection of their premises during the summer months. A final examination will be made as early as possible in October, and if the nursery is free from injurious diseases and pests the Board will be prepared to issue any certificates required up to the end of the following May on payment of the fees indicated below.

The usual charge will be £2 2s. in respect of each nursery. A larger sum will be charged in certain cases, and the Board will be prepared to consider applications for a reduced fee when two or more nurseries in the same occupation can conveniently be examined in conjunction. A further charge of 5s. per 100 will be made for the certificates issued during the period October to May.

Stock shipped between May 31 and October 1 will be examined under the conditions explained in Section 3 of this Memorandum.

Phylloxera certificates cannot be issued by the Board unless the premises where the plants were grown have been examined by one of their inspectors. The necessary examination will be made on payment of a fee of £2 2s. A separate fee is not charged, however, if the nursery has been inspected in accordance with the arrangements outlined in Section I. A charge of 5s. per 100 will be made for certificates issued.

With regard to certificates for plants to be sent by parcel post and for consignments under 112 lb. in weight, when a certificate is required that the plants or bulbs in a consignment have been examined and declared to be healthy or to be free from specified pests, the exporter should make application to the Board a few days before the consignment is to be despatched. As regards plants or bulbs to be sent abroad through the parcel post, a fee of 1s., payable in advance, is charged, and the following procedure must be followed:—The plants must be sent to the office of the Board in a box which can easily be opened, and the plants must be packed in such a way that they can be taken out and thoroughly examined and then repacked by the inspector. The box must be labelled "Plants (or bulbs) for export." A prepaid adhesive label, addressed to the consignee, must be enclosed, together with the Customs declaration required by the Postal Regulations. After examination the parcel will be posted and a receipt of posting obtained and sent to the consignor. If it be desired that the parcel shall be insured the requisite sum must be forwarded.

As several countries now refuse to admit plants by parcel post, growers should consult the information given in the Post Office Guide as to the regulations of the country of destination before sending plants for examination.

Consignments of plants weighing under 1 cwt. will also be examined at the Board's office. The fees charged for the issue of certificates in such cases are as follows:—

	s.	d.
Packages not exceeding 56 lb. in weight	2	6
Packages between 56 lb. and 1 cwt. in weight	5	0

Consignments exceeding 1 cwt. cannot be examined at the Board's office, and the fees in such cases will be at a special rate. If, however, it is necessary for an inspector to travel more than 20 miles to the place of examination the fee will be £2 2s.

The fee must be paid before the certificate can be issued.

Every care is taken to ensure that plants examined at the Board's offices are properly repacked and promptly dispatched, but the Board does not accept any liability in respect of any consignment examined or certificate issued.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables, Supplement, *Gard. Chron.*, August 5.)

(Continued from p. 105.)

5. SOUTHERN COUNTIES.

KENT.—We have probably the smallest crops of Apples and Pears on record. Victoria and Czar Plums are good, but other sorts are scarce. We had more than average crops of bush fruits. Peaches and Nectarines dropped freely. Caterpillars are responsible for great losses in Apples and Pears, and will affect next year's crops. *E. A. Bunyard, Royal Nurseries, Maidstone.*

— Following a spring of exceptional promise, the crops of most kinds of fruit are disappointing. In regard to Apples, whilst Blenheim Pippin and Cox's Orange Pippin are bearing well, the fruits of many other sorts have almost entirely disappeared. Fruit trees in general are in a clean and healthy condition. *Geo. Fennell, Bowden, Tonbridge.*

— Apples and Pears are not bearing half average crops. Plums, and particularly Victorias, are good. The outdoor Peach crop is the worst for many years. Raspberries, Strawberries, Gooseberries, Black Currants and Red Currants were all plentiful. Cherries were a fair crop, and Morello Cherries are good. Figs are plentiful and look well. The soil is heavy loam on chalk. *J. H. Shann, Betteshanger Park Gardens, Eastry.*

— Owing to the continuous night frosts during the flowering times of many varieties, the Apple and Pear crops are the worst in a record of over forty years. Of Pears there are almost none, and with few exceptions the Apples have severely suffered. Trees of Gascoyne's Scarlet Seedling, which sometimes produce from 600 to 700 bushels, will not produce 50 bushels this season. Cox's Orange Pippin and Peasegood's Nonesuch have not suffered so much, but Blenheim Pippin shows almost no fruit at all. With regard to Plums, some varieties show very poor results, but Victoria Plums bear a record crop. Black Currants, Raspberries and Gooseberries were satisfactory. Damsons are rather under the average in number. The soil is a good deep loam, rather heavy in places. *C. E. Shea, The Elms, Foots Cray.*

— The fruit crops are very disappointing, especially the Apple crop. Many of the trees bloomed very well, but the fruits did not set. This may be connected with the absence of bees, which have practically died out in this locality, scarcely one being seen this spring. Many trees which were badly infested with aphid last year, and, owing to the scarcity of labour, could not be sprayed, have failed to fruit, notably some of Lane's Prince Albert, which had previously borne crops for the past ten years. Pear trees generally did not bloom well. Strawberries yielded a splendid crop of first-quality berries. Gooseberries and other small fruits were also very good. Peaches and Nectarines are very bad out-of-doors, but under glass are satisfactory. *J. G. Weston, Eastwell Park Gardens, Ashford.*

MIDDLESEX.—The Apple crop is the worst for many years past. The trees flowered well, but the cold nights seemed to retard development, and the leaves were eaten by caterpillars. Pears are very uneven; and the same may be said of Plums, with the exception of Victoria, which is cropping heavily. All soft fruits were average crops. Peaches are very satisfactory; most of the trees are cropping well and the foliage is healthy. Morello Cherries are well up to the average, but the sweet varieties were poor. *H. Markham, Wrotham Park Gardens, Barnet.*

— All fruit crops are light. Apples are the best, but not full crops. Plums are a failure; in fact, all stone fruits have failed except Cherries. The soil is a heavy loam on gravel. *W. Bates, Cross Deep Gardens, Twickenham.*

— The season of 1916 has here been most disappointing. We had a good set on some Plum and Pear trees, but both these fruits have failed to fulfil the promise given. Both trees and bushes are free from pests; in fact, many trees never looked healthier. We had heavy crops last year. Probably more damage was done by the severe weather late in March than was at the time supposed. *James Hudson, Gunnersbury House Gardens, Acton.*

— Some varieties of Apples are above the average or up to the average, but the market sorts are below. Plums are good in some places, but very poor in others; while Peaches, Apricots and Nectarines are scanty, and Pears are in most cases a failure. Gooseberries have been better than last year. Raspberries and Red and Black Currants were good average crops. The gales and snowstorms in March appear to have had a good deal to do with the failure of many varieties of Apples and Pears. *John Weathers, Park View, Isleworth.*

SURREY.—Apples are yielding an average crop. Bush trees are well cropped, but standards (orchards) are not fruiting. This I attribute to the unusual attack of aphid last year, the trees being unable to finish their crop and also make fruit buds for this year. Pear trees suffered in the same way last year. Plums are bearing a good crop, and the trees are in a healthy condition. Cherry trees yielded a heavy crop; the trees are unusually free from aphid. Governor Wood, Early Rivers and Black Heart were extra good. Peach, Nectarine and Apricot trees are bearing very poor crops; owing to the late spring frosts. Gooseberries, Currants and Raspberries were all abundant. Strawberries cropped well, especially Royal Sovereign, Louis Gauthier, Givon's Late Prolific, Waterloo and British Queen. It is many years since we have had British Queen so good, well coloured, and with so fine a flavour. Cobnuts and Walnuts are under the average. The soil is a medium loam with a gravel subsoil. *George Kent, Norbury Park Gardens, Dorking.*

— The fruits crops, with the exception of bush fruits, are very poor. Apple and Pear trees promised well when in bloom, but failed to set fruits, owing to bad weather. Strawberries promised to be an exceptionally heavy crop, but lack of sunshine checked the swelling of the berries, many of which rotted in the beds. The soil is light and sandy. *Jas. Lock, Oatlands Lodge Gardens, Weybridge.*

— Apple trees gave excellent promise when in bloom, and during that period there was no frost. Notwithstanding this, the blossom failed to set, and the Apple crop is the worst on record. We grow some seventy varieties. Pears are doing almost as badly, but trees of Williams's Bon Chrétien are carrying average crops. Gooseberries were very plentiful, and Strawberries abundant. *Thos. Smith, Coombe Court Gardens, Kingston Hill.*

SUSSEX.—The Apple crop is one of the smallest ever known. Only a few varieties have fair crops, and these, as a rule, only on mature trees; many are nearly barren. Pears are almost a total failure. Plums, on the whole, are about average, as the good crops on Early Rivers, Czar,

and Victoria make up for the almost complete failure of Monarchs, and the entire failure of Presidents and Black Diamonds. Pond's Seedlings are about average. Gooseberries and Black and Red Currants yielded full crops. There is only a sprinkling of Cobnuts. *William E. Bear, Magham Down, Hailsham.*

— Apples are yielding much under the average crop, owing to cold weather and absence of sun in early summer. Strawberries and Raspberries were both heavy crops of large fruits. The flavour of these berries would have been better if there had been more sunshine. Plums are more numerous on bushes and standards than on wall trees, though all trees promised well when in blossom. The soil is heavy. *Wm. J. Langridge, Ote Hall Gardens, Burgess Hill.*

WILTSHIRE.—Fruits in general, with the exception of small fruits, are not good this year. Peaches and Nectarines are nearly failures, owing to the long winter. The Apple, Pear, and Plum crops looked very promising when the trees were in flower, and there was every prospect of a good fruit season; but the fruits did not set well, and large numbers dropped. *J. Knight, Bowood Gardens, Calne.*

— In consequence of the continued cold, sunless weather during the latter part of the month of May and the whole of June, the fruit crops made slow progress, and fruits ripened very slowly. The flavour, considering that the weather was so comparatively sunless, is good, especially that of Strawberries. *Thomas Challis, Wilton, Salisbury.*

— Isolated successful trees are to be found of Apples, Pears, Plums, and Peaches. Cherries and Apricots are practically a negligible quantity. Observations are from Lower Oolite to Lower Eocene. *Thomas Sharp, Westbury.*

7. ENGLAND, N.W.

LANCASHIRE.—Strawberries gave an average crop; the berries ripened very slowly, many of them being spoiled by the ground being damp. Apples, Golden Spire, Lord Grosvenor, Pott's Seedling, and Blenheim Pippin are yielding fair crops, and Scotch Bridget, Grenadier, Cox's Orange Pippin, Ribston Pippin, Ecklinville Seedling, and Bramley's Seedling good average crops. Pears are very poor. Plums are under the average except the variety Orleans. There are very few Damsons. *Joseph Stoney, Rostleigh Gardens, Woolton, Liverpool.*

— The fruit crops, on the whole, are satisfactory, though, considering the quantity of blossom, Apples and Pears are disappointing, although Pears on walls are bearing an average crop, and the quality is good. Gooseberries, Currants, and Raspberries were well above the average. Strawberries have borne very heavy crops. Early varieties were damaged by drizzling rain, which fell on 17 days of June. Later crops promise well. Cherries, both sweet and Morello, yielded heavy crops of excellent quality fruits. Our soil for the most part is of a heavy, retentive nature. *C. H. Cook, Knowsley Gardens, Prescott.*

— The Apple crop is a good average one. Pears promised well, but the cold weather at the time of flowering destroyed the crop. All small fruits were abundant. *A. J. Sowman, County Council Offices, Preston.*

WESTMORLAND.—After last year's heavy crop of Apples, this year's is naturally light. Lane's Prince Albert is bearing well again. Annie Elizabeth is a constant cropper, and the fruits keep well until June. New Northern Greening, Keswick Codlin, and Bramley's Seedling all succeeded in our light, gravelly soil. Pears are thin. Victoria and Kirk's Plums are cropping well. Small fruits and Strawberries were very satisfactory, notwithstanding that there was little sunshine when they ripened. *W. A. Miller, Underley Hall Gardens, Kirkby Lonsdale.*

8. ENGLAND, S.W.

CORNWALL.—The Apple and Pear crops are almost failures. There was an abundance of apparently strong fruit buds, which developed

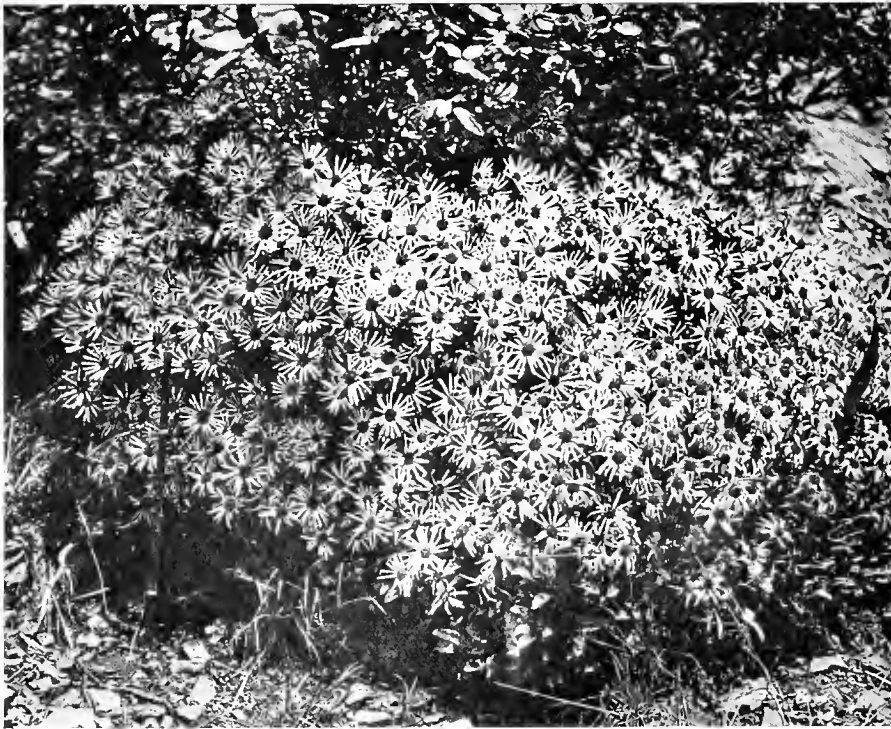
a wealth of blossom, but, although the weather conditions at the flowering season were fairly favourable, very few trees set even a medium crop of fruit. Peaches and Nectarines suffered as a result of the abnormally mild January, as also did a good many wall Pear trees. Black Currants, Raspberries, and Gooseberries were all abundant and of first-rate quality. The soil is light, sandy loam, rather shallow, and for the most part has a rocky bottom. *F. J. Clark, Tchidy Park Gardens, Camborne.*

DEVONSHIRE.—The fruit crops, with the exception of small fruits, are generally poor. Our early-flowering varieties of Peaches were practically ruined through the attacks of the blue tit, which tore the opened and half-opened blossoms to shreds, but we have an average crop of later varieties. This is the first occasion I have known tits molest peach blossoms. *T. H. Bolton, Powderham Gardens, Exeter.*

haps half a crop, for the whole county. Cherries were good. Strawberries and Gooseberries were plentiful, but the latter have been badly affected in places with American Gooseberry mildew. *G. H. Hollingworth (Agricultural Organiser), County Education Office.*

—The fruit crops are not equal to the average as regards Apples, Pears and Plums. The Apple trees which are carrying crops are Lord Suffield, Lane's Prince Albert, Sturmer Pippin, and Bramley's Seedling. Some varieties of Pear trees are bearing fruits which promise to be of very fine quality. Plums are thin: Victorias are bearing the best. Apricots are a failure. Cherries and Peaches were both very good. All small fruits, such as Currants, Gooseberries, Raspberries, and Strawberries, were plentiful, but ripened later than usual. *F. C. Walton, Stanley Park Gardens, Stroud.*

(To be continued.)



[Photograph by George Forrest.]

FIG. 46.—*ASTER STATIVEFOLIUS* GROWING WILD IN CHINA: COLOUR OF FLOWERS BLUE TINGED WITH PURPLE.

—The severe easterly winds which prevailed just as Apple and Pear trees blossomed completely ruined the crops except on trees in very sheltered places. On July 3 we had a fall of hailstones at midday, and the lawns were covered with very heavy dews, which resembled slight frost. *W. Lock, Eastcliffe Gardens, Teignmouth.*

GLOUCESTERSHIRE.—We have very poor crops of Apples, Pears, and Plums. For the past two years these crops have been abundant. Outside Peaches bloomed well, the bloom was protected by netting, and the trees were kept quite clean; but though some trees have a fair crop, others have none. The fruits apparently set and then dropped. Gooseberries, Black and Red Currants, Strawberries, and Raspberries were all very good. A Brown Turkey Fig tree growing outside has a very good crop of fruit. *John Banting, Tortworth Gardens, Falfield.*

—For the two past seasons Apple and Pear orchards in this county have yielded heavy crops. This year there are very few Pears, whilst Apples are patchy, the crops being confined to trees which did not bear last year. Plums are thin in districts where the trees bore heavily last year. In other parts there is a fair promise, of per-

the region from lat. 25 N. to the extreme north of the province, at altitudes from 9,500 to fully 12,000 feet.

Of all the species known I doubt if any other flowers so abundantly. On one single plant I have counted almost four hundred heads, and have seen others which unquestionably bore even a greater number.

Individual plants attain a height of 1½ to 2 feet, and form compact rounded shrubs, of which the younger growths generally die back each season. In some of the highest and most exposed situations on the more barren screes, the species distinctly assumes a cushion habit, all parts being completely hidden by the short-stemmed blooms.

The specific name denotes the form and character of the foliage, which is of a glaucous-blue colour. The flower-heads are borne well above the foliage on short, stout pedicels of 3 to 4 inches, and are 2 to 2½ inches in diameter, the ray-florets nominally of a deep shade of blue, slightly tinged with purple, the disc-florets a dull brassy-yellow. According to locality, colour forms may be found; in 1913 a specimen was seen and collected in which the ray-florets were a rich vinous red. The plant flowers successively according to altitude, from late May till the end of July or even August.

In the wild state the species fruits freely and seed was obtained in quantity, first in 1906, again in 1910, and more recently in 1913-14. The species has been successfully cultivated for a number of years at the Edinburgh Botanic Garden and elsewhere. *George Forrest.*

HOME CORRESPONDENCE.

BLACK CURRANT BUD MITE.—Mr. Swan's experience with the "big bud" mite of Black Currants recorded by him on page 86 is interesting. Probably his failure with lime and sulphur dusting is attributable to the application being made at the wrong time. It is essential that this very minute mite should be attacked as it migrates from the old to the new buds. I dusted a batch of trees with lime and sulphur on about April 10 and 24 and again on May 7. When I examined the trees the following spring, with a view to continuing the treatment, no big buds were seen. I do not doubt but that there are a dozen effectual washes or powders, provided they are applied when the mite has emerged from the protecting bud. *Will Taylor.*

ABSENCE OF WASPS IN IRELAND.—I notice in my garden and vinery this year an almost complete absence of wasps, and I learn from correspondents in other parts of Ireland that they have noticed the same thing. *W. J. Murphy, Clonmel.*

APPLE LORD GROSVENOR.—In a season when many sorts of early cooking Apples have a thin crop, or no crop at all, Lord Grosvenor has once more demonstrated its value as a cropper and also as a high quality variety for the kitchen. During the past few years I have reduced the number of trees of this variety in favour of Grenadier and Early Victoria, but as the result of this season's crop I shall spare the trees of Lord Grosvenor in future. This Apple has two faults—the tree is liable to scab and it produces too many "scrumps" when heavily laden. Such trees are generally the result of weakly growth. Among many trees quite 30 per cent. of them have these defects, but why I do not know. No method of cultivation seems to improve the trouble, except, perhaps, that of cutting the trees down to within 2 feet of the ground and inducing them to make more vigorous growth from the base. Even then the remedy is but partial. This seems to point to the fact that defect in growth is due to an unsuitable stock, although this is only surmise, as some trees in the same plantation make extremely good growth, and these may have been grafted on the same kind of stock as the others. No Apple can excel Lord Grosvenor in cooking quality, and when the trees are in vigorous growth the fruit matures early. In planting this Apple the soil should be prepared thoroughly; it is necessary to trench at least 3 feet deep, and to add sufficient manure to ensure a vigorous growth. *E. M.*

NEW CHINESE PLANTS.

ASTER STATIVEFOLIUS, FRANCHET.

THE mountains and plateaux of Western China, particularly the region including W. and N.W. Yunnan, have yielded many rich additions to the genus Aster, from shrubby species of 4 to 5 feet to the tiniest and richest-hued Alpines of 1 to 2 inches. Every forest and side valley have species peculiar to themselves; they take a prominent position in the colour scheme of the higher meadows, whilst many of the cliffs are decorated with species naturally adapted for such situations.

In the fore-front of the latter group stands *Aster stativefolius*. A half-shrubby plant of 16 to 24 inches, it is found in profusion in dry and most exposed situations on ledges or limestone cliffs and the huge screes which are a feature of those mountains. At the lower altitudes it is also seen in Pine forests.

The species was first discovered in 1886 by Delavay, on the Lichiang Range, and the mountains of the Hoching-Laungkong divide, but, though cited in his collections only from those two localities, it is generally distributed over

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 29.—The fortnightly meeting was held in the Vincent Square Hall, Westminster, as usual, on the above date. Both the number of exhibits and the attendance were small.

The Orchid Committee recommended two Awards of Merit to novelties, and awarded two medals to collections.

The Floral Committee recommended two Awards of Merit to a variety of Montbretia and of Rose respectively, and, in conjunction with the National Dahlia Society, granted six Awards of Merit to new varieties of Dahlias.

The Fruit and Vegetable Committee awarded a Gold Medal to a collection of hothouse fruits and a Silver Knightian Medal for an exhibit of hardy fruits.

Floral Committee.

Present: Messrs. H. B. May (chairman), A. Turner, John Green, J. W. Moorman, John Heal, C. Dixon, W. J. Bear, Geo. Harrow, Thos. Stevenson, G. Reuthe, F. J. McLeod, H. J. Jones, Chas. E. Pearson, H. Cowley, W. P. Thomson, E. H. Jenkins, W. G. Baker, Sidney Morris, W. H. Page, and James Hudson.

AWARDS OF MERIT.

Rose Callisto.—A very free-flowering H.T. variety. The small, soft yellow, very fragrant blooms are borne in clusters on stout stems which have prominent red spines. This variety has a general resemblance to Clarissa, though the flowers have usually more petals and the colour is more pronounced. The foliage is dark green and glossy. Shown by the Rev. J. H. PEMBERTON.

Montbretia Queen of Spain.—This variety has large, brilliant, orange-coloured flowers and faint purple marking in the centre. It was raised by crossing George Henley with Queen Adelaide, and, apart from the brilliance of the flowers, it is attractive by reason of its purple calyx and stems. Shown by Mr. SIDNEY MORRIS.

The following Dahlias received R.H.S. Awards of Merit and First-Class Certificates of the National Dahlia Society:—

D. Mascot.—A well-balanced Colletterette flower of rosy-mauve colour, which is lightly flushed with white. The broad ray florets curve inwards; the white quills are of medium size.

D. Private Edward Drury.—The charm of this Colletterette variety lies in its uncommon colour rather than in form, for the quills are unduly long, but the florets are a charming colour, which may be described as deep salmon-terra-cotta; the long quills are straw coloured.

D. Alabaster.—This Cactus variety has large, broad florets. The white florets are slightly recurved at the tips, and the centre of the flower has a greenish hue.

D. Saffron.—The colour of this well-shaped Cactus variety is medium yellow. The florets are narrow, and curve inwards at the tips, making it a good show flower.

D. Bizarre.—A very desirable exhibition Cactus variety of perfect form and uncommon colouring. The florets are narrow, and, like those of the foregoing, curve inwards. The centre of the flower is of deep velvety-maroon colour, which fades almost to white at the tips of the florets.

D. Amethyst.—An apparently freely flowering miniature Cactus variety suitable for garden decoration. The colour is a dull purplish-rose. All these Dahlias were shown by Messrs. J. STREDWICK AND SON.

GROUPS.

The following medal awards were made to collections:

Silver-gilt Flora Medal to Mr. J. Box, Lindfield, for a large exhibit of hardy flowers. As in his group at the previous meeting, herbaceous Phloxes predominated. Large vases of Stokesia cyanea, Gladioli in variety, Lilium tigrinum splendens, Gentiana asclepiadea and Agapanthus umbellatus were also shown.

Silver Flora Medals to Messrs. H. B. MAY and Sons, Upper Edmonton, for a collection of greenhouse Ferns and shrubby Veronicas. The last-named were good pot plants, and included the varieties *Admiration*, dark blue, *La Perle*, pink, and *Mont Blanc*, white; and to Mr. G. W.

MILLER, Wisbech, for hardy flowers, including Tritomas (Kniphofias), Montbretias and Lilium sulphureum.

Bronze Flora Medals to the Rev. J. H. PEMBERTON, Havering-atte-Bower, for a selection of seedling Roses: Mr. W. WELLS, Junr., Mersham, for hardy flowers, including Verbascum New Departure, various Delphiniums, and Aster Amellus King George; and Mr. G. REUTHE, Keston, for hardy flowers and shrubs.

Bronze Banksian Medal to Messrs. J. CHEAL and Sons, Crawley, for Dahlias and hardy flowers.

Orchid Committee.

Present: Sir Harry J. Veitch (in the chair), Sir Jeremiah Colman, Bart., Messrs. Jas. O'Brien (hon. secretary), C. J. Lucas, R. G. Thwaites, Pantia Ralli, T. Armstrong, Walter Cobb, J. Charlesworth, Arthur Dye, S. W. Flory, W. Bolton, R. A. Rolfe, and Gurney Wilson.

AWARDS OF MERIT.

Laelio-Cattleya Thyone Bryndir variety (C. Dowiana aurea x L.-C. Ophir), from Dr. MIGUEL LACROZE, Bryndir, Roehampton (Orchid grower, Mr. A. Taylor). A fine addition to the favourite bright yellow Laelio-Cattleyas, the flowers being of good shape and fine substance; the sepals and petals are bright chrome-yellow; the lip is light orange colour with deep ruby-red lines from the base to the centre and a well-defined ruby-claret margin, narrow on the side lobes and half an inch broad in front.

Laelio-Cattleya Golden Wren (L.-C. Thyone x C. iridescens), from Messrs. ARMSTRONG AND BROWN, Tunbridge Wells. A charming yellow hybrid, shown with its first flower. The seedling promises to attain first-class honours when mature. L.-C. Thyone (C. Dowiana x L.-C. Ophir), strengthened by C. Dowiana and L. xanthina, of L.-C. Ophir, sets the form and colour, the C. bicolor and C. Eldorado in C. iridescens only appearing in the firm substance of the former and the fragrance of C. Eldorado. The sepals and petals are bright canary-yellow; the lip is coloured rich ruby-purple in front, the centre being deep chrome yellow with yellow lines on a purple ground at the base.

GROUPS.

MESSRS. CHARLESWORTH AND CO., Haywards Heath, were awarded a Silver Flora Medal for an excellent group of Laelio-Cattleyas, Odontoglossums, Odontiodas and other hybrids, the most noteworthy novelties being the beautiful Cattleya Kitty Wren (Fabia x Gaskelliana); selections of their new L.-C. Appam, L.-C. Salonica, L.-C. Thyone and L.-C. Colmaniana. The rare Catasetum Russellianum, Stanhopea Shuttleworthii, and other rare species were included in the collection.

MESSRS. ARMSTRONG AND BROWN, Orchardhurst, Tunbridge Wells, were awarded a Silver Flora Medal for an interesting group of rare hybrid Orchids, the best of which was Laelio-Cattleya Golden Wren. (See Awards.) Cattleya Claesiana alba (intermedia alba x Loddigesii alba), the coloured form of which appeared as a natural hybrid some years ago, was especially noted. This albino is superior to either parent in size and shape and is pure white. The fine scarlet Sophro-Cattleya Blackii (C. Hardyana x S. grandiflora) and various Odontiodas were shown.

MESSRS. SANDER AND SONS, St. Albans, were awarded a Silver Banksian Medal for an interesting and varied group, which included the beautiful pure white Cattleya Lady Veitch (Luddemanniana alba x Warneri alba), the best white late-flowering hybrid Cattleya; C. guttata Sanderae, which may be described as an albino of the typical C. guttata, the usual colour being suppressed, resulting in green sepals and petals and a pure white labellum. They also showed Laelio-Cattleya Queen Marie (L.-C. Walter Gott x C. Dowiana aurea).

MESSRS. HASSALL AND CO., Southgate, were awarded a Silver Banksian Medal for a group composed chiefly of their good forms of Cattleya Adula and C. Sybil. A showy novelty was exhibited in Laelio-Cattleya Roumania (L.-C. Lusitania x C. Dowiana aurea), a clear light-yellow flower, the cherry-red lip having yellow lines from the base.

MESSRS. FLORY AND BLACK, Slough, showed Sophro-Laelio-Cattleya Hanningtonii (S.-L.-C. Goodsonii x C. Dowiana aurea), a good flower equal in size to L.-C. luminosa, one of the parents of S.-L.-C. Goodsonii, but with lip formed like C. Dowiana. The sepals and petals are Cowslip-yellow veined with rose; the lip is purplish-rose with gold lines.

MESSRS. STUART LOW AND CO., Jarvisbrook, Sussex, staged a group of good varieties of Cattleya Warszewiczii, C. Hardyana and other showy kinds; Cattleya Hardyana alba and C. Lady Ingram alba (Eldorado alba x Dowiana aurea), a pretty white flower with very handsome purple lip with gold lines at the base, were especially good.

Mr. C. F. WATERS, Balcombe, Sussex, showed new crosses flowering for the first time, including Laelio-Cattleya Bucharest (L.-C. Martinettii x C. Caduceus), a cream-white flower tinged and veined with rose and with light purple lips; L.-C. Fleury (L.-C. Issy x C. Dowiana aurea), with emerald-green sepals and petals and lilac-purple lip; L.-C. Kavala (L.-C. Epicaista x C. Elvina); and Cypripedium Venizelos (Lawrenceanum x Lord Ossulston), a bold flower with a fine dorsal sepal, resembling C. Lawrenceana and the well-formed, glossy-brownish lip of C. Lord Ossulston.

Fruit and Vegetable Committee.

Present: Messrs. Jos. Cheal (in the chair), W. Bates, A. W. Metcalfe, Edwin Beckett, A. Grubb, A. R. Allau, A. Bullock, E. A. Bunyard, and Owen Thomas.

The following medals were awarded to collections:

Gold Medal to C. A. CAIN, Esq., The Node, Welwyn, Herts (gr., Mr. J. Pateman), for a large collection of dessert fruits. The Grapes included Muscat of Alexandria, Black Hamburg and Madresfield Court; the berries were well finished and of good size. Other fruits included good Melons (Emerald Gem and a seedling), Nectarines Pine Apple and Rivers' Orange, and Plum Transparent Gage.

Silver Knightian Medal to Mr. C. G. ALLGROVE, Langley, for Apple trees in pots and dishes of gathered fruits. The former were sturdy, fruitful little bushes of the comparative new variety Rev. W. Wilks. Each tree bore several very large fruits of perfect form. The chief dishes of Apples were Worcester Pearmain, Feltham Beauty and Beauty of Bath. Amongst several dishes of Plums, the variety Gisborne's was particularly good.

The Royal Horticultural Society sent from the Wisley Gardens a large selection of Tomatos. This interesting exhibit was in the form of entire trusses of fruit, so that the relative fruitfulness of each sort might be perceived. All showed expert cultivation, and the red-skinned varieties were exceptionally well coloured. Of the many red varieties Evesham Wonder, Winter Coral, Carter's Sunrise, Merrivale Comet, Ailsa Craig and crosses between Sunrise and Merrivale were all of the medium size and round shape aimed at by large growers. The yellow varieties were also exceptionally good, but several sorts showed a tendency to split their skins. The best were Golden Drop, Golden Perfection, Golden Gem and Golden Sunrise. Besides the foregoing, there were the small-fruited Red Currant Little Gem, Cherry Ripe, and the pear-shaped varieties.

Trial of Tomatos under Glass.

The following awards have been made to Tomatos grown under trial at Wisley:—

FIRST-CLASS CERTIFICATE.—*Golden Sunrise*, raised, introduced and sent by Messrs. J. Carter and Co.

AWARDS OF MERIT.—*Golden Nugget*, for flavour in salad and dessert, introduced by Messrs. Sutton, sent by Messrs. Sutton and Messrs. Barr and Sons. (First-class Certificate 1894). *Klandine Red*, raised and introduced by Mr. R. Holmes, sent by Mr. R. Cobley; *Klondine Red* (selected), raised by Mr. R. Holmes, introduced and sent by Messrs. Laxton Bros.; *Merrivale*, raised, introduced and sent by Mr. P. A. Cragg; *Water Baby*, raised, introduced and sent

by Mr. A. Balch; *Winter Coral*, raised and sent by Mr. W. Camm. *Ailsa Craig*, raised by Mr. A. Balch, sent by Messrs. W. H. Simpson and Sons.

HIGHLY COMMENDED.—*Aviator*, raised, introduced and sent by Messrs. Dickson and Robinson; *Best of All*, introduced and sent by Messrs. Sutton and Sons; *Eresham Wonder*, raised, introduced and sent by Mr. J. N. Harvey; *Golden Perfection*, raised by Mr. Gibson, introduced and sent by Messrs. Sutton and Sons; *Ham Green Favourite* (selected), sent by Messrs. Barr. (First-class Certificate 1887); *Murrow Seedling* (*syn. Sunrise*), raised by Mr. P. Macdonald, introduced by Mr. F. Darwin, sent by Mr. J. G. White; *Princess of Wales*, introduced and sent by Messrs. Sutton and Sons. Award of Merit 1905; *Sunrise* ♀ × *Merrivale* ♂, raised and sent by R.H.S., Wisley.

COMMENDED.—*Ayrshire*, raised, introduced and sent by Mr. A. Balch. (Award of Merit 1910) *Beatal Selected*, introduced and sent by Messrs. Laxton; *Money-maker*, raised, introduced and sent by Messrs. Dickson and Robinson; *Model*, raised, introduced and sent by Messrs. Dobbie and Co.; *Northern King*, raised by Dr. Crawford, introduced and sent by Messrs. Barr; *Stockwood Seedling No. 1*, raised, introduced and sent by Mr. G. Rodman.

Obituary.

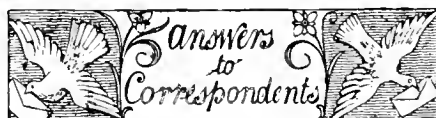
JOHN CHARLTON.—We regret to learn from *The American Florist* of the death, on August 2, of Mr. J. Charlton, founder of the well-known florists' firm of that name in the city of Rochester, New York. Mr. Charlton, who was born in Wiltshire, emigrated to America at an early age. He was employed for some time in a nursery, and then embarked in business for himself. His enterprise grew rapidly, and, with his two sons, he established a flourishing nursery establishment in Rochester.

JACKSON DAWSON.—It is with deep regret that we announce the death, on August 3, at the age of seventy-five, of Mr. Jackson Dawson, the well-known and widely respected superintendent of the Arnold Arboretum, Jamaica Plains, Mass., U.S.A. As the American horticultural Press (from which the following facts are taken) records the life of Mr. Jackson Dawson was a varied one. Born near Hull, in East Yorkshire, he was taken to the States when only four years old, and at the tender age of eight he began work in the nursery of his uncle at Andover, U.S.A. After a few years, during which he had made good use of his time, he went to Cambridge, Mass., and was employed in the nurseries of Messrs. Hovey and Co., then the only great establishment of the kind in the country. There he found ample scope for his eager investigations into the wonders of plant life, but his researches were interrupted by the Civil War, at the outbreak of which he enlisted. He served in the Massachusetts Infantry for three years, but in all the toil and turmoil of war he did not forget his passion for horticulture, and sought and found opportunities for plant collecting, sending home many packages of rare seeds and plants. He was several times wounded, and it is said that once at least it was the result of venturing into danger in search of new plants. He first became prominent by his identification of the Scotch Heather which grew wild in Massachusetts. It was in 1871 that he was offered his first important appointment—under Francis Parkman at the School of Horticulture of the Bussey Institution. After two years Professor C. S. Sargent became director of the school, and shortly afterwards director of the Botanical Gardens. It was Mr. Dawson's pleasant task to supply the botanical gardens with plants from all parts of the world, and to arrange for exchanges with different institutions. Sometimes the number of such exchanges reached 25,000 a year. When the Arnold Arboretum was established, and Professor Sargent was made director, Mr. Jackson Dawson followed him, and played an important part in the development of the scheme. It is largely owing to his strenuous work and intelligent co-operation with

Professor Sargent that the Arnold Arboretum has reached its present proud position as one of the great tree gardens of the world. His work in grafting, in the germination of seeds, and in specialised culture is well known. He had a wide knowledge of hardy trees and shrubs, and was a successful hybridiser of Japanese Roses. Mr. Dawson's perseverance and ability received due recognition in 1911, when he was awarded the George Robert White Medal, in addition to the many other medals he had previously received. He was one of the old school of gardeners; one to whom his work was everything, who was never weary of it, never flagged in his affection for his plants, was never tired of tending them and studying their needs. Direct, with the directness of the Yorkshireman, he had also the warm heart of that folk, and Englishmen who visited the Arnold Arboretum carried away with them a warm affection for this good gardener and upright man.

ENQUIRY.

ASPARAGUS PEA.—I shall be obliged if any of your readers can inform me of the proper way to cook the Asparagus Pea. A. N.



FLOWERING SHRUBS: *L. McM.* Berberis japonica, Hamamelis arborea, Cornus Mas, Daphne Mezereum, D. M. var. album, and Erica mediterranea hybrida flower from January to March. From March to May Forsythia intermedia, F. suspensa, Berberis stenophylla, B. Darwinii, Spiraea Thunbergii, S. arguta, Lilacs in variety, Brooms and flowering Currants (Ribes) will give a satisfactory supply of bloom. From May to the end of July Guelder Rose, Viburnum plicatum, Rhododendrons in variety, Philadelphus (Mock Orange), Genista virgata, Spiraea Anthony Waterer, Veronica Traversii, Weigela Abel Carrière, W. candida and W. Eva Rathke carry on a succession of flowers. From July to September Genista aethensis, Spartium junceum, Hypericums in variety, Tamarix pentandra, Ceanothus, Hydrangea paniculata and Olearia Haastii come into bloom.

FRUIT FARMING IN DORSET: *R. F.* The centre of Dorsetshire is favourable for fruit-growing. The coastal districts are subject to sea fogs, which at times destroy the fruit blossom. In the centre of Dorset, where the soil is of a heavier nature, besides Apples, small fruits do exceedingly well. The south and south-west parts of the county would be favourable for growing medicinal herbs and aromatic plants. These districts are generally favoured with fine weather in September, when many of the plants you mention are harvested.

LATE BORDER FLOWERS: *L. McM.* To succeed Delphiniums and Liliums plant Phloxes in variety, Rudbeckias, Heleniums, Pentstemons, Helianthus multiflorus, Hollyhocks, and some of the smaller-growing Michaelmas Daisies, such as Aster Amellus and A. acris. Early autumn-flowering Chrysanthemums offer a good range of colour, and the flowers are not so heavy as those of the late-blooming varieties.

LILACS AND BUDDLEIAS: *E. Lant.* The best dark Lilac is Souvenir de Louis Späth. The best white varieties are Marie Legraye, single, and Madame Lemoine double. Buddleia variabilis and B. v. Veitchiana should be cut back in spring to within two or three eyes of the old wood.

NAMES OF PLANTS: *U. toh.* 1, Spiraea ariaefolia; 2, Artemisia lactiflora; 3, Buddleia variabilis Veitchiana; 4, Abies nordmanniana; 5, Matthiola incana flore pleno alba (Double White Stock); 6, Trachelium caeruleum (Throatwort).—*Constant Reader, Notts.* 1, Senecio Jacobaea (Ragwort); 2, Ulmus campestris vimi-

nalis; 3, Hypericum perforatum; 4, Artemisia vulgaris (Mugwort); 5, Melilotus officinalis (Melilot or Honey Lotus).

ONION CROPS IN LINCOLNSHIRE: *W. B.* It is not possible to make a definite statement as to the crop of Onions per acre to be obtained in Lincolnshire, as much depends upon the soil and the manner of cultivation. Skilful growers in the county named are able to obtain 18 tons per acre.

POTATOS DISEASED: *T. O.* As you suspect, your Potatoes are affected with black-scab or wart disease. The pest has been scheduled by the Board of Agriculture since November, 1913, for notification; address your communication to the Secretary, Whitehall Place, London. The 6d. has been placed in the Royal Gardeners' Orphan Fund box.

RUNNER BEANS: *E. P. and Co.* The plants have suffered a severe check. From the appearance of the pods the plants are in a starved condition, either through the ground being very poor or through drought at the roots. The pods are not diseased.

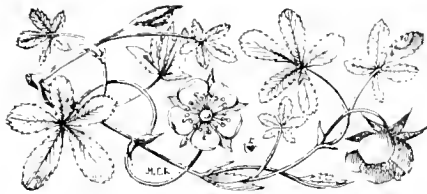
SEED POTATOS: *E. D.* We do not advise you to use, for seed, tubers which have become green through exposure to the light. Choose perfectly ripe tubers, in the best possible condition.

SHRUBS UNDER YEW TREES AND ERICAS ON A BANK: *Tavern.* There are very few plants that will grow under Yews. The best for your purpose are Hypericum calycinum (St. John's Wort) and Berberis Aquifolium, both of which are low-growing evergreens. The former flowers from June to October, and the latter during April and May. If you use both they should be planted separately, not mixed together. If the soil does not contain lime Ericas would thrive on the bank. The best sorts to employ for a succession of bloom are E. mediterranea hybrida (9 inches), E. carnea (6 inches), E. Veitchiana (3 feet), E. cinerea and vars. (9 inches), E. ciliaris (9 inches), E. Tetralix (1 foot), E. stricta (3 feet), E. vagans and vars. (1 foot). These are given in their order of flowering, which is from January to October. Cytisus would form an excellent background.

WASPS: *G. R.* There are several methods of destroying wasps' nests. One is to dissolve some cyanide of potassium in water, soak cotton-wool in the liquid, and push the wool into the hole containing the nest. A few hours afterwards, or on the following day, the nest should be dug out and burnt, in case there should be live grubs in it. Another method is to boil 1 lb. of commercial arsenic in one gallon of water for twenty minutes, pour half a pint of the liquid into a wide-mouthed bottle, adding sugar and a little beer. When the mixture has stood for a time, a spoonful or two should be poured into a saucer, with fragments of fish or meat, and fruit, where the wasps are accustomed to con-

WILLOWS FOR BASKET-MAKING: *Willow.* Willows are grown for this purpose in many parts of the country, including Lancashire, Somersetshire, Middlesex, Bedfordshire, Cambridgeshire, Leicestershire, Norfolk and Lincolnshire. It is not possible to give particulars regarding the price of land, as it varies widely in different places and from time to time. Information on these points could, however, be procured for certain districts from Mr. W. P. Ellmore, The Willows, Saxe Coburg Street, Leicester, who has written a good deal upon the subject of basket-making from a practical point of view. The most up-to-date work on the cultivation and marketing of Willows for basket-making, together with descriptions of the best varieties, in a pamphlet published by the Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W., obtainable from the Secretary, price 4d.

Communications Received.—J. W. C.—J. A. P.—W. C. R.—G. E. D.—H. W. S.—J. M.—F. A. F.—F. de H. B.—E. M.—G. C.—E. R.—H. & Son—G. C.—Haslemere—Sir W. T. T.—Lt.-Col. H. M. D.—R. H.—R. A. S.—T. T.—B. G. D. S.—W. W.—B. of A.



THE

Gardeners' Chronicle

No. 1550.—SATURDAY, SEPTEMBER 9, 1916.

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CAMPANULAS AT WISLEY.

AT the Royal Horticultural Society's Gardens at Wisley many species, hybrids and varietal forms of Campanula play a great part in providing picturesque displays over a long period, both in the rock garden and in other well-chosen spots. In July and August the flowers of the Campanulas are especially welcome, as the greater number of Alpines flower in spring. The Alpine Campanulas are graceful in habit and very free flowering, whilst all are easily cultivated.

The illustration in fig. 47 shows a fine mass of Campanula garganica W. H. Paine, growing in a half-shaded position in the extensive rock garden. The colour is a pleasing shade of blue, lighter than C. garganica type, while the centre of the flowers is almost white. This variety received the R.H.S. Award of Merit at the Holland House Show in 1914. The plant may be readily increased from cuttings or by division. C. garganica flowers profusely at Wisley, whilst C. pusilla and its varieties alba, pallida, Miss Willmott, and Higheroft China are charming low-growing plants with nodding flowers ranging in colour from white to sky-blue.

In the moraine C. acutangula (fig. 48) and C. excisa are represented by fine specimen plants. The former species is not more than a couple of inches in height, and possesses trailing stems clothed with small ivy-shaped leaves. The flowers are borne singly on stems raised just above the foliage. They are star-like in form

and of purple-blue colour. The species is a native of Northern Spain, and bids fair to take a pre-eminent position among Alpine flowers; it obtained the Award of Merit last year. C. excisa is a very rare species from the Alps, and grows best in a cool soil in a position not fully exposed to the sun. The flowers are pale blue, and this species is readily distinguished from any other Campanula by the fact that there is a small round hole at the base of each sinus.

C. carpatica has received much attention from growers. The variety Little Gem does remarkably well at Wisley, and produces its large, white flowers in abundance. C. c. S. T. Wright is a comparatively new form with large violet-blue flowers. C. c. Riverslea produces an excellent effect at Wisley planted in bold

patia. It possesses the habit of the former species, and the colour is violet-blue.

My note would be incomplete if I omitted to mention the large masses of C. lactiflora, which occupy positions in semi-wild situations and alongside winding informal paths. Reaching a height of between five and six feet, the erect branching stems bear loose panicles of flowers ranging in colour from milk-white to pale blue. In recent years much attention has been concentrated on C. lactiflora at Wisley, and as a result of careful selection a number of forms has been obtained, some of which approach pure white without any tinge of blue, noticed in so many of the so-called white forms, while others are of a glistening deep blue shade with larger flowers than in the type. J. K. Rambottom.



FIG. 47.—CAMPANULA GARGANICA VAR. W. H. PAINE IN THE ROCK GARDEN, WISLEY.

masses. C. c. G. F. Wilson, derived from C. c. turbinata and C. pulla, is one of the daintiest plants belonging to this section.

Another interesting Campanula at Wisley is C. Waldsteiniana, a South Austrian species with greyish-green foliage and flowers of pale purplish-blue, the beauty of which is still further enhanced by the large, white prominent pistil which extends beyond the corolla and is crowned with a pale yellow stigma. Not far from this plant is to be found C. Stansfieldii, a neatly growing but variable hybrid obtained from C. Waldsteiniana and C. carpatica. C. Raddeana is a species not commonly seen in gardens. At Wisley it produces large, dark violet-purple flowers, as shown in fig. 50. C. pulloides is a distinct and pretty hybrid, said to have been raised from C. pulla and a form of C. car-

THE POMPON DAHLIA.

(Continued from p. 107.)

I HAVE already spoken of Otto, of Berlin, in my paper in *The Dahlia Year Book*, 1915.

Fintelmann, of Potsdam, was also famous, besides many others whose names I must pass over. At Leipsic, the Court Gardener, Breiter, devoted himself to Dahlia culture with great success, and raised many from seed. In the years 1807-1809, as we learn from Gerhard (*Zur Geschichte, Cultur und Classification der Georginen oder Dahlien*, 1836), Herr Breiter despatched plants to all the provinces of Germany, to France, Russia, Poland, and Denmark.

But here comes in an important remark in confirmation of my view against the possibility of small-flowered double Dahlias or Pompons having been raised so early in Germany. Gerhard says: "Up to this time one saw only single-blooming varieties in Germany; the most effective cultivation had as yet failed to produce a double Dahlia. But the moment when the single was displaced by

the semi-double, and finally the quite double Dahlia, was not much longer in coming."

"The first double Dahlia," says this German authority, "was given to Otto, of Berlin, in the year 1808 by Hartweg, of Karlsruhe. In Berlin the flower created quite a sensation." Here we get the germ in its primary form of Richard Dean's statement. Date, name, place, but no description of the flower. Gerhard continues, "How Karlsruhe came into possession of it we do not know." I think, however, that readers who have followed me thus far will be able to form a fairly good opinion. He further adds: "We presume it was the genuine Dahlia pinnata Cav., which as stated, according to Thonin's drawing, is to be counted among the double Dahlias, for neither in Germany nor France, nor much less in England, had double Dahlias been produced from seed."

Precisely. Gerhard has here hit the right nail on the head. It was unquestionably *D. pinnata*.

With these facts before us, we may well enquire how can they be reconciled with the assertion that Hartweg obtained the Pompon from *D. coccinea*? The truth is, as I have already amply shown, the first step towards doubling had not

in its ray ranged in one series, not in a double row, as in the semi-double varieties.

In Sweet's *British Flower Garden*, Vol. II., 1829, where the Dahlia is dealt with under its German name of Georgina, we read: "We have never yet seen any double varieties of *G. crocata* or *G. coccinea*." The former was a pale yellow flower similar in form and size to the latter.

Among other contemporary evidence I would point out the excellent figure of *D. coccinea* in Roscoe's *Floral Illustrations of the Seasons*, 1831, pl. 36. It is a pure single with eight radial florets, and in the text there is no mention whatever of any double form of that variety. Willdenow's figure of *Georgina coccinea* (*Hort. Berol.*, tab. XCVI.) represents as perfect a single flower as can be, it having eight ray florets and not differing in any way from others of the time.

What a remarkable metamorphosis, then, must have occurred if we are to believe the statement to which I have taken so decided an exception, if between 1806 and 1808 Hartweg grew *D. coccinea*, with the result that is claimed for him, and yet nobody out of all the eminent horticultural writers of the day ever referred to it or

The last and most irresistible piece of evidence, negative it is true, but none the less of the greatest importance in proving my point that Hartweg did not and never could have obtained this fabulous double Dahlia coccinea at one swoop between 1806-1808, is a reference to Hartweg's own work, the *Hortus Carlsruhanus*. If Hartweg had accomplished such an unparalleled feat he would, of all the growers of the period, have been the proudest man in the Dahlia world, and his achievement would, it is reasonable to suppose, have been recorded by his compeers. But if for any reason they had neglected to credit him with doing what no one else had done, Hartweg would himself surely never have omitted to do so when he published his *Hortus Carlsruhanus*.

If we turn to that work, p. 126, Georgina, we find that he places on record three varieties of the *D. frustranea*—viz., *D. coccinea*, *D. crocea* and *D. flava*—as being in the collection under his charge. There is no further comment on them excepting the colour given in German. Under the heading *D. variabilis*, which was Willdenow's name for Cavanille's *D. pinnata*, Hartweg adds a note, "plures varietates simplicis et plenis." Is it not most extraordinary that if Hartweg did obtain a double form of *D. coccinea*, otherwise a Pompon, he should have suppressed all mention of it in the very work in which he had full opportunity of putting his success on record? The thing is inconceivable, and the conclusion to be drawn is that as he had never seen and never knew of a double coccinea he could not make any mention of it.

That, I submit, once and for all disposes of the claim made by English writers on behalf of Hartweg's supposed raising of the Pompon.

C. Harman Payne.

(To be continued.)

VEGETABLES.

HARVESTING ONIONS.

THE keeping power of Onions is much aided by good drying and exposure to sun. Ordinarily they are merely left exposed on the ground for a while, when if the weather is dry and sunny they ripen fairly well. But even in these favourable circumstances it is preferable to raise them off the surface of the earth, and this may be done with the aid of a few sticks or stakes. Two or more pairs of stakes are thrust obliquely in the ground and tied at the top where they cross; to these are attached horizontal sticks. The arrangement is shown in fig. 49, in which three horizontal Bean stakes are supporting one hundredweight of Onions. The leaves, partially withered, are tied end to end as in the first stage of a reef knot and hung on the support; single ones may be attached to the level or oblique rods by "Blackwall" hitch. This form of structure is also useful for protecting late Peas, Dwarf Beans, and other crops, from early frost, wet or cold nights; in these cases it is preferable to join the ends of the supports with short lengths of bent lead pipe, instead of crossing them; canvas, old sacks, or other material is then thrown over to shelter the plants. If the protecting material does not come too low down it need not be removed during the daytime if the weather is unfavourable. II. E. Durham.

ACREAGE OF HOPS.—The preliminary statement compiled from the returns of the Board of Agriculture collected on June 5, 1916, dealing with the acreage under Hops in each county of England in which Hops were grown, with a comparative statement for the years 1915 and 1914, shows that during 1916 19,499 acres in Kent were under Hops, as against 21,335 acres in 1915, and 22,626 in 1914. Hereford follows Kent, with an acreage of 4,645 in 1916, 5,405 in 1915, and 5,507 in 1914. The county in which the next highest acreage of Hops is to be found is Sussex, with 2,656 acres in 1916, against 2,864 and 3,036 in the two previous years.



FIG. 48.—*CAMPANULA ACUTANGULA*: FLOWERS PURPLISH-BLUE.

(See p. 119.)

been taken by the raisers, much less the complete operation.

D. pinnata grown in different circumstances by Hartweg, in a different climate, and in a different country from the one depicted by Cavanilles in his *Icones*, had developed itself more fully than the other plants of it; but it was as yet a long way from being a double Dahlia as we understand the term today.

And now a few observations about *D. coccinea*. It will be remembered that in my article in *The Dahlia Year Book*, 1915, I referred to Sabine's division of the old Dahlias into two species, *D. superflua* and *D. frustranea*. In the latter species the varieties *D. coccinea*, *D. crocata*, etc., were grouped because they were those with infertile ray florets. And if the varieties of *D. superflua* showed signs of doubling after some few years of cultivation it is equally certain that the varieties of *D. frustranea* were just as obstinate in not doing so. *D. coccinea* is sometimes represented in the old figures with eight radial florets, in others it has nine.

In 1818 Sabine says of this species that it does not seem to possess the property of variation like the other. It generally has twelve or more florets

figured it in any of their writings, and that some, like Sweet, twenty years after, should have stated positively that they had never seen a double *D. coccinea*.

I had almost forgotten William Smith's description of double Dahlias quoted in my article in *The Dahlia Year Book*. In that he, too, says "the varieties of *D. frustranea* have but little multiplied, and no double flowers of that species have yet been produced." And this after the Horticultural Society's collection had been enriched by the addition of varieties sent by Mr. Van Eeden, of Haarlem, who had got his collection from various countries on the Continent where Dahlia growing had been going on for years.

Really, it seems needless to prolong the argument, and I should not be so insistent upon the subject to which I have devoted much time and patience in passing through the critical sieve of careful examination all the literary and historical matter it has been possible to accumulate, but for the fact that I know by experience that some future writers on the Dahlia will adopt without independent inquiry the same old story of the Pompon's origin as set forth by Richard Dean.

NEW OR NOTEWORTHY PLANTS.

COLLETIAS.

(Continued from p. 109.)

Now, with reference to the name *C. spinosa* as applied to the cultivated plants. It has sometimes happened that when the nomenclature of an old garden plant comes to be investigated the name is found to be wrong. The older (and I fear sometimes also modern) botanists, when a newly introduced plant had been brought to their notice, of which they possessed no specimen, and which bore some resemblance to a published figure, often considered it to be the same plant as that figured, without taking into account any difference of locality, and in spite of differences observable between the plant and the figure, which were usually attributed to the latter being a bad drawing. That is precisely the case with this species. When I came to investigate the claim the garden plants had to be called *C. spinosa*, I found that one of the greatest botanical muddles had been made that I have ever attempted to unravel. There are more than twenty species of *Colletia*, all very similar, but all distinct, all very spiny, and in appearance all equally entitled to be called *spinosa*, and all are local in their geographical distribution. However, the original *C. spinosa* was described and figured by Lamarck in 1793 (Lamarck, *Illustr.* vol. 2, p. 91, t. 129), and he quotes for it a specimen collected by Commerson in Brazil (meaning Uruguay or Buenos Ayres), and another collected by Joseph Jussieu in Peru, but states under the explanation of the figures that the figure is from a drawing made by Joseph Jussieu, who resided in Peru for many years. This statement appears to have been overlooked by all authors, but it is of great importance, for, as there is no word in Lamarck's description that does not accord with this figure, there can be no doubt that it is this Peruvian plant collected and drawn by Jussieu which must be accepted as the type of *C. spinosa*, and not the Brazilian (Buenos Ayres) plant collected by Commerson, which, as I shall presently show, is utterly different.

In 1897 Willdenow changed the name of *C. spinosa* to *C. horrida*, without assigning any reason whatever, actually founding the name upon Lamarck's figure, not upon any specimen. Therefore the name *C. horrida*, Willd., is an indisputable synonym of *C. spinosa*, Lam., and cannot be retained for any other plant.

Then, in 1829, Hooker described and figured (Hooker, *Botanical Miscellany*, vol. I, p. 155, t. 44, fig. A, flower only) a species of *Colletia* collected by Bridges in Chili as being *C. spinosa*, but which is an entirely different plant, rightly discriminated by Miers under the name of *C. pungens*.

In 1861, Miers, in his *Contributions to Botany*, vol. I., published a monograph of the genus, adding several new species. In preparing this monograph he consulted the type of *C. spinosa* in the Jussieuan Herbarium at Paris, but in some unaccountable manner has gone out of his way to take as the type of *C. spinosa* the Buenos Ayres plant collected by Commerson. For on p. 253 of the above work, under *C. spinosa*, Miers states that he saw and examined the specimens of *C. spinosa* quoted by Lamarck (i.e., those of Commerson and of Jussieu), and says that they "are preserved in the Jussieuan Herbarium, and fastened on the same sheet. Commerson's specimen above described appears to be that figured by Lamarck as *Colletia spinosa*; Jussieu's plant, of which there are two small specimens, one in flower, the other in seed, corresponds with another larger specimen collected also in Peru (Tarma) by Dombey, which I have described under the name of *C. aciculata*."

Lamarck's figure, though coarsely drawn, is tolerably correct; but the spines in the specimen are longer than are those represented, and not at all curved." This is the account Miers gives of the types of *C. spinosa*, and he accepts Commerson's specimen from Buenos Ayres (or perhaps Uruguay) as the type of that species, in spite of the difference he mentions with regard to the spines and a difference in the leaves and flowers which he does not mention, and the fact that Lamarck states that the figure was made by Jussieu from a Peruvian plant which does not grow within 1,000 miles of the plant Commerson collected. In Miers' own Herbarium, now at the British Museum, there is no piece of the specimen collected by Jussieu, but there are small branches from all the other specimens mentioned by Miers. These I have examined. The specimen of Commerson, which Miers figures and describes as *C. spinosa*, is from a plant which is probably not uncommon in the coast region of Buenos Ayres and Uruguay, and is identical with that which Miers describes as *C. atrox*! Anyone looking at the figures of *C. spinosa* and *C. atrox* in Miers' *Contributions to Botany*, vol. I., t. 34, figs. A and D, would say that I must be mistaken, and that they must represent different plants. But I have examined the actual branch from which the figure of *C. atrox* was made. It is now in



FIG. 49.—A SIMPLE METHOD OF DRYING ONIONS.
(See p. 120.)

the Miers collection, but originally formed part of a specimen at Kew, and was collected in Buenos Ayres by Tweedie. Miers' figure of this branch is correct as to the disposition of the branchlets or spines, but is a very clumsy and inaccurate drawing, the bases of the spines being represented much too broad and too much flattened, giving a false impression of the plant; they are, in fact, more nearly as represented by Miers in his figure of *C. spinosa*, being only slightly compressed at the base. At any rate, the plants figured by Miers as *C. spinosa* and *C. atrox* are unquestionably one and the same species (branchlets with terete spines and others with them slightly compressed at the base being found on the same branch), and *C. atrox* should be the accepted name for it. *C. atrox*, apart from the very different habit and much longer (8-16 lines long), more spreading, and stouter spines, is at once distinguished from the true *C. spinosa* figured by Lamarck by the very narrowly lanceolate acute leaves, $1\frac{1}{2}$ -2 lines long and $\frac{1}{3}$ - $\frac{1}{2}$ line broad, and by the very much shorter filaments of the stamens, the anthers being almost subsessile and scarcely exerted, whilst in *C. spinosa* the anthers are well exerted on very evident filaments.

As quoted above, Miers states that the specimen collected by Dombey at Tarma, in Peru, corresponds with Jussieu's Peruvian specimen.

I have examined the branches of Dombey's Tarma specimen in the Miers Herbarium (British Museum), and they appear to me to so well agree with Lamarck's figure that I have little doubt that they really represent the true *C. spinosa*, Lam., especially as Miers states that Dombey's Tarma specimen is the same as that collected by Jussieu. They are from the right country, the habit is much as represented in Lamarck's picture, the spines are slightly curved, mostly 5-6 lines long, but range from 3-8 lines in length, thus agreeing with the figure in which they are represented as being 3-7 lines long, and the flowers have the anthers exerted on distinct filaments, $\frac{1}{2}$ line long, just as represented in Lamarck's figure. But Miers states that this Tarma plant is his *C. aciculata* (*Contributions to Botany*, vol. I., p. 263, t. 36, fig. c). The figure of *C. aciculata*, however, on account of its much shorter spines, could not have been made from the Tarma specimen, and was probably made from a specimen labelled "Retama, Peru, Dombey," of which there is a small branch in the Miers Herbarium, which is stated to have been "mounted on the same sheet as the typical species *Colletia spinosa* in the Jussieuan Collection Hb. Mus., Paris." This branch is certainly not the one that the figure was made from, but agrees with the figure in its short and slender spines, which are about 3 lines long. But, in spite of this difference in the length of the spines, I am inclined to agree with Miers in considering it to belong to the same species as the Tarma specimen, for, except in the spines being shorter and more slender, there seems to be no other distinction: the flowers and the minute spreading pubescence on the branches are the same as those of the Tarma specimen. As other species vary as much in the length and slenderness of the spines, I think it probable that both specimens belong to the same species, and that species I believe to be the true *C. spinosa* of Lamarck.

Coming now to the name *C. spinosa* as it exists in gardens, fresh trouble is encountered, for, from the evidence of dried specimens at Kew, it is clear that at least two distinct species are cultivated under this name, which, although similar and likely to be mistaken for one another when seen separately in different gardens, are easily recognised as being different when compared by their habit, pubescence, leaves and flowers.

One of these is the plant figured in the early half of the last century in the *Botanical Magazine* and *Botanical Register* as *C. horrida*. Of this plant, strange to say, there exists no wild specimen either at Kew or at the British Museum, nor can I find any description of it; therefore, as it is most certainly not the same as the plant figured by Lamarck as *C. spinosa*, and the name *C. horrida*, as I have above shown, is a synonym of that species, I feel compelled to give it a new name, and propose to call it *C. infausta*. This is a case of a garden plant posing under a false name for the best part of a century through a wrong identification, which the difference in the native country, the shape of the leaves, and the subsessile anthers, ought at once to have prevented from being made.

The other is a plant cultivated at Kew under the name of *C. spinosa*. This proves to be *C. armata*, Miers.

Of these two garden plants I here give descriptions, and add descriptions of two new species, which may sooner or later become introduced into cultivation.

The plant figured by Brogniart in 1827 in the *Annales des Sciences Naturelles*, vol. 10, p. 366, t. 14, as *C. spinosa*, is not like either of the garden plants, and I do not know to what species it rightly belongs, but perhaps to *C. ferrox*, Hooker. *N. E. Brown*.

(To be concluded.)

NOTE FROM AUSTRALIA.

PHOENIX CANARIENSIS.

As the result of acclimatisation experiments, mostly conducted at these botanic gardens during more than a century, it has been proved that a very large number of Palms will grow, and even flourish, in the open air. At the same time, a visitor to Sydney would not be impressed with the extent to which such a decorative class of plants has been employed in the streets and in private gardens.

The serious responsibility was cast upon me of selecting a Palm which could be used for street and avenue planting, and which, whatever the taste of private citizens might be as regards their own gardens, would make the Palm a conspicuous note in the Sydney landscape. After much consideration and inspection of practically every Palm that could be found in the Sydney district I decided on *Phoenix canariensis*. The plant that led me to this decision is 36 feet high, has a trunk diameter of 3 feet at 3 feet from the ground, and the spread of the branches is 30 feet. The tree is in an unsheltered situation in what is known as the Garden Palace Grounds. Its history is not clear, but it is over 30 years old, and where it originally came from I cannot ascertain.

The first plantings of a mile-long avenue in the Centennial Park were made about twelve years ago from *Phoenix canariensis* Palms of uncertain origin. Of late years our supply of seeds has been obtained from Dr. G. V. Perez, of Tenerife.

I think much of the Palm and have planted it in our principal street, and in the Centennial Park, which I suppose is the largest improved park south of the equator, and have recommended the species to the City Council for planting in Moore Park and elsewhere.

We distribute large numbers of these Palms every year for public purposes, largely in exposed, poor, sandy situations near the sea. Such situations present a special problem with us, and I think it is going to be our first line of defence, inside which we can plant crops and other vegetation.

This Phoenix has done admirably on the Government Experiment Farm at Yanco on the Murrumbidgee Irrigation Area in moderately dry lands, about 370 miles south-west of Sydney.

I think that the Palm is capable of being very usefully employed in many parts of New South Wales, having proved adaptable to the xerophytic conditions of the coastal sandy strip, and of the drier lands approaching the interior. How far it can be usefully employed towards the interior is a matter for experiment. Personally I think it is going to be a valuable plant to protect such difficult districts.

I note that the *Kew Bulletin* states that a hybrid has been raised between *Phoenix sylvestris* and *P. canariensis*. We find that *Phoenix* hybridises in these gardens, and we have a number of Palms whose botanical position can only be expressed on the assumption that they are hybrids. *J. H. Maiden, Botanic Gardens, Sydney.*

BACTERIAL WILT OF CUCUMBERS.—In an interesting paper on the "Transmission and Control of Bacterial Wilt of Cucurbits," F. V. RAND and ELLA M. ENLWS have confirmed the discovery of SMITH that the bacterium responsible for the wilt disease (*Bacillus tracheiphilus*) is carried from plant to plant by the striped cucumber beetle. Attempts to discover wilt-resistant Cucumbers have so far met with no success, although some varieties have proved more susceptible than others. On the other hand, among squash Melons two varieties, Mammoth White Bush and Early White Bush, are resistant to this disease. The disease may be controlled by early spraying with a mixture of Bordeaux mixture and arsenate of lead.

The Week's Work.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

TRANSPLANTING EVERGREENS.—This work should be commenced at once. From now until the end of October the soil will still be warm, which is essential if young roots are to be produced directly the trees are planted. In heavy, retentive soil, lifting and transplanting can always be carried out in a satisfactory manner, as large balls of soil can be removed with the roots. In light soil it is difficult to get much soil to adhere to the roots, especially if the trees have to be moved a considerable distance. In this case mats may be tied round the roots before removal. In shifting a tree or shrub, no matter what the size may be, dig well below the roots, and, with a fork, approach the roots gradually, reducing the ball of soil to a manageable size. Where new ground is to be planted, it must first be trenched. The holes should be made much larger than the roots actually require, so as to allow of plenty of space to spread them out and to form a suitable bed for the young roots to work into. Tread the soil firmly when filling in the hole, and place stakes or supports in position directly the planting is finished. Liberal watering and occasional spraying will be necessary, until heavy rains set in. If trees or shrubs are purchased from a nursery, select those that have been regularly transplanted, as they will have an abundance of good, fibrous roots.

PROPAGATING VIOLAS.—Prepare sandy beds or borders in a partially shaded position. Young growths, about 3 inches in length, taken from the base of the plants, are suitable for propagation. Little or no trimming is necessary. Insert the cuttings about 3 inches apart with a blunt dibber, and press the soil firmly around them. After planting, water through a fine rose to settle the soil, and occasionally during dry weather. In cold, wet districts a good method is to root the cuttings in a prepared bed in shallow frames. The lights should not be placed over them before the end of the next month, unless the weather is very wet. Air must be given on all favourable occasions.

PROPAGATING FUCHSIAS.—If large plants are required for next year's bedding, insert the cuttings now in 3-inch pots, using a light, sandy compost, placing them in shallow, heated pits or frames. When rooted, remove to shelves in the plant-houses, near the roof. Syringe the plants twice daily, and let the temperatures range from 55° to 60°. Place in larger pots before the roots are crowded, using a rough compost of turf, manure, and leaf-mould, sand, and a small quantity of wood-ash. Keep the plants growing steadily through the winter. The hardy varieties may be dibbled in boxes, pots, or slightly-heated shallow frames. Protection from frost will be necessary.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

DENDROBIUM.—Plants of the noble section of *Dendrobium* are finishing their growth, which may be determined by the appearance of the terminal leaf at the top of the pseudo-bulb. Directly this leaf is developed remove the plants to a cooler and drier house, and expose them fully to the sunlight, to ripen thoroughly the new pseudo-bulbs. In these conditions the compost will dry rapidly; care must therefore be taken to keep the roots well supplied with water, or the pseudo-bulbs will not be consolidated, in which case the plants would in all probability make premature growth, instead of remaining dormant until the spring. After *Dendrobiums* have completed their growth the change of treatment should be gradual. They should be arranged at the cooler end of the house, the bare spaces in their immediate neighbourhood should not be

damped, and the ventilators directly over the plants left open for a longer period. Eventually the plants may be suspended from the roof-rafters of a vinery from which the Grapes have been gathered, or they may be stood on a shelf in a similar house. Sufficient water is needed to keep the pseudo-bulb plump and the roots healthy. After the soil has been watered thoroughly it should be allowed to become dry before watering it again. Species and hybrids that have completed their growth include *D. nobile*, *D. crassinode*, *D. aureum*, *D. Wardianum*, *D. Curtisii*, *D. Ainsworthii*, and others. Other *Dendrobiums* that are still growing freely should be afforded every encouragement to finish their growth as early as possible. *D. Dearei*, *D. atroviolaceum* and others of similar habit should be rested in the Cattleya house, where *D. Phalaenopsis* and *D. formosum giganteum* may remain during their flowering period.

CHYSIS.—The foliage of the more forward plants of *Chysis* is beginning to change colour, and the pseudo-bulbs are showing signs of maturity. Remove the plants to the Cattleya house, in a position close to the roof-glass, and do not water the roots so frequently as hitherto. When the foliage has dropped but very little root watering is needed. Plants that are still growing freely should be placed in the warmest house, especially those that have been cultivated in cooler conditions, and kept well supplied with moisture during the next few weeks. They need plenty of sunlight, or the pseudo-bulbs will be weak and the flowers poor in quality.

LAELIA PUMILA.—*Laelia pumila* and its varieties may be repotted when new roots appear at the base of the partly developed pseudo-bulb. They should be grown in shallow pans, which may be suspended from the roof-rafters of the intermediate house. The pans should be well drained. A mixture of *Osmunda*-fibre and *Sphagnum*-moss should be employed as a rooting medium. *L. pumila* never requires a large amount of water, but the roots must not be allowed to become dry at any time.

RESTING ORCHIDS.—When *Catasetums*, *Mormodes* and *Cynoches* have lost their foliage the roots only require water at long intervals. *Thunias* should be placed on a shelf and kept quite dry at the roots until they commence to grow again in the spring. *Schomburgkias* should be kept on the dry side, but the roots should receive sufficient water to keep the leaves plump.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

TULIPS.—Pots or bowls for Tulips should be filled with a compost consisting of loam, leaf-mould, manure from a spent Mushroom bed, and coarse sand. Plunge the pots in a bed of ashes in the open. Early-forcing Tulips are not obtainable in the usual varieties this season, but the following are procurable and may be relied upon to force fairly well: *Vermilion Brilliant*, *Van der Neer*, *Primrose Queen*, *Maréchal Niel*, *Couleur Cardinal*, and *Prince of Austria*. For later blooming choose *Murillo*, *Clara Butt*, *Farncombe Sanders*, *White Swan*, and *Orange King*.

NARCISSI.—If Daffodil bulbs are required to flower early pot them at once; those for supplying cut blooms may be grown in boxes. For either purpose the soil should be of a fairly substantial nature. The varieties *Paper White*, *Golden Spur*, *Emperor*, *Sir Watkin*, *Madame de Graaff*, *Barrii conspicuus*, and *Elvira* may all be relied upon to force well; the last should not be forced very early.

GLADIOLUS.—Early-flowering *Gladioli* are most useful for supplying cut blooms for the decoration of vases. For this purpose the corms may be potted fairly thickly in 6-inch pots filled with rich soil. Place the pots in a cold frame and cover them with sifted leaf-mould until growth is active. They may then be placed in a cool house near the roof-glass. The following varieties are suitable for forcing: *Ackermannii*, *Peach Blossom*, *Non Plus Ultra*, and *The Bride*.

LILIUM.—Various Lilies may be potted new in 6-inch pots filled with a rich compost. Leave room in the pots for a top dressing of soil later. Place the pots closely together in a cold frame and cover them with fibre. The plants will not need much water until they commence to grow actively. Remove them to a light position in a cool house when they have made about 2 inches of top growth.

FUCHSIA.—A few plants of Fuchsia should be raised every year. Cuttings may be rooted now or in the spring. If suitable shoots are available it is an advantage to propagate them now, as autumn-struck plants are the best. Insert the shoots in sandy compost around the sides of 5-inch pots. After watering the soil plunge the pots in a fairly warm hotbed and keep the cuttings shaded from bright sunshine until they are rooted.

HOUSING PLANTS.—Cyclamens, Primulas, Bouvardias and Pelargoniums should be removed from cold frames to a light, airy greenhouse. Let the houses be first thoroughly cleaned both inside and out, as the plants need all the light possible during the autumn and winter.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

MELONS.—These plants must now be hastened forward by closing the house early with sun-heat, and giving moisture according to the state of the fruit. This early closing will economise fire-heat, but, nevertheless, the time has now arrived for warming the pipes. Watering and syringing will require careful attention. In the case of late plants in pots, all the feeding-roots are close to the sides of the pots. Do not force the fruits beyond the normal size by too much feeding, as medium-sized fruits will keep longer and are of better flavour. Frame Melons will now be nearly over, but if any fruit remains unripe, the plants must not be allowed to flag. At the same time, the supply of water must be limited, otherwise the fruits may crack and will be deficient in flavour. The bottom-heat should be tested, and if found too low it must be raised to the required temperature.

FIGS.—Early trees from which the second crop of fruit has been gathered should be cleared of all small fruits and of useless shoots, and well syringed to cleanse the foliage from insects. If trained over trellises, and not too near the glass, no further tying need be done, as the shoots will draw up to the light and become thoroughly ripened. If any root-pruning is considered necessary, now is the time to commence operations by removing some of the compost, care being taken to see that the balls are thoroughly moist prior to the operation. If the trees are extra strong, shorten all the roots, otherwise cut away the stronger and shorten the weaker. This operation hastens the ripening of the old leaves; but if the trees are kept moist they will hang on until fresh roots enter the new compost. Old pot trees may be treated in a similar manner by reducing the roots, picking out the corks, and repotting in the same sized pots. Younger trees do not require this treatment, as the compost must be full of roots to ensure successful forcing, and top-dressing will be found sufficient unless it is desired that the trees shall extend beyond the space they now fill. Late houses will still be affording a few small, but well-flavoured fruits, and it will be necessary to withhold the syringe and much damping, and to prevent condensation of moisture by warming the pipes before night-fall.

LATE GRAPES.—If the berries in late vinerias are not ripe or ripening, use a little fire-heat, and let the air circulate freely by opening the ventilators. Keep the laterals pinched to allow the sun's rays to enter the house. Water the border on the morning of a fine day.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOLE, Eastwell Park, Kent.

THE LOGANBERRY.—This crop being now gathered, the old fruiting canes should be cut away at the base and burnt. The young growths can then be trained in their permanent places, in

any form desired. In private gardens a convenient method is that of training the long canes over a trellis or fence. They have thus ample room to develop, and in good soil they will throw up canes of immense length. These should be very thinly trained.

APRICOTS.—When the trees are cleared of their fruits and the nets taken off, strong late growths should be removed and all others regulated, so that all the wood can have the full benefit of the sun. See that the trees planted under glass copings or protectors do not suffer from dryness at the roots. Such trees are apt to be overlooked in the matter of watering, particularly after the fruit is picked. Keep the surface soil broken to prevent cracking, but do not apply fresh mulchings at this season. Young trees making unduly strong growths should be marked for transplanting next month. If older and well-established trees show this tendency, root-pruning should be carried out next month; it is best to do half the roots one season and the remainder the following year. In the event of a hot, dry season occurring after a large tree has been wholly root-pruned, it is apt to cast its fruits and fall into bad health.

FILBERTS AND COBNUITS.—Nuts are extremely scarce this season. Especial care should be taken to harvest them in good condition, as they will be very valuable. The crop should be watched, and the nuts picked at the first sign of separating easily from the husks. They should be well dried before storing in a cool and fairly dry place, taking care to prevent attacks by rats and other vermin.

WASPS.—Though over 1,300 queen wasps were caught in and near these gardens, we are now suffering from a veritable plague of these troublesome and destructive pests. The hot, dry weather experienced during the latter part of July and throughout August appears to have been very favourable to their development. Every effort should be made to locate all nests, marking them during the day and returning in the evening, when the majority of the wasps have returned to their nests, to destroy them. Cotton-wool, soaked in a solution of cyanide of potassium, and thrust into the nest, is a cleanly and effectual method of destruction. As cyanide of potassium is a deadly poison, it must never be left about, but put in charge of a responsible person and kept under lock and key. Tar-water (the refuse from gas works) is also good, being cleaner than and quite as effectual as gas-tar, which is an old remedy.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

BEET.—Early Beets should be lifted, or they may develop into coarse roots of poor texture and colour. Do not bruise or otherwise injure the tap roots, for should they "bleed" the flesh would be a pale colour when boiled. Beet may be stored in a bed of ashes in a cool shed or in a clamp out-of-doors. If a clamp is made, cover it with a sheet of corrugated iron; the roots will then keep in perfect condition.

POTATOS.—Lift the tubers as they become ready, or they may make secondary growth, in which case the quality would be impaired. Disease may also spread to the tubers if they are not dug when the tops are ripe. Collect and burn all diseased haulm and tubers.

CABBAGES.—Plants raised from seed sown in July are ready for transferring to their winter quarters. Ground previously occupied by Peas is suitable. Dress the soil lightly with slaked lime, and fork it well below the surface. It is not necessary to trench the ground for this crop. Cabbages may also be grown on ground previously occupied by Potatos, and in this case the soil will need but little preparation beyond dressing it with lime and forking it in. As Early Cabbages are often cut for use when the heads are small, choose varieties such as Ellam's Early and Harbinger, and plant them 1 foot apart in each direction. Every other plant may be cut as soon as they are large enough for use, and the remaining ones left to mature. Plant the larger varieties at 18 inches apart in the rows, which should be drawn at distances of 2 feet. Firm soil is essential.

CELERY.—If paper collars are not used for blanching the stems, earth up the early Celery plants as they need this attention. Earthing up Celery is usually done by two men, one holding the stems together whilst the other places the soil in position. But it may be done by one man by placing a long line at one end of the row and coiling it once around each plant, just below the leaves, finally tightening it sufficiently to hold each plant securely in position without injury. The line may be easily removed after the soil is placed in position. Before commencing the work, take care that the roots are moist and that the stems are perfectly dry.

THE APIARY.

By CHLOEIS.

ISLE OF WIGHT BEE DISEASE.—For some time I have been interested in two apiaries 16 miles apart, worked under widely varying circumstances, but with the same gratifying results. Both apiaries are in districts where Isle of Wight disease has wiped out all the bees, my own among the number. For the sake of distinguishing the two bee-keepers I am describing we will call them A and B. A keeps his bees in skeps or boxes, and B in bar-frame hives. A's bees swarm freely, and each swarm is placed in a new box or skep, so that the comb-building is done by the bees, and hives left to stand until the next spring are always heavy. The inmates need no artificial feeding, and are always headed by a second-year queen. The bees kept by B are also allowed to swarm freely, and the swarms are placed in hives in which only narrow strips of foundation are used as starters. This has been done with no other object than economy, but the swarming is permitted for the following reason. The owner is an organist, and when he gets stung his hands swell so much that he cannot play. The bees are always allowed to bring into play their power of comb-building, thus permitting nature to follow its course. All bee-keepers, myself included, have been endeavouring to raise a strain of bees which will not swarm, and in this way have been transgressing nature's laws. For when any organs are not utilised in the manner intended they become weak and more liable to disease. This, I fear, is the case with bees, and, if so, we are suffering for our own transgressions. I have watched these two cases for three years, and have often wondered why the bees have succeeded in remaining healthy when all the neighbouring ones have perished. It is only recently that I have thought that, as the Nosema apis (the Isle of Wight disease parasite) attacks the stomach of the bee, whence come the secretions of wax, it may be that it is the lack of opportunity to secrete wax which leads to attacks of the disease. It is plain that, in order to preserve health, every organ should be allowed to fulfil its natural function, and I suggest that we should allow the bees to build their combs, and only use starters as guides to keep them to the frames. To do without starters altogether would probably be fatal. It is, perhaps, dangerous to generalise from two isolated apiaries of 15 to 20 hives, but the idea is worthy of consideration and trial. It is only by experimenting that we can arrive at any method of eradicating this disease.

GENERAL HINTS.—Now that the end of the honey flow has practically come all the entrances should be considerably contracted to help to prevent robbing. It is easily encouraged by wide entrances, but most difficult to cure. When removing surplus stores be careful to see that all parts of the hive fit closely, so that admission to the hive cannot be obtained through some crevice caused by hasty refitting of removed portions. Most of the supers should now be removed. Where extracting has to be done, perform this operation as soon as possible after reaching home, for while the combs are warm the honey is more liquid, and therefore the combs will be more completely emptied. If a stock be short of stores in the brood chamber it may be utilised for clearing out the honey left in those combs coming from the extractor. For this purpose it is best to return them in the late evening, taking care not to spill any honey on the ground.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPTEMBER 11—

United Hort. Ben. and Prov. Soc. Com. meet.

TUESDAY, SEPTEMBER 12—

Roy. Hort. Soc. Coms. meet. and Nat. Dahlia Soc. Show. (Lecture at 3 p.m.)

THURSDAY, SEPTEMBER 14—

B.G.A. (Watford Branch) General meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.8°

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, September 7 (10 a.m.); Bar. 29.8°; temp. 64°. Weather—Sunshine.

Leaf-Roll of Potatos.

Among the many maladies which affect the Potato, more than one produces the external symptom of a rolling or curling of the leaf. Lack of potash, for example, may be recognised by the downward curling of the leaf margins. Cigar-shaped rolling of the leaf is a symptom of a fungous disease, and when present in the tuber is recognisable by the brown discoloration of the woody elements near the heel end.

The disease to which the term leaf-roll is most generally applied has long baffled inquiry. The symptoms are known, and the means of accurately diagnosing the presence of the disease have been discovered, but the nature of the cause of the disease has hitherto remained obscure.

An important contribution to our knowledge of this subject has just been made* by Dr. H. M. Quanjer, of the Phytopathological Institute of Wageningen, and his colleagues of that Institute.

We are indebted to Dr. Quanjer not only for a research of great practical importance, but also for publishing his results in English as well as in Dutch. Those engaged in the cultivation of Potatos on a large scale should procure a copy of Dr. Quanjer's work, if only for the sake of the general conclusions and the illus-

trations of the symptoms of leaf-roll disease.

The external symptoms of leaf-roll are rigidity, a yellow discoloration of the lower leaves and a rolling upward of the borders of the leaflets. In later stages the rolling occurs in all the leaves, and on their tops and margins black patches appear. The rolling may be distinguished from that occurring in potash-starved plants by the fact that in leaf-roll the margins curl upwards and in potash-starvation downwards. The disease may appear in a virulent or in a belated and milder form. In the former case it appears early, the plants remain small and the yield of tubers is but slender. In its milder form the disease only appears late, and the yield is unaffected. But—and the fact is of the first importance—tubers affected by the disease in the apparently mild form give sets which exhibit it in the acute form. Whence it seems reasonable to infer that the acuteness or mildness of attack is due only to time of infection. If infection occurs early, as in the case of plants raised from tubers already affected by the disease, the disease gets a thorough hold of the young plant; but if infection occurs late, when the plant has already made good growth, the damage done by the disease is less.

This, however, is to anticipate, for until the appearance of Dr. Quanjer's researches there was, so far as we know, no evidence that the disease is due to infection.

A careful and extended study of the disease in the field and laboratory has enabled him to reach certain definite conclusions, the most important of which may be now stated.

The surest method of diagnosis of this disease consists in a microscopic examination of the tissues of an infected plant. Sections across the stem or leaf show that the phloem (bast) of such a plant is affected. The elements of this tissue become brown, the walls of the sieve tubes become swollen and pressed together, and the cavities obliterated. In advanced stages of the disease the walls of the phloem strands take on a yellow-brown colour.

Now, it is known that food materials travel up and down the phloem, and hence any interference with these highways of communication means starvation to the plant. This starvation is indicated by the rolling and discoloration of the leaf. Inasmuch as leaf-roll appears to be primarily a disease of the phloem, Dr. Quanjer has named it Phloem-Necrosis. We may add that any practical grower should be able to learn to distinguish these internal symptoms after half an hour's instruction in the use of the microscope and the preparation of sections of plant tissues.

By grafting sound Potato stems on diseased ones and vice versa, and also by grafting halves of diseased tubers from which all eyes had been removed on sound tubers, Dr. Quanjer has demonstrated that the disease may be communicated by diseased to healthy plants. He has not, however, succeeded in discovering the infecting organism, and is inclined to be-

lieve that, as is the case with mosaic disease of tobacco, the "cause" of leaf-roll is to be found in some ultra-microscopic organism. Whatever be its nature, his experiments demonstrate conclusively that the disease is not due primarily to defect of constitution on the part of the plant, but to an organism or virus which the plant takes up from without.

Finally, Dr. Quanjer has proved by elaborate experiments in the field that the agent of the disease passes into the soil and remains capable of infecting Potato plants for at least two years after it has found its way into the ground.

Some varieties are, of course, more susceptible than others. Kruger and Magnum Bonum, for instance. It is probable also, as is, indeed, generally the case with infectious diseases, that physical conditions play a part in rendering plants susceptible, and Dr. Quanjer suggests that in low temperatures the disease progresses more rapidly than in high temperatures.

Whether the disease is transmissible by seed remains uncertain. The few experiments as yet performed appear to indicate that it is.

In conclusion, we may remark that if the results which Dr. Quanjer has obtained are confirmed, they indicate the method by which this disease may be controlled. The method is not an easy one, and only possible of application in a State the horticulture of which is highly organised. The nature of that method is evident. Seed for planting must be free from the disease, and the soil in which stocks of seed are raised must not be infected.

Here is a new use for recently reclaimed land. It is significant that several large farmers in Holland are arranging for the special cultivation of seed Potatos on these lines.

ROYAL HORTICULTURAL SOCIETY.—The committees of this Society will meet as usual in the Vincent Square Hall, Westminster, on Tuesday, the 12th inst. At the 3 o'clock meeting in the Lecture Room, Mr. E. A. BUNYARD will deliver an address on "The History and Development of the Red Currant."

SIR JOHN LLEWELYN, BT.—His many friends will learn with sincere regret that a month ago Sir JOHN LLEWELYN met with an accident, as a result of which he sustained a broken leg. Although the fracture is mending satisfactorily Sir JOHN's general health is not good, and he is suffering moreover from rheumatism. According, however, to the latest news—conveyed in a letter from Lady LLEWELYN to Sir JOHN's old friend, Sir DANIEL MORRIS—he is now making progress towards recovery. It will be the hope of all who have the privilege of knowing Sir JOHN that that progress may be rapid, and that he may be soon restored to health and activity.

DESTRUCTION OF TREES BY POISON.*—In order to destroy trees quickly the use of arsenic and soda is recommended. The solution must be applied when the tree is dormant, and should be poured into a frill ring cut in the bark of the tree down to the wood. For trees 4 feet in diameter about a quart of solution is required. The formula to use is arsenic 1 lb., washing soda 3 lb., water 4 gallons, whitening (to indicate which trees have been treated), 1 lb. Mix the arsenic to a paste, and

* On the Nature, Mode of Dissemination and Control of Phloem-Necrosis (Leaf Roll) and Related Diseases. By Dr. H. M. Quanjer. (Wageningen: H. Veenman.)

* Queensland Agricultural Journal, V., 5, June, 1916.

pour it slowly into the soda solution, stirring all the time. Avoid inhaling the fumes, which are poisonous. Boil, if necessary, in order to obtain a clear solution.

SCOTTISH RAILWAY STATION GARDENS.

The Glasgow and South-Western Railway Company offered prizes in five classes, for the best station gardens on their system, the premiums

Lochanhead; Mr. ANDREW MORRAN, Annbank; Mr. W. R. BECKET, Drybridge; and Mr. ROBERT KELLY, Killywhan. The awards in the station garden competition of the North British Railway Company have also been announced. Two hundred awards have been made. Those in the first class were:—Mr. NICHOLSON, Aberdour; Mr. SHAND, Bervie; Mr.

Mr. BELL, Newcastleton; Mr. GRIEVE, Shankend; Mr. RAMSAY, Singer; and Mr. CUTHBERTSON, Strathblane.

WAR ITEMS.—Urr and Dalbeattie Horticultural Society, an association in the south-west of Scotland, recently held a free gift sale in place of the usual show, the proceeds being in aid of war funds. The sale was opened by the



FIG. 50.—*CAMPANULA RADDEANA*: FLOWERS BLUE.

(See p. 119.)

ranging from £5 in the first class to £1 in the fifth. The following were placed in the first class:—Mr. WM. NICHOLSON, Maxwelltown; Mr. THOMAS COYLE, Dalbeattie; Mr. JAMES CANDLISH, Southwick; Mr. C. AULD, Alloway; Mr. JAS. HOUSTON, Closeburn; Mr. D. KELLY, Holywood; Mr. JOHN IRVINE, Auldgrith; Mr. G. MACDONALD, Moniaive; Mr. JOHN MIRREY,

KIEL, Blackston; Mr. BEATTIE, Bonnyrigg; Mr. WRIGHT, Broomieknowes; Mr. DAVIDSON, Cairneyhill; Mr. AITKEN, Cambus; Mr. CLARK, Grantshouse; Mr. LORIMER, Hawthornden; Mr. STEVENSON, Helensburgh; Mr. RODGER, Innerleithen; Mr. HUNTER, Johnshaven; Mr. STEVENSON, Kirkintilloch; Mr. M'GHEE, Lennoxton; Mr. MURRAY, Lenzie; Mr. FENTON, Melrose;

Countess DE LA WARR, and the receipts amounted to upwards of £150.

—The Treasury has recently granted a war bonus of 4s. a week to all employees at Kew receiving a wage of less than £2 a week.

—Corpl. J. E. TAPPER, youngest son of Mr. F. TAPPER, Westbury Manor Gardens, Brackley, died on August 29, aged 20 years, from wounds

received in action on July 20, and is buried in the Souvenir Cemetery, St. Omer, France.

— A sale of fruit, flowers and vegetables, organised by the Dumfries and District Horticultural Society, for various war relief funds, realised £84, being about £26 more than at last year's sale. Buttonholes alone realised £28.

— A garden fête at Castlemilk, Loekerbie, the seat of Sir ROBERT W. BUCHANAN-JARDINE, Bart., organised by Lady BUCHANAN-JARDINE on behalf of the War Horticultural Relief Fund, realised £800.

— Farmers and horticulturists in the Channel Islands have contributed the sum of £781 to the Agricultural Relief of Allies Committee. The organisers have also promised gifts in kind for distribution among the war-ruined farmers in Belgium, Serbia, Poland and France when the favourable time arrives.

THE EFFECT OF BORON COMPOUNDS ON PLANT GROWTH.—In order to ascertain whether manure treated with boron compounds (to prevent the breeding of flies) may be used for fertilising purposes, Mr. P. C. COOK has carried out* a series of trials on the effect of boron compounds on plant growth. He finds that the form in which boron is present in the soil—whether as borax or colemanite—makes little difference to the amounts absorbed by plants. The power to absorb boron compounds varies considerably in different plants. Wheat and Oats absorb but little, leguminous plants and sappy plants generally, e.g., Lettuce, take up a considerable amount. Only traces are contained in the fruits of Tomatos grown on soils to which boron compounds are added. The presence of boron in soils does not affect adversely the yield of the crop. In the case of Tomatos it made no difference; in that of Wheat it produced a certain increase. For the destruction of fly larvae not more than $\frac{3}{16}$ lb. of calcined colemanite should be added to 10 cubic feet of farmyard manure.

PLANTS FOR BRITISH HOSPITALS IN FRANCE.—The Board of Agriculture and Fisheries is informed by the Foreign Office that the French Government has consented to authorise until further notice the entry into France of all plants forwarded from England to British hospitals and cemeteries in France, although not accompanied by the certificates required under the Phylloxera Convention. When consignments of plants are being sent to France for other purposes, consignors should be careful to make the necessary arrangements to procure the required certificates.

GLUCOSE FOR JAM AND FRUIT PRESERVING.—On page 55 we drew attention to the value of glucose for jam making, as recommended by the Board of Agriculture. The Board now issues the following details for its use:—1. Not more than one part of corn syrup should be added to two of sugar, i.e., the syrup should be 33 per cent. of the preservative, and the weight of the sugar and syrup should be approximately equal to the weight of the fruit used. (The correct proportion varies slightly with the kind of fruit used.) 2. The jam should be boiled until it is of the right consistency. The usual test for this is to dip a knife into the boiling jam and see if the jam will bang from the edge in a drop. Jam which contains more than 35 per cent. of water will not keep. 3. The jam should be covered with waxed paper, or a thin sheet of paper dipped in some spirit, such as whisky, to prevent the introduction of mould spores, and then tied down tightly with another sheet of paper. Corn syrup contains about 20 per cent. of water, and is not so sweet as sugar. This is not a disadvantage to those who like to retain the full flavour of the fruit in their jam, but those who prefer a very sweet jam should use a smaller proportion of the syrup. The syrup makes jam "set" better than sugar, and prevents recrystallisation, a common fault in home-

made jams. The wholesale price is at present less than two-thirds of the wholesale price of sugar, and corn syrup can be obtained in 6 cwt. barrels, which should permit it to be sold retail at not more than 4½d. a pound. It can be obtained from some manufacturers in 14lb. tins at about that rate, and from others in 1 cwt. kegs. The Board of Agriculture will send a list of the principal firms to any applicant who wishes to make home-made jam in the manner recommended above.

TO OBTAIN A YELLOW SWEET PEA.—In the course of an interesting address delivered at the eighth annual meeting of the American Sweet Pea Society* Mr. DAVID BURPEE discusses the possibility of the appearance of a yellow-flowered Sweet Pea. Like many other growers, he is not sanguine of success. Mr. BURPEE does not hold out hope that this object will be achieved by any natural break or by crossing varieties of *Lathyrus odoratus*; he thinks—rightly, in our opinion—that if the yellow Sweet Pea ever comes it will be as a result of crossing *L. odoratus* with some other species. Unfortunately, the Leguminosae is a family the species of which keep themselves to themselves. Species crosses are exceedingly rare in the family, and in spite of the work of many hybridists, there is on record no well-established case of a cross between *Lathyrus odoratus* and any other species of *Lathyrus*.

SUPPRESSION OF CHARACTERS IN CROSSING.—A brief but extremely interesting paper on the above subject is contributed by Prof. BIFFEN to the current number of the *Journal of Genetics* (V., No. 4, July, 1916). The character, the suppression of which occurs in certain crosses, is the mouse-grey colour of the glumes of Rivet Wheat (*Triticum turgidum*). Crosses with Polish Wheat (*T. polonicum*)—the glumes of which are white—give an F₁ with chaff not unlike that of Polish Wheat. In the F₂ and subsequent generations—of which at least 100,000 individual plants have been raised, the chaff colour is that of the Polish Wheat. This suppression of the mouse-grey colour character recalls the suppression of the type, described by BATESON and PELLEW, in the cross between type and rogue in the culinary Pea (see *Gard. Chron.*, Sept. 4, 1915, p. 152).

BANANA FLOUR.—The *Journal of the Board of Agriculture, British Guiana*, in drawing attention to the use of Banana flour as food in French base hospitals, states that the cost of meal in the West Indies is about 2d. per lb. Mixed with wheat flour, it makes excellent loaves and cakes.

A NEW SOURCE OF REFINED SUGAR.—We learn from the *Tropical Agriculturist* (XLVII., 1, July, 1916) that the Ceylon Sugar Refineries, Ltd., is about to place on the market sugar obtained from the Palmyrah Palms (*Borassus flabellifer*), which grow luxuriantly in the north of the island of Ceylon.

AMYGDALUS DAVIDIANA.—A Californian grower, reporting on *Amygdalus Davidiana*, states that it is by far the best and hardiest stock for Peaches and Nectarines.

PHOSPHATIC MANURES.—In the course of an investigation into the efficacy of various phosphatic manures, Mr. H. G. SODERBAUM (*Bull. Int. Inst. of Agric.*) has found that when phosphates are applied to soil in the form of superphosphate or basic slag there is no advantage in using sulphate of ammonia instead of nitrate of soda as a nitrogenous manure; but if tricalcic phosphate or bone meal are employed, the use of sulphate of ammonia as a nitrogenous manure gives better results than those obtained by nitrate of soda. He states further that the fertilising action of insoluble phosphates depends on the amount of magnesia in the soil, an excess or deficiency being equally injurious.

ORCHID NOTES AND GLEANINGS.

CATTLEYAS AND LAELIO-CATTLEYAS FROM CHELTENHAM.

MESSRS. J. CYPHER AND SONS have sent us flowers of several showy hybrids at present in bloom in their nurseries at Cheltenham. The wide range in varieties of similar crosses, and the peculiar manner in which the distinctive characters of well-defined species assert themselves in their progeny, are well exemplified in the hybrids of Cattleya Schilleriana and *C. granulosa*.

Laelio-Cattleya *bletchleyensis* Cypher's variety, a cross between *Laelia tenebrosa* Walton Grange variety and Cattleya *Warseewiczii*, is a remarkably beautiful flower, the largest and lightest in tint we have seen. It measures 9 inches across, the cream-coloured sepals and petals being faintly tinged with yellow and having a pearl-pink shade. The lip is violet-blue in front and dark claret with purple radiating lines in the centre. The spike bore four flowers.

A flower of Cattleya *Pittiana* (Dowiana *aurea* × *granulosa* Schofieldiana), from a spike of three blooms, well represents the best *C. granulosa* cross. The flower is nearly 7 inches across, the sepals and lip show the firm substance and curved shape of *C. granulosa*, the petals taking the form of *C. Dowiana*; both segments are tinged with rose-purple, the bases being yellowish-cream colour. The showy lip is yellow at the base, with thin yellow lines, the expanded front lobe and erected tips of the side lobes being violet with orange-red shade in the centre and narrow white margin. The plant flowered first with Mr. H. T. Pitt, Rosslyn, Stamford Hill (gr. Mr. Thurgood), and is described in *Gardeners' Chronicle*, August 9, 1902, p. 95.

Cattleya *Wavriniana* (Warseewiczii × *granulosa* Schofieldiana) has a lip formed much like that of *C. granulosa*; the sepals and petals resemble those of *C. Warseewiczii*, but are of thicker substance. The colour of the flower is light rose, the lip being marbled and spotted with purple, an orange shade appearing in the centre.

Cattleya *Miss Harris* (Mossiae × *Schilleriana*) adheres tolerably closely to *C. Mossiae* in colour and, in a modified form, in the expansion of the front lobe of the lip, which in the main has the character of *C. Schilleriana*. The flower is purplish-rose coloured, with darker veining on the lip, which has a yellow disc. The variety *C. Ashworth*, illustrated in *Gard. Chron.*, May 11, 1901, resembles the flower sent, but has a less undulated lip.

Laelio-Cattleya *Antigone* (*L. purpurata* × *C. Schilleriana*), in the form of the sepals and petals, even to the folding back of the petals, shows a character which many hybrids of *L. purpurata* possess, but the segments are of firmer substance. The front and side lobes of the lip are distinctly separated, thus showing the Cattleya parentage strongly. The sepals and petals are greenish tinged with purple, the front lobe and tips of the side lobes of the lip being rich claret-purple that contrasts well with the white base.

Laelio-Cattleya *Dominiana* (*C. Dowiana* × *L. purpurata*) is the first of the popular showy section originally raised by Domin in Messrs. Jas. Veitch and Sons' nursery, and described in *Gard. Chron.* (as *Laelia Dominiana*), Vol. X., 1878, p. 332. The hybrid was followed by *L.-C. callistoglossa*, (1882) and *L.-C. Canhamiana* (1885). The flower is nearly 8 inches across, of a bright rose-purple colour, the lip being deep ruby-claret.

Laelia Iona (*Dayana* × *tenebrosa*), one of the darkest of the lesser hybrid Laelias, has deep rose-purple sepals and petals, and a lip of dark maroon colour with raised veining, following the ridges in *L. Dayana*, the tubular form of which also appears in the lip.

* *Journ. Agric. Research*, U.S. Dept. of Agric.; see *Pharmac. Journal*, August 12, 1916.

* *The American Florist*, July 22, 1916.

THE MARKET FRUIT GARDEN.

AUGUST was a month of comparatively small rainfall at my station. There was an absolute drought until the 14th, after which rain fell frequently, but not in great quantities. On the 29th, when the measurement was about 2 inches at one southern station, and over an inch in many places, we had only 0.43 inch. The total for the month on nine rain days was 1.63 inch. The first gale of the season occurred on the 29th. It was not so violent as reports show it to have been in some parts of the country, but was strong enough to blow a good many Apples and some Plums off the trees, and to uproot or break off giant Sunflowers and Hollyhocks. The drought of the first half of the month was valuable for hoeing, but was trying to many vegetables, which were saved from permanent deterioration by the rain of the 14th and at later dates.

THE VAGARIES OF FRUIT-EATING BIRDS.

It is difficult to account, even by surmise, for the variations in attacks of birds upon fruit in different seasons. This year there is a nearer approach to immunity from the pecking of Apples than I can remember to have noticed before. Even Beauty of Bath and Mr. Gladstone, great favourites of the blackbird, were very little damaged, excepting the fruit which lay upon the ground. Charles Ross, too, which usually attracts birds strongly, has hardly been touched by them at present, although it is beautifully coloured and nearly ripe. When Cherries were ripe and on the trees blackbirds swarmed in my home orchard; but now only a few are to be noticed. What other kind of food engages their attention, to the neglect of Apples, cannot be stated with any approach to certainty. There is ripe corn, of course; but so there is in any season, and the blackbird, I believe, is not a great grain-eater. Some people say that birds eat fruit chiefly to quench thirst, and they may hold that the recent rainy weather supplied the birds well with water. This, however, is only a surmise, and it seems to me to be of doubtful validity. There is a similar difficulty in explaining why bullfinches and a few other birds attack the fruit-buds of Plums and Gooseberries badly in some seasons and hardly at all in others.

SAVING THE SITUATION.

If the ordinary prices of fruit had been current this season many fruit-growers would have experienced a year of loss. Fortunately for them, though not for consumers, prices all round have been 50 to 100 per cent. above the average. There have been temporary drops, as when Victoria Plums were in full supply, and when a glut of windfall Apples followed the recent gales, but even then the fallen rates were much above those of many past seasons. As to consumers, so far as can be judged by prices ticketed on Apples and Plums in towns near me, retail fruiterers have to supply their customers at prices which yield them much smaller profits than they can usually command. Many a time, when I have sold large cooking Apples at a penny a pound in large quantities, or less when commission and rail expenses have been deducted, I have seen similar fruit ticketed at 4d. per lb. in the town to which the bulk of my Apples has been sent; and recently, when my returns per sieve or half-sieve were doubled, the same retail price has been noticed in the shops.

AN UNDERRATED APPLE.

It can only be because retailers and consumers are not acquainted with its merits that Royal Jubilee sells at a price below the average for large cookers. This Apple is of a goodly size and useful shape, and has a remarkably clear skin, while it cooks particularly well and requires less sugar when cooked than is needed to sweeten the great majority of culinary varieties. This last merit is one which lacks the consideration it deserves, particularly now that sugar is scarce

and dear. Royal Jubilee is a vigorous and healthy grower and less subject to fungous attacks than any other variety known to me, and as it is extremely late in leafing and blossoming, it escapes late spring frosts. It is free alike from canker and from scab in my orchards. As it is of a spreading habit of growth, it requires plenty of room to expand. For half-standards a distance of 20 feet between tree and tree in each direction is none too much, while on good soil 25 feet would be better. The variety is a great bearer, and, as it has the merit of self-thinning of fruit, it is not entirely an alternate year fruiter, as most great bearers are, unless they have their fruit thinned severely by hand.

APPLE LORD GROSVENOR.

On page 116 *E. M.* refers to this Apple as a great fruiter, but liable to scab, and to the production of many "scrumps" when heavily laden. It is liable to scab on wet or heavy land, but will withstand spraying against that disease well. On such soils it is also subject to canker, and to the worst form of that disease—canker of the shoots, which is much worse than the affection of the trunk or the main branches in a place or two. But in an orchard of light loam over sand it does not canker at all. As for the "scrumps," they can be prevented by the severe thinning which this enormous bearer needs. The fruit sets in great clusters, and it adheres so strongly to the spurs that a large proportion of small Apples cannot fail to be produced unless thinning is done. The least thinning that is desirable is to a single fruit in each cluster, and if the thinners could be trusted to use sufficient judgment, one fruit to every other cluster where the clusters are close to each other would be better. Even when singling is done, the trees are usually so heavily loaded when they fruit at all that the variety is an inveterate alternate-year fruiter with me. Probably it would not be so if the Apples were thinned twice as severely. This year, in my light-land orchard, the crop, now being marketed, is much the greatest on the farm, as it has often been before. As *E. M.* says, the quality of the fruit as a cooker is excellent. As it is not a readily dropping variety, it may be left on the trees for two or three weeks after it becomes marketable, and then it increases in size considerably. But, of course, there is the liability of a fall in price when picking is postponed. As one of the best of second-earlies, the Apple sells well. *Southern Grower.*

TREES AND SHRUBS.

HYDRANGEA PANICULATA.

THE typical form of this Hydrangea is far less known than its variety *grandiflora*, which is so generally employed for growing in pots as well as a shrub in the open ground. From the variety *grandiflora* the typical kind differs in being altogether of a stronger and sturdier habit of growth, and in the leaves being of a richer green, while the pyramidal-shaped panicles are made up mainly of small fertile flowers, the large sterile ones being limited to a scattered few, chiefly on the outside of the cluster, whereas in *grandiflora* the panicle consists almost entirely of sterile blooms. The flowers of the true *H. paniculata* also retain their freshness longer than those of *grandiflora*. This last was introduced from Japan, through (I believe) the Petrograd Botanic Garden, in the 'sixties of the last century. At all events it was included in the list of new plants sent out by M. Lemoine of Nancy in 1866. In order to obtain the huge trusses which are so much admired by some, hard pruning and liberal feeding are necessary; but, personally, I prefer those blossoms which are allowed to develop in more natural conditions. To be seen at its best this Hydrangea needs a good loamy soil and a reasonable amount of moisture. *W. T.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables, Supplement, *Gard. Chron.*, August 5.)

(Continued from p. 116.)
8, ENGLAND, S.W.

GLoucestershire.—This is the worst season I have experienced for many years past. Trees blossomed well, but the climatic conditions and the want of warmth and sunshine caused the fruit to drop. Strawberries were laden with fruits, but many of the berries rotted for want of sunshine. *A. Chapman, Westonbirt Gardens, Tetbury.*

—Apples, Pears, Plums and Cherries are all small crops. Bush fruits, especially Gooseberries and Black Currants, gave average crops, and the foliage is clean. Fruit trees generally bloomed well, but the fruits did not set. *W. H. Berry, Higham Court Gardens.*

—Apple trees blossomed profusely, but in some instances caterpillars did much harm to the foliage. Apricots are a failure, after heavy crops for the past two years. Gooseberries and Raspberries were record crops. The soil is of a heavy nature, and the subsoil is oolite. The situation is 620 feet above sea level, and late frosts rarely cause injury to the fruit crops. *J. Gardner, Batsford Park Gardens, Moreton-in-Marsh.*

HEREFORDSHIRE.—Some varieties of Apples are yielding well, e.g., Cox's Pomona and James Grieve. It is too early to estimate the quality, but on the whole it seems poor. Pears are bearing a very poor crop. Plums are variable. The varieties Victoria, Czar, and Belle de Louvain are good, but Rivers' Early is very poor. Where heavy crops were borne last year there are mostly none this year. On the whole there is a shortage. Raspberries and Gooseberries were over the average; Loganberries and Black Currants about average. Strawberries were late, but yielded about an average crop. Except on Plum trees, aphid has not been troublesome; some unsprayed plantations of Black Currants have remained clean. *Herefordshire Fruit Growers' Association, Dunelm, Wigorn Hill.*

MONMOUTHSHIRE.—The Apple crop is partial. Some varieties—for example, Lane's Prince Albert—set but little fruit, while others needed heavy thinning. The Apple blossom weevil and the Pear midge were troublesome. Peaches suffered considerably from leaf curl. All kinds of fruits have, however, been unusually free from aphid. Strawberry blossoms escaped damage by frost, which is a rare occurrence here. *T. Coomber, The Hendre Gardens, Monmouth.*

SOMERSETSHIRE.—Small fruits were very good, but Apples, Pears, Plums, Apricots, Peaches and Nectarines are the lightest crops we have ever had, owing, no doubt, to very cold weather from the end of February to early April. Following an exceptionally mild January, some fruit trees were in full bloom at the end of that month, and others were much too forward for one to expect them to come safely through such weather as we experienced in early spring. Cider Apples in the orchards are a very poor crop. "Morgan Sweet" being the exception. *George Shawley, Holswell Park Gardens, Bridgwater.*

WORCESTERSHIRE.—Apple trees bloomed abundantly, but the flowers were imperfectly developed, and the fruit failed to set. The extremely mild winter brought the trees forward. Then followed over two months of cold, wet, and sunless weather, causing a severe check and subsequent failure of the crops. Apples Worcester Pearmain, James Grieve, and Madresfield Court were exceptions, and promise a crop of good, clean fruits. Apple trees have been attacked by winter moth and Apple sucker. Pears are bearing very poor crops. Plums, with the exception of Rivers' Early Prolific and Damsons, are yielding an average crop. Victoria, Pershore, and Belle de Louvain are specially good. Cherries were abundant and clean, but

small in size. Strawberries were a fair average crop, but many berries were spoiled by wet weather and slugs. Gooseberries, Currants, Loganberries and Raspberries were all plentiful and good. *William Crump, Madresfield Court Gardens.*

— Apples are below the average, although some varieties are bearing satisfactory crops. Pears are a failure, the worst for some years past. Gooseberries, Raspberries, and Currants are yielding average crops. Strawberries were a light crop, but the quality was very good. The soil is a good medium loam, resting on sandstone. *Ernest Avery, Finstall Park Gardens, Broms-grove.*

— There was a very fair promise for good fruit crops so far as could be judged by the amount of blossom, but the crops of Apples,

carried heavy crops last year. The fruits set well in some cases, but many afterwards dropped. Apples King of the Pippins are the best cropped. Worcester Pearmain in some cases is bearing a good crop. Pears were also good when in bloom, but failed to set. Apricots are a complete failure. Peaches, Nectarines and Cherries are under the average; the fruits did not stone well. Of Plums, Pershore is bearing a heavy crop, Victorias are thin, and other varieties are nearly failures. Gooseberries yielded a very large crop. Black, White, and Red Currants were excellent. Strawberries were late, but if the weather had been favourable the crop would have been a very large one. Last year's runners produced better berries than I have seen for years. The bad weather is probably the cause of the above gloomy report. The soil consists of good loam, sand,

Alexander; Pears Williams' Bon Chrétien, Doyenne du Comice, Clapp's Favourite, Beurré d'Arenberg, Conférence and Souvenir du Congrès; and Plums Victoria, Monarch, Czar, and Early Transparent Gage. Our soil is wet and heavy, overlying slaty rock. *W. Phillips, Derry Ormond Park Gardens, Llangybi.*

CARNARVONSHIRE.—On the whole we have good average crops. Pears are the lightest. All fruit trees blossomed profusely, but cold easterly winds prevailed at that time, or the crops would have been much larger. The soil is gravelly, and dries out quickly. Heavy mulches are necessary to ensure success. Bush fruits gave good crops. Peach blister is very prevalent this season. Plums are badly attacked with aphids. *J. S. Higgins, Gynllivon Park Gardens, Carnarvon.*

DENBIGHSHIRE.—The fruit crops vary. Some varieties of Apples, namely, Warner's King, Bramley's Seedling, and Lane's Prince Albert, are carrying good crops. Gooseberries were the best crop for years past, but the Strawberry crop was only a moderate one; owing to the sunless, damp, and cold weather the fruits failed to ripen, and numbers of the berries rotted. *J. A. Jones, Chirk Castle Gardens, Ruabon.*

— All fruit trees developed a remarkable quantity of bloom, but owing to the sunless weather, Peaches, Nectarines, Apricots, and Plums failed to set. Strawberries promised well until the ripening stage, when a large number rotted owing to wet, sunless weather. The soil is light loam, with a sandy subsoil. *J. Martin, Bryn Estyn Gardens, Wrexham.*

GLAMORGANSHIRE.—The Apple crop is almost a failure. On a west wall cordon trees of Cox's Orange Pippin, Allington Pippin, and Peasgood's Nonesuch have good crops of fine fruit, but on other trees we have scarcely any crop. Pears, Peaches and Nectarines are bearing very few fruits. Cherries, Raspberries, Gooseberries, and Currants were very good in quantity and quality. Strawberries were below the average, and the fruit was rather small. *C. T. Warmington, Penllergaer Gardens, Swansea.*

MONTGOMERYSHIRE.—The Apple crop is very poor, the cause of the failure being late frosts when the trees were in bloom. Probably the trees were also weakened by heavy cropping last season. Pears are better than at first anticipated; Cherries and hush fruits were good. The soil is very gravelly, the subsoil being in places almost pure gravel. *A. Gribble, The Plas Gardens, Machynlleth.*

PEMBROKESHIRE.—Apple trees flowered well, but just before the flowers had set a heavy mist prevailed, and lasted for two days and nights, after which the bloom dropped. Plum trees did not flower at all, which cannot be wondered at, as they had borne heavy crops for the past two years. There was a plentiful supply of small fruits. Strawberries were under the average, but the quality was good and the fruits of large size. *T. H. Roberts, Slebeck Park, Haverfordwest.*

— Apples are plentiful. Pears, Peaches, and Nectarines are bearing average crops. Plums are very plentiful; most varieties had to be severely thinned. Cherries were not so good, and Morellos are quite a failure. Raspberries, Gooseberries, and Currants yielded abundant crops, and the fruits were of good quality. Strawberries were very plentiful, but owing to the sunless weather they were lacking in flavour. *W. A. Baldwin, Clynfew Gardens, Boncath, S.O.*

RADNORSHIRE.—The fruit crops are rather under the average. Apples and Pears, with very few exceptions, are scarce. Cooking Plums, such as Victorias and The Czar, are plentiful and good, but dessert sorts are scarce. Gooseberries were abundant and good; Currants also were numerous, but smaller than usual. Strawberries promised an average crop, but some of the early sorts were spoiled by the dull, damp weather in early July. *J. MacCormack, Maesllwch Gardens, Glasbury.* (To be concluded.)



FIG. 51.—DELPHINIUM LIKIANGENSE: COLOUR OF FLOWERS LIGHT BLUE.
(See p. 129.)

[Photograph by George Forrest.]

Pears, and Plums are under the average. Gooseberries were abundant and of large size. Strawberries were abundant, but of poor flavour, which could only be expected, considering the low temperature, small amount of sunshine, and frequent rains at the time the berries were ripening. Currants were plentiful generally, though Black Currants were rather below the average. At the Droitwich Experimental Garden, rain was registered on 63 days from April 1 to July 16 inclusive. From April 1 to June 30 inclusive the record of sunshine kept by the Droitwich Borough Surveyor shows that only 487 hours of sunshine were registered. For the same period in 1915 the sunshine registered was 689 hours. *James Udale, Droitwich.*

— The fruit crops are on the whole very disappointing. There was a superabundance of bloom on the Apple trees, even on those which

marl, and clay. The marl is almost unworkable at 2 feet deep. *T. Watkins, The Grange Gardens, Claines, Worcester.*

WALES.

CARDIGANSHIRE.—Black Currants, Gooseberries, and Raspberries were very good. Red Currants are average. The soil is a good loam on a gravel subsoil. *T. Hazelden, Crosswood Park Gardens, Aberystwyth, Cardiganshire.*

— All varieties of fruit trees blossomed very freely, but the number of fruits that set was not up to the promise, the deficiency being due to cold winds and rains when the trees were in flower. Apples and Cherries are making good, clean growth, but Pears and Plums are more or less crippled. Trees bearing good crops are: Apples Bramley's Seedling, Queen, Cox's Pomona, James Grieve, Lord Grosvenor, King of the Pippins, and Emperor

NEW CHINESE PLANTS.

DELPHINIUM LIKIANGENSE.

THE higher alps of north-western Yunnan, towards the Tibetan frontier, are the homes of many beautiful species of Delphinium, which range from dwarfs of 4-6 inches to imposing plants of as many feet. The taller species are generally found at the lower levels, in sheltered openings and glades in the vast forests of Conifers which are a feature of the region from 10-13,000 feet. The range in colouring of the blooms is very great, from the clearest and palest to the deepest purple-blue, and in some species white.

However, the gems that are most likely to prove of greatest horticultural value are amongst those of least stature.

A number of them, known to us through the descriptions of M. Franchet, were first discovered by Père Delavay; more recently many equally fine species have been added to the list, as *Delphinium Bulleyanum*, Forrest; *D. Forrestii*, Diels; *D. Beesianum*, W. W. Smith; and *D. calcicolum*, W. W. Smith.

Unfortunately only a few of these latter are in cultivation in this country, the best being *D. likiangense*, which is illustrated in fig. 51. Delavay first secured specimens of this species in 1886 on the Lichiang range, from which the name is derived. In 1906, and again in 1910, the plant was re-collected and seeds secured, and now the species is perfectly established in the Edinburgh Botanic Garden, growing in the open, flowering and fruiting most freely. As an alpine of unquestionable beauty, hardiness and utility it takes first rank.

In common with others of its group it is a scree plant, affecting the most barren, exposed situations in limestone rubble at the base of cliffs, at altitudes of from 12,000 to nearly 15,000 feet. The picture is of a plant *in situ*, and gives an admirable conception of the meagre requirements of those plants in the matter of soil.

Individual specimens attain a maximum height of 15 inches; foliage is abundantly produced, and is most striking, the leaves finely cut, almost coriaceous, and dark glossy green on the upper surface. The scapes are erect and rather stiff, held well above the foliage, each bearing from three to five blooms. In those the principal charm of the plant centres, for they are unusually large for the genus, of a most pleasing soft shade of light blue, and deliciously fragrant. Including the spur, the blooms are 2 inches or even more in depth, in breadth from 1 to fully 1½ inch. As a subject for the rock garden it is most desirable. *G. Forrest.*

FLORISTS' FLOWERS.

FUCHSIAS AS BEDDING PLANTS.

THE changeable weather during the months of June, July and August has emphasised more than ever the value of the Fuchsia as a summer bedding plant in our variable climate. During the second half of July the plants flowered freely through the hot, dry weather, and now, in early September, when heavy rains have shattered the flowers of the Zonal Pelargoniums or caused them to damp and some other bedding plants to make excessive growth, Fuchsias are flowering freely. The plants also thrive in conditions which are by no means favourable to some other bedding plants. In the Terrace Gardens, Richmond, Surrey, Fuchsias provide an attractive display over a lengthy period each year on a long north border, which receives a fair amount of light, but is heavily shaded from the south at a little distance by tall trees. Many of the plants are tall old specimens. These give very little trouble in winter, as they are merely stored in a frost-proof shed until it is time to start them into growth in spring. *A. O.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

FORMALDEHYDE AS A PROPHYLACTIC.—May I ask some of those whose Grapes get mildewed to try formaldehyde vapour? Last year when tried upon bunches already affected a marked inhibitory effect was produced, though naturally berries that were deeply infected could not be saved, yet others became sufficiently preserved from attack. Forty per cent. solution of formaldehyde, widely known under the German patent name of "Formalin," is used; a good wad of cotton-wool is wetted with the solution and dropped into a suitably sized paper bag; the bunch to be treated is inserted into the bag, the open end of which is then closely folded about the stalk and clipped on conveniently with a small strip of sheet-lead, as used for clipping on bags on Pears, etc. A good wad of the cotton should be taken, and it should not be wetted through, for the substance makes the skin unpleasant and harsh if allowed to wet it. Further doses may be given if deemed advisable. Those who want Grapes to look at may fear the risk of rubbing off bloom. Personally, I do not care a rap whether any bloom is left so long as the flavour is good. I do not find that insufflations with sulphur, with or without quicklime dust, are of the slightest value. Pruned ends, and also ends where shoots have been pinched or cut, are apt to show some growth of a mould, but whether this is the *Oidium* I have not had determined; anyhow, all pruned ends I paint with a copper preparation, and before leaves start in the spring the whole is sprayed with formaldehyde (½ pint to 3 quarts of water); hardly worth while, perhaps, as mildew is not entirely kept at bay. With outdoor vines, using the paper-bag method for ripening, so far mildew has not been a trouble. Formaldehyde may also be of service with Tomatoes when black patch is about. I am not sure what dilution would be best, but somewhere about 2 to 4 per cent. is what I have used for a number of years—now almost a decade. It is brushed on with a camel-hair brush about the attachment of the style on the quite young fruit. Last year I tried stronger solution, 10 per cent., with the result that it scathed them somewhat; but with two or three applications quite badly affected ones dried and scabbed at the lesion, and the disease was apparently arrested, though the fruit was not elegant for the table. But it is as a prophylactic that the antiseptic is of value. *H. E. Durham.*

FRUIT CROPS AT ARUNDEL CASTLE GARDENS.—The fruit crops in these gardens may be considered the smallest for some years past, being in accordance with the small amount of bloom which the trees developed; indeed, many trees failed to produce a single flower. This fact, following a season when the trees were very heavily cropped, combined with unseasonable weather at the flowering period, doubtless accounts for the failure of the fruit crops. Among the varieties which are giving an average quantity of fruits are Apples Lane's Prince Albert, Lord Grosvenor, Kerry Pippin and Lady Sudeley, and Pears Williams' Bon Chrétien, Durondeau, Catillac, Souvenir du Congrès and Marie Louise. All stone fruits, Morello Cherries excepted, were much below the average. We had exceptional crops of Gooseberries, Red and White Currants and Strawberries, of which the best varieties were King George, Royal Sovereign and Utility. Raspberries were plentiful and of good flavour. *F. C. Leage, Castle Gardens, Arundel.*

THE NAMING OF FLORISTS' FLOWERS.—A fertile source of confusion is the practice which too often prevails of giving the same name to two or more of the same class of plant. To some it may appear of but small account, but it is really an important matter. For some years I was engaged in a trade establishment where new plants were largely grown. The amount of trouble occasioned by the repeated use of a few popular names was great, and often led to a deal of correspondence, and in many cases vexation. When Pelargoniums were in the height of their popularity this evil was very pronounced. For instance, I can recall the name of Achievement as having been applied to five different kinds—namely two distinct show varieties, a Zonal, an Ivy leaf, and a tricolor variety. The names of the different members of the Royal Family were also used in two or more cases. Of Fuchsias, a noted instance suggests itself in the case of the

name *Avalanche*, which was bestowed upon two distinct varieties, and both of them being good and becoming popular, no end of trouble was caused. When bringing forward a new plant, the raiser or exhibitor should take pains to ascertain whether the suggested name has been used before, and the Royal Horticultural and other societies should absolutely refuse to recognise a name which has been previously honoured by them. These notes are suggested by the confusion which prevails concerning *Rose Queen Alexandra*. What may be termed the true variety was raised by John Seden when in the employ of Messrs. Veitch. It was awarded the gold medal of the National Rose Society in 1901. Then, last year, the same society gave a Certificate of Merit to another bearing the same name shown by the Rev. J. H. Pemberton. Thus a fertile source of confusion is set up, especially as both are single-flowered varieties. *W. T.*

AN EXAMPLE TO THE BRITISH GOVERNMENT.—The amounts set aside by the United States Government for next year, for the purpose of helping horticulture and agriculture, are now made public, and are published in the *Florists' Exchange*, New York, August 12, 1916. The sum of £7,700 is allotted for investigations of plant diseases and pathological investigations, and £12,500 for the investigation of diseases of orchard and other fruits. £50,000 is authorised for Citrus canker investigations, and £17,500 for the investigation of diseases of forest and ornamental trees and shrubs. For the investigation, testing and improvement of plants yielding drugs, spices, poisons, oils and related products and by-products, and for general physiological and fermentation investigation there is available £10,000. £5,700 is available for use in studying and testing commercial seeds, including the testing of samples of seeds bought in the open market, and where such samples are found to be adulterated or misnamed the results of the tests are to be published, together with the names of the persons by whom the seeds were offered for sale. For horticultural investigations, including the study of producing, handling and shipping market garden and related crops, etc., £11,200, and \$5,000 for maintaining a general experimental station at Arlington Farms, where the National Rose Garden is also situated. There is also £2,300 for the gardens in the city of Washington. For investigations in foreign seed and plant production, including the study, collection, purchase, testing, propagation and distribution of rare and valuable seeds, bulbs, vines, cuttings and plants from foreign countries, and for experiments with reference to their introduction and cultivation in the U.S.A., £14,000 is voted, and £28,000 for the purchase, propagation, testing and distribution of new and rare seeds, for the investigation and improvement of grasses and forage crops, and to conduct investigations to determine the most effective way of eradicating weeds. The sum of £5,000 is to be applied for investigations in economic and systematic botany and the improvement and utilisation of wild plants and grazing lands, though a proposed vote of £600 for the purpose of standardising botanical and horticultural names was lost. Then £12,000 is voted to enable the Secretary of Agriculture to carry into effect the provisions of the law to regulate the importation of nursery stock and other plant and plant products, and to establish and maintain quarantine districts for plant diseases and insect pests. When may we hope that our Government will follow such an excellent example? Not, I think, until agriculture and horticulture make up their minds to speak with one voice. When in a democratic country like the United States, with its party politics, it is possible to get a continuity of policy relating to agriculture and horticulture, it should not be impossible to obtain it in Britain. Why should not the Government subsidise for practical and scientific work the Royal Horticultural Society to the tune of £10,000 a year? That would only be a beginning and a drop in the bucket compared with what the United States is doing. It think it is the duty of the leaders in agriculture and horticulture to get together and formulate a policy—a demand rather to be pressed on the Government by every means known to the best organisers of public opinion. *W. Cuthbertson, President of the Horticultural Trades' Association of Great Britain and Ireland.*

SOCIETIES.

ROYAL HORTICULTURAL.

TRIAL OF MID-SEASON CULINARY PEAS.

WE are informed that the following awards have been made to Mid-Season Culinary Peas by the Council of the Royal Horticultural Society after trial at Wisley:—

FIRST MID-SEASON VARIETIES.

AWARDS OF MERIT.—*Clipper*, sent and introduced by Messrs. R. Sydenham; *Danby Stratagem*, raised, introduced and sent by Messrs. J. Carter and Co. (A.M. 1901. Award confirmed); *Duke of Albany* (selected), introduced and sent by Messrs. Sutton and Sons (A.M. 1901. Award confirmed); *Duke of Albany* (re-selected), introduced and sent by Messrs. J. Carter and Co. (A.M. 1901. Award confirmed); *Evergreen Delicessse*, raised, introduced and sent by Messrs. J. Carter and Co. (A.M. 1908. Award confirmed); *Harvestman*, raised, introduced and sent by Messrs. J. Carter and Co. (A.M. 1908. Award confirmed); *Improved Queen*, raised, introduced and sent by Messrs. J. Carter and Co.; *International*, raised, introduced and sent by Messrs. J. Carter and Co. (A.M. 1908. Award confirmed); *Jersey Hero*, sent by Messrs. Nutting and Sons; *Magnum Bonum* (selected), sent by Messrs. Barr and Sons (A.M. 1910. Award confirmed); *Market Gardener*, raised, introduced and sent by Messrs. J. Carter and Co.; *Market King*, raised, introduced and sent by Messrs. J. Carter and Co.; *Prince of Peas*, raised, introduced and sent by Messrs. Sutton (A.M. 1910. Award confirmed); *Quite Content*, raised by Mr. E. Beckett, introduced by Messrs. J. Carter and Co. and sent by Messrs. Barr and Sons and Messrs. J. Carter and Co. (F.C.C. 1906); *Royal Salute*, raised, introduced and sent by Messrs. Alex. Dickson and Sons; *Standard*, raised by Messrs. Sharpe and Co., sent by Messrs. Barr and Sons (A.M. 1900. Award confirmed); *The Newby*, raised and sent by Messrs. Hurst and Son.

HIGHLY COMMENDED (XXX).—*Best of All*, sent by Messrs. Robt. Sydenham, Ltd.; *Buttercup*, raised, introduced and sent by Messrs. J. Carter and Co.; *Centenary*, raised, introduced and sent by Messrs. Sutton (A.M. 1901); *Daisy*, raised and introduced by Messrs. J. Carter and Co.; sent by Messrs. W. H. Simpson and Sons; *Favourite*, raised, introduced and sent by Messrs. Sutton; *Gradius*, sent by Messrs. W. H. Simpson and Sons (F.C.C. 1887); *King George*, raised, introduced and sent by Messrs. Ed. Webb and Sons; *Madal Telephone*, raised, introduced and sent by Messrs. J. Carter and Co.; *Peerless*, raised, introduced and sent by Messrs. Sutton (F.C.C. 1903); *Red Cross*, raised, introduced and sent by Mr. W. Sim; *Rosalie Maroufat*, raised, introduced and sent by Messrs. E. Webb and Sons; *Stratagem*, raised, introduced and sent by Messrs. J. Carter and Co. (F.C.C. 1882).

SECOND MID-SEASON VARIETIES.

AWARDS OF MERIT.—*Continuity*, raised, introduced and sent by Messrs. Sutton (A.M. 1898. Award confirmed); *Glory of Devon*, introduced by Messrs. R. Veitch and Sons, sent by Messrs. Barr and Sons (A.M. 1899. Award confirmed); *Masterpiece*, raised, introduced and sent by Messrs. Sutton (A.M. 1913. Award confirmed); *Matchless*, raised, introduced and sent by Messrs. Sutton (A.M. 1911. Award confirmed); *Perpetual*, raised, introduced and sent by Messrs. Sutton; *Satisfaction*, raised, introduced and sent by Messrs. Sutton (A.M. 1910. Award confirmed).

HIGHLY COMMENDED (XXX).—*The Victor*, raised by Mr. W. R. Porter, introduced and sent by Messrs. W. W. Johnson and Sons.

COMMENDED (XX).—*Alderman*, sent by Messrs. W. H. Simpson and Sons (F.C.C. 1900); *Best of All*, raised, introduced and sent by Messrs. Sutton; *Commonwealth*, raised, introduced and sent by Messrs. J. Carter and Co.; *Discovery*, raised, introduced and sent by Messrs. Sutton; *Incomparable*, raised, introduced and sent by Messrs. Sutton; *Magnificent*, raised by Mr. H. Eckford, sent by Messrs. Barr and Sons (F.C.C. 1884); *Ne Plus Ultra*, sent by Messrs. R. Sydenham, Ltd.; *Paragon*, raised, introduced and sent by Messrs. Dickson and Robinson; *Pricewinner*, raised, introduced and sent by Messrs. Sutton

(F.C.C. 1901); *The V.C.*, raised, introduced and sent by Messrs. Sutton; *Up-to-Date*, raised, introduced and sent by Messrs. Sutton; *William Richardson*, raised by Mr. Wm. Richardson, introduced by Messrs. J. Backhouse and Son, and sent by Messrs. Nutting and Sons, Ltd.

ERRATUM.—In the report of *Tomato trials* on p. 117, for "*Klondike*" read "*Kondine*."

MANCHESTER AND NORTH OF ENGLAND ORCHID

AUGUST 17.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. D. A. Cowan, Dr. Craven Moore, A. G. Ellwood, J. Evans, P. Foster, A. J. Keeling, D. McLeod, F. K. Sander, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontioda Mrs. F. M. Ogilvie var. Conyngham, from Dr. CRAVEN MOORE.

Odontoglossum crispum xanthotes Perfect Gem and *Laelio-Cattleya Serbia var. giganteum (L.-C. St. Gothard × C. Enid)*, both from Mr. J. EVANS.

AWARDS OF MERIT.

Cattleya Lord Rothschild albescens var. Conyngham and *Odontioda Diana Uplands var.*, from Dr. CRAVEN MOORE.

Oncidioda Cybele (Cochlinda Noezliana × Oncidium sarcodes), *Odontoglossum ardentissimum var. Pintodeau* and *Laelio-Cattleya Appam (L.-C. Scylla × C. Daviana aurea)*, from Messrs. CHARLESWORTH AND CO.

Cattleya Hesta var Ruth (C. Warscewiczii F. M. Beyrodt × C. Suzanne Hye de Crom), from Mr. J. EVANS.

GROUPS.

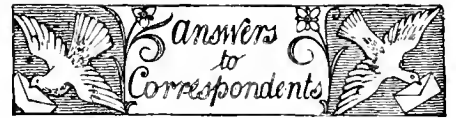
F. HOUGHTON, Esq., Appleton (gr. Mr. W. Maddock), staged C. Francisco and L.-C. Grahamii.

A Large Silver Medal was awarded to Messrs. CHARLESWORTH AND CO., Haywards Heath, for a miscellaneous group, and a Silver Medal to J. J. BOLTON, Esq., Pendleton (gr. Mr. J. Law), for a group of *Cattleyas* and Hybrids.

Obituary.

GAVIN PRENTICE.—We regret to record the death, on August 27, of Mr. Gavin Prentice, for thirty-eight years in charge of Glasgow Green Park, under the superintendence of the Glasgow Parks. Mr. Prentice, who was seventy-seven years of age, retired eight years ago. The funeral took place at Janefield Cemetery on August 30.

RICHARD ASHMORE.—Within seven months the late Canon Ellacombe's gardener, Richard Ashmore, has followed his master into rest. In Ashmore's case this has more than a spiritual meaning, for his life during the last few years has been one of considerable suffering. Stricken by some paralytic disease, he was only able for months before Canon Ellacombe died to superintend the garden from a bath chair in which he was wheeled about. It says much for the esteem in which the Canon held his merits, that, although he could not set foot to ground, he was still considered indispensable to Bitton Garden. The garden was really a botanic garden in miniature, for the number of species grown was extraordinary for so small an area. Ashmore's memory was so good that he not only knew the name of almost every plant there, but also its history. He went to Bitton something under twenty years ago, before which he had had practically no experience of the kind of gardening the Canon loved. The latter used often to recount his impressions of Ashmore at their first interview and tour of the garden: "I saw he knew nothing about the kind of plants I grow, but I also saw he did not pretend to." His modesty and evident anxiety to learn—qualities which never left him—led to his engagement, and this, it is no exaggeration to say, added much happiness to the latter years of the Canon's long life. Ashmore died at Bitton, and was buried there on September 3 within a few yards of the garden he loved so much. He was a native of East Yorkshire, and was about fifty-three years of age.



ASTERS DYING: *H. R.* The Asters are attacked by a bacterial disease known as Black-leg. In future dress the soil with superphosphate before planting.

CUCUMBERS DISEASED: *B. M. and Sons.* The Cucumbers are attacked by Cucumber collar-rot. Burn all the diseased plants, and treat the soil with quicklime. Do not plant Cucumbers again in the same soil.

MUSHROOMS ATTACKED BY INSECTS: *H. T.* The maggots are those of the Mushroom fly. The eggs were probably introduced into the bed with the manure. The only way to get rid of the pest is to clear out all the material of the old bed and dress it with quicklime.

NAME OF FRUIT: *E. S.* Apple Red Astrachan.

NAMES OF PLANTS: *P. Y. X.* A *Cypripedium*, probably *C. insigne*. Impossible to tell species from leaf only.—*V. G.* *Gongora gratulabunda*. The plant thrives best in a basket or suspended Orchid pan.—*Constant Reader.* 1. *Arctium Lappa*; 2. *Centaurea nigra*; 3. *Epilobium angustifolium*; 4. *Inula dysenterica*; 5. *Scrophularia aquatica*; 6. *Agrimonia Eupatoria*.—*A. Broughton.* The crimson-scarlet flower is *Phygelius capensis* (Cape Figwort) the dwarf annual plant is *Diascia Barberae* (also from South Africa).—*W. C. Redfern.* *Artemisia lactiflora*.

PEACH TREES DEFOLIATED: *H. D.* The trees have been killed by the fungus *Botrytis*. The disease has probably been encouraged by a too moist atmosphere in the house and insufficient ventilation.

"**SAVATUS**": *W. A. W.* We have enquired of the gardener, who is unable to recognise the plant from your description. He suggests *Lantana* or *Diplacus glutinosus*. Possibly the illegible name might be *Abutilon Savitzii*, which is largely employed in bedding schemes.

VIOLAS FAILING: *E. L.* The *Violas* are infected with leaf-spot caused by *Ascochyta violae*. This disease has been encouraged by their being planted in too damp a situation. Remove the plants, and burn all diseased leaves. Do not plant *Violas* or *Violets* on the same site for a few seasons.

WINDOW PLANTS: *D. F. K., Brit. Columbia.* (1) The correct name of the "Christmas Cactus" is *Epiphyllum truncatum*. (2) The large, scarlet, May-flowering Cactus you describe is *Phyllocactus grandiflorus*. (3) The name of the "night-blooming" white Cactus is *Cereus grandiflorus*. (4) "Parlour Ivy," of which you enclose specimens, is *Senecio mikanoides*, or "German Ivy," as suggested by the nurseryman to whom you showed it. (5) There are no Orchids which would thrive in the conditions you mention, i.e., in a fern-case in the window of a dwelling-room; the atmosphere is not sufficiently steady, and cannot be fully controlled as in a properly constructed greenhouse. (6) *Eucalyptus globulus* can be successfully grown in a sitting-room. (7) *Gilia "aggregata"* is grown quite successfully in English gardens. We call it *Gilia coronopifolia*; it bears very handsome scarlet blossoms. (8) The blue *Clematis* you mention under the name of "C. Columbianum" can be procured in England; but here it is known as *C. verticillaris*, or "Purple Virgin's Bower." Some of your questions are a little too vague for complete reply, but we have given you all the information we can on the points you have raised.

WHITE FLY: *W. B.* Fumigate the plants with a nicotine preparation on two or three occasions at intervals of three weeks.

Communications Received.—*T. J. H.—E. H.—A. L.—G. E. B.—Triton—H. M. S.—C. W.—H. W.—Rev. J.—W. A. W.—D. H.—C. R.—A. B.—G. E. D.—J. W. C.—W. C. R.—H. M. D.—F. C.—E. M.—D. K.—Kelowna, Brit. Col.—R. C. B., Brooklyn, U.S.A.—A. O.—A. H.—J. A. P.—E. Martin—L. P. B.—E. M. T.—E. V. Q.—S. A.—A. N. M.—C. H. P.—"Down South" (please send name and address)—Miss A.—T. E. T.*

THE

Gardeners' Chronicle

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SOME HYBRIDS OF IRIS CHRYSOGRAPHES.

IRIS CHRYSOGRAPHES is, without doubt, the most striking and beautiful of the group of new Irises belonging to the sibirica section which has recently been introduced from Western China. It is unique in its rich royal purple falls, on which the gold markings are always more or less apparent. In the poorer forms there is merely a central streak of gold, but in good specimens the veining is much more conspicuous, extensive and effective. Curiously enough, it seems to be the case that the amount of veining varies on the flowers produced by the same individual plant in successive years.

In matters of taste, an individual opinion is of little value, but I cannot refrain from recording my impression that, among Irises at any rate, the general rule holds good that, as regards purity of colour and grace of bearing, the wild species are preferable to the hybrids raised from them, whatever gains the hybridiser may obtain from other points of view.

The first crosses of I. chryso-graphes to produce flowers were made between that species and the dwarf, yellow-flowered I. Forrestii. The resulting hybrids are practically indistinguishable. In both cases the flowers are of a duller, bluer shade of purple than I. chryso-graphes, and, though the falls are smaller and less conspicuously drooping, the gold veining at the throat is a conspicuous feature. Both hybrids are free flowering and would, I think, in moist soil be more vigorous than either parent.

A cross made in 1914 between I. Wilsonii and I. chryso-graphes has recently come into flower. The majority of the plants are flowering, though they were only planted out of the seed pots about a year ago, and they seem to be far more vigorous than some plants of I. orientalis x chryso-graphes, which, though of the same age, will not flower this year. This hybrid with I. Wilsonii is distinct and, to my mind, beautiful. The long hanging fall of deep purple has more gold veining at the throat than even the best

forms of I. chryso-graphes, and the fact that the style-branches are raised high above the falls makes the gold-veined haft of the falls also conspicuous. The colour of the style-branches is a curious dull reddish plum-purple, forming a contrast with the distinctly bluer falls and standards. The standards are narrow and lean outwards, as in I. Wilsonii.

Crosses made with pollen of I. chryso-graphes used on the typical blue, and on the white, form of I. sibirica have given interesting results, for the hybrids are easily distinguishable from one another. Both are vigorous and grow taller than I. chryso-graphes, though perhaps not so tall as the tallest sibiricas. In the cross with I. sibirica the blue-purple fall has an ill-defined central region of richer colour with irregular and inconspicuous white mottlings, which become faintly tinged with yellow at the throat. The style-branches are of the deepest blue-black, and the small standards slope outwards, as in I. chryso-graphes. On the contrary, the plants raised from the white sibirica have flowers of a rich blue purple, on the falls of which there is a white central region veined with deep blue purple. The style branches are not nearly so dark, and are of a distinctly redder shade of blue, while the standards are large and broad, as in I. sibirica. The flower is slightly larger than the finest sibirica, except those which have arisen from crosses between that species and I. orientalis. There is no trace, even in the offspring of the white form of I. sibirica, of the rich red-purple falls of I. chryso-graphes, though the colour is apparent in the cross with I. Wilsonii.

The most striking of all the hybrids of I. chryso-graphes that I have raised came from a cross with a pale buff-coloured form of I. Douglasiana, I. chryso-graphes being the seed-parent. The plant is intermediate in growth between the two parents, and bears a lateral branch below the terminal head, a character that I have not so far noticed in the seed-parent. The spreading flowers are of a beautiful deep old-rose colour, and the falls bear a conspicuous patch of gold veining.

A curious point about these hybrids is that, although the perianth tube of I. chryso-graphes is of a dark red-purple, contrasting sharply with the green ovary, all the hybrids have greenish perianth tubes, except the sibirica crosses, in which they are darker than those of I. chryso-graphes, even though in I. sibirica the tube is green, faintly mottled with purple.

I. chryso-graphes has a small hollow space in the centre of its stem, about equal in diameter to the thickness of the walls. In the hybrids with I. Wilsonii and I. Forrestii the diameter of the hollow is only slightly increased, in those with I. sibirica the walls are about as thin and the opening is as broad as in that species, while in the cross with I. Douglasiana the influence of the pollen of the latter has been potent enough to close the opening entirely with pith of loose texture. W. R. Dykes, Charterhouse, Godalming.

FRUIT REGISTER.

PLUM POND'S SEEDLING.

I KNOW of no variety to equal Pond's Seedling as a culinary Plum. The flesh is firm, juicy and of excellent flavour when cooked, and it is probably the largest Plum in cultivation. It is dark red in colour, thickly marked with grey dots and covered with a thin bluish bloom. The stone is smaller than in many Plums of less size. The tree is vigorous in growth, making a good standard, and crops freely. E. M.

NEW OR NOTEWORTHY PLANTS.

COLLETIAS.

(Concluded from p. 121.)

COLLETIA INFAUSTA, N. E. Brown. Entire plant glabrous. Spines mostly ½—1 inch long, ½—¾ line thick, slightly curved and diverging from one another at an angle of from 60° to 90°. Leaves (including the petiole) 1½—4 lines long, ¼—2½ lines broad, linear-lanceolate to elliptic-lanceolate, acute, tapering into the short petiole, entire or toothed. Pedicels, 1—1½ line long. Flowers greenish-white, with the tube more or less suffused with dull reddish; tube 3 lines long and 1½—1¾ line in diameter; lobes 1½ line long, ½—1 line broad, ovate, acute, recurved; nectariferous disk, with a rather broad and stout incurved margin; petals none; anthers subsessile, half exerted from the mouth of the tube.—Colletia horrida, Bot. Mag., t. 3,644; Bot. Reg., t. 1,776; Schizlein, Iconographia, Vol. 4, t. 239, not of Willdenow, C. spinosa, Lindley, in Journ. Hort. Soc., 1850, Vol. 5, p. 30; Gardeners' Chronicle, 1877, Vol. 8, p. 616, fig. 121, not of Lamarck.

Var. coarctata, N. E. Brown.—Spines, ½—1½ inch long, diverging from one another at an angle of from 35° to 60°, abruptly curved at the base, and then ascending, and so are more bunched together, in a rather compact manner, giving the plant quite a different appearance. Leaves (including the petiole) 1—2 lines long, ½—¾ line broad, lanceolate acute, entire or toothed.

A native of Chili. Stated to have been introduced into cultivation in 1823. Flowering from March to June.

The variety coarctata is described from a plant cultivated at Kew between 1845 and 1853. Except in appearance, arising from its less spreading spines, it is quite identical in flowers and other characters with the typical form. C. infausta is allied to C. invicta, Miers, but the latter has minutely pubescent branches and spines, and a much broader tube to the flower.

C. ARMATA, Miers. Contributions to Botany, Vol. 1, p. 261, t. 35, fig. r. Branches and spines pubescent with very short spreading hairs, or the spines sometimes nearly or quite glabrous. Spines 5—9 lines long, ½—¾ line thick, diverging from one another at an angle of from 90° to 100°, straight or slightly curved. Leaves (including the petiole) 1½—3 lines long, ¾—1½ line broad, elliptic-lanceolate or lanceolate, acute or obtuse and apiculate at the apex, tapering into the petiole, toothed, or subentire, glabrous. Pedicels ½—1 line long. Tube of the glabrous flower 2—2½ lines long, ¾—1 line in diameter; lobes ¾ to nearly 1 line long, ¾ line broad, ovate, acute, recurved; nectariferous disk with a narrow incurved margin; petals none; stamens with filaments about ¼ line long, and together with the anthers distinctly exerted from the mouth of the tube.—C. valdiviana, Philippi in Linnaeo, Vol. 35, p. 35.

A native of southern Chili, in the provinces of Valdivia and Llanquihue. Introduced from Osorno by the firm of Messrs. J. Veitch and Sons, between 1880 and 1884. Flowering from September to December.

In the Flora of Chili, by Charles Reiche, C. armata, Miers; C. valdiviana, Phil.; C. pungens, Miers; C. cataphracta, Miers; and C. veprecula, Miers, are placed as varieties of C. spinosa. Yet not only are they entirely distinct from C. spinosa, Lamarck, but, with the exception of C. valdiviana, are all perfectly distinct from one another. Also it appears to me that the names as given in that book do not correspond with the plants Miers intended to bear them, as I believe his types were not consulted by Reiche, who is not only entirely wrong in considering C. spinosa, Lamarck, to be a

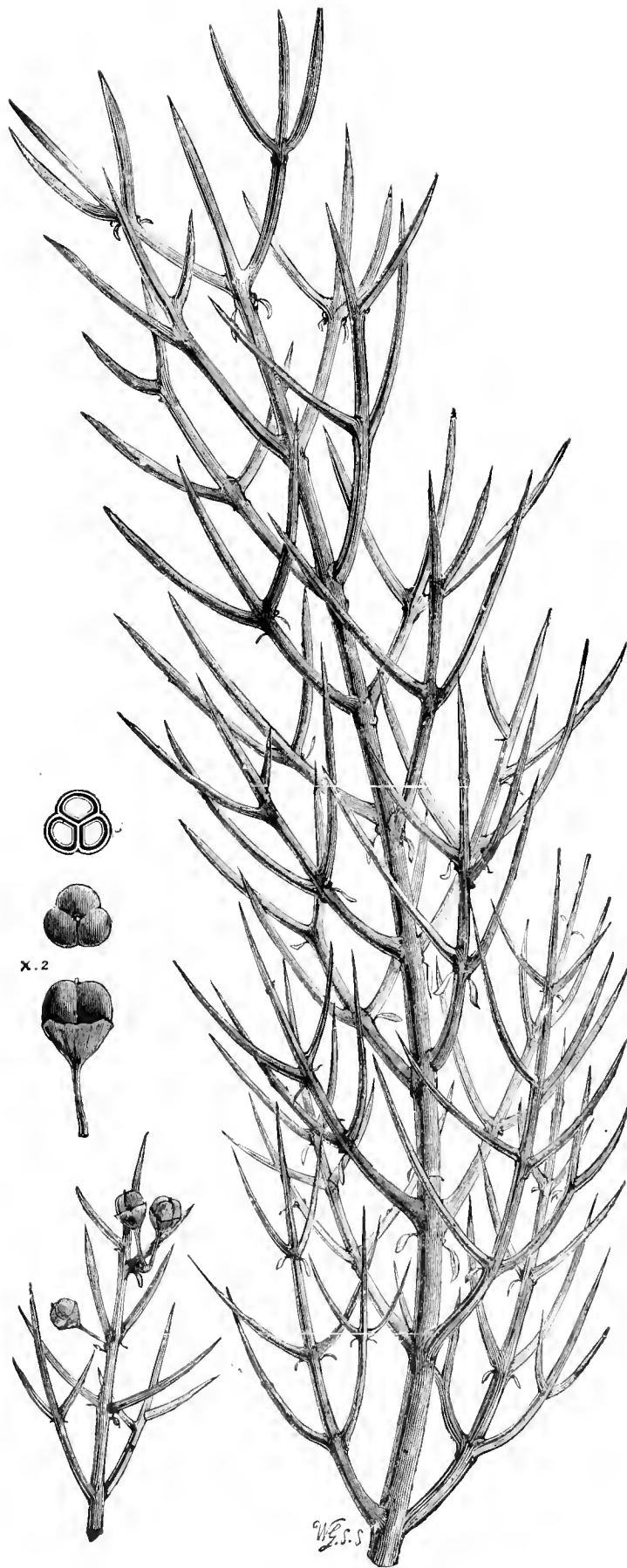


FIG. 52.—COLLETIA INFAUSTA (C. SPINOSA OF GARDENS): FRUIT MAGNIFIED.

Chilian plant, but also in supposing *C. spinosa*, Lamarck, and *C. spinosa*, Miers, to be the same species, for, as above explained, these two plants are totally different from each other in country, habit, spines, leaves, flowers, and pubescence.

C. ASSMILIS, N. E. Brown. Branches and spines glabrous to the eye, but seen to be microscopically puberulous under a lens. Spines 1—2½ inches long, very straight, widely spreading, diverging from one another at an angle of from 130° to 150°. Leaves not seen. Pedicels 1½—2 lines long. Tube of the glabrous flower 2 lines long, rather more than 1 line in diameter; lobes 1½ line long, ¾ line broad, ovate, acute, reflexed; nectariferous disk with a narrow recurved margin ½ line above the base of the tube; petals none; anthers distinctly exserted on filaments ½ line long; style shortly exserted, apparently reddish.

A native of the Argentine Republic, in the province of Cordova, growing on the mountains of San Roque. Lorentz, No. 422, flowering at the end of August.

This species resembles *C. pungens*, Miers, in general appearance, and when out of flower might be mistaken for it; but, apart from the difference in locality (for, as above pointed out, the species of this genus are local in distribution), its longer pedicels and much larger flowers readily distinguish it. From *C. Weddelliana*, Miers, it differs in its longer spines and more slender tube to the flower, as well as in locality.

C. TRIFURCATA, N. E. Brown. The entire plant everywhere glabrous. Ultimate branchlets ascending-spreading, diverging from one another at an angle of 50° to 70°, 1¼—2½ inches long, usually bearing one (or very rarely more than one) pair of opposite spines nearly as long as the central spine in which the branchlet terminates, which, from being abruptly upcurved at the base, are arranged nearly parallel to the central spine, so that each branchlet bears a resemblance to a three-pronged fork; but occasionally the branchlet bears only one lateral spine, or is unbranched and then reduced to a simple spine; spines ¾—1½ inch long, slender, scarcely ¼ line thick. Leaves not seen. Pedicels 2 lines long. Tube of the flower 3 lines long, 2 lines in diameter, broadly conical at the base; lobes 1½ line long, ¾—1 line broad, ovate, acute, recurved; nectariferous disk with the incurved margin rather more than ½ line broad, and ½ line clear above the base of the tube; petals none; anthers nearly sessile, half-exserted from the mouth of the tube; style shortly exserted.

A native of Uruguay, growing on the banks of the Rio Negro. Described from a specimen at Kew collected by M. Gibert in September, 1879.

Allied to *C. intricata*, Miers, but does not grow within 600 miles of that species, and differs in its peculiar habit and in its larger flowers, which have a much broader margin to the nectariferous disk. N. E. Brown.

MORETON PADDOX, WARWICK.

In figures 53 and 54 are represented two views in the gardens of Moreton Paddox, the seat of Major Robert Emmet.

Fig. 54 illustrates the west terrace garden, with a Spanish well-head as the central feature. The garden is paved and arranged into beds of Tudor design, edged with Box. The varying shades of the grey-green paving, the pink stone well-head, and the clumps of Lavender make a delightful gradation of soft colour.

The parting of ways between the formal and informal gardens is shown in fig. 53, the critical point being marked by a charming group of "Boy and Boar." Around the base are planted groups of *Garrya elliptica* and purple-leaved *Mahonia*, with which the lead statue tones well. We are informed by Mr. Edward White that it is but six years since the site was a bare bank of unpromising clay.

THE POMPON DAHLIA.

(Concluded from p. 120.)

BUT, nevertheless, the Pompon was raised, and probably in Germany. For many years we hear nothing about such a novelty. Those Dahlias we read of, and those that are figured in the horticultural press from 1830 onwards, are all of the large-flowered type. We can follow their development from single to semi-double, from semi-double to full double, and finally to the globular form of the old show Dahlia, as an ultimate result of long years of labour bestowed upon them by the florists of England, France, Germany and elsewhere. And I may well pause to inquire how, when, where and by whom did the Pompon really originate. Did that, too, have to go through the same slow process of development, or did it from a little single flower of eight or nine or more radial florets suddenly burst upon the astonished gaze of some German grower? Was it a seedling? Was it a sport from one of the larger forms? We know not. The only means by which such knowledge can be ascertained is by reference to contemporary German horticultural literature, and that at the present moment is not available. I suggest as a source of possible information the *Allgemeine Gartenzeitung*, or some such similar publication. And this because when the Pompons did definitely make their first recorded appearance, about 1860, in England they were known as German Dahlias, and many of them bore German names and their raisers were acknowledged to be German.

It is reasonable to suppose that the Pompon reached France before we knew it in England. My old friend Le Texnier, of Paris, a well-known authority on the history of florists' flowers, says, in his history of the Dahlia: "On doit aussi aux semeurs allemands, principalement à Sieckmann vers 1850, la création du Dahlia lilliput ou Pompon." Not a word, be it noticed, of the small-flowered race being known in a double form, either in his country or elsewhere, prior to 1850.

Rivoire, of Lyons, in his little manual, places its appearance about the same time. And France, as the reader knows from previous observations, had contributed her great share towards the improvement of the flower, the Count Lehier being one of the first raisers to start, which he did in 1808.

The years between that date and 1850 are full of the triumphant progress of the Dahlia as a show flower, but seek where he may the student of floral history will find not the slightest reference, before the latter date in English trade catalogues, in our periodical gardening press, or in the numerous treatises by English and foreign authors, to any form of the Dahlia other than those of the old show and fancy types.

Indeed, it is remarkable that the late Shirley Hibberd, when he read his paper on Dahlia history at the Centenary Conference of the National Dahlia Society in 1889, the most exhaustive and authentic inquiry of the kind, gave no indication at all of the origin of the Pompon section, and the same peculiar omission is noticeable in his paper on the same subject at the R.H.S. Dahlia Conference in 1890, and yet he must have been a living witness of their first introduction here and the zeal with which they were cultivated.

Of English trade catalogues available about the time indicated by Le Texnier, I have E. G. Henderson and Sons' for 1853. Dahlias and Fancy Dahlias are there offered, but no Pompons. The next we have is dated ten years later, and under the heading of Pompon or Bouquet Dahlia they say: "This novel section . . . is distinguished by a profusion of extremely miniature

blossoms . . . and bids fair to equal the finest Pompon Chrysanthemums." And this allusion is strongly suggestive of their later appearance, because the Pompon Chrysanthemum was first so called on account of its resemblance to the little round ball that used to be worn in front of a soldier's shako.

Messrs. E. G. Henderson and Sons published a handsome folio work in three volumes entitled *The Illustrated Bouquet*. In Vol. II., 1859-61, pl. LV., under the heading "Lilliputian or Bouquet Dahlias," they say: "The group of flowers portrayed in the accompanying plate represents a new section called Lilliputian or Bouquet Dahlias." What need was there in their catalogue and also in this work to describe them as "novel" and "a new section" if they had been known since 1808? The answer is obvious. In Vol. III., 1861-64, pl. LXXIV., others are depicted, and in the text the writer adds: "The dwarf or Pompon Dahlias are altogether flowers of modern creation."

In *Gossip for the Garden*, Vol. VIII., 1863, there is a contribution headed "Lilliputian or Bouquet Dahlias." There we read: "This interesting class of a very popular flower has only recently been brought into notice. Cut blooms have been exhibited at the London and other shows during the past two seasons and have attracted much attention." Another writer in the same publication had published in 1858 a paper on "Dahlia Classification," and in the volume for 1863 quotes a criticism from the *Gardeners' Chronicle* of 1862 in which the writer says: "We add a fourth group, which has sprung up since the paper was written—that of the Pompon Dahlia," and with which the writer of the article in *Gossip for the Garden* agrees as being "necessary by the recent introduction of the charming Lilliputian race which has sprung into existence since I first suggested my scheme."

This is evidence of a positive nature, and surely it must all point to one inevitable result—that prior to these references no Pompon Dahlia



[Photograph by Mrs. Frank Mead.

FIG. 53.—MORETON PADDOX, WARWICK.

(See p. 132.)

It is worthy of note that in their 1863 catalogue Messrs. Henderson mention the following varieties of Pompon or Bouquet Dahlia, viz., Bride of Saxony, German Boy, German Daisy, Little Wilhelmine, L. J. Schmincke, Rhenish Man, which are strongly suggestive of Teutonic origin.

But to go a step further to substantiate my contention that the Pompon Dahlia is of modern creation, I can find in the columns of the *Gardeners' Chronicle* nothing about Pompon Dahlias till we reach the volume for 1862. In the issue for February 22, p. 163, there is an article on the Dahlia, criticising it as a flower not suitable for decoration. The writer says: "We now turn to introduce and recommend a new race of them, the Pompon, or miniature-flowered varieties, to which some at least of the foregoing objections do not apply. The Pompon Dahlias," says this critic, "are, in fact, a new race of the well-known florist's Dahlia cultivated for so many years." Why, again, I ask, are they so designated if Pompons were raised, as is alleged, so many years before?

was ever known or seen, at any rate in this country. The origin of them was, as Le Texnier says, undoubtedly German, not, let us repeat, of the early part of the nineteenth century, but of the middle of it.

I take from John Salter's catalogue for 1866 the following names of Lilliputian varieties: Bräutchen v. Köstritz (Sieckmann), Colibri (S.), Deutsche Bellis (S.), Deutsches Goldhähnchen, Dinter, Fallmereyer (Deegen), Freier Knabe (S.), Friedensengel, Gluhwürmchen (S.), Kleines Goldlicht (S.), Kleiner Freund (S.), Kleiner Meister (S.), etc.—sufficiently German to need no comment. The raisers' names or initials in brackets confirm the fact. I may add that Christian Deegen, of Köstritz, a town long famous for its beer and flowers, began growing Dahlias in 1824 with a collection of twenty varieties, and at the age of 84 had had half-a-century's experience. His son, Max Deegen, continued in his father's footsteps, and is credited with having brought the Dahlia to a much higher degree of perfection in Germany than ever was the case before. Johann Sieckmann cultivated for forty years.

Herein our old friend George Gordon, of all the modern Dahlia historians, shows, in the quotation I have given from his work,* his clearness of vision in surveying the wide field of Dahlia history. Probably Sieckmann or the Deegens had a large share in the production of the first Pompons, and it may be other raisers too, for Saxony and the surrounding country was a great floricultural centre in the days when the Pompon Dahlia first appeared.

Such is a brief record of my investigation of a difficult subject. I have spent much time and labour in the task, and venture to express the hope that before other writers on Dahlia history repeat the erroneous story about the raising of the Pompon as given in *The Dahlia: Its History and Cultivation*, and several other small handbooks on the flower, they will give some attention to what I believe I have proved to be a statement utterly void of historical or cultural foundation. *C. Harman Payne.*

THE MARKET FRUIT GARDEN.

FIGS SPLITTING.

THE extent to which Figs have split this season is phenomenal, and the complaint of this misfortune appears to be common throughout the country, and to be applicable to the fruit under glass and in the open alike. Hardly a fruit has yet ripened without splitting more or less in about one-eighth of an acre of outdoor Figs grown by me. No approach to such a misfortune has ever occurred before in my experience. Probably it is due to the wetness of the subsoil after an extremely rainy winter, followed by a spring of frequent, though not very heavy, rainfall. Since June, at my station, the fall has been below the average, and for a month before August 14 there was an absolute drought. The orchard is well drained, but flat, and the subsoil is a stiff clay. But I am disposed to think that the splitting is a secondary symptom of brown rot, though I am not sure that the Fig is liable to that disease. In the late portion of the spring or early in the summer many ends of shoots died off just as those of Plums do when affected by brown rot; and later, before the splitting began, the crowns of many Figs became rotten. This was before the break up of the August drought; and, as for the splitting, the rainfall of 1.68 inch in the latter half of August does not seem enough to account for the extent of the damage. We have often had more rain when the fruit was ripening without a tenth of the amount of splitting.

EYE-ROT OF APPLES.

The rotting of the ends of Figs seems to resemble the eye-rot of Apples, noticed for the first time last season. This new disease (named "eye-rot" by Mr. Salmon) has again attacked Worcester Pearmain, but much less extensively than in 1915. The fungus causing this disease does not appear to have been identified at present. The spores of several fungi were found on specimens sent by me last year to three mycologists, but there was no evidence to show which was the originator of the disease. Of course, spores are likely to settle on any rotten parts of a fruit, and the point to determine is which of several species found, if any of them, caused the eye-rot. This year specimens of attacks just begun were sent to a mycologist, in the hope that the culprit might be detected. The result of examination has not yet come to hand. Apart from this disease, Apples are keeping remarkably well this season. Never before have I had so few rotten fruits after standing for two or three weeks in the barn or fruit-room as have been found this year. It may be added that the proportions of "scrumps" are also remarkably small on all varieties gathered at present. *Southern Grower.*

* *Dahlias* (Present-Day Gardening Series).

NOTES ON RASPBERRY CULTURE.

THE best soil for Raspberries is one of medium quality and richness. What are usually termed "holding loams" are good. Such soils encourage a firm and steady growth, not over-luxuriant, but strong and favourable to fruitfulness. On very light gravelly soils it will be advisable to add a moderate amount of clay or marl. Many soils, usually stiff and heavy, can be so worked as to make them admirably suited for Raspberry cultivation. Adding coal ashes, coarse sand, or other gritty material, with thorough and frequent moving and mixing, will bring them into suitable condition. A season's preparatory cultivation is sometimes requisite with very obstinate and retentive soils, for it is little use planting Raspberry canes if the ground is not friable.

Planting should be done early in autumn, after the young canes have turned brown, and before the foliage falls. If the task has to be deferred until after the foliage has fallen, the young canes should be pruned to within 3 inches of the ground, which will prevent their producing fruit the first season. Moderately strong growths will be the result, which will bear during the second year an average crop of fruit. It is a mistake to allow canes to carry fruit the first season, though they will do so naturally if left to themselves. Planting should be done in rows, leaving about 1 foot from root to root, and the rows should be about 6 feet apart. If they grow strongly they will be the better for being 2 feet further asunder.

A wire trellis, such as that used for espalier trees of Apples and Pears, is suitable for supporting Raspberries, and decidedly preferable to stakes. A suitable trellis will not need so many wires as is necessary for the above-named fruits, three moderately strong strands being ample. The height of the trellis should be at the least 5ft. 6in. from the ground. The highest of the three wires should be as near the top as possible, the lowest 18 inches from the ground, and the middle one at an even distance between the two.

Early in the season, after the young growths have fairly started, some of the weaker should be thinned out instead of being allowed to crowd the row until late summer. These must not be thinned too severely, but a third more canes than are required to be retained at pruning time may be left, and then cut down close to the ground; from these, the following season, strong canes will be produced.

At this season of the year all the old fruiting canes of Raspberries should be removed, and those for next season's fruiting secured to the wires, so that no more tying will be needed until the following autumn. Shorten the canes to the desired height as soon as all fear of the lower buds bursting is past. This should be done while the foliage is quite green; in fact, all the necessary pruning can be accomplished at this stage, except for the removal of the few last canes, which can be carried out directly the foliage commences to fall. The canes should be left 1 foot above the top wire, making them 6ft. 6in. in height.

Pruning and tying are completed early, before the weather becomes severe. At the first opportunity the annual dressing of manure can be given and spread between the rows. Digging among Raspberries is to be condemned, as it injures numbers of roots, which are always near the surface. If for the sake of appearance this has to be done, the manure employed should be short, and pricked in as lightly as possible with a fork. *James A. Paice.*

PUBLICATIONS RECEIVED.—*A Glossary of Botanic Terms*. Third edition. By B. Daydon Jackson. (London: Duckworth & Co.) 7s. 6d. —*Tree Wounds and Diseases: Their Prevention and Treatment*. By A. D. Webster. (London: Williams & Norgate, 14, Henrietta Street.) 7s. 6d. net.



The Week's Work.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

COLEUS THYRSOIDEUS.—When the plants of *Coleus thyrsoides* have filled their flowering pots with roots give them liquid manure from the farmyard, soot water, and some approved fertiliser alternately. If strong spikes of flowers are desired, no more than three or four shoots must be retained on each plant; the rest must be removed. Admit plenty of air to the plants whenever the weather will allow, and leave a little at the top of the house all through the night. This plant does not require a great deal of artificial heat; a minimum temperature of 55° to 60° will be ample, but the house must not be damped down very late in the afternoon.

BOUVARDIA.—Plants of *Bouvardia* which are growing in the open ground must now be lifted and potted. Get them up with a good ball of roots and pot them into suitable-sized pots. Place them in a house where they can be kept close and shade them for a few days until they recover from the check, syringing them two or three times a day. When the roots again become active and growth has stiffened up, gradually inure them to cooler conditions.

SCHIZANTHUS.—Another sowing of this useful plant may be made now for raising plants to flower later. Sow the seeds thinly in pans and place them in a cool house till they are through the soil. They may then be placed in a cold frame until sharp frosts are imminent. Pot on young seedlings from former sowings as soon as they are ready, and keep them growing steadily in a cool house, placing them near to the glass.

CLARKIA.—Clarkias make splendid plants for the conservatory or greenhouse, and form a useful succession to *Schizanthus*. Given liberal treatment, they make handsome specimens from 6 to 8 feet high. Sow seeds now, and treat them much the same as advised for *Schizanthus*.

MIGNONETTE.—Make another small sowing of *Mignonette* for succession. Sow the seeds in 3-inch pots and place them in a cool house. Thin the seedlings to three or four in a pot and place stakes to support them. When the pots are full of roots, move the plants into 5½-inch pots, and keep them growing slowly on a shelf in a cool house.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

VANDA COERULEA.—This delightful *Vanda* is producing its flower-scapes, and should be exposed to plenty of light, ample ventilation being allowed whenever the weather is favourable. The roots must be kept supplied with water, and the atmosphere fairly moist, until the flowers begin to expand. To secure the best results a separate house or division should be set apart for the cultivation of this species, as it requires more light and ventilation, and less atmospheric moisture, than other members of the genus. In such conditions the flowers are at their best. When the flower-spikes are removed the plants should be kept slightly drier at the roots until growth recommences.

VANDA SANDERIANA.—Plants that are in a healthy condition will be pushing up their flower-spikes, but it is not advisable to allow a weak plant to produce a scape. A position fairly near the roof-glass of the warm house should be chosen, and, until the scapes are removed, afford the roots plenty of water. *V. Sanderiana* requires warm-house treatment throughout the year, but ought never to become quite dry at the base. The supply of water, however, must be much less during the winter than in the summer months. Examine each plant for insect pests, especially scale, which is often present on the leaves. The insects must be washed off with a diluted insecticide.

COELOGYNE CRISTATA.—Plants in cool conditions are growing freely, and will in consequence require copious supplies of water at the root, but the plants must not be kept continually in a wet condition. If the plants have not been repotted for several years they will be benefited by an occasional dose of weak liquid manure from the cowsheds directly the new pseudo-bulbs are formed. Keep the plants near the roof-glass, and only give shade when the sun is hot enough to be likely to injure the foliage. Other plants of *Coelogyne cristata* grown in a warm house will soon be completing their pseudo-bulbs, and directly these are fully developed the water supply must be gradually reduced. In a few weeks only sufficient need be given to keep the pseudo-bulbs in a plump and rigid condition. Other *Coelogyne*s which have finished their season's growth may be treated in a similar way.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

CUCUMBERS.—Plants raised from seed, as advised about the middle of last month, will now be advanced in growth. Ventilate the plants on all favourable occasions, and supply a medium amount of moisture. Stop the shoots, and remove all male blossoms and fruits until required, afterwards cropping with moderation. Do not provide too much soil for the plants; rather give light, rich top-dressing when the roots appear on the surface. A night temperature of 68° at 10 p.m. will be high enough for the present. A successional sowing may be made at once, but unless the autumn be very favourable the plants are not likely to be of much value. Cut all decayed leaves off plants in full bearing, but do not remove too much foliage at one time. Give diluted manure water twice a week, and maintain a genial atmosphere that will encourage growth. If this be done the winter fruiting Cucumber plants need not bear fruit for some weeks yet.

LATE GRAPES.—Grapes in late houses should have finished colouring, or nearly so, but where such is not the case keep the water pipes warm and afford free ventilation on all favourable occasions in order to encourage the proper ripening of the wood and fruit. Keep all laterals pinched to admit sun and light to the interior of the house. Choose a fine, dry day for watering the borders, and carry this work out in the morning. Examine the bunches of Grapes on these and other Vines at short intervals, and remove any mouldy berries before they infect others with the fungus.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DAMPSTER, Keele Hall, Staffordshire.

CALYCANTHUS (ALLSPICE).—This exceedingly sweet-scented, deciduous shrub will thrive in any aspect. Flowering at different periods, it makes a capital plant for the shrubbery or wall, and will grow freely in most soils. *C. floridus* bears reddish flowers in May, and grows from 6 to 8 feet in height. *C. macrophyllus* is a larger variety than *C. floridus*, with sweet-scented dark crimson flowers, 4 inches across, excellent for walls, flowering continually from June to the end of September, and attaining a height of 10 feet. *C. praecox* bears yellowish flowers during the winter, before the foliage appears. It does best on a wall having a south-west aspect, and must be cut hard back directly after flowering. At present the young shoots should be neatly tied in, thinning them out only where necessary to allow the wood to ripen, for on these young growths next year's flowers will appear. A bowl of these fragrant flowers in a room will be greatly admired. Propagation should be commenced at once by layering.

HERBACEOUS BORDERS.—This is the season when herbaceous borders require closer and more constant attention than at any other time. Michaelmas Daisies will soon suffer if not kept securely tied. The borders are

bright and cheerful at the present time with *Helianthus*, *Chrysanthemums*, *Hollyhocks*, *Anemone japonica*, *Fuchsias*, *Gaillardias*, *Achilleas*, *Echinops*, *Kniphofias*, *Montbretias*, *Veronicas*, *Chelones*, *Gypsophilas*, *Anthemis*, *Gladioli*, *Liliums*, *Phlox* and many other plants. Precautions must be taken against wind, by tying and firmly staking the taller plants. All dead flowers and foliage must be cut off as they are observed. Scuffle the beds over, trim the verges, and rake the gravel paths. Take notes of any intended alterations or transplanting. *Erenuri* should now be lifted and transplanted, if this is necessary through overcrowding of the young shoots, pulling them apart and replanting the roots in a well-manured soil. A well-protected and sheltered position should be selected for them. Place straw or bracken round them during winter.

GENERAL WORK.—It is more necessary to strive to secure neatness in the flower garden now than at any time. Most of the hardy and half-hardy annuals are at their best, the different varieties making a glorious show, including *Asters*, *Stocks*, *Phlox Drummondii*, *Zinnias*, *Nemesias*, *Salpiglossis*, *Verbenas*, *Nigellas* and *Lavateras*, the indispensable *Larkspurs*, and *Lupinus Hartwegii*. Every effort should be made to prolong the flowering season. Dead flowers must be continuously picked off, whilst the staking and tying of the various plants will demand attention at intervals. Stir the soil between the plants after heavy rains, or it may cake. Collect notes of the different varieties, so that the proper steps may be taken for securing next season's display. Fallen leaves are commencing to be troublesome, giving a very untidy appearance if not swept frequently. Verges and lawns need to be kept neat and tidy, and any bare patches on the lawn should have attention, by lightly forking the soil and sowing a selected lawn grass seed. Rake the seeds in and run the roller over a few times to firm the soil.

VERBENA VENOSA.—Where a stock of this most useful flower garden plant is required for next year, the roots should be lifted and packed closely in boxes. Plenty of cuttings will then be obtainable from the young growths in the spring.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PLANTING STRAWBERRIES.—After making provision for some early borders of Strawberries, as suggested in a previous calendar, plantations for affording the main supplies will need attention. The earlier the plants can be got into their permanent positions the better the prospect of good results in the following season. When arranging in the kitchen garden for the future cropping of the kitchen garden, it is a good plan to select a piece of ground for Strawberries, and to trench and manure it during the winter months. It can then first be cropped with early or mid-season Potatoes, as these can always be taken up in time for planting the Strawberries. After the Potatoes are dug, very little extra work will be necessary to bring the soil into the best possible condition for planting Strawberries. By arranging the work ahead in this way, the trenching can be got through during the winter months, and by growing the crop of Potatoes on it the ground will have become settled down again. See that the Potatoes are thoroughly cleaned out of the ground, or the small tubers will be a source of trouble afterwards. Level the ground over, removing the larger stones and knocking down all lumps of soil. A dressing of wood-ashes, soot and lime, mixed well together, will be of great assistance to the young plants, if well incorporated with the staple soil. Draw out the rows 2 feet to 2½ feet apart, according as it is found that the Strawberry plants have grown very strong or the reverse. If the former is the case, 2½ feet is not too much, and about 2 feet between the plants in the rows. If grown closely, and a damp fruiting season is experienced, a large proportion of the fruits will be spoilt by damping, through the foliage obstructing the free circulation of air

round the fruits. The flavour of such fruits is always inferior to those fully exposed to the sun and air. If the young plants are in pots, see that they are thoroughly soaked with water the evening before planting. When turned out, the roots should be carefully disentangled and spread out evenly. Plant very firmly, and keep the base of the crown resting on the surface of the soil, planting too deeply being a common error. Water the plants in, and run the hoe through the bed afterwards. This hoeing should be repeated at frequent intervals to keep the beds free from small weeds. Remove all runners as they appear. If strong plants are put out, and a good autumn is experienced, a crop of fruit may be confidently anticipated, and the fruit from these young plants is usually of the best quality. Of varieties to select from, there are a number; it will be found those that succeed in one locality will fail altogether in another, and the best for a particular garden can only be proved by trial. That excellent variety, *Royal Sovereign*, succeeds almost everywhere, and should be planted largely for early crops, with *King George*, *Sir J. Paxton*, *President*, *Fill-basket* and *The Bedford* for mid-season, and *Givon's Late Prolific*, *Waterloo*, and *Laxton's Latest* for the latest crops. These are well-tried varieties and will maintain a supply of fruits for a long season, but it is a good plan to try other varieties on a small scale, and select those which prove to be best suited for the particular soil at hand. Where the beds are being retained for another season, a thorough cleaning up will be necessary, after the requisite number of runners has been removed. The recent rains have encouraged the weeds to grow very fast; these, the old runners, and the litter should all be raked off and burnt. Prick up the ground between the rows with a small fork, but on no account dig deeply. The pricking will make a loose surface for the hoe to work in afterwards.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

WEEDS.—At this season annual weeds grow rapidly, and a profuse crop may be expected, especially if some weeds were allowed to produce seed during the summer owing to shortage of labour. Make every effort to eradicate them before winter occurs, or such crops as Winter Onions, Spinach, Lettuce and Cabbages may be hopelessly smothered. The maintenance of water on the surface by weeds effectually prevents crops drying in any but the best weather, and excessive damp is the greatest enemy to winter crops. Use the hoe frequently between the drills and hand-weed the drills and other places where the hoe cannot be used.

SPINACH.—Make a final sowing of this vegetable out-of-doors. The directions given in a previous calendar apply to the present sowing also, but greater care should be taken in selecting a dry and well-drained site, and if necessary the bed should be raised to ensure good drainage. This applies to heavy clay soils which retain moisture and to sites in low-lying situations. It is also wise, if possible, to sow a small batch in a cold frame to ensure a supply in bad weather.

WINTER LETTUCE.—In warm districts a sowing of Black Seeded Bath Cos Lettuce may still be made, as previously directed, on a dry and warm site. Plants raised from a previous sowing should be transplanted immediately they are fit to handle.

PARSLEY.—Plants resulting from a July sowing should be transplanted to their final quarters in a sheltered position. At this season good drainage is more essential than the provision of rich soil. Transplant some of this batch into a cold frame for use in bad weather, or boxes may be utilised for this purpose.

CAULIFLOWER.—Make a final sowing of Cauliflower seed. Although it is late for sowing this vegetable, yet in some districts if a mild winter occurs Cauliflowers raised now may be found more useful than those sown earlier.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER, 41, Wellington Street, Covent Garden, W.C.**
Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.
Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, SEPTEMBER 19—
 Nat. Rose Soc. Show, R.H.S. Hall, Westminster.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 56.2°.

ACTUAL TEMPERATURE:—
 Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, September 14 (10 a.m.)*; Bar. 29.6°; temp. 54.5°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY—
 English and French-grown Bulbs, at 67 and 68, Cheapside, at 1 o'clock.
WEDNESDAY—
 English and French-grown Bulbs, at 67 and 68, Cheapside, at 1 o'clock.
 At 3 o'clock, large consignments of Bulbs.
 At the Mart, Tokenhouse Yard, E.C., at 2 o'clock, sale of the goodwill, stock-in-trade of dyed Palms, Fern caves, Office Furniture, etc., from A. H. Nicholas and Co., of Stoke Newington.
FRIDAY—
 English and French-grown Bulbs, at 67 and 68, Cheapside, E.C., at 1 o'clock.

Ultra-microscopic Parasites of Plants.

There appears to be no longer room for any doubt that organisms exist of such minuteness as to be invisible to the highest powers of the microscope; nor that among these denizens of this unseen world, some, at all events, are agents of disease. Evidence that certain diseases of animals may be brought about by such infra-microscopic microbes has existed for some years, but it is only recently that it has been forthcoming in the case of diseases of plants.

The first case to be thoroughly investigated is that of mosaic disease of Tobacco, but it is probable that the agency of ultra-microscopic organisms will be proven also in other plant diseases, as, for example, mosaic disease of Tomatos and leaf-roll of Potatos. The extraordinary difficulty of disinfecting a house in which mosaic disease of Tomatos has declared itself is well known to commercial growers. This alone might lead us to suspect that one of the ultra-microscopic is the agent of that disease, a suspicion confirmed by the discovery that it is possible to produce the symptoms of the disease by inoculating Tomatos with the virus of diseased Tobacco plants.

The existence of such ultra-microscopic organisms opens up new and difficult problems to the plant pathologist, for it may be taken as an axiom that the smaller the organism the more difficult it is to kill. This is certainly and wonderfully the case with the mosaic disease of Tobacco.

The "virus" of this disease is so resistant that it is not killed by ordinary doses of poison. Chloroform, ether, toluene leave it unscathed; formalin in less strengths than 1 in 800 fails to destroy it; and it passes easily through an ordinary filter.

Hence not a few investigators have held that the infective principle—a trace of which may set up disease throughout the whole of a plant—is not a living thing, but some potent but dead poison. But the only thing we know that is capable of growing and reproducing itself is the living organism. The recognition of this is at the base of the biologist's definition of life, so that it is more logical to invoke the existence of ultra-microscopic organisms than to believe in dead poisons which are able to increase themselves to an unlimited extent. One point of practical importance is worth noting in connection with the virus of mosaic disease of Tobacco, and that is that it is destroyed, by moist heat, at a temperature of about the boiling point of water. Hence it should not prove impossible to rid greenhouse soil of such infinitely minute pests, though how they are to be got rid of from the open ground remains a problem which the future must solve.

Radium and Plant Growth.*

The results of the first series of experiments carried out by Mr. Sutton on the effect of radium on plant growth have been described already in these pages. Apart from the inevitable and capricious occasional results which are always obtained in experimental plots, these results showed that radium has no marked effect on the growth of plants. The results of the second series point to a like conclusion, and we may conclude that the addition of radium salts to soil does not bring about any increase in yield. This conclusion, though negative, is very valuable to the horticulturist, for without it he might be tempted to incur considerable expense in the purchase of "radium fertilisers." With these results before him, however, the gardener will, if he be wise, spend his money on natural and artificial manures rather than on the radium fertilisers which are beginning to find their way on to the market. Mr. Sutton's trials were comprehensive. They embraced experiments with Tomatos, Potatos, Radishes, Lettuces, Vegetable Marrows, Carrots, Onions, and Spinach Beet. The radium ores and compounds which were tested include pure radium bromide, Lignaite, Nizama, Vanadium sand, McArthur's sand, slime or mine residue, "Ore B," pitchblend concentrates, and "Ore A." One or other of these substances was added to pure sand and to soil sterilised at 200 deg., and their effects were compared with those obtained by growing similar plants in pure sand or in sterilised soil, and in each

* *The Effects of Radio-Active Ores and Residues on Plant Life.* By Martin H. F. Sutton. A report of the second series of experiments carried out at Reading, 1915. Published by Sutton & Sons, Reading. 2s. 6d. net.

of these ingredients mixed in one case with farmyard manure and in another with complete artificials.

Mr. Sutton has analysed the results with great care, and concludes from them, rightly, as we think, that the fertilising virtues ascribed to radium are non-existent. This conclusion becomes very manifest if we group the results according to yield. Of the six trials, those with Tomatos, Potatos, Radishes, Vegetable Marrows, Carrots and Onions, those grown in sterilised soil with a complete artificial manure have three first places and three second places, those which were grown in sterilised soil to which radium compounds were added have one first place and two second places. Thus averaged, the conclusion drawn from each separate experiment is confirmed, and the value of radium as a fertiliser is seen to be practically nil.

Even in these occasional examples in which the pots or plots with radium give a somewhat better yield than those without radium, the increase—if it be due to radium, and not a chance result, common enough in field trials—is purchased at too great a price. For example, if we take the results with Potatos, we find that at a cost of 1d., spent on farmyard manure (used in the four pots), we may obtain an increase of two and a half pounds; but if we invest our money in radium fertiliser, we may obtain an increase of three and a third pounds at a cost of 3½d.; whereas for 2½d. spent on artificials, we increase our yield by seven and a half pounds—more than double the increase at a little more than two-thirds the cost.

One curious result emerges from these experiments, and that is the dearer the radium preparation the worse its effect as a fertiliser; nevertheless, even if they were to be had for nothing, radium compounds would appear to be of so little use as fertilisers as not to be worth acceptance by gardeners.

ABANDONMENT OF THE EDINBURGH SHOW.—

We are informed by Mr. DONALD MACKENZIE (secretary) that the Council of the Royal Caledonian Horticultural Society regrets that, owing to the conditions in the country caused by the serious depletion of labour, combined with recent unfavourable weather conditions, it will not be possible to hold the fruit and flower show arranged to be held in Edinburgh on the 13th and 14th inst. The Council has accordingly cancelled all arrangements.

PRESENTATION TO A NURSERYMAN.—

The Glasgow and West of Scotland Pansy and Viola Society (now known as the Scottish Pansy and Viola Society) has been in existence for twenty-two years. During that period the secretarial duties have been carried out by Mr. JOHN SMELLIE, Pansy Gardens, Busby, near Glasgow. He has now retired from his post as secretary, and on the occasion of the annual show of the Glasgow Horticultural Society, held on the 6th inst., the members of the Pansy and Viola Society presented Mr. SMELLIE with a sum of money as a memento of his long connection with them.

NATIONAL CHRYSANTHEMUM SOCIETY.—

The Floral Committee meetings of the National Chrysanthemum Society will this year be held at the Horticultural Hall, Vincent Square, Westminster, S.W. We are asked to point out that

there is a misprint on page 9 of the schedule of the November show. The dates of the show appear correctly in the heading as Thursday and Friday, November 9 and 10, 1916, but in giving the hours of opening the dates were inadvertently given as November 11 and 12. These should read as Thursday, November 9, 12 noon to 9 p.m.; Friday, November 10, 10 a.m. to 5 p.m. (subject to any special lighting regulations). If the present conditions continue, it may be necessary to close the show at 6 p.m. on the first day.

WINTER OATS.—In view of the uncertainty of the spring Oat crop in many parts of the country, the Board of Agriculture and Fisheries is suggesting to farmers, who have not already

a supplement to the work, setting forth a number of changes of nomenclature. These were made in consequence of the reception by the Arboretum of the *Journal of the College of Science*, of the Tokyo University, No. XXXIV., containing M. MIYOSHI's *Japanische Bergkirschen, ihre Wildformen und Kulturrassen*. As this publication was issued in Tokyo on March 10, 1910, it antedates *Cherries of Japan*.

SUNFLOWERS IN GERMANY.—According to a note in *Gardening*, Chicago, July 15, 1916, extensive growing of Sunflowers for the extraction of oil was practised last year in Germany. It is stated that it was so successful that school children are to be encouraged to plant Sunflowers along all the roads in Germany.

Town Hall free of charge; £50 has been subscribed towards the prize fund; and several large nurserymen have generously offered the whole of the exhibit they intend to make at the R.H.S. Show on the 26th inst. The committee has arranged to send a van to call at the R.H.S. Hall immediately after closing time, to take away these exhibits, and similar generosity on the part of any other of the exhibitors would be gratefully accepted. The secretary is Mr. W. H. ACGETT, Borough Offices, Thurland Road, Bermondsey, S.E.

WAR ITEMS.—News has reached Kew this week of the death of Private JOHN MACKENZIE CAMPBELL, of the Beavers' Battalion, Canadian Expeditionary Forces. Private CAMPBELL left



FIG. 54.—TERRACE GARDEN AT MORETON PADDOX.
(See p. 132.)

[Photograph by Mrs. Frank Mead.]

grown winter Oats, the desirability of giving them a trial this autumn. In the southern and south-eastern counties, in particular, winter Oats are, generally speaking, more reliable than spring-sown Oats. Further particulars can be found in the Board's Special Leaflet No. 36. Information as to the most suitable variety for any particular district may often be obtained from the Agricultural Organiser at the County Education Offices, or from the head of the local agricultural college, if any. Copies of leaflets may be obtained free on application to the Secretary, Board of Agriculture and Fisheries, Whitehall Place, London, S.W.

THE CHERRIES OF JAPAN.—We have received from the publishers of *The Cherries of Japan*, by Mr. E. H. WILSON, of the Arnold Arboretum,

HELP REQUIRED FOR A SHOW AT BERMONDSEY.—The Gardens and Open Spaces Committee of the Borough Council of Bermondsey, in the south-east of London, is organising an exhibition of flowers, fruits, and vegetables in the Bermondsey Town Hall on September 23 and 29. This is the first occasion on which such an exhibition has been organised, but so much has been done during the past two years in this poor and crowded district, chiefly by the efforts of the Vacant Land Cultivation Society, to awaken the interest of the inhabitants in the production of flowers and vegetables, that it is felt to be a fitting reward to their industry, as well as an incentive to fresh effort. Assistance has already been secured in many directions; the Council are lending the

Kew in 1906, and at the outbreak of war was employed in the Toronto Parks Department. He was the son of Mr. RODERICK CAMPBELL, of Ardrossan, Scotland. Other old Kewites serving with the Canadian Forces include Staff-Sergeant J. GILES, Victoria B.C.; Sergeant R. ARMSTRONG, Toronto; Private A. E. BAGGS, Vancouver, B.C.; Private E. HEALD, Alberta; and Captain the Rev. H. D. PEACOCK, Windsor, Ontario.

— A garden fête for the War Horticultural Relief Fund, in connection with the movement begun by the Countess of SELKIRK, in Kirkcubrightshire, was held at Cassenary, Creetown, the residence of Mr. HENRYSON CAIRD, on September 6. The Countess of GALLOWAY opened the sale, and upwards of £210 was the amount drawn.

The new Galloway district promoted a country market for the same object a few days ago, and the sum of £169 was obtained.

RED CROSS SALE AT KNARESBOROUGH.—The North of England Horticultural Society has arranged a Red Cross Educational Fruit Show and Conference, to be held on October 11 and 12. Papers will be read at the conference, including one by Dr. KEEBLE, F.R.S., Director of Wisley R.H.S. Gardens, on "The Organisation of Horticulture." The proceeds of the sale are to go, without deduction, to the Joint Red Cross Funds.

DISEASE OF LAVENDER CAUSED BY PHOMA LAVANDULAE.—A disease which sometimes causes considerable loss to growers of Lavender has been investigated by Mr. W. B. BRIERLEY,* who has demonstrated that it is due to a fungus—*Phoma lavandulae*—a species hitherto unrecorded in this country. The shoots of plants affected by the disease present a dry, dirty brownish grey colour, and the epidermis splits away in silvery flakes. Later the leaves wilt, turn brown, and shrivel. The disease may spread rapidly, and, starting on a single plant, may destroy the whole bed. Spores are produced in pycnidia, which occur as minute blackish-brown points, studding the surface of the diseased area. By infecting healthy plants with pure cultures of the fungus Mr. BRIERLEY has shown that this fungus (*Phoma lavandulae*) is the agent of the disease. It attacks various species of Lavender, *Lavandula officinalis*, *L. spica*, *L. vera*, and *L. lanata*, but appears to confine its parasitic activities to this genus. Inasmuch as the mycelium spreads through the deep tissues of the host plant, it is not likely that spraying will be of much use. Diseased shoots should be cut off and burned in order to prevent the formation of spores, which, if produced, may infect neighbouring plants.

HEALING PROPERTIES OF MOSS.—Sphagnum moss is being extensively used in the present war to provide first field-dressings for wounds. Speculations are made as to the theory of the moss containing any actual healing properties, besides the quality which makes it valuable, viz., resiliency, and the exclusion of air and germs from the wound. The moss grows thickly on Dartmoor, and it has been assiduously collected by many people for the purpose of field dressings. Those who are aware of the boggy condition of Dartmoor, and the misty and tearful weather which prevails there throughout the year, will appreciate the devotion displayed. A correspondent in *Notes and Queries* for August 19 states that he has found in an old MS. book of recipes several recommendations to use "moss from a dead man's skull" for various healing purposes. One of these recipes begins with the gruesome direction, "Take the moss of a dead man's skull that was never buried"—this, with "two ounces of man's fat" and other ingredients, to be "brayed in a mortar."

PRODUCTS OF MALAYA.—A recent report by the Acting Director of Agriculture (Mr. E. S. HOSE) on agricultural development in Malaya states that the climate and soil of Malaya are favourable to the growth of a large number of tropical plants of first-rate economic importance. Among such plants that have received the attention of the Department during the past year were the African oil Palm, Camphor, Cinchona, Tea, Coffee, Ipecacuanha, Cotton, wild Ginger, and Cardamoms (for paper-making), Croton oil, Eucalyptus, Brazil Nuts, Date Palm and Ground Nuts. Statistics of Coconut cultivation show that there were 82,250 acres under Coconuts in 1915, exclusive of the Straits Settlements. The area for the Federated Malay States was 54,822 acres, as against 58,027 acres in 1914. In 1915 there were 6,085 acres under Coffee in the Malay

Peninsula (exclusive of the Straits Settlements), of which 4,312 acres were in the Federated Malay States. A number of oil Palms in bearing at Kuala Lumpur for the past two years gave a yield of from 35lb. to 45lb. of nuts each palm per annum, and experiments are being made with varieties obtained as seedlings from Nigeria. Successful experiments have been made on the See Kee Estate with Caravonica Cotton. Sisal Hemp and other fibre plants have shown excellent growth on Gunong Angsi and at Kuala Lumpur. An experimental plant has also been set up to test the value of wild Ginger, and Cardamoms for paper-making.

ACREAGE OF THE CROPS.—The preliminary statement of the Agricultural Returns for England and Wales shows an increase of 20,760 acres in the total area under crops and grass. In arable land there was an increase of 85,190 acres, largely in the place of permanent grass, which shows a decline of 64,430 acres. Orchards occupy 251,320 acres, compared with 248,830 acres in 1915; an increase of 2,490 acres. Amongst other items giving the acreage of 1916 and 1915 are: Brussels Sprouts, 10,830, 9,990; Cauliflower or Broccoli, 8,600, 7,840; Carrots, 10,220, 9,250; Onions, 4,730, 3,840; Celery, 3,520, 3,810; Rhubarb, 6,850, 7,050; Chicory, 460, 340; Flax, 910,660; Hops, 31,350, 34,740; small fruit, 73,240, 74,190. As was expected after the very large increase last year, the area under Wheat shows a reduction, the total area, 1,912,000 acres, being a quarter of a million acres less than in 1915. The total is, however, much greater than in recent normal years, and (except for 1915) is the highest since 1899. Barley shows a recovery of 100,000 acres from the low record of 1915; but Oats show scarcely any change. Beans and Peas show considerable reductions; the area under these two pulse crops being about seven-eighths of that returned in 1915. Potatoes and Mangolds have both fallen off by some 35,000 acres, but Turnips and Swedes increased slightly. Among minor crops the chief alteration is in the acreage of Mustard (whether for seed or fodder), which is more than double that of 1915.

THE STORAGE OF FRUIT.—The importance of maintaining a low temperature in fruit-rooms is generally recognised by practical men. Nevertheless, the following figures, obtained in the course of experiments carried out in Moscow, are of interest as showing the serious loss of weight which fruit undergoes when kept in a temperature only a few degrees above freezing point. The experiments were conducted by Messrs. ZERETINOV and TCHERKACHINE in the laboratory of the Commercial Institute of Moscow.* At 7° C. (= 45° F.) the loss in weight of Apples is 3 times as great as it is at 0° C. (= 32° F.); the loss in weight of Pears and Grapes kept at 44° F. is 5 times that at 0° C. At yet higher temperatures, e.g., 15° C. (= 59° F.) the loss of weight is for Apples 5 times, for Pears 8 times, and for Grapes 11 times that which it is at 0° C. In addition to loss of weight, fruit deteriorates in quality in storage, the chief cause of deterioration being due to the respiratory process, the rate of which increases with the temperature to which the fruit is exposed. As a result of this process the sugar of the fruit is decomposed, with the formation of carbon dioxide and alcohol. In the course of a month the loss of sugar is in certain fruits 0.2 per cent. if the fruit is at 0° C.; 0.6 per cent. (3 times as much) at a temperature of 7° C. (45° F.); and 11 per cent. (55 times as much) at 15° C. (59° F.). Needless to say, control of temperature is not the only condition of success in storing fruit; nevertheless we may see in these figures the great importance of preventing the temperature of the fruit-room from rising too much.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables, Supplement, *Gard. Chron.*, August 5.)

(Concluded from p. 123.)

IRELAND.

CAVAN.—The display of bloom was good, but the flowers were injured by frost and hail. Aphis is very troublesome on Apple trees. *T. Shiels, Lancsborough Lodge Gardens, Bel-turbet.*

DOWN.—There are average crops of most fruits, and the quality is good. Cherries, however, dropped wholesale at stoning-time. The culture of Gooseberries will have to cease here, as the American mildew defies treatment. The season is late; warmth and sunshine are much needed. Our soil is a retentive loam. *T. W. Bolas, Mount Stewart Gardens, Newtownards.*

FERMANAGH.—Small bush fruits, Gooseberries and Black Currants in particular, were good crops, but three weeks late in ripening. Pears are a poor crop; the trees are very healthy, and flowered well, but a few nights' late frost when the fruits were setting destroyed them. Apples are also under the average, except for Bramley's Seedling, which is an average crop, and, from local information, is yielding a fair return in sheltered orchards. The fruit trees have a lot of canker this season. This is a very wet county, and the garden lies very low. The soil is heavy, with a little peat. *J. Moncrieff, Florence Court Gardens, Enniskillen.*

MEATH.—Apples do not seem likely to come to perfection, owing to the cold weather. There are no Pears. Plums are yielding under an average crop, and some varieties are a complete failure. Cherries are thin, and of poor quality. Peaches, Nectarines and Apricots are complete failures. There was a good crop of Strawberries, but the berries were late in ripening. *Michael M'Keown, Julianstown, Drogheda.*

MONAGHAN.—Pears and Apples are bearing light crops, owing, perhaps, to the heavy crops which they bore last year. Early Strawberries were average, but the berries of late varieties did not set well, and did not swell satisfactorily. This is a late district, and crops are later than usual. All kinds of fruit trees and bushes are clean and healthy. *J. Hepburn, Dartrey Castle Gardens.*

TYRONE.—The fruit crops are very backward, owing to the cold, damp season. As regards quantity, the crops will be fairly satisfactory, provided the weather is favourable for ripening. Insect pests have not been very troublesome, American blight and a little black fly on Cherries being the worst infestations. There are also traces of the Pear midge. Silver leaf among Plums is giving much trouble, particularly on the Victoria variety, which is most commonly grown in this district. Strawberries were very late. *Fred. W. Walker, Sion House Gardens, Sion Mills.*

CORK.—Apples, Pears and Plums are below the average. All small fruits were good, but wet weather delayed their ripening, particularly Strawberries. The low temperature when the trees were in bloom prevented the fruits from setting, and cold nights, accompanied by bitter winds, and drought from June 9 to 20, caused many fruits to drop. As a regular cropper Bramley's Seedling appears to be the outstanding variety amongst cooking Apples. The cold, wet spring prevented the rapid increase of many of the insect and fungus pests injurious to fruit trees. The season is fully a fortnight later than that of 1915. *J. Dearnaby, 17, St. Patrick's Terrace, Magazine Road, Cork.*

—Some Apple trees did not blossom at all. Frost and cold winds destroyed the Pear crop. The Codlin moth and other pests are not so bad as usual. *M. Colbert, Aghern Gardens, Conna.*

* *Bulletin of Miscellaneous Information, Roy. Gardens, Kew, No. 5. 1916.*

* *See Journ. d. I. Soc. Nat. d'Hortic. de France, XVII., Août, 1916.*

KERRY.—The whole of the hardy fruit trees were magnificent when in blossom, yet Cherries were the only fruit to set an over-crop. Pears and Plums set very poorly indeed, due, no doubt, to the severe gales and rains experienced at the time. Apples set fairly well, and are an average crop, but fruit dropping occurred among some of the younger trees. Strawberries and Raspberries were good crops, but the berries were of poor flavour. Other soft fruits were very good. Aphis has not been troublesome, excepting with Cherries and Plums. This is probably due to heavy rains, over 32 inches falling here during the six months ending June 30. The soil is variable, light loam over gravel and greenstone, and clay over limestone rocks. *Charles Bennett, Muckross Abbey Gardens.*

KILKENNY.—All fruit trees flowered profusely, but, owing to the abnormally mild January, Pears and Plums were too early in flower, and were injured by several very hard frosts. The cold weather retarded Apples until their usual flowering time, but this period was marked by low temperatures and very cold winds, resulting in a complete absence of pollinating insects. This, in my opinion, accounts for the wholesale dropping of embryo fruits. Strawberries yielded an average crop, but the berries were completely spoilt by the wet weather. Bush fruits generally, including Raspberries and Loganberries, were excellent, whilst outdoor Figs are carrying the best crop for some years. Plums and Damsons were early attacked by Aphis, but apart from this and a bad attack of Apple sucker, most fruit trees are clean and healthy and growing well. The weather of spring and early summer was the worst I have experienced here for nine years. Until July 7 only 54 days had been rainless, and the longest dry spell consisted of 10 days during June. *T. E. Tamalin, Bessborough Park Gardens, Piltown.*

TIPPERARY.—The Apple crop is small, especially when compared with last year. Gladstone, Bismarck, Stirling Castle and Worcester Pearmain are the only varieties that can be described as good. Lord Suffield, Mère de Ménage and Warner's King are fair, whilst dessert sorts, such as Cox's Orange Pippin and Ribston Pippin have very poor crops. Of nearly twenty varieties of Pears in my small town garden, Conference is the only one I can describe as good. It bears melting and delicious fruits every year, but only heavy crops every second year. Last year Jargonelle, Williams' Bon Chrétien, Marie Louise, Beurré Amanlis and Doyenné du Comice bore well; this year the trees are almost bare of fruit. Plums are a favourite fruit here, and although branch and root pruning are resorted to, the only reliable variety is Victoria, and at a considerable distance behind Victoria comes The Czar. The varieties Early Transparent, Pond's Seedling and Magnum Bonum gave large, fine fruits last year, and this seems pretty general. Greengages are not self-fertile, and so are dependent on pollination artificially or by bees. Apricots and Peaches on a south wall I have given up growing. Blackbirds get the choice Cherries. The dry weather spoiled the Currant crop, but Gooseberries were very good. *W. J. Murphy, Clonmel.*

KILDARE.—Owing to severe frosts during the flowering period, Apple trees failed to set any fruit, with the exception of Livermore Favourite, which is bearing excellent crops. American Gooseberry mildew is very bad in this district. The soil varies, but is principally cold clay, and sandy loam over limestone. *Fred Streeter, Straffan House Gardens, Straffan.*

KING'S COUNTY.—The Apple crop will be very light, owing, in a great measure, to the heavy crops of last year. The trees that cropped heavily did not bear sufficient blooms to produce even an average crop in the present season, but where thinning was done last season the trees in sheltered positions had average crops. Trees in exposed positions suffered much owing to very

cold winds, rain and hail storms. The crops are quite three weeks later than last year. *E. Clarke, Claremont, Garrycastle, Banagher.*

LIMERICK.—The fruit trees in spring promised to give record crops, but adverse weather conditions caused the blossom to set badly. Certain varieties of Apples have good crops, e.g., Blenheim Pippin, Lord Suffield, Worcester Pearmain, and Mère de Ménage; Cox's Orange Pippin, Charles Ross and Allington Pippin are the worst. Pears are yielding a poor crop; few trees are up to the average. Plums are a little better, but some trees are suffering from silver leaf, which was entirely absent last year. We had fine crops of all small fruits, particularly Gooseberries. The early Strawberries carried good crops of fruit, particularly Royal Sovereign. Brown rot is prevalent on Apple trees, a large number being attacked which were quite free last season. *Harry Nixon, Rockbarton Gardens, Kilmallock.*

QUEEN'S COUNTY.—Apples and Pears are bearing very light crops. There was an average number of blossoms, but, owing to the cold spring, the greater number failed to set. Plums set very well, but afterwards dropped. Green fly has

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

ROMNEYA COULTERI (see fig. 55).—The accompanying figure illustrates the spreading habit of this beautiful plant when growing in a congenial situation. Eight years ago our plant was 6 feet across; now it extends for 33 feet along a border 3 feet wide, at the foot of a wall facing south-west. The soil is very light, and the border often becomes extremely dry in summer without any apparent ill effect on the plant. The offsets, which appear to be root suckers, have come up at a distance of from 3 to 6 feet from the parent plant. The offsets exceed the parent in vigour, some of them being nearly 7 feet high. *T. E. Tamalin, Bessborough Park Gardens, Co. Kilkenny.*

NEED FOR A SMALL MOTOR CULTIVATOR (see p. 73).—*Southern Grower*, whose notes on the market fruit garden are so informative and interesting, points to the need for a motor cultivator. At the Holland House show some four years ago there was an exhibit of this nature made, I believe, by a French firm, but the price

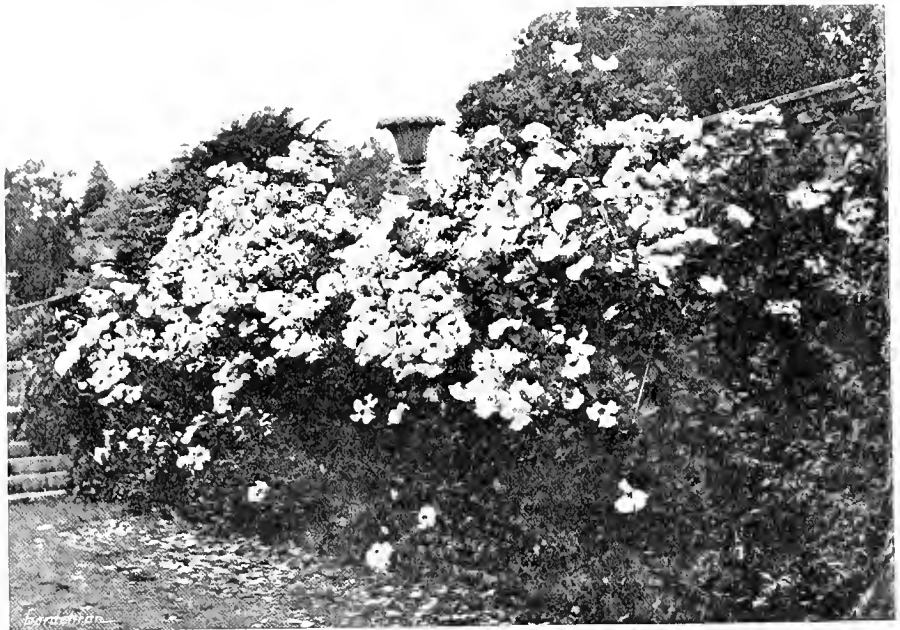


FIG. 55.—ROMNEYA COULTERI IN BESSBOROUGH PARK GARDENS, CO. KILKENNY.

been very prevalent. *G. McGlashan, Abbey Leix Gardens, Abbey Leix.*

WATERFORD.—The fruit crops, with the exception of Strawberries and Currants, are distinctly under the average. Apples will yield about half a crop. The varieties Lane's Prince Albert, The Queen, and Greandier are exceptions, these being very good. Dessert sorts are yielding very poor, thin crops. Victoria Plums are numerous; other cooking varieties are average in numbers; dessert varieties are also deficient. Outdoor Peaches are almost a failure. All fruit trees are remarkably healthy, and making good growth. Garden pests have not been very troublesome. The soil is light, on a marly bed. *D. Crombie, Curraghmore Gardens, Portlaw.*

CHANNEL ISLANDS.

GUERNSEY.—This season has been one of the most disappointing we have experienced. In spring the trees were full of blossom, but as a result of the cold, easterly winds the fruit crops in general are far below the average. *C. Smith and Son, Caledonia Nursery.*

JERSEY.—The fruit crops are very bad. The flowering season was promising, but after the terrible gale of wind we had in April both leaves and flowers fell off the trees. *T. Sherman, Imperial Nursery, St. Mark's Road, St. Heliers, Jersey.*

was, to my mind, prohibitive to the average man, being £30 or thereabouts. I consider that such a tool made for paraffin consumption, without unnecessary refinements, and with a set of interchangeable tools, including hoes, teeth, and perhaps a small moulding plough (somewhat of the style of the Planet, Jr., type, but stronger), would be a real boon to the small cultivator. Used as a stationary engine, it would serve for pumping or driving a spraying plant. Mechanical friends assure me that the making of such a machine is a very simple problem. I trust that some manufacturer of agricultural tools will give the matter consideration, for I feel sure that if the right article is placed on the market it will meet with a good demand. *Down South.*

ABSENCE OF WASPS IN IRELAND (see p. 116).—There is scarcely a wasp to be seen here, and I have only seen two nests, both above ground, which have since been destroyed. Queens, however, were numerous in the early part of the season, and as there was no inducement offered for killing, the majority of them went unheeded. Fruit, especially Plums, is very scarce. Outdoor Peaches are being badly attacked by flies and bees, which are clustering on them and destroying many fruits. *E. B., Fota Gardens, Queenstown.*

THE CROCUS SEASON.—Crocus Scharoajiani opened its golden flowers on the 1st instant, and was followed by *C. karduchorum* on the 2nd.

Now we shall not be without Crocuses until the spring species are over. *T. Smith, Daisy Hill, Newry.*

CANKER IN APPLE TREES.—Some bush trees of the variety Warner's King, planted here some twenty years ago in stiff soil, showed signs of canker in the main branches soon after planting. So strongly did the disease take hold that many of the main branches were almost destroyed. Ten years ago I cut the trees down to within a yard or so of the base, and all the branches affected and any small canker blemishes left on the branches were cut clean out and the wounds covered with gas tar. Close to the trees and around them for some yards the ground was trenched 3 feet deep, keeping the clay in its former position at the bottom as far as possible. Amongst the roots manure, decayed vegetable refuse and wood ashes were freely worked in. Since then the soil has had nothing done to it beyond an annual removal of weeds and grass in the spring, the rubbish being burned on the ground. The growth was vigorous from the base, the leaves being large, thick, leathery and of a deep green hue. Since then we have had plentiful supplies of good fruit from these trees. This year the crop is especially good. No trees could present a better appearance than these. I think this is evidence that canker is the result of defective root action, not of floating germs, as scientists would have us believe. *E. M.*

A PLAGUE OF CATERPILLARS.—In this district during the last month a plague of caterpillars has caused great destruction among plants of the Cabbage tribe. In some gardens whole squares of Brussels Sprouts, Cabbages and Cauliflowers have been reduced to mere skeletons, and in many cottage and farmhouse gardens the whole stock of winter vegetables has been ruined. During the latter half of July and onwards extraordinary numbers of common white butterflies were observed, *Pieris Brassicae*, *P. Rapae*, and *P. Napi* being about equally numerous, whereas earlier in the season they had been remarkably scarce. I should be interested to know if any entomologist could give a reason for this visitation. My own theory—for what it is worth as that of a casual observer of the habits of the Lepidoptera—is that the cold, wet weather which prevailed up to the middle of July kept back the broods of these insects, which in ordinary summers would have emerged from the chrysalides during May and June; and that the advent of very hot weather during the latter half of July brought all these broods out together, resulting in an abnormal number of the caterpillars being out and at work during the same period. The caterpillars are now beginning to crawl into houses and sheds in search of suitable situations in which to pupate. It would be interesting to know if this phenomenon is general over the United Kingdom this season, or if this district represents an isolated case. *T. E. Tomalin, Bessborough Park Gardens, Co. Kilkenny.*

FUCHSIAS AS BEDDING PLANTS.—As stated by your correspondent "A. O." (see p. 129), Fuchsias have been remarkably effective as bedding plants during the late changeable weather. In reviewing the varieties that are most popular for the purpose one cannot fail to be struck with the fact that they are chiefly very old sorts, the new varieties not seeming to take an equal place in popular favour. This may be owing to the tendency of raisers to aim at the production of very large blooms, which are liable to be blown off by rough winds. Among varieties with red sepals and white corolla, Madame Cornillon is very generally met with. This variety, which was sent out about 1860, is by no means superseded. Of double varieties of the same colour, Ballet Girl is still very popular. I do not know the date of its introduction, but should say that it was distributed over thirty years ago. A more recent variety of this class—Alice Hoffmann—came early into favour, and is largely grown. It is of dwarf habit, and bears its flowers in great profusion. It is often used as a groundwork for taller varieties. A good dark companion to this is Mrs. Ida Nowack. Among light-coloured flowers, Mrs.

Marshall, which was a popular market variety as long ago as 1870, still holds its own as one of the best, while Lady Heytesbury, sent out in the 'seventies of the last century, is in its way still unsurpassed. Rose of Castile, Lord Beaconsfield, and Mrs. Rundell are all old varieties. Of dark-coloured sorts with single blossoms, Delight, Charming, Scarcity, Marinka, Wave of Life, and the double forms Comte Léon Tolstoi, La France and Phenomenal are far removed from novelties. Of variegated-leaved varieties, I have known *P. gracilis variegata* for the last fifty years, and Sunray for nearly as long. Quite a distinct race, showing the influence of fulgens and triphylla, was received in this country a few years ago from the Continent. *W. T.*

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 12.—In conjunction with the customary meeting of the above society, the National Dahlia Society held its annual show at Vincent Square on Tuesday last. There were many beautiful Dahlia flowers displayed, and the competition in the Amateurs' classes was particularly good. Except in the competition for the Cory Cup, the Nurserymen's classes, on the contrary, were poorly contested. The Cory Cup was won by Messrs. CARTER PAGE AND CO. The joint committee of the R.H.S. and N.D.S. made 18 awards to new Dahlias; these awards included in each case the Royal Horticultural Society's Award of Merit and the National Dahlia Society's First-class Certificate.

The Orchid Committee recommended two Awards of Merit to novelties, one Cultural Commendation, and four Medals for collections.

The Floral Committee recommended two Awards of Merit to novelties other than Dahlias, and eight medals to collections.

The Fruit and Vegetable Committee recommended the Award of Merit to a Black Currant and two Medals to collections of fruit.

At the 3 p.m. meeting of Fellows in the Lecture Room Mr. E. A. BUNYARD delivered a lecture on "The History and Development of the Red Currant."

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Sir Harry J. Veitch, Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, W. Bolton, W. H. White, S. W. Flory, A. Dye, C. H. Curtis, J. Charlesworth, E. R. Ashton, Walter Cobb, Pantia Ralli, T. Armstrong, R. G. Thwaites, Stuart Low, R. A. Rolfe, Frederick J. Hanbury, A. McBean, and W. H. Hatcher.

There was an exceptionally good show of Orchids, eleven novelties being placed before the Committee, resulting in two Awards of Merit and one Cultural Commendation being awarded. For groups one Silver Flora Medal and three Silver Banksian Medals were awarded.

AWARD OF MERIT.

Cattleya Venus var. *Golden Queen* (*Iris* × *Dowiana aurea*), from Messrs. CHARLESWORTH AND CO., Haywards Heath. A noble flower, and one of the best of its section. The broad sepals and petals are bright cowslip-yellow, the broadly-expanded lip violet colour, with a distinct reddish base.

Cattleya Venus var. *Victrix* (*Iris* × *Dowiana aurea*), from PANTIA RALLI, Esq., Ashted Park, Surrey (Orchid grower Mr. W. H. White). A large flower of fine shape, with broad sepals and petals of a greenish-gold colour, with a bronze shade. The lip is ruby-red in front, and the base yellow.

CULTURAL COMMENDATION.

To Messrs. J. AND A. McBEAN, Cooksbridge, for *Dendrobium Sanderæ*. Two finely-grown plants, each with fifty to sixty large, pure white flowers, with purple lines on the sides of the lip, were shown.

OTHER EXHIBITS.

The DUKE OF MARLBOROUGH, Blenheim, Woodstock (Orchid grower Mr. Jas. Smith), was awarded a Silver Banksian Medal for a group of rare hybrids, which included

five specimens of the pretty *Cattleya Weedon aurea*, for which an Award of Merit was given at the last meeting, those now shown differing much in colour and form; two plants of the rare *Laelio-Cattleya Soulange* (*L.-C. Lustre* × *C. Dowiana aurea*), bearing fine rose-purple flowers with deep, reddish-purple lip, the yellow of *C. Dowiana* being quite obliterated. *Cattleya General Pulteney* (*Octave Doui* × *Tranae*) and other *Cattleyas*, and a good yellow form of *Brasso-Cattleya* Mrs. J. Leemann, were also included. A promising novelty, flowering for the first time, was *Brasso-Cattleya Enid Hye* (*C. Enid* × *B.-C. Madame Hye*), white, with yellow disc to the lip.

Messrs. CHARLESWORTH AND CO., Haywards Heath, were awarded a Silver Flora Medal for an extensive group of finely-flowered *Odontoglossums*, *Odontiodas* and *Cattleyas*. Specially noteworthy were the very handsome and distinct *Cattleya Adula Rayonata* (*Hardyana* × *bicolor*), with large, flatly-arranged sepals and petals, pale yellowish-buff tinged with lilac, the broad lip reddish-purple with lighter base; *Sophr-Laelio-Cattleya Laconia*, with pretty red flowers, and the showy *Odontoglossum Doris magnifica*.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, were awarded a Silver Banksian Medal for an interesting group of hybrids, which included a fine dark *Laelio-Cattleya Berthe Fournier*, the white *Cattleya Snowdon*, *C. Claesiana alba* and *C. Lord Rothschild albescens*. *Bulbophyllum grandiflorum*, with large white and olive-green flowers; the rare *Sophr-Laelio-Cattleya Ariadne* (*C. Schülleriana* × *S. grandiflora*), distinct in shape and of a warm red colour, was also shown, with red *Odontiodas* and some rare *Cypripediums*, including *C. Dallas* (*Curtisii* × *Fairrieanum*).

Messrs. J. AND A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a group with finely-flowered specimens of *Dendrobium Sanderæ*, varieties of *Cattleya Venus*, *C. Hardyana*, *C. Lord Rothschild*, *C. Parthenia* Prince of Wales, *Scarlet Odontiodas*, and the pretty *Brasso-Cattleya Bianca* (*B.-Sc. The Baron* × *C. Mendelii*).

PANTIA RALLI, Esq., Ashted Park, showed *Cattleya Adula excelsa*, pale yellowish rose colour with purplish-crimson front to the lip. Messrs. SANDER AND SONS, St. Albans, showed their new *Laelio-Cattleya Queen Marie* (*L.-C. Walter Gott* × *C. Dowiana aurea*), which resembles a good form of *Cattleya Adula*, with broad ruby-purple lip; a fine dark *L.-C. Invincible*, with four large flowers; forms of *Cattleya Lord Rothschild*, *C. acis*, the white *Oncidium incurvum album*, and the rare *O. Sanderæ*.

Mr. F. C. WATERS, Balcombe, showed a good form of his new *Laelio-Cattleya Fleury* (*L.-C. Issy* × *C. Dowiana aurea*), with greenish-gold sepals and petals tinged with rose, and three-lobed purple lip with yellow lines from the base to the centre.

Floral Committee.

Present: Messrs. H. B. May (in the chair), W. J. Bean, John Green, G. Reuthe, Geo. Harrow, J. W. Moorman, B. Crisp, C. R. Fielder, John Heal, Wm. Howe, Thos. Stevenson, John Dickson, C. Dixon, Herbert Cowley, Chas. E. Shea, E. H. Jenkins, George Paul, Edward Mawley, W. P. Thompson, James Hudson, Chas. E. Pearson and R. Hooper Pearson.

AWARDS OF MERIT.

Oxalis lobata.—A very dwarf-growing species with bright yellow flowers which measure seven-eighths of an inch across. The whole plant, including flowers, is less than 2 inches high. Shown by Mr. CLARENCE ELLIOTT.

Echinacea King of Echinaceas.—This is an improvement on *Echinacea purpurea*, and should be of great value for the hardy flower border. The erect flowers are of a rosy shade, very similar to those of *Rudbeckia angustifolia*. Shown by Mr. DOUNER.

NEW DAHLIAS.

The following varieties received an Award of Merit from the R.H.S. and a First-Class Certificate from the N.D.S.:

Dahlia Dandy.—A brilliant decorative bloom of large size and good shape. The colour is rich crimson. Shown by Messrs. BURRELL AND SONS.

D. British Lion.—This large Cactus variety has broad, slightly incurving petals of chestnut colour. The centre florets are of pale golden hue.

D. General Sir Douglas Haig.—A fascinating Cactus variety of large size, the petals being incurved make it a desirable show bloom. The colour is creamy-blush, and the tips of the young centre florets are yellow.

D. Lieut. W. L. Robinson, V.C.—An exceedingly attractive bright rosy-purple Cactus of medium size and good exhibition form.

D. Speedwell.—A small white miniature Cactus of great garden value.

D. Mrs. Margaret Stredwick.—A charming show Cactus flower of delicate silvery shell-pink colour with pale gold centre.

D. Challenger.—A handsome decorative flower of old gold colour flushed and tipped with rose.

D. Wyvern.—This decorative variety has an uncommon and rather difficult colouring, which may be described as lilac suffused with steely mauve. The above seven varieties were shown by Messrs. J. STREDWICK AND SON.

D. Eileen.—A pretty little single variety, which has a distinct band of rosy magenta, a golden zone and white tip.

D. Crimson Flag.—A small and apparently very floriferous decorative variety of rich crimson colour.

D. Admiral.—A deep, velvety crimson collerette variety with crimson-flushed collerettes. A bold, round flower. This and the two foregoing were shown by Messrs. J. CHEAL AND SONS.

D. Elegance.—A pretty star Dahlia of bright rosy-mauve colour. Shown by Mr. J. C. EMBERTON.

D. Lady Beatrice Stewart.—A very showy and desirable Paecony-flowered variety of bright satiny-rose colour. Shown by Mr. R. CORY.

D. Bonfire.—A vivid scarlet collerette variety of good type. The quills are heavily flushed with scarlet.

D. Yellow Queen.—A rich yellow self collerette of bold habit. Both were shown by Messrs. DOBBIE AND CO.

D. Miss Irwin.—A good garden Cactus Dahlia of bright mauve colour lightly suffused with purple.

D. General Joffre.—A fine decorative bloom of crimson colouring shaded maroon. These were shown by Messrs. W. TRESEDER, LTD.

GROUPS.

The following awards were made to collections:—

Gold Medal to REGINALD CORY, Esq., Duffryn, Cardiff (gr. Mr. A. J. Cobb), for a magnificent exhibit of Seedling Dahlias, all raised in his gardens. This display, which filled a length of tabling along the end of the Hall, was composed of varieties of great value for garden decoration. The decorative type was especially prominent, and included such desirable varieties as Florence Cory and Sappho. Of the Paecony-flowered selection, Mellila, Lucretia and Tipperary were especially noteworthy, as also were Coral and Peachblow amongst the many handsome singles.

Silver Flora Medals were awarded to Mr. J. S. WEST, Brentwood, for a fairly representative collection of Dahlias which was particularly rich in the varieties most suitable for garden decoration; to Messrs. ALLWOOD BROS., Haywards Heath, for a fresh and bright collection of first-class cut Carnations, which included Biston Wonder, warm lilac, and White May Day, a pure sport from the popular pink variety, two excellent novelties; and to Messrs. H. B. MAY AND SONS, Upper Edmonton, for a collection of greenhouse Ferns and shrubby Veronicas.

Silver Banksian Medals to Mr. G. REUTHE, Keston, for a collection of hardy border flowers and shrubs, mostly unnamed, and to Mr. W. WELLS, Junr., Merstham, for splendid spikes of Delphiniums, Aster Amellus King George, and other border flowers.

Bronze Banksian Medals to the Rev. J. H. PEMBERTON, Havering-atte-Bower, for similar Roses to those noted at the previous meeting, and to Messrs. CARTER PAGE AND CO., London Wall, London, for a collection of their charming Violas.

THE CORY CUP.

The handsome trade displays arranged in competition for the Challenge Cup presented by Reginald Cory, Esq., were an attractive feature of the show, and were judged by the Joint Committee. A staging 25 feet by 3 feet was provided for each exhibitor.

Messrs. CARTER PAGE AND CO., London Wall, London, were awarded the Cup. In their excellent display the best Cactus varieties received especial prominence, and of these John Riding, Fascination, Mrs. D. Fleming, Coronation and Honesty deserve special mention. Such Paecony-flowered sorts as Leo XIII. and Bayard were also of great merit, and at one end selections of perfectly formed but tiny Pompons were very attractive.

A Silver-gilt Flora Medal was awarded to Messrs. W. TRESEDER, Cardiff, for their display, which especially illustrated the value of the decorative section. The varieties Mrs. Kerr, Princess Julia and Liberty were splendid flowers.

A Silver Flora Medal was awarded to Messrs. J. CHEAL AND SONS, Crawley, who set up a good representative display; the Cactus, Pompons and Singles were all of great merit.

Fruit and Vegetable Committee.

Present: Messrs. Jos. Cheal (in the chair), W. Bates, Edwin Beckett, Geo. Kelf, Wm. Pope, P. C. M. Veitch, E. A. Bunyard, H. Somers Rivers, Wm. Poupard, W. Wilks, A. R. Allan, R. W. Metcalfe, H. Markham and Owen Thomas.

AWARDS OF MERIT.

Black Currant Daniels' September Black.—A first-rate variety. The many bunches of fruit, both gathered and on the branches, were large, firm, and Sloe-black in colour. The branches showed it to be a very fruitful variety. Shown by Messrs. DANIELS BROS.

GROUPS.

The following awards were made for collections of fruit:—

Silver-gilt Knightian Medal to J. A. NIX, Esq., Tilgate, Crawley (gr. Mr. A. Neal), for a very excellent collection of indoor fruit. Such Grapes as Muscat Hamburg, Muscat of Alexandria, and Madresfield Court were in large, shapely bunches of good finish. The Peaches included large, well-coloured fruits of Prince of Wales, Nectarine Peach, and there also was a fine dish of Pineapple Nectarine.

Silver Knightian Medal to Messrs. S. SPOONER AND SONS, Hounslow, for a splendid collection of Apples and a few other fruits. The most attractive of the Apples were Lady Sudeley, James Grieve, Duchess's Favourite and Worcester Pearmain. Bullaces Langley and the Black were also shown.

The committee desired to see again some seedling Apples shown by Messrs. Laxton.

NATIONAL DAHLIA.

COMPETITIVE CLASSES FOR NURSERYMEN.

The two exhibits of 24 show and fancy Dahlias were both good examples of these old-time types. Mr. S. MORTIMER, Farnham, won the 1st prize with typical blooms of such varieties as David Johnson, Gloire de Lyon, Arthur Rawlings, George Dickson, and Brown Bess. Messrs. W. TRESEDER, LTD., Cardiff, who were awarded the 2nd prize, had especially good blooms of George Rawlings, Purple Prince, and H. Keith. Messrs. W. TRESEDER, LTD., were the only exhibitors of 12 fancy Dahlias, and were awarded the 1st prize for a very good collection, which included F. Perryman, Emin Pasha and Wm. Saunders.

Although they found no competitor in the class for 18 varieties, 6 blooms of each, of Cactus Dahlias, Messrs. J. STREDWICK AND SON, St. Leonards-on-Sea, who were awarded the 1st prize, arranged such a magnificent display that it would have been difficult to excel. Besides such novelties as Mrs. Margaret Stredwick, Gen. Sir Douglas Haig, Lieut. W. L. Robinson, V.C., and British Lion (see awards), there were splendid examples of A. R. Perry, Sussex, and John Riding, Messrs. J. Stredwick and Son were also alone in the class for 48 Cactus blooms, and

they were awarded the 1st prize for a splendid collection. The best blooms were of the varieties H. H. Thomas, Mabel, Horace, F. W. Fellowes, Dora, and Mrs. Margaret Stredwick.

Messrs. Wm. TRESEDER, LTD., were similarly successful in the class for 24 Cactus blooms, where they exhibited beautiful examples of Johannesburg, Erin, Richard Box and Glory of Wilts. Messrs. J. CHEAL AND SONS, Crawley, the only exhibitors of 12 vases of garden Cactus Dahlias, were awarded the 1st prize, which well illustrated the great decorative value of this section. Such sorts as Coral, Rose Queen, Victory and Edith Carter were very charming. The dainty little Pompon Dahlias in this section were shown only by Mr. C. TURNER, Slough, who staged them in excellent condition, and obtained the 1st prize. Each of the 24 varieties deserve mention, but we must content ourselves by naming Nerissa, Johnnie, Jessica, Glow, Little Beeswing and Orpheus.

Messrs. J. CHEAL AND SONS had no competitor in the class for 24 varieties of Single Dahlias, and they were awarded the 1st prize. Their display of this section, which they have developed considerably, was especially beautiful, and it included Leon, Mrs. Joyson Hicks, Snowdrop, Cardinal, Lady Bountiful and Bridesmaid.

Mr. C. TURNER, Slough, was awarded the 1st prize for 6 vases of Paecony-flowered Dahlias, and for a decorative vase of the same type, and in each instance he showed excellent blooms.

Collerette Dahlias were not of such high merit as the foregoing. The best exhibit of 12 varieties was shown by Messrs. J. CHEAL AND SONS, while Mr. C. TURNER was 2nd.

Mr. C. TURNER, with a superb display of such varieties as Yellow Colosse and Papa Charmet, won the 1st prize for 6 varieties of decorative Dahlias, in which class Mr. J. A. JARRETT, Anerley, was a good second; his blooms of Souv. de Gustave, Douzon and Futurity were very handsome.

AMATEURS' CLASSES.

There was a gratifying competition in these classes, and the blooms were of great merit. The Silver Challenge Cup offered for 24 blooms of show or fancy Dahlias, distinct, was won by Mr. S. COOPER, Chippenham. He showed praiseworthy examples of such sorts as Maud Fellowes, Mabel, and Shottesham Hero. Mr. S. T. WHITE, Eastleigh, was a good second.

Mr. A. P. IRONSIDE, Chippenham, won the 1st prize for 12 blooms, and Mr. J. WAITE, Chippenham, was similarly successful with 6 blooms of show and fancy Dahlias.

The Silver Challenge Cup for 6 vases of garden Cactus Dahlias was won by the Rev. A. BRIDGE, Worth Rectory, Three Bridges, with a fascinating display; his blooms of Mrs. Landale and Hon. Mrs. Greville were magnificent. Mr. M. HOWARD, Chesbunt, was 2nd with two well-arranged vases. Mr. C. LUCKIN won the 1st prize for 2 varieties of Cactus Dahlias, and was also 1st with 12 blooms of Cactus Dahlias. Mr. F. W. FELLOWES, Hitchin, won 1st prizes for 9 vases and 24 blooms of Cactus Dahlias. Mr. G. J. PRIOR, Hitchin, won the 1st prize for 6 vases, Mr. S. F. WHITE was 1st for 12 blooms, and Mr. G. H. COOPER with 6 blooms, all of Cactus varieties. Mr. J. A. JARRETT, Anerley, won 1st prizes for a vase of Star Dahlias, 4 vases of decorative varieties, 6 vases of Paecony-flowered, and in the two classes for 6 vases of Collerette varieties with excellent exhibits.

In the classes for Floral Decoration, Mr. A. TOFIELD, Chandlersford, arranged the best basket of Dahlias, and Mrs. S. T. WHITE, Eastleigh, the best vase.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

SEPTEMBER 6.—There was an exceptionally large attendance at the Glasgow Flower Show on the above date, and the proceeds, which were given to the Red Cross and other war funds, reached a record figure. The exhibition lasted two days, and was in every way a success, the quality and quantity of the exhibits leaving little to be desired. The two leading features

were Roses and Sweet Peas, while among cut flowers Dahlias also played an important part. The opening ceremony was performed by Lady Jellicoe, in the presence of a large and distinguished gathering, presided over by Sir John Stirling Maxwell. There were classes for pot plants, including Palms, Ferns and ornamental foliage plants, as well as flowers. Some of the chief prize winners in this group were Mrs. A. ROSE (gr. Mr. J. Templeton), Downhill; Mr. T. NELSON, Rutherglen; and Mr. MICHAEL TULLY, 65, Glebe Street, Glasgow. There was a great show of cut flowers, including Gladioli, Roses, Sweet Peas, Dahlias and other popular favourites. In the classes for Roses, open to amateurs and gardeners, Mr. JOHN RUSSELL, of Newton-Mearns, won the chief honours. For Dahlias Mr. G. A. TURNBULL, Fasland Cemetery, Gareloch, and Mr. JAS. PAUL, Drumbeg, Killearn, obtained most of the honours. The fruit was of a high standard, and the exhibits were numerous. The chief prize winner was Mr. DAVID HALLIDAY, Rothesay, who gained the first place in three classes for Grapes, as well as several second prizes for various fruits. The collections of vegetables were exceedingly creditable, and gave evidence of careful cultivation. There were a number of non-competitive exhibits, in connection with which Gold Medals were awarded to Messrs. AUSTIN AND MCASLAN, Glasgow; Messrs. DOBBIE AND CO., Edinburgh; and Mr. W. LEIGHTON, Glasgow; and a Silver Medal to Messrs. BLACKMORE AND LANGDON, Bath.

DUNDEE HORTICULTURAL.

SEPTEMBER 1.—The annual meeting of the Dundee Horticultural Association was held on the above date. The Lord Dean of Guild Dickie, the hon. president, was in the chair. The reports of the secretary and treasurer were adopted. It was decided that the names of those who were on war service should remain on the list of members of the society.

The following office-bearers were appointed:—Patron, the Earl of Moray; hon. president, Lord Dean of Guild Dickie; president, A. MacRae; vice-presidents, James Beats, Binrock; E. Storrle, Glencarse; and J. Laurie, Blackness; secretary, Mr. D. C. Hutcheson; treasurer, Mr. T. C. Brown; librarian, W. Robertson.

The secretary reported that the arrangements for the winter's work had been completed.

Exhibits of *Astilbe Davidii* were submitted by Mr. Beats, Binrock, which illustrated the difference between a plant grown in an ordinary herbaceous border and one grown in a water garden.

GENERAL 'BULB GROWERS' OF HAARLEM (HOLLAND).

THE Floral Committee of the General Bulb Growers' Society of Haarlem made the following Awards at the meetings in May, June and July, 1916. The descriptions are those furnished us by the secretary:—

FIRST-CLASS CERTIFICATES.

Gladiolus Majestic (orange-scarlet, sulphur-yellow spot), *Dutch Iris Nuchtenburg* (white, shaded light blue, falls yellow and orange).

AWARDS OF MERIT.

Narcissus Albion (creamy white), *N. Invincible* (perianth pure white, crown canary-yellow and orange), *Dorwin Tulip Afterglow* (salmon, shaded orange and carmine), *Single Late Tulip Grenadier* (orange-scarlet), *Iris Edouard Michel* (dark purple, self colour), *I. Dutch Wymonts* (standards violet-blue, falls greyish-blue), *I. Regilio cyclus Hera* (standards mauve, falls dark red and mauve, veined yellow), *I. R. c. Isolda* (standards yellow and brown, falls old gold, veined brown), *Trollius Advance* (clear yellow), *T. Golden Wonder* (orange), *Cottage Tulip Aphrodite* (clear yellow and green, stamens brown), *Lupinus polyphyllus Lioba* (deep salmon-pink), *Papaver orientale Loreley* (scarlet, spotted black), *Paeonia sinensis Niobe*, *P. s. Sylvia*, *P. s. Sarah Bernhardt* (rose and salmon), *P. s. Konigin Wilhelmina* (mauve-pink), *Delphinium hybridum von Veen's Triumph* (mauve, shaded violet), *Gladiolus nanus Spitzfire* (scarlet, spotted light blue), *G. gondavensis Brimstone* (light

sulphur-yellow, shaded carmine), *G. la Grandesse* (creamy white, shaded sulphur-yellow), *G. primulinus l'Or d'Australie* (clear yellow, self colour), *G. p. Reine Victoria*, *G. p. Solfatore* (clear yellow, shaded green).

CERTIFICATE OF THE HAARLEM TRIAL GARDEN.

Iris hispanica Hollandia, *I. h. Giant*, *I. h. Yellow Perfection* (yellow).

Obituary.

THOMAS FRASER.—We regret to record that Mr. Thomas Fraser, for forty years nurseryman and seedsman of Dumfries, died at his residence, Glenholm, Edinburgh Road, Dumfries, on the 1st inst., Mr. Fraser, who was 77 years of age, was a native of Inverness-shire. Prior to establishing his business in Dumfries he filled the position of gardener at Rahan House, Broughton, Peebles, for several years. He was greatly respected, and was a competent and reliable judge at horticultural exhibitions. He retired from business five years ago.

REPLY.

RECIPE FOR COOKING ASPARAGUS PEA.

IN reply to A. N. (see p. 118), I may say that the following recipe, recommended by Lady Lawrence, is published in a report of the proceedings of the Scientific Committee, R.H.S. *Journal*, XLI, 3, May 16, p. xciv. —The pods are cooked whole. Boil for 20 minutes in salt and water, with a pinch of soda, strain off, and put in a saucepan with the following sauce: 1 tablespoon of cream, a pinch of salt and pepper, and a small piece of butter. Cook for 10 minutes. F. J. C.

ANSWERS TO CORRESPONDENTS.

ATROPHY IN TREES. Will the correspondent who asked a question on the subject of atrophy in trees kindly send us her name and address? A letter addressed to her has been returned to us marked "not known."

CATERPILLAR ON WILLOW: G. P. H. The caterpillar is that of the Privet Hawk-moth, *Sphinx ligustri*. It is very common throughout the southern and south midland counties of England, but is scarcely known in Scotland. When quite full fed the larvae are nearly three inches in length. At this stage the colour of the body becomes dull and the larvae cease to feed, descend, and bury themselves two or three inches deep in the ground, where they undergo a change to the pupa stage. The perfect moths appear in June and July, and are very handsome, with a wide expanse of wings. The caterpillars feed on the common Privet and on similar plants. They can often be found where Privet is grown, and even if not seen their presence can be ascertained by the little oblong bundles of masticated leaves which are to be found under the trees where they feed.

DANDELION WINE: *Subscriber, Norway*. In the British Isles Dandelion wine is one of the most popular of home-made wines. There are various methods of preparing the beverage, but the following recipe may be recommended as one of the best:—Pour over a quantity of yellow Dandelion blossoms an equal volume of warm water that has been previously boiled. After stirring the mixture well, cover it with a blanket, and allow it to stand three days, stirring at frequent intervals. Strain off the liquid from the flowers, and boil it for half-an-hour, with the addition of the rind of a Lemon and the rind of an Orange to each gallon, and a little ginger. During the time of boiling add $\frac{3}{4}$ lbs. of lump sugar to each gallon of liquid, and the lemon and rind of which has previously been removed. When lukewarm, ferment with yeast, placed on a slice of toast. After about two days put it in a cask. It will be ready for bottling in two months. This wine is said to be specially beneficial to persons suffering from liver complaints.

FLY ON ROSES: C. W. The insect forwarded is one of the so-called Hover-flies (*Syrphus ribesii*); they are lovers of sunshine and are frequently seen hovering over flowers. Since the larvae of many of the species attack and devour plant lice, they are generally considered beneficial.

FRUIT ROOM: P. R. You will find an article on the construction of the fruit room at Dover House, Roehampton, in our issue of November 6, 1909. The article is fully illustrated, and should give you all the information you require for the construction of a first-rate fruit store.

GLOBE ARTICHOKE: W. H. W. These have the appearance of being seedlings. We do not recognise them as amongst the best varieties in general cultivation.

GRAPES DISEASED: A. F. B., *Sussex*. The Grapes appear to be attacked by the Gloeosporium ampelephagum, but the bunch arrived in such a crushed condition that it was difficult to be sure. Grapes should always be sent carefully packed with shavings or sawdust in a wooden box. For treatment, see reply to H. P. in the issue for August 19, 1916.

INSECT ON CATTLEYA: H. W. The specimen sent is *Necrophorus ruspator*—one of the "Burying Beetles." These insects lay their eggs on carrion which they have previously buried.

NAMES OF FRUITS: *Triton*. The White Grapes are of the Sweetwater type. We cannot determine the variety from the small portion of a bunch received. 2. Not recognised. 3. Probably under-sized Gros Colman. 4. An American variety, not commonly cultivated in this country. The fruits, when mature, are very sweet and pleasant to the taste. 5. Black Hamburg. For the proper identification of Grapes it is necessary that we should receive a whole bunch of each variety, as typical in shape as possible, and the berries of average size. Some of the foliage of the vine should also be sent.

NAMES OF PLANTS: *Rubus*. *Rubus villicaulis* var. *elegans*. The fruits are edible.—*Triton*. 1. *Inula ensifolia*; 2. *Salvia* sp. (send better specimen); 3. Send when in flower; 4. *Tacsonia* sp. (send when in flower); 5. *Hoya bella*.—*Rex*. *Mormodes luxatum eburneum*.

POTATOS: A. L. The Factor and King Edward are both main crop Potatos, but the variety King Edward can be successfully forced and shown in good condition early in the season. The time of maturity varies according to the soil and local and climatic conditions. The varieties named would probably mature about the same time under normal conditions, but no definite rule can be laid down.

POULTRY MANURE: I. C. R. The poultry manure will have lost some of its nitrogen by having been mixed with lime, but it may still be used with good effect as a fertiliser, and the lime will also be useful.

SEED EXPERT: F. E. A. We should consider that the term "seed expert" might with equal propriety be applied to a man who grows crops for seed and to one who is engaged in grading seeds for sale. From the particulars you give we should be opinion that you would be justified in describing yourself as a seed expert.

SOLLYA HETEROPHYLLA AND ERINACEA PUNGENS: *Shrub*. *Sollya heterophylla* is a blue-flowered climber that is not hardy in this country. *Erinacea pungens* is a dwarf, spiny shrub that is very difficult to grow. It can only be grown at the foot of a warm, dry wall, and even then does not always succeed. Although introduced in 1759, it is still one of the rarest of hardy shrubs. The flowers are purple-blue.

Communications Received.—H. V. L.—E. Sheen—Miss W.—I. C. R. (Next week)—W. Grover—D. & R.—F. B. C.—G. E. B.—J. B. P., Dutch Guiana—A. Chapman (Many thanks)—C. W. C. (Photograph received)—A. L. M.—H. B.—A. W.—J. A. P.—H. S. T.—R. T. W.—G. M. T.—L. B.—U.S.A.—F. J.—J. T. H.—E. B.—W. B.—G. S.—G. M.—Ovum—W. E.—W. R.—Miss A.—J. C. S.—T. C.—W. J. C.—Constant Reader—P. J. P.—J. Comber (the letter has been forwarded to Mr. Forrest).

THE

Gardeners' Chronicle

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WHEN WAS THE DAHLIA FIRST INTRODUCED INTO ENGLAND?

IN the following notes I am going to lay before the readers of the *Gardeners' Chronicle* a brief statement of facts that have led up to what may be considered by students of floricultural history as one of the most interesting discoveries in recent years.

For more than a hundred years we have been told by every writer on the history of the Dahlia that it was first introduced into this country by the Marchioness of Bute in 1789. To mention only a few: Phillips, in his *Flora Historica*, 1829; Sir Joseph Paxton, in his *Practical Treatise on the Cultivation of the Dahlia*, 1838; G. W. Johnson, in *The Dahlia: Its Culture, Uses and History*, 1847; Dr. Hogg, in *The Dahlia: Its History and Cultivation*, 1853; Shirley Hibberd, in his *Garden Favourites: the Dahlia*, in 1858; to say nothing of a large number of lesser lights in the horticultural world right down to the most modern writer on the subject, George Gordon: all have concurred in giving the Marchioness of Bute the credit of being the first introducer of the Dahlia in 1789. So certain did this fact appear to be, and so unquestioned by everybody interested in the subject, that the National Dahlia Society organised a special show and conference in 1889 to celebrate the centenary of the event.

It must be remembered that there were two introductions of this flower, the first by the Marchioness of Bute, and the second by Lady Holland in 1804. It is curious that in no case does any writer state whether the Marchioness of Bute introduced one or more varieties. Some of the historians speak of it in the singular, but all are agreed that the Dahlia or Dahlias introduced by her were lost, and that the uninterrupted cultivation of the Dahlia in this country begins with the second introduction of it by Lady Holland.

For some time past I have been pursu-

ing a course of critical study in Dahlia history. I have been testing the facts and data given by many of the writers, and, what is of more importance, I have been verifying the dates of many of the occurrences stated, and this study has led me to the discovery that the date assigned to the Marchioness of Bute's introduction is an error—an error that has remained undetected for upwards of a century.

The earliest authority for the statement that we are indebted to the Marchioness of Bute for the first introduction of the flower is the *Hortus Kewensis*. In Vol. V. of that work, second edition, published 1813, it says: "Introd. 1789 by the Marchioness of Bute." This in itself is a somewhat belated statement and a very bald one, made, as the reader will see, twenty-four years after the supposed event. And it is all the more curious because between 1789 and 1813 several writers on the newly introduced flower make no reference to the Bute introduction.

In 1804 the *Botanical Magazine* gave a coloured figure of *Dahlia coccinea* (t. 762), grown the previous year by Mr. Fraser, of Chelsea, who had received the plant from France, but in the letterpress no mention is made of any previous introduction. In Vols. VI. and VII. of Andrews' *Botanists' Repository*, about the same time, Dahlias introduced by Lady Holland are figured and described, yet no reference to the introduction by the Marchioness of Bute appears. Mr. R. A. Salisbury, in *The Paradisus Londinensis*, Vol. 1., Part 1., 1806, also figures and describes some of the Lady Holland introductions without alluding to previously known varieties, and the same gentleman, in *The Transactions of the Horticultural Society*, Vol. 1., gives an historical and botanical account of the different species of the Dahlia in Great Britain, starting with the Lady Holland introduction and quite ignoring that of the Marchioness of Bute. This paper brings us up to the year 1808.

But if these authorities took no account of the first introduction, it was not so with Mr. Buonaiuti, the librarian to Lord Holland. In a communication to Alexander McDonald's *Complete Dictionary of Gardening*, 1807, Vol. II., this author, who gives details of Lady Holland's newly arrived seedling Dahlias, adds: "The first Dahlias introduced into England were lost by taking too much care of them." Hence we have the satisfaction of learning that the Bute introduction was known beyond those immediately concerned.

Limitations of space compel me to condense the details, and in order to explain briefly the course pursued it is only necessary to state that, as some of the early authorities declare that the Marchioness of Bute was wife of the British Ambassador at Madrid in 1789, that statement suggested a line of enquiry which led to the following results:

In 1789 there was no such person as the Marchioness of Bute—the marquise was not created till 1796. There was a Lady Bute, the wife of John, third Earl of Bute, but he lived in retirement in the country after his political career was

ended. I mention this fact because the marchioness is frequently referred to as "Lady" Bute. And, considering that the wife of John, Earl of Bute, did not die till 1794, she might, through correspondence, have been the introducer of the Dahlia five years before her death, especially as her husband was greatly interested in botanical and scientific pursuits.

But any doubts as to the identity of the two ladies are dispelled when we learn from official sources that John Stuart, Viscount Mountstuart (afterwards first Marquess of Bute), was appointed British Ambassador at Madrid in 1783. He held that post for a few months only, and was re-appointed twelve years after—i.e. in 1795.

It must be borne in mind that the first Dahlias were not known in Europe till 1789, when Cavanilles, of the Madrid Botanic Garden, received them from Cervantes, of Mexico. They apparently flowered in 1790, and Cavanilles described them in his *Icones*, the first volume of which is dated 1791. The question, therefore, arises: How, then, could the Marchioness of Bute, if she and her husband were absent from Madrid between 1783 and 1795, as they presumably were—unless, of course, they made an occasional visit—have succeeded in obtaining and introducing into England the same year as they reached Spain seeds or plants of a newcomer that had not up till then flowered in Europe, or even been named Dahlia by Cavanilles? I confess it was a problem that could not be solved owing to its great improbability. Even if the Marchioness of Bute had kept up a correspondence with the authorities at the Botanic Garden at Madrid, it is not at all likely that seeds of an unknown and unflowered plant would have been transmitted to her in 1789.

Having arrived at this point in my investigations a further and unexpected surprise awaited me. While engaged at the Natural History Museum on researches in connection with the origin of the Pompon Dahlia, Dr. Rendle very kindly offered to show me some old dried specimens of Dahlias which are understood to have been formerly in the herbarium of Sir Joseph Banks. So far as Dahlia historians are concerned, they must have lain hidden there and never have been unearthed by anyone interested in tracing the origin of the Dahlia, otherwise they would have been mentioned. These dried specimens are certainly over a hundred years old. They consist chiefly of flowers grown in Lord Holland's garden about the year 1805, as we learn by one, the only one on which a date occurs. I hope to give a fuller account later on. But what for present purposes is the most extraordinary and interesting circumstance in connection with this discovery is that on the backs of these mounted specimens are written "C. G. Ortega (Lady Bute)." They are marked *Dahlia rosea*, *Dahlia pinnata*, and *Dahlia coccinea*, the very names given to the Dahlia by Cavanilles in his *Icones*, so that the Bute Dahlias were unquestionably the original varieties.

Who was Ortega? His name and works will be found in Pritzel, but further enlightenment has just come to hand as the result of my latest enquiries.

Many a time have I asked myself where Lady Bute's introductions were grown, but without result. Did she cultivate them in her own garden, as Lady Holland did? The answer was not forthcoming.

I remembered that one of the old writers on Dahlia history mentioned the fact that Lady Bute sent seeds to Kew. Having stated the case in a letter to the Director, and making the enquiry as to whether such was the fact, that gentleman has kindly replied in a letter that illuminates the whole story. Briefly, this is what he says: "There are a few early record books at Kew, mainly dealing with exchanges of plants and seeds, and in the earliest of these, dated 1795-1809, there is evidence that between the years 1796 and 1799, plants (or seeds) were obtained for Kew, usually from Dr. Ortega, who was Director of the Botanic Garden, Madrid, from 1771-1801, by Lady Bute. . . . Amongst the documents relating to Lady Bute is a 'List of plants in the Hort. Madrid wanted for Kew Gardens,' and marked in Lady Bute's book, 1798." In this list are three Dahlias (*coccinea*, *pinnata*, and *rosea*), but there

ORCHID NOTES AND CLEANINGS.

MAXILLARIA.

This is a varied genus, containing both large and small flowered species. The finest of the former group is *M. Sanderiana*, which requires slightly different treatment than the majority. The flower-scapes are decumbent or semi-erect, and for this reason it should be planted in a teak wood basket, which may be suspended from the roof-rafters of the intermediate or Cattleya house. In such a position the flowers are seen to advantage. Other desirable species are *M. grandiflora*, *M. venusta* and *M. luteo-alba*, which are characterised by their short rhizomes and clustering pseudo-bulbs. This section may be grown in ordinary flower-pots. Another group, which embraces *M. sanguinea*, *M. meleagris*, *M. tenuifolia*, *M. variabilis*, and others, have ascending rhizomes, upon which the pseudo-bulbs are borne, and for this reason a slight difference must be made in their cultivation. A piece of Tree Fern stem, or similar material, should be chosen, and made firm in the centre of a pot or pan. The rhizomes can then be attached to the stem by means of wire pegs, working in a little compost as the operation proceeds. During hot weather it must be

proximity to the plants should be opened whenever external circumstances permit. Few insect pests trouble Maxillarias, excepting thrips, and these can be destroyed by fumigation.

ONCIDIUM MICROCHILUM.

This remarkable species of the order "botanical," but having a profusion of attractive little flowers, produced on a long, branched, glaucous inflorescence, is now flowering with Mr. William Bolton, at Wilderspool, Warrington. The flowers, which are about one inch across, are greenish, tinged and blotched with red-brown, the very small three-lobed lip, in which the front lobe is almost obsolete, white, with some small purple spots.

In growth it has the short, compressed, hard pseudo-bulbs and erect, rigid, leathery leaves, as in the totally dissimilar (in flower) *O. splendendum*, which is also native of Guatemala. *O. microchilum* has large yellow flowers with red bars on the sepals and petals. By some it has been placed under *O. tigrinum*, from which, however, in growth it is widely separated. So like are the two species in growth that *O. microchilum* was often taken for the more valuable *O. splendendum* in importations, and much disappointment was caused thereby.

CONFESSIONS OF A NOVICE.—XI.

THE poet who confessed that "we look before and after, and pine for what is not," must, I think, have been something of a gardener; in any case, I know of no occupation wherein it is more necessary "to look before and after." Not only is it necessary, it is also wholesome, for thus only may the gardener invest the black cloud of regret with the silver lining of hope. To the tried professional gardener with the philosophy which comes of long years of work and experience, triumphs and misfortunes are accepted with even mind, as well they may be, for his skill allows him to outweigh the latter by means of the former. But to the novice the present moment is apt to be a sad one. The borders are out of hand, and the big herbaceous things, like Satan in *Pilgrim's Progress*, straddle all over the way. The fly made short work of the Carrots and the Onions, August drought killed the Kalmias, and, thanks to a virulent attack of club-root, the Broccoli have, as my gardener says, been trying to grow heads at both ends, and have only succeeded at the bottom.

The Celery, which was our pride last year, and bids fair to be better this—Celery, the seed of which was thoroughly sterilised before sowing, and in spite of this, and to the astonishment of my gardener, germinated thoroughly well—has at the last minute developed as comprehensive an outbreak of spot as a boarding school does of measles. The suddenness of this outbreak was as interesting as its results were disastrous, and may be likened only to that of the affliction which befel the hosts of Sennacherib when "the angel of death spread his wings on the blast and breathed in the face of the foe as he passed." My gardener and I—good men struggling with adversity—are picking off the dead leaves and spraying the living with Bordeaux mixture, but I wish that the mycologist who propounds these remedies had to do the work of applying them, for then his ingenuity might invent some easier cure. As to the club-root, my position is the more ignominious, in that the ground in which the plants have clubbed was heavily limed last year. My gardener's prescription is to puddle the roots at planting-out time in a mess of soot and mud and water. He showed me a row of plants treated thus, and I must confess that so far the plants are clean. We intend, however, to follow the practice adopted by French growers of taking out large holes with a dibbler, filling them in with a mixture of slaked lime and sterilised soil, and setting the young plants in this protective screen. The idea seems a good one, for the wretched little wriggling



FIG. 56.—VARIATION IN CAPSULES OF POPPY (*PAPAVER SOMNIFERUM* × *P. ORIENTALE*).
(See p. 145.)

is nothing in the records to show whether the plants were actually received; it may be safely assumed, from the information given in Aiton's *Hortus Kewensis*, that some were, and that the year 1789 recorded in that work is a mistake for 1798."

The italics are mine. The whole story now becomes clear. A printer's error, a reversal of the figures, 1789 for 1798, in the *Hortus Kewensis*, which has never before been called into question, has led every writer on the Dahlia for a hundred years or more astray. The facts recorded in connection with the Marchioness of Bute which seemed so at variance now fit in, and we can understand what prior to this valuable help from Kew was practically incomprehensible.

This view is supported by a book which the Director of Kew, in his letter to me, quotes: "In Aiton's *Epitome of the Second Edition of the Hortus Kewensis*, 1814, p. 267, the date of the introduction of Dahlia *superflua* and varieties is given as 1798, and by Aiton naming the introducer as the Marchioness of Bute, which was the correct title of the lady at that time, but incorrect for 1789, there is evidently no doubt on the matter at all."

Such, in as few words as possible, is the result of an investigation which has occupied the scanty leisure of a busy man for several years. *C. Harman Payne*.

syringed frequently, but as the winter approaches once or twice each week will be sufficient. The majority of Maxillarias will thrive in the intermediate division, but *M. nigrescens* may be grown in the cool house, and *M. sanguinea* among the Cattleyas or in the warm house. The pots or pans should be filled one-third of their depth with drainage material, which may be covered with a layer of Sphagnum-moss or coarse fibre. The potting compost should consist of *Osmunda*-fibre, one half, the remainder of Sphagnum-moss, partly decayed Oak or Beech leaves, and crushed crocks, the whole being cut up fairly fine and thoroughly mixed together. Make the soil tolerably firm, and do not elevate it above the rim of the receptacle. No time can be stated for repotting with such a varied class of plants; each one must be treated individually, but if any disturbance at the root be carried out a few weeks after growth begins no harm will follow. After repotting, afford water with care, just keeping the compost moist until the plants are rooting freely, when the supply may be increased until the new pseudo-bulbs are fully matured. Even when at rest the plants must not suffer from dryness at the root, or the pseudo-bulbs will shrink, and they rarely recover their rigidity. Maxillarias must not be exposed to strong sunshine, and if possible the shadiest side of the house should be selected for them. The ventilators in close

VARIATIONS IN HYBRID POPPIES.

THE illustration in fig. 56 shows a remarkable variation in the size and shape of the capsules of the Poppy. The whole series of these seed-vessels was produced by seeds from one capsule, which was obtained by me a few years since as the result of crossing *P. somniferum* with *P. orientale*, the former being the seed parent. The seeds germinated well, and many of the seedlings flowered the following year—about twelve months from the date of sowing. Two plants—about 2 per cent.—were annuals of the character shown in fig. 57. They had orange-scarlet flowers about 3 inches across, whilst in habit of growth and foliage they approached nearer to *P. Heldreichii* than to any species that I know. But the foliage was glaucous, whereas in that species the leaves are covered with short hairs. The seed-vessel of one of these two plants is the last on the right in fig. 56. The other plants closely resembled the male parent, both in flowers and foliage. All the flowers were scarlet, most of them had branching flower-stems, and they continued to throw up fresh flowers from the root stock until destroyed by frosts in autumn. These plants also were perennial, and lived for several years. They were, however, weaker in constitution than *P. orientale*, and all have now disappeared. The other fourteen forms of seed capsule belong to these plants, which resembled *P. orientale*. All the capsules were from separate plants, and were fully grown when photographed. The hen and chicken growth seen in three of them was very curious; the largest one shown was about 50 per cent. larger than an ordinary capsule of *P. orientale*. Several were full of seeds, especially those from the annual form; but, unfortunately, all of them proved infertile. The pollen of several of them was tried and proved to be sterile. I have attempted to repeat this cross, but without success. *W. H. Divers, Belvoir Castle, Grantham.*

THE FERNERY.

THE BOSTON FERN AND ITS VARIETIES.

Two reports have come to the writer of the development of spore-grown plants from *Nephrolepis bostonensis*. The reports came from widely separated localities and growers, but agree more or less as to details. Unfortunately, the results were obtained years ago, and not one of the plants so produced is now alive.

I am interested in getting information as to any authentic cases of the Boston Fern being grown from spores, and would especially welcome an opportunity to see living plants so produced. *N. Wittboldii* was supposed to be a spore sport from *bostonensis*, but the characters of all the plants which I have obtained under the name of *Wittboldii* seem to indicate that it is a form of some Malayan species. *N. philadelphensis*, a chance sporeling at Horticultural Hall, Fairmont Park, Philadelphia, seems to be the same as *N. washingtonensis*, itself, I believe, a chance sporeling, and both are undoubtedly to be identified with another Malayan species, sometimes called *N. floccigera*. These are all broad-leaved forms, very different from *bostonensis* or *exaltata*. *N. Elmsfordii*, reported as a sporeling from *Whitmanii*, stands, I believe, as the only form in the Boston Fern series credited with this origin.

Information is asked, therefore, on the following points:—

1. Is there any known instance of the development of plants from Boston Fern spores?
2. From the spores of any variety of the Boston Fern?
3. What were the characteristics of the plants so grown?

If living plants are now being grown, I should like an opportunity to see them if near New York, and in any event would be

glad to receive small plants, for such an exchange from a list of a hundred named forms is now available. It may be noted that microscopic examinations so far made have shown complete sterility of spores among Boston Fern forms, but it is not impossible that they may occasionally produce fertile spores. *R. C. Benedict, Resident Investigator, B.B.G.*

THE ROSARY.

PERPETUAL-FLOWERING SHRUB ROSES.

HYBRIDISTS have for some time past been endeavouring to raise a race of perpetual-flowering Rambler Rose. Lambert crossed *Aglaia* with



[Photograph by W. H. Divers.

FIG. 58.—HYBRID POPPY IN FRUIT.

Mrs. R. G. Sharman Crawford, and gave us the very useful variety *Trier*. This is a perpetual-flowering Rose of great beauty, but it cannot be described as a Rambler. The plant forms a big shrub, and is splendid for planting in the shrubbery, but it is not quite what Lambert set out to produce.

However, there is little doubt that the raising of *Trier* has given us a new race of shrubby Roses. Evidently Lambert realised the value of this variety, as a basis for producing perpetual-flowering Roses, for he employed it as pollen or seed-parent in several of his later crosses. *Adrian Reverchon*, one of the loveliest of single Roses, was produced by crossing the *Polyantha* variety, *Mme. N. Levassieur*, with *Trier*, and, strange to say, *Geheimrath Dr. Mitt-*

swarm spore which causes infection is so puny that it cannot swim very far; and if it fail to reach a root hair of the young plant it is unable to do its nasty work.

As to the Onion and Carrot fly, I think that, in my garden, at all events, the only thing to do is to dodge these pests by sowing seed at such times—late in the season—when the grubs are no longer active in the soil. It is easier by far to speak becomingly of failures than of successes, yet, albeit that from the foregoing it might seem as though I were describing the garden of Job at the time of his worst troubles, we have derived more than our ordinary measure of pride and happiness from the garden. Perhaps the most beautiful effect—rivalling that of any ordinary cottage garden—was obtained at the back of a border by a wonderful medley of *Tagetes*, *White Larkspur*, *Cosmos*, the feathery foliage of which shows flowers to perfection, *Hollyhocks*, here and there a self-coloured *Cactus Dahlia*, and at one end a mass of *Salpi-*



[Photograph by W. H. Divers.

FIG. 57.—HYBRID POPPY (PAPAVER SOMNIFERUM X P. ORIENTALE).

glossis. These common things are making yet, and have made for weeks past, a picture so exquisite as to blot out the memory of many failures. Another which I see from my dressing-room is a mass of *Nicotiana*, radiantly white and fully open, against a background of black *Conifers*, which screen them from the soporific effect of the bright morning sun. Nor must a word of grateful praise be withheld from the annual *Asters*. These and the blaze of *Heather* at the gate make a brave show, and their pinks and mauves prevent the autumnal yellow of the *Helieniums* and *Helianthus* from jaundicing the garden. The *Pompon Rose Jessie*, of which I have written before, has been flowering bravely for four months, and as yet shows no signs of ceasing. I wonder if there are any plants which give a longer period of flowering than this *Rose*, on the one hand, and the orange-golden *Cheiranthus Allionii*, on the other! *A. N.*

weg, a rosy-pink variety, was raised from the same cross.

Arndt is another fine Rose, and the plant blooms continuously throughout the summer. The colour is flesh-pink, passing to rosy-salmon. The Rev. Joseph Pemberton has been very diligent in raising new varieties, and is, doubtless, working on the same lines as Lambert. His Danae is a first-rate variety, of a lovely golden-yellow colour, and a perpetual flowerer. Moonlight, another of his seedlings, is beautiful, with semi-double milk-white blossoms, whilst his Clytemnestra has coppery-salmon buds of great beauty. None of these, however, can be termed Ramblers. I have them growing as shrubs, which seems to me to be their true habit, although they make splendid standards. Why Mr. Pemberton terms them Hybrid Teas as a mystery to me. They may have some Tea or Noisette blood in them, but so has Aglaia, the seed-parent of Trier, yet no one would think of classing this Rose with the Hybrid Teas. Albéric Barbier, Jersey Beauty, Gardenia and René André might as well be described as Hybrid Teas, for the pollen parents of all of these varieties were Tea Roses. Surely a group of Roses that includes such varieties as Betty, Mme. Ayl Chateaux and Mme. Ravary cannot admit Danae and Moonlight into their charmed circle. For want of a better name they may be classed as perpetual-flowering shrub Roses. There is need for perpetual-flowering Ramblers. Few of this type give flowers in autumn. I am particularly pleased with Christine Wright. This beautiful salmon-pink Rambler Rose flowered freely in June, and is now (early September) giving another fine display of flowers. *Experience.*

FLORISTS' FLOWERS.

THE YELLOW SWEET PEA.

In the report of Mr. David Burpee's address to the eighth annual meeting of the American Sweet Pea Society (see p. 126), it is stated that if the Yellow Sweet Pea ever comes it will be as a result of crossing *Lathyrus odoratus* with some other species. In regard to the Leguminosae, the statement is made that "Species crosses are extremely rare in the family, and, in spite of the work of many hybridists, there is on record no well-established case of a cross between *Lathyrus odoratus* and any other species of *Lathyrus*." In 1910 I devoted the whole of the summer to an attempt to cross varieties of *L. odoratus* with the pollen of *L. pratensis*. It was tedious work, requiring a considerable amount of patience, and I made hundreds of crosses from our little native species. The pollen of *L. pratensis*, I discovered, is rarely found in a suitable condition for the work of the hybridist, and out of thousands of flowers I only succeeded in obtaining a very small quantity that was of any use for my purpose. After a considerable expenditure of time and labour I managed to get one pod of seed. It was carefully kept, and six or seven seeds were sown in the early spring of 1911. One seed germinated, the others failed. In the F_1 generation the plant was a poor grandiflora type, with an ordinary sized dirty blue flower. I knew that the seed parent was homozygous, and the appearance of the hybrid, even in the F_1 generation, convinced me that the cross was successful. I saved one or two pods of seed, and if I had any doubts previously, I had none when I saw the young seedlings in generation F_2 . When the seedlings were only 2 inches in height it was evident from their appearance that a successful break was an accomplished fact. In due course those seedlings flowered, and blooms were shown to Mr. William Cuthbertson and one or two others. The summer of 1912 was disastrous to seed-sowing in my district, and I was unable to save a single seed from any of my Sweet Pea seedlings. I imagine, however, that the flowers of the cross between *L. odoratus* and *L. pratensis* were sterile.

I had some correspondence on the subject with Mr. Hooper Pearson, and he advised me to have specimens of the flowers, foliage, and stems dried for reference, so that I could prove that I had made this cross. I followed Mr. Pearson's advice, and the dried specimens are in existence. A year or two ago an Australian gentleman claimed to have made this cross, and a note from him was duly published in the columns of this journal. He took the credit of being the first to make the cross, but I dealt with that at the time, as reference to the indexes of this journal will prove.

I also succeeded in making the cross between *L. pratensis* and *L. odoratus*. The seedlings have never flowered, but in cases of certain crosses between species this is nothing unusual. Mr. W. R. Dykes has drawn attention, in these pages, to the difficulty of obtaining crosses between bearded and non-bearded Iris, and to the experience of Sir Michael Foster therein, so far as the non-flowering of the hybrid is concerned.

What has been done before can be done again, and I am prepared to do it if necessary. But, in the meantime, I see no prospect of obtaining any adequate return for the time and labour that is necessary if the hybrid is to be obtained. *George M. Taylor, Mid-Lothian.*

VEGETABLES.

TOMATO GOLDEN SUNRISE.

This variety, which received a First-class Certificate at the recent trials at Wisley, is an exact counterpart of the original Sunrise, except for its delightful golden colour, and I know of no better all-round Tomato than Sunrise, or selections from it at the present day. Its chief value is its splendid quality and free cropping in autumn, winter and spring. Last season we grew a long row in a lean-to house, trained up the front, of both the red and yellow forms, colours grown alternately. For some reason yellow Tomatoes are looked upon as inferior to the red-skinned sorts. This is only prejudice, as many of the golden varieties are superior in flavour to many of the reds, and especially so for eating in the uncooked state.

THE POTATO CROP.

The Potato disease is much in evidence in this district, and will, I fear, sadly reduce the heavy yield which once promised. Many varieties are at the moment hardly worth the trouble of digging, which means a serious outlook for many poor families. I strongly urge the importance of lifting every variety which is anything like ready, placing the tubers under cover, sorting them over after a few days and before cleaning, and sprinkling a little fresh chalk lime between each layer during the operation of clamping.

PEA AUTOCRAT.

Autocrat has once more fully demonstrated its value as a late Pea. Strange to say, there is nothing nearly approaching it for this season of the year. We are picking from it every day, and are likely to do so, so long as the weather remains open. It has a fine robust constitution, and, if sown thinly, and given liberal treatment, suffers very little from mildew. Generally speaking, the variety is sown too late, and is often cut down by frost when scarcely in full bearing. *Edwin Beckett.*

WAR ITEM.—An intimation has been received by Mr. J. M. Troop, gardener to the King at Balmoral Castle, that his youngest son, WILLIAM, of the Gordon Highlanders, has been killed in action. Private Troop was trained under his father in the Castle Gardens, and was a bright and intelligent student.



THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

ONCIDIUM.—*Oncidium*s, such as *O. tigrinum* and *O. varicosum* (with its fine variety *Rogersii*), will soon be flowering, and it will be advisable to stake each spike before it is far advanced. Slugs are often troublesome as the nights become longer, so each spike should have a band of cotton arranged around its base. This is not an infallible preventive, but it will often save a scape from destruction. *Oncidium Papilio* and *O. Krämerianum* are still in bloom, and will continue so for some time if the spikes are allowed to remain, but in the interest of the plants it is not a wise policy to permit the flowering season to extend beyond a reasonable time. Strong, healthy examples may produce several blooms, but otherwise three or four should be the limit, or the plants will become weaker, and eventually die. A light position should be chosen for these *Oncidium*s, and if possible they should be suspended from the rafters of the Cattleya house. A bracket or shelf is also an excellent place for them. When making their growth they may be arranged in the warm division, and afforded copious supplies of water, but when the pseudo-bulbs are completed they can be returned to the Cattleya house and kept slightly drier at the roots. Both species are grown in shallow pans, and a small quantity of soil will suffice, but it ought to be of a lasting nature, such as A1 or Osunda-fibre.

BIFRENARIA.—This is a small genus closely allied to *Maxillaria*, of which *B. Harrisoniae* is the best species and the most common in collections. The plants should be grown in the intermediate house, and given the same treatment as advised for *Maxillaria*.

PROMENAEA.—The three species of *Promenaea* usually seen in gardens are *P. Rollissonii*, *P. xanthina*, and *M. stapelioides*, and all are worthy of cultivation for their decorative value. They will succeed in well-drained shallow pans, and should be suspended near the roof glass of the intermediate house, or at the cool end of the Cattleya division. Frequent or annual disturbance of the roots is not advisable, but when such an operation is really necessary it should be carried out a few weeks after the flowering period, or just as new growth begins. The roots must be afforded water carefully at all times, and when the plants are at rest the soil should be kept only just moist.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcote, Eastwell Park, Kent.

THE APPLE CROP.—Owing to the fact that this year's crop of Apples is one of the poorest on record, it becomes a matter of the first importance in the garden to see that no waste occurs through neglect to pick the fruits at the right time. In many private gardens a collection of Apples is grown—large or small, as the case may be—and the time for picking the fruits ranges from mid-July for the very early varieties till late in October. A common error is that of picking Apples and Pears too soon in the season. The way to test their ripeness is to lift the fruits up gently, and if the stalk parts readily from the tree the crop may safely be gathered. But one finds a tendency to rush the work of fruit-picking, especially after a gale has caused some fruits to fall, whereas many of the late-keeping varieties should be left till the latest possible date consistent with safety. A little frost will not do the fruit the slightest harm, but picking it too early will cause it to deteriorate rapidly when stored. Such late cooking varieties as Bramley's Seedling, Newton Wonder, Annie Elizabeth, Lane's Prince Albert, Royal Late Cooking, Dumelow's Seedling, Sandringham, and Alfriston, to name a few of the best, are amongst those to be left as late as possible. Amongst

the culinary varieties that require to be picked early are Lord Grosvenor, The Rev. W. Wilks, Grenadier, The Queen, Ecklinville Seedling, Loddington or Stone, Gold Medal and Golden Spire, Stirling Castle and Warner's King. They should be examined frequently, and the Apples picked when in perfect condition. Be careful to eliminate all fruits that have been attacked by wasps or birds; the smallest peck will be sufficient to set up decay. These damaged fruits should be used at once; only the sound fruits should be stored. There are some strange instances of fruit-bearing here this season. Most trees of Lane's Prince Albert are not bearing, yet one tree standing close by the others is carrying a good crop. Other varieties which are carrying crops this season are Hollandbury, Stirling Castle, Hoary Morning, Golden Noble and some trees of Bramley's Seedling.

DESSERT APPLES.—The same remarks apply to dessert Apples. Many of the best varieties are carrying very light or no crops, and amongst them the best variety, Cox's Orange Pippin. In passing I may say that while yielding to no one in my admiration for this grand variety, the advice sometimes given to rely on it almost solely because of its exceptional merits seems somewhat misplaced. Such a season as this points to the advisability of planting a varied selection, the majority of people being very pleased to have a crop of the second best varieties, if the best fail. In many districts this year I believe Cox's Orange Pippin is a total failure. Of dessert varieties bearing well here, I may mention Langley Pippin, James Grieve and Ben's Red. Worcester Pearmain cropped very badly, Lady Sudeley not at all. Of later sorts Allington Pippin has a heavy crop on some trees; Wealthy has a fair crop, but the majority of dessert Apples are bare. Lemon Pippin is carrying a moderate crop.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

TRANSPLANTING VIOLETS.—Transfer Violets from the open ground to frames without delay, choosing an aspect facing direct south. Frames that have been used for Melons or Cucumbers are most suitable. Remove the old soil, thoroughly wash the glass and woodwork, inside and out, and limewash the walls. Prepare a fresh bed about 12 inches deep of stable litter and leaves, covering it to a depth of 8 inches with a prepared compost, consisting of loam, leaf-mould, a small quantity of manure, sand and a little soot, mixing the ingredients thoroughly together. The bed should be brought up as near the glass as the foliage will allow. If the soil is dry, give the plants a liberal watering before lifting them, and syringe them with an insecticide if necessary. Lift each plant with a good ball of soil, and plant about 9 inches apart. Water freely through a coarse rose to settle the soil after the work is finished. Keep the frames closed for a week or ten days, and apply a light shading. After that time air must be given on all favourable occasions. During frosty weather place mats over the lights.

PLANTING BORDER CARNATIONS.—Directly the layers are well rooted planting should commence, for autumn planting of border Carnations cannot be too strongly recommended. The ground should be prepared a few days before it is required, selecting a position for the beds that is well exposed to the sun and air. Apply a liberal dressing of decayed manure and wood ashes, and trench the ground to a reasonable depth. Where heavy, retentive soil has to be dealt with leaf-mould, sand, mortar rubble, or any old potting soil may be mixed with the staple, and the beds or borders well drained and raised above the ordinary level. Plant firmly and deep enough to cover the first pair of leaves. The best distance to plant is 12 inches apart, and the same may be allowed in the rows. Beds made 8 feet wide to take six rows are the most suitable, as they are convenient when staking, feeding, and layering. Examine the beds after frosts, and press the soil to any plants that have been loosened, or they will be ruined. Precautions must be taken to have a reserve stock to replace any failures; this can be arranged by placing a number of plants in boxes, or singly in

3-inch pots, using a sandy compost of loam, leaf-mould and sand. Place them in frames, keep them close and shaded for a few days, then admit air always, except in frosty weather.

SPRING BEDDING PLANTS.—Wallflowers, Daisies, Myosotis, Arabis, Polyanthus, and similar plants in the reserve quarters must not be allowed to suffer neglect. Hoe between the rows frequently, and hand weed the rows after a period of wet weather. The plants may soon be required to make good any failures that occur; therefore everything should be done to have them in the best condition. Any that appear over crowded should be lifted at once and replanted.

PROPAGATING LAVENDER.—Where it is necessary to increase the stock of Lavender and similar plants the cuttings should be inserted now. Short, well-ripened shoots of the young growth taken off with a heel are the best. Dibble them in sandy soil under handlights, in boxes or shallow frames. Water through a fine rose to settle the soil and keep close. The old plants may be trimmed with the shears, cutting off all dead flower stalks and irregular growths.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

COLEUS.—Where Coleuses are grown from cuttings no time must now be lost in getting them rooted. Insert the shoots around the side of small pots and place them in the propagating case. Examine them every morning for dead leaves, or many of the cuttings will be lost through damping.

TREE CARNATIONS.—These plants now require a temperature ranging from 50° to 55°. The earliest batch will be in need of a little stimulant, but this must not be overdone. Syringe between the plants on fine days, but do not drench the foliage. If cuttings are available a batch may be inserted.

SPIRÆA.—Retarded roots of Astilbes (Spiræas) may now be started into growth. Only a moderate temperature is necessary until growth is well advanced, then the heat may be increased and a moist atmosphere maintained. These plants need abundance of water at the roots.

ACHIMENES.—Achimenes will have finished flowering, and the plants should be placed on a shelf near the glass. When the foliage has died cut it off and place the pots on their sides under the stage or in some other suitable place in a dry house.

FERNS.—Much drier conditions must now be encouraged in the Fernery, or many of the Adiantums will damp off, and the plants will not need so much water at the roots as hitherto. The water pipes must be kept warm at all times, and with a little top ventilation the warmth will create a suitable atmosphere during autumn and winter. Keep all dead fronds regularly picked off, and do not crowd the plants together, or the fronds will quickly lose their colour.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

PEACHES.—Peaches and Nectarines under glass will be over by the time these notes appear, and next year's crops will greatly depend upon the treatment the trees receive during the autumn months. After the houses are thrown open and the borders are properly drained liberal supplies of diluted liquid manure should be given to old trees and those that need it. If the borders have been allowed to get too dry no time should be lost in setting matters right. These remarks apply to early, mid-season and late houses, as bud-dropping in the spring is invited by neglecting watering at this season of the year. The trees may be well washed with the hose to cleanse them from insects, but the main point is a moist border. Push forward with the pruning of all the trees, excepting those in the late house; the pruning will consist in cutting out all superfluous shoots. The shoots retained, especially

the leaders, should be kept full length. The final trimming can be done when the trees are detached from the trellises; but having let in light and air the shoots have a better chance of becoming well ripened. Borders in which the trees are growing too strong or too weak must now be given attention and dealt with as recommended in a previous calendar. If too strong root-lifting and relaying in calcareous loam are the best remedies, and the firmer the soil is rammed the better. If too weak the border may be replaced with fresh compost, enriched with a little soot, lime-rubble and bone-meal. The compost should be fairly dry, but it should not be allowed to remain so when once the work is finished; tepid water may be given freely. Lay in a good stock of loam for use through the coming season, as it is always best cut and stacked in a fairly dry condition; also place a few loads under cover for use in bad weather. Trees in pots which have been stood in the open garden some time will have had the benefit of cool nights, and, provided the foliage is still hanging, the buds will now be safe. A mass of rootlets being essential, water must be given in sufficient quantity to prevent the balls becoming unduly dry.

OTHER FRUITS.—The preceding remarks apply to pot Cherries, also early and mid-season Plums, which cannot be kept too cool. A good washing with the hose occasionally will help the trees. Where a house is devoted to Coe's Golden Drop Plum the fruit will now be in perfection and worthy of the greatest care. Wasps and flies are often troublesome, and nothing short of a covering of wasp netting will keep these pests out of the house. A free circulation of dry air being imperative, the ventilators and doors must be kept open. As this Plum improves in quality after it is ripe, the roots of the trees should still be kept moderately moist.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

WINTER CUCUMBERS.—Make every effort to obtain healthy, strong Cucumber plants before dull and cold weather commences. Top dress the roots when it becomes necessary with a mixture of chopped loam (two parts) and partially fermented horse droppings (one part). Use only sufficient soil to cover the roots, as larger masses have a tendency to become sour in winter. Guard the plants carefully against draughts and sudden chills, which would check the plants and predispose them to mildew. A temperature not less than 65° is necessary at night, and it may be allowed to rise 10° or 15° during the day. Vaporise the house occasionally to prevent aphid attacks, but take care that the foliage is perfectly dry before commencing this operation.

CELERY.—Continue to examine Celery which is being bleached with paper collars and substitute deeper ones for any that need them. Carefully remove all slugs and worms, and if aphid is present spray the plants with a good insecticide. For this purpose remove the collars early in the day and replace them when the stems and hearts are perfectly dry. It often prevents decay if the collars are removed occasionally to allow the stems to dry, replacing them at night. Continue to earth up Celery grown in the usual manner as previously directed.

LEEKS.—Remove all decaying and unnecessary lower leaves from crops grown without collars, and thoroughly saturate the roots before commencing to earth-up the plants. Take care that no soil is dropped in the hearts during this operation, or discoloured specimens, containing grit, will result.

SPINACH.—The earliest sown winter batch will require careful thinning to allow the individual plants to develop into strong specimens. Use the hoe freely, as often as circumstances permit.

LATE TURNIPS.—These, if sown as previously directed, will require thinning. As the roots will not be large the plants may be left at a distance of 5 inches apart. Use the hoe frequently to encourage rapid growth, and keep the ground clean.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPTEMBER 25—

Nat. Chrys. Soc. Ex. and Floral Coms. meet.

TUESDAY, SEPTEMBER 26—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last five years at Greenwich, 55.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, September 21 (10 a.m.);* Bar. 29.7°; temp. 55.0°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY—

English and French Bulbs at 67-68, C.cheapside, at 1 o'clock.

TUESDAY, AND TWO FOLLOWING DAYS—

Rhododendrons, Yews, Hardy Heaths, etc., at Waterer's Nursery, Bagshot, at 12 o'clock each day.

WEDNESDAY—

English and French Bulbs, at 67-68, Cheapside, at 12 o'clock; also large consignments of Narcissus, Tulips, etc., Retarded Lilies, at 2 o'clock.

FRIDAY—

English and French Bulbs, at 67-68, Cheapside, at 1 o'clock Catalogues had on application to Protheroe and Morris, as above.

Edward Mawley,
V.M.H.

A great rosarian has been gathered to his fathers, one whose loss will be felt not only among his immediate circle of friends but by others in distant lands to whom he has been known only in correspondence in connection with the National Rose Society, with which he has so long been identified.

Mr. Mawley attended the meeting of the National Dahlia Society on Tuesday, the 11th inst., and presided over the meeting of the Council of the National Rose Society held on that day, appearing in his usual health and spirits; he died on the morning of Friday, September 15, suddenly, after an extremely short illness. It seemed in keeping with the fitness of things that he should be buried on the afternoon of the N.R.S. autumn exhibition. It was, of course, a mere coincidence, but it enabled several of his Rose friends to pay their last tribute to his memory. As they passed the plot of land where he had been wont to show them his new seedling Dahlias, and entered the churchyard filled with Roses he had planted from his own garden, it seemed hard to realise that these happy cares would occupy him no more. He was fond of telling how, when exasperated with a group of Killarney by reason of the constant growth of mildew upon the plants, notwithstanding every care, he had transferred the plants to this same churchyard, where, with the mini-

num of attention and no syringing, mildew had become unknown upon them. "so that you can never be sure that a Rose which fails in your own garden may not prove a success in your neighbour's."

Born 74 years ago, Mr. Mawley was educated by his father as an architect, a profession he followed for some years. His father lived at one time at Fairford, in Gloucestershire, where he is said to have had the finest Rose border in the country—first a line of high standards backed by a high wall, then a line of half-standards, and below these two rows of dwarfs of different heights. Later on, however, his sons became engaged in offices in London, and he moved to Richmond to make a home for them there. At Richmond, though successful with other flowers, he seems to have been less fortunate in growing Roses, and as yet they had failed to interest young Mawley. His time had not yet come. His father died when Edward Mawley was about 30 years of age, and the family moved to a newly built house at Croydon, with about half an acre of land attached. It became necessary to lay out this land as a garden, and young Mawley undertook the task. From that moment his lot was cast, and he became a gardener—and, moreover, a Rose-grower. His beginning was modest; he wanted a dozen standard Roses "to go round the lawn," but he became interested in them, and next year he ordered a dozen more, and not long afterwards secured his first prize for six blooms of Baroness de Rothschild at the Croydon Flower Show. In 1877 was founded the National Rose Society, and Mawley was one of those who attended the original meeting. Dean Hole (then Canon Hole) became president, the Rev. H. H. D'Ombraim honorary secretary, and H. K. Magor treasurer. Mawley was energetic and successful in procuring members to join the new society, and when, at the end of a year, H. K. Magor resigned, Mr. D'Ombraim asked Mawley to join him as co-secretary.

Doubtless there are some still living—Mr. George Paul and Mr. James Brown may be among them—who were present and remember the meeting at Garrick's house in Adelphi Terrace when Mr. D'Ombraim introduced young Mawley as his assistant. From that time forward the burden of the work of the society fell upon him, and in its early days the work was hard and the society none too prosperous. For the first three years only one exhibition was held each year, and for 20 years more the membership remained nearly stationary, rising gradually to a little over 500. At this time the leading show was held at the Crystal Palace. In 1901 the reward of Mawley's unremitting care began to come. The N.R.S. show was moved to the Temple Gardens, and this step brought in a little more money from the gate. For this extra revenue he had been waiting, and he made his next move at once by the issue of the first official catalogue. In four years the membership trebled, and he once more stepped forward with the *Handbook on Pruning Roses*, first issued in 1905, and perhaps the most sought after of all the Society's publica-

tions. A further accession of members enabled him to issue the first *Rose Annual* in 1907, and this has continued to appear every year. The *Enemies of the Rose* came in 1908, and about this time it was arranged to issue the catalogue biennially, a course that has only been suspended since the commencement of the war in 1914, in which year appeared the last edition. Each fresh publication brought Mawley an increased membership, and when he resigned his post of secretary in 1914 after 37 years' hard and absorbing work he found he had raised the National Rose Society to a membership of over 6,000. Besides these more important publications Mawley had also published, with the aid of his committee, a number of pamphlets or tracts on subjects connected with the Rose, taking such subjects as "Hints on Planting Roses," "Pruning and Exhibiting," "How to Grow Tea Roses," "Rose Soils," and "Roses for Garden Decoration."

Besides his work in relation to the Rose he was much interested in Dahlias; he introduced a number of new varieties, especially singles, and in the year 1900 he became president of the National Dahlia Society. In 1904 he received the Victoria Medal of Honour in recognition of the work he had done for horticulture.

During all this period he himself was constantly exhibiting in one or another of the amateurs' classes, and a few years ago it was estimated that he had won over 200 first prizes. He had many other interests, taking an ardent interest in meteorology; he became a Fellow of the Royal Meteorological Society, and acquired gradually a most complete collection of instruments for recording the weather and atmospheric influences. His weekly notes on "The Weather in West Herts," published in our own columns for many years past, attest the accuracy and regularity of his work.

In another direction he interested himself in natural history, and became closely connected with the Hertfordshire Natural History Society, to whose pages he contributed many articles both on meteorology and on phenology. For the latter purpose he surrounded himself with a number of observers situated in different parts of the county who recorded and sent to him annually for tabulation their observations on the selected subjects—it might be the first opening of a particular wild flower or the coming of a bird of passage.

In the year 1914 Mawley retired from the secretaryship of the National Rose Society, and was at once elected president. It is a rule of the Society's constitution that the presidency is held for two years only. His last year of office was therefore approaching completion, and he has died in harness, full of work, full of honour, and with an enduring place in the heart of his friends.

The love of the Rose, which he held so simply and frankly, seemed to develop in him a character so unassuming, so much in accord with the sweetness and beauty—the attributes of the flower—that to have known him will ever be valued as a high privilege.

FUNERAL OF THE LATE MR. MAWLEY.—The funeral of EDWARD MAWLEY, V.M.H., President of the National Rose Society, took place at Berkhamsted on the afternoon of Tuesday, September 19, 1916. It was attended by many friends and members of the N.R.S., amongst others, Messrs. G. PAUL, JAMES BROWN, FRANKLIN DENNISON, WILL TAYLER, FRANK CANT, H. E. MOLYNEUX, HARRY MOUNT, E. J. HOLLAND, Deputy President of the Society, and the two secretaries, H. R. DARLINGTON and COURTNEY PAGE.

HORTICULTURAL TRADES' ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The annual meeting of this Association was held, by permission of the Horticultural Club, in the club room at the Hotel Windsor, on Tuesday last. Mr. W. CUTHBERTSON, the president, presided over a good attendance. The annual report showed that a very large amount of work had been done during the past year. Such varied subjects as the new postal arrangements, the prohibition of imports of bulbs and flowering plants and roots, railway classification of nursery stock, the prices of plants and seeds, trade after the war and the dumping of cheap foreign produce, were some of the matters dealt with. The financial statement showed a credit balance of £803. On account of the war it was again decided to re-elect all the officials. Mr. CUTHBERTSON continues as president, and Mr. C. E. PEARSON, Lowdham, as secretary. The subjects discussed at the meeting and at the dinner which followed included that of the development of horticulture after the war, and it was decided to approach the Royal Horticultural Society regarding this. Other subjects were tariffs, the position of co-operative societies, the labour problem, and the dumping of cheap foreign goods.

DAFFODIL BULBS AND R.H.S. ALLIES' WAR RELIEF FUND.—We are asked to state that in order to assist the fund which the Ladies' Committee is raising on behalf of the horticulturists among our Allies who have been ruined by the war, LADY MARGARET BOSCAWEN is offering a large variety of Daffodil bulbs for sale. Those who wish to help the fund by purchasing bulbs should apply to LADY MARGARET BOSCAWEN, 11, Mount Street, London, W., for the list of the varieties.

NATIONAL SWEET PEA SOCIETY.—We are informed that the National Sweet Pea Society proposes to hold the Novelty Trials of Sweet Peas as usual in 1917. Seeds for trial should be in the hands of the secretary not later than September 30, 1916. For further particulars apply to the secretary, Mr. HENRY D. TIGWELL, Greenford, Middlesex.

MASSACHUSETTS HORTICULTURAL SOCIETY.—Part of the above society's *Transactions* for 1916 has just been received. In the report of the inaugural meeting it is interesting to note that the society was incorporated in 1829. The building known as the Horticultural Hall, in which the society carries on its operations, and the land upon which it stands, are valued at £103,000 in English money. The library, which is considered to be one of the very best of its kind, contains about 25,000 volumes. A new edition of the catalogue was promised a year or so ago, but up to the present we have not had the pleasure of seeing it. The membership consists of 773 life members and 161 annual members. The contents comprise some interesting articles: "Flowers and Gardens of Japan," by ERNEST H. WILSON; "The Missouri Botanical Garden," by Dr. GEORGE T. MOORE; "The Development of Fruits for Special Conditions," by W. T. MACOEN; "Garden Writings in America," by LEONARD BARRON; "Sweet Pea Diseases and their Control," by J. J. TAUBENHAUS; and others.

SETTLEMENT OF EX-SERVICE MEN IN OVERSEA DOMINIONS.—The results of Sir RIDER HAGGARD's mission, undertaken on behalf of the

settlement of ex-Service men on the land of the Oversea Dominions, are embodied in a report published for the Royal Colonial Institute. The mission had for its object inquiry in South Africa, Australia, New Zealand, Canada, and other Dominions as to the willingness of the several Governments to help in settling ex-Service men on the land. Sir RIDER HAGGARD met with the most generous welcome, and is able to publish in his report evidence that land granted on most favourable terms will be available in many parts of the Empire to those of our soldiers and sailors who wish to engage in the pursuit of agriculture or horticulture. As an instance of the spirit in which Sir RIDER HAGGARD was met we may cite the following passage from the Premier of the State of Victoria: "I have the

THE POTASH INDUSTRY.—The United States Geological Survey has issued a report of the progress made in developing the potash industry in America during the year 1915. The need for this development is manifested by the fact that owing to the war the supplies of potash salts which reached the United States last year were about one-tenth of those of normal years. A new source of potash which has yielded considerable revenue consists in the recovery of potash as a by-product in the manufacture of Portland cement. A company has been formed for the extraction of potash in the form of sulphate from alumite; another is producing potash salts by the evaporation of brine from an alkaline lake in North-west Nebraska, and, as we have already recorded, kelp is being used as a source of supply

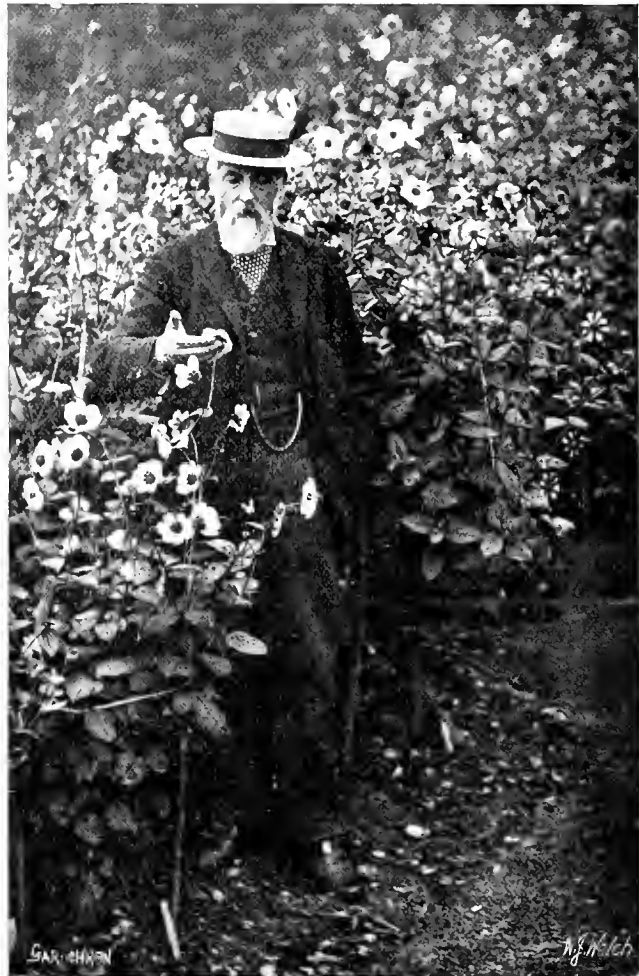


FIG. 59.—THE LATE MR. EDWARD MAWLEY, V.M.H.

honour to inform you that we are prepared to extend to all United Kingdom ex-Service men and their families the same advantages as regards land settlement or otherwise as we give to our returned Australian soldiers." Queensland is prepared to provide a million acres, suitable for dairying and agriculture for the settlement of ex-Service men from the United Kingdom. New South Wales expects to be able to make provision for 1,000 settlers. The Dominion of Canada has shown no less willingness than Australia to receive ex-service men, and to assist them to settle on the land. There can be little doubt that many of those now fighting for the Empire will avail themselves of the opportunities so generously offered, and it is well that it should be so, for in these vast Dominions there is ample room. What Great Britain loses the Empire must gain, and we here must learn that the whole is greater than its part.

along the Pacific coast. Many researches have been conducted with the object of perfecting a method for the extraction of potash from felspar and other silicate rocks, and a certain amount of potash salts obtained from these sources has already found its way to the market.

ONION SEED FOR THE LEEWARD ISLANDS.—The *Agricultural News* (West Indies) reports (Vol. XV., No. 373) that a consignment of 950 lbs. of Onion seed has been received at Barbadoes, and draws attention to the great increase in Onion cultivation that has recently taken place in Antigua.

PHOSPHATES AND SOIL BACTERIA.—An article by Mr. E. B. FRED,* describes experiments which point to the interesting conclusion that the increased crop production which results from applications of soluble phosphates to soil is

* *Bull. Int. Inst. of Agric.*

in part due to the beneficent effects which such phosphates have in favouring the activity of soil bacteria. For example, Mr. FRED finds that the addition of monobasic potassium phosphate brings about a great increase in the number of bacteria, and a marked increase in the production of ammonia in the soil.

DELPHINIUM LIKIANGENSE AS A BEDDING PLANT.—In our issue for September 9, 1916, we printed a description of this Chinese species by Mr. FORREST, who photographed specimens in the Lichiang range, near the Tibetan frontier (see fig. 51). We now reproduce a photograph (fig. 60) of the species flowering profusely in a bed at the Royal Botanic Gardens, Edinburgh, which fully bears out the commendation the plant received in Mr. FORREST'S article.

TROPICAL HORTICULTURE.—If the progress of cultivation in the Philippine Islands may be judged by the excellence of the Bulletins published by the Bureau of Agriculture, America must have good reason to be pleased with its work in these islands. The most recent Bulletin (No. 32) is devoted to an exposition of plant propagation in the Tropics, and forms an excellent little manual of instruction in the art of grafting, budding, inarching, and other modes of vegetative propagation. The author, Mr. P. J. WESTER, horticulturist in charge of the Llama Experiment Station, is to be congratulated on a very useful and well-illustrated account of plant propagation in the Tropics.

"BOTANICAL MAGAZINE."—This periodical is now issued quarterly instead of monthly. The present number—the first of the larger ones—comprises Nos. 139, 140, and 141 (or Nos. 1,553, 1,554, and 1,555 of the entire work) in one cover, and contains descriptions and illustrations of the following plants:—

PAEONIA WILLMOTTIAE, tab. 8,667.—This plant was raised in the garden of Miss WILLMOTT, at Great Warley, from seed received from China. It somewhat resembles *P. obovata*, Maxim., but is readily distinguished by the larger leaflets, glaucous and almost tomentous beneath, by the white flowers (those of *P. obovata* are red), and by the length of the pistils, which considerably exceeds that of the anthers. The plant thrives in any ordinary border, if well drained, and seems perfectly hardy. When fully opened the flowers are about 6 inches across.

CIRRHOFETALUM CONCINNUM VAR. PURPUREA, tab. 8,668, is a native of the Malay Peninsula. It flowered at Kew in May, 1915, having been sent to Kew from Kuala Lumpur. It bears flowers of bright rose-purple, and thrives in a tropical house in conditions suitable to other species of the genus.

RHODODENDRON HANCEANUM, tab. 8,669.—This is a dwarf Rhododendron from Szechuan, originally introduced from Mount Omei in 1887. The plant figured was raised from seed collected by Mr. E. H. WILSON in Western China in 1908. The colour of the flower varies in cultivation from creamy-white to yellow. The plant seems hardy, and thrives well in peaty soil or sandy loam with leaf mould. It forms a shrub, up to about 3 feet high; the foliage is very hard and stiff.

BRACHYSTELMA OIANTHUM, tab. 8,670.—A native of the Orange River Colony, this species has been in cultivation at Kew since 1912, when it was presented by Dr. MARLOTH, of Cape Town. Flowers were produced in May, 1915, and were much larger than those borne on the wild plants from its original habitat in the Kew collection. The colour of the blooms is greenish-yellow, with dark purple spots.

PANDANUS FURCATUS, tab. 8,671 ("Screw Pine").—This plant has been in cultivation at Kew since 1888, when a specimen was purchased from Ghent as *P. D'Haenei*, Le Cou. The species is indigenous to India, but the seed of the purchased specimen was said to have been brought

from Madagascar by Mr. L. HUMBLLOT. In November, 1914, it produced a cone for the first time, and it was then seen that the plant is in reality *P. furcatus* Roxb., not *P. D'Haenei*. The cone measured when ripe 17 inches in length, and weighed 4½ pounds. The tree usually attains a height of 10 to 13 feet.

VIBURNUM BETULIFOLIUM, tab. 8,672.—This species was raised from seed collected in Central China by Mr. E. H. WILSON in 1907. It seems to be the most ornamental of all the new deciduous Viburnums from Central and Western China. The blossom is not particularly attractive, but about the middle of October, when the branches are laden with clusters of bright scarlet fruits, it makes a patch of brilliant colour. It grows best in good loamy soil under rather moist conditions. It can be increased either by seeds or by cuttings. The plant forms a bushy shrub, about 5 feet high.

EUPHORBIA CAPUT-MEDUSAE, tab. 8,673.—A native of South Africa, this species was introduced into Europe over two hundred years ago. It appears to be confined for its place of origin to the mountains near Cape Town. It can be easily grown in this country under ordinary greenhouse conditions.

MESEMBRYANTHEMUM TRANSVAALENSE, tab. 8,674A.—This species was presented to Kew in 1910 by the officers of the Department of Agriculture of the Transvaal. As its name implies, it is a native of the Transvaal. It flowered at Kew for the first time in June, 1915, and proved to be a hitherto uncharacterised species. The petals of the flowers are bright yellow, marked with a central red line.

MESEMBRYANTHEMUM TUBERCULOSUM, tab. 8,674B.—This South African species flowered at Kew in October, 1915, when it was found to be near, though not identical with, *M. tigrinum*.

RHODODENDRON MONOSEMATUM, tab. 8,675.—This Western Chinese Rhododendron is closely related to *R. pachytrichum*, Franch. *R. monosematum* was collected on Mount Wu, in Szechuan, by Mr. E. H. WILSON, in July, 1905. It is a shrub, from 6 feet to 20 feet in height, with white or pink flowers. It should be planted in situations sheltered from the north and east, as, although generally hardy, it is liable to be injured by late spring frosts.

URSINIA CAKILEFOLIA, tab. 8,676.—Like all the other species in this genus, *U. cakilefolia* is a native of Africa. The specimen at Kew was raised from seed sent from the Botanic Gardens at Kirstenbosch, Cape Town. The plant thrives in a light, sandy soil, and if planted out in May from seed sown in March, it flowers from June until the first frosts appear. It is semi-procumbent in habit, and makes a bush about a foot high. The colour of the ray florets is bright orange, and of the disk florets blackish purple.

LONICERA TATARICA, tab. 8,677, is a pretty and reliable Honeysuckle, very suitable for European gardens. It is a native of South-Eastern Russia, and will grow and flower every season, in all but the poorest soils. It was first described in 1739 by AMMAN, who states that the flowers of the form he saw were white; but there are many forms current, the differences being mainly in the size and colour of the corolla. The plant forms a shrub reaching to 10 feet in height, with wide, pale green leaves. The corolla, usually white, or sometimes flushed with rose-pink, is glabrous.

ACACALLIS CYANEA, tab. 8,678.—This striking Orchid is a native of the Upper Amazon region. It was introduced into cultivation in 1883, by a New York collector, Mr. MORRIS. The first plant to flower in England was one belonging to Mr. W. HOLLAND, Liverpool, in 1885. The specimen at Kew, which was presented by Mrs. CHARLES BOOTH, thrives in the tropical house, where it flowered in July, 1914. The petals are a delicate mauve beneath, and the lip dark orange.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

ISLE OF WIGHT BEE DISEASE.—From observations of apiaries decimated by this disease, I have not been able to arrive at the conclusion of your correspondent *Chloris* (see p. 123), namely, that Isle of Wight disease may be caused by the degenerating of the wax glands of the abdomen consequent on our endeavour to restrict the wax-making of the bee to a minimum. I have cases before me of apiaries that had consisted solely of stocks in straw skeps (these stocks, in the old-fashioned way, were destroyed each autumn with the exception of one or two to begin afresh with in the spring). When the disease reached this district the stocks in the straw skeps were no more immune than neighbouring stocks in bar-frame hives. In this disease it is possible that we have the evolution of a virulent type of disease from a mild form. In many of its phases Isle of Wight disease resembles the older bee paralysis. It is only by some such theory that we can account for the sudden outbreak of the scourge. *A. McL. May, Millburn Terrace, Coleraine, Ireland.*

HAWTHORN AS A NATURAL HOST PLANT.—It is well known how easily certain plants, including species of *Crataegus*, can be grafted upon Hawthorn. In a Clifton garden I recently saw a good example of some kind of *Pyrus* or *Sorbus* grafted upon a Hawthorn. Both were in good fruit. In the wild state the Hawthorn seems to afford scope for a sort of natural parasitism for other trees and shrubs. It cannot be called natural grafting, for the other plants originally spring from the ground; nor is there proof that it is a case of parasitism. It is a mere suggestion. On Durdham Down, Bristol, I came across an extraordinary medley of Hawthorn and Spindle (*Euonymus*) trees. The intertwining of the branches, the intimate contact of some of the trunks, the colour and texture of the bark were such that only the leaves and fruit of the two trees indicated the real state of affairs. The mass of trunks was about 3 feet 6 inches wide at 3 feet above the ground. After the great blizzard of March 28, 1916, I found on Durdham Down a partly overthrown May tree in which both Clematis and an old Ivy had grown into the trunk and branches of the Hawthorn in a remarkable manner. *H. S. Thompson.*

WASPS AND BIRDS.—In this district I have not seen a dozen wasps all through the season, and only one queen in the spring. Plums, their favourite fruit, are very scarce—not a Plum to a tree on an average; but how did the wasps know in the spring that there would be no Plums for them? As regards wild birds, we have more than our share of most kinds, and they have had a very large proportion of the Loganberries, Raspberries, Currants and Gooseberries. When the berries were gone they started on Apples and Pears, the latter being, some of them, as hard and gritty as a piece of scythe-stone. We see at times letters from "Lovers of Birds," who try to make us believe that birds only take fruit in dry weather, when they are thirsty; but birds much prefer a juicy berry to plain water. Although we had very dry weather in July, water was plentiful in the garden (where birds were most destructive), in open barrels, tanks, and near by in poultry runs. "Lovers of Birds" say "Protect your fruit," but that is a big order for large trees scattered over a large garden. *John Ertle, 37, Stanley Grove, Weston-super-Mare.*

A PLAGUE OF CATERPILLARS (see p. 140).—All the three butterflies mentioned by Mr. T. E. Tomalin are double brooded, and I think the great plague of caterpillars at present is due to the weather in late July being favourable to the winged form, the first brood of all three. July and August are the months of egg-laying. In my immediate neighbourhood the caterpillars of *Pieris brassicae* (large white) have been at work on the Cabbage tribe and *Tropaeolum aduncum* (Canary Creeper) since the third week of August to the third week of September, some of the caterpillars being still quite small at this date and others ready to lay up. During late August *Pieris rapae* (small white) was busy on the Cabbage tribe, *Tropaeolum* and *Mignonette*. At the same time I have information from correspondents that the plague of caterpillars has been great over a wide area of England for

weeks past. The large white butterfly is destroyed in immense numbers by ichneumons. I have discussed the matter with entomologists, who were of opinion that the stock was frequently renewed by great shoals from the Continent, when the wind was favourable. Whether this is anything more than a popular or plausible opinion I cannot say. Seafaring men might be able to prove or disprove it. *J. P.*

THE POMPON DAHLIA (see p. 153).—I can corroborate Mr. Payne when he says that Pompon Dahlia and others were known as German Dahlias, for the Germans enjoyed a reputation for raising Dahlias right down to 1880 at least. In June of that year I was placed in charge of the collection in the gardens of the Royal Horticultural Society at Chiswick, and my duty was to list them to find how many varieties there were, how many young plants of each variety, and how many old ones. Roots may have been procured, or it was not the first year of the trial, the latter being the case, I believe. Of the collection of 59 varieties, 35 had German names, 19 English, 4 French, and one doubtful. The French names may have been politically German at that time, if the four were sent by Simon-Louis Freres, whose name occurred amongst them. This would reduce the list to 19 or 20 not from German sources. Amongst them were such names as Hedwig Deegen, Helen Deegen, J. C. Schmidt, and others that may indicate German nurserymen and raisers of Dahlias. I had the list classified under colours, but the Pompons were not kept separate, but mixed with the others in a long border. Such names as Sammetkappchen, Rothkopfschen, Deutscher Reich Gold Stern and Prachtroschen seem to indicate Pompon varieties. German Favourite was a soft salmon-rose variety, which enjoyed great reputation for shape and colour, but it, like most of the others, had too large flowers to win a prize in a class for Pompons at the present day. Most of the show varieties were too small to be pitted against our show varieties of those days or a few years later. They had fine colours in many cases, and held their heads up, so that decorative or garden Dahlias would have been the best name for them. Some of them were parti-coloured, sportive, inconstant and useless, except as curiosities. *J. P.*

NEED FOR A SMALL MOTOR CULTIVATOR.—I think that £30 would be a moderate price, but quite enough, for such a motor cultivator as *Down South* describes on page 139, one that allowed of the detachment of the motor part for use in spraying. It must be very low in height, and should be compact, so that it will turn in its own length, including the length of the cultivating part. *Southern Grower.*

FUCHSIA "BALLET GIRL."—In your issue of the 16th inst., page 140, *H. T.*, in writing about Fuchsias, is doubtful as to the date of introduction of the variety "Ballet Girl." This was raised at the Royal Nurseries, Slough, and first distributed about 25 years ago. *Charles Turner, Royal Nurseries, Slough.*

EFFECT OF STOCKS ON THE COLOUR OF APPLES.—In certain localities Apple Bramley's Seedling develops quite a rich colour; in another neighbourhood the colour remains a dull green. Why is this? A damp season sometimes increases the colour of Apples on certain trees, and I have known partial shade to have an effect upon Bramley's Seedling. I wonder how far certain stocks have an effect upon the colouring of the fruit? Recently I came across two examples of Apple Lord Hindlip growing in Messrs. R. Veitch's nursery at Exeter; one was grafted on the Paradise stock, and was carrying a full crop of well-coloured fruit; the other grafted on the Crab carried a smaller crop of deep green fruit. The growth of this latter tree was more robust than that of the other.

ROMNEYA COULTERI.—The illustration on p. 139 shows a very fine specimen of this Californian Poppy. Some excellent plants are to be seen in Devonshire. One of the best I ever saw was some years ago in Messrs. Veitch's nursery, Exeter. This plant was growing at the base of a greenhouse wall facing south, where its roots rambled among the rockery; its sucker-like growths came up some yards from the original base. In some gardens the plants are annually pruned down to the base, which induces

stronger growth the following season. Unpruned plants give earlier flowers; in some localities the plants retain a shrubby appearance. I imagine seedling plants are not so floriferous as those obtained from offsets? This is my experience during the present year. The blooms are few and of poor quality as compared to those from suckers. *M.*

WINTER OATS.—Winter Oats have been more grown in Hampshire this season than in former years, and with very good results. I do not, however, agree with the suggestion of the Board of Agriculture (see p. 137) that they are more reliable than the spring-sown crop, when the latter is grown in suitable conditions. The advantages of growing winter Oats are that they ripen two weeks earlier than the spring-sown kinds. They are heavier than spring-sown varieties by some three to six pounds per bushel, and the crop is not overrun with Charlock, as is too frequently the case with the spring-sown plots. The crop of winter Oats cannot, however, equal that of spring-sown Oats grown under equally good conditions. The latter will produce many bushels more per acre if sown early. Black Tartarian Oats, sown on well-prepared land in a

SOCIETIES.

NATIONAL ROSE.

SEPTEMBER 19.—The annual autumn show of Roses was held in the Royal Horticultural Hall on this date. There was a goodly display of Roses for the season, though the competition in some classes was weak. From the spectacular point of view the show was poor, and interest had to be centred in the individual exhibits.

The Cory Cup, offered for the best new seedling Rose exhibited at any of the Society's shows during the current year, was awarded to Dr. A. H. WILLIAMS for the variety Emily Gray, which he showed at the R.H.S. Hall on July 18.

One new Rose was awarded a Gold Medal and two others received Certificates of Merit.

GOLD MEDAL.

Rose Christine.—A most gorgeous, deep yellow H.T. variety, which may be described as a glorified Rayon d'Or, for it is much like a richer bloom of that beautiful variety. It is said—and the flowers on show bore out the statement—that the new variety retains its colour late into



FIG. 60.—DELPHINIUM LIKIANGENSE AS A BEDDING PLANT IN EDINBURGH BOTANIC GARDENS. (Photograph by W. Harrow.)

proper rotation with other crops in February, will produce good results even in an unfavourable year. It, however, it is not found possible to put in the Oats until the end of April, the result may be a failure, and the cultivator will do well to sow the winter varieties, *E. Molgucar, Swanmore Park, Hants.*

NOTICES OF BOOKS.

"THE FOREST FLORA OF N. S. WALES."

THE following trees are described in Vol. VI., Part 9 (Part LIX. of the complete work): *Hicksbechia pinnatifolia* F. v. M. (Proteacea), a tree which "arises copiously after the clearance of the primaeval forest only." *Eucalyptus polyanthemus*, Schauer, *Acacia Burkittii*, F. v. M., in the course of the description of which Wattle Mr. Maiden makes the interesting remark that just as at present special trains are run in Western Australia to enable Australians to inspect the native flora, so in a few generations hence special trains will be run to enable Australians to see the Wattles of the Western State at the seasons when they are in the fulness of their glory. *Weinmannia rubifolia*, Benth.

Mr. Charles Hedley, Assistant Curator, Australian Museum, Sydney, contributes an interesting appendix on marine wood borers.

the season. Shown by Messrs. S. MCGREY AND SON.

CERTIFICATES OF MERIT.

R. Louise Baldwin.—A very beautiful Rose of Lady Hillingdon type, but of apricot shading over rich orange. Also shown by Messrs. S. MCGREY AND SON.

R. Blush Queen.—A very vigorous H.T. Rose of perfect form which may be described as being a pale blush Mrs. George Shawyer. The large blooms have substantial petals and are borne on stiff stalks. Shown by Messrs. FRANK CANT AND CO.

OTHER NOVELTIES

R. Mrs. Herbert Reynolds.—A large H.T. Rose of rather loose habit. The blooms are pale shell-pink in colour.

R. Mrs. Martha Drew.—A small garden Rose of deep peach colour.

R. Mrs. Charles Salmon.—A single Rose of perfect shape and pretty shade of pink. These were shown by Messrs. S. MCGREY AND SON.

NURSERYMEN'S CLASSES.

MESSRS. D. PRIOR AND SONS, Colchester, exhibited alone in the premier class for 36 blooms of general exhibition Roses. The blooms generally were clean, fresh, and of good colour, and there were very few weather-stained petals. The best specimens were Heinrich Münch, George Dickson, Princess Marie Mestchersky, Gloire de

Chédane Guinoisseau, Candeur Lyonnaise, Mrs. Charles Russell and Lady Barham.

Five exhibitors staged 18 collections of blooms of exhibition Roses, and of these the best was from Mr. GEORGE LONGLEY, Rainham, Kent, whose blossoms, though small, were exceedingly bright and fresh. His best were H. V. Machin, Freda, Mamie, Mrs. Charles Russell, Mrs. George Shawyer, and Maman Cochet. Mr. HENRY DREW, Longworth, won the 2nd prize with larger, but not so shapely or bright blooms. Madame Louis Leroy, George Dickson, Hugh Dickson and H. V. Machin were the best. Mr. ELISHA J. HICKS, Twyford, was third.

Considering the season the exhibition Tea and Noisette Roses were especially good. Mr. GEORGE LONGLEY was the most successful exhibitor, and his collection of 12 varieties included splendid blooms of Lady Plymouth, W. R. Smith, Maman Cochet, Madame C. Souper and Mrs. Foley Hobbs. Messrs. D. PRIOR AND SON, who were a good second, had beautiful examples of Maman Cochet, Mrs. Dudley Cross and Mrs. Edward Mawley. The 3rd prize board of Mr. HENRY DREW included, in white Maman Cochet, the best Tea or Noisette in the Nurserymen's Section.

As always, the perpetual-flowering decorative Roses received much admiration. The best 12 vases were shown by Mr. JOHN MATTOCK, Headington, Oxford. All his varieties were excellent, though it was Ophelia, Lady A. Stanley, Willowmere, Marquis de Siney and General McArthur that attracted most attention. In the 2nd prize collection of Mr. GEORGE LONGLEY there were beautiful flowers of Rayon d'Or, Louise Catherine Breslau and Ophelia. Mr. ELISHA J. HICKS was third.

Mr. G. LILLEY was an easy first in the class for 6 vases of distinct perpetual-flowering Roses. He staged the varieties Lady Hillingdon, Madame Edouard Herriot, and other sorts. Messrs. W. AND J. BROWN were second and Mr. HENRY DREW was third.

There was no competition in the class for 5 baskets of exhibition or that for 9 of decorative Roses, and only one exhibit of 5 baskets of decorative Roses other than dwarf Polyantha or dwarf Pompos. In the last-named Mr. ELISHA J. HICKS was awarded the 1st prize for a praiseworthy collection which included Ophelia, Princess Mary and Joanna Bridge. The 5 baskets of Polyantha Roses were of average merit. Messrs. D. PRIOR AND SON, who showed such varieties as Mrs. Cutbush, Jessie and Mrs. Taft, were first. Messrs. F. CARTER AND CO. second, and Mr. HENRY DREW third.

The exhibits of general decorative Roses made a bright display. Mr. JOHN MATTOCK had the best 24 varieties, and included excellent flowers of Rayon d'Or, Mrs. A. P. Goodwin, Old Gold and Marquis de Siney. Messrs. FRANK CANT AND CO. were second.

Competition was better in the class for 12 varieties, and here Messrs. F. SPOONER AND SONS were first. Their best varieties were Mrs. W. Christie-Miller, Madame E. Herriot and Rayon d'Or. Messrs. W. AND J. BROWN were second and Mr. ELISHA J. HICKS third.

GROUPS OF ROSES.

Though not so floriferous as at the Regent's Park shows the groups of Roses arranged on a floor space were very attractive and a good feature of the show. Four exhibitors competed, and the Gold Medal was won by Messrs. PAUL AND SON, The Old Nurseries, Cheshunt. Few standards were included, and the chief display was obtained by masses of cut blooms with a groundwork of the new Polyantha Silver Gem, which has attractive variegated foliage. The chief flowers were Ophelia, Madame E. Herriot, Mrs. A. de Rothschild, Lieut. Chaure and Lady Hillingdon.

Messrs. HOBBIES, LTD., Dereham, who were second, had many standards, well-grown plants, but blooms on them were few. The massed blooms of Madame E. Herriot, Rayon d'Or and Pharisier were very beautiful. In the 3rd prize group of Mr. C. TURNER, Slough, a free use was made of Palms and grasses, and these, with the Roses, made a pretty effect. Mr. R. C. NOTCUTT, Woodbridge, was fourth.

More bloom was displayed in the groups arranged on the staging. The Gold Medal was awarded to the Rev. J. H. PEMBERTON, Havering-

atte-Bower, though many visitors disagreed with the award. In general arrangement and lightness it was the best, but there was little variety and less brightness. For the most part such Roses as Callisto, Clytemnestra, Moonlight and Queen Alexandra were employed, with a frontal row of exhibition varieties. In the 2nd prize group of Messrs. HOBBIES, LTD., there was a splendid display of the best autumn-flowering Roses, though the arrangement was somewhat stiff and formal. Messrs. STUART LOW AND CO., Enfield, who were placed third, made a free use of the dark, fragrant Château de Clos Vougeot.

The smaller group class contained, in the 1st prize arrangement of Messrs. B. R. CANT AND SONS, the best in the show. Their background of tall stems of such as Jessie and Orleans, and the massed blooms of Lady Hillingdon, Lyon Rose, and many others, made a memorable display. Messrs. G. JACKMAN AND SON, Woking, won the 2nd prize, and their arrangement was a series of arches of Polyanthas at the back, with bedding and exhibition sorts in the foreground.

MISCELLANEOUS ROSES.

Messrs. FRANK CANT AND CO., Colchester, had no competitor in the class for 36 vases of miscellaneous Roses, but were awarded the 1st prize for a magnificent display. They showed generous vases of fresh and bright blooms. Rayon d'Or, Madame E. Herriot, Old Gold, A. R. Goodwin, Augustus Hartmann and Joseph Hill are the names of a few in this fine exhibit.

Messrs. G. AND W. H. BURCH won the 1st prize for 12 vases with splendid sets of such as Madame E. Herriot, Madame Jules Gravereaux and Lyon Rose.

Although a trifle too early for their full beauty, the collections of hips of 9 distinct sorts were very attractive. Mr. J. C. ALLGROVE, Langley, showing splendid branches of Rosa Moysi. R. Fargesii (somewhat similar, but differing chiefly in that the hips are brighter in colour and have red spines), R. alba and R. rubra. Messrs. B. R. CANT AND SONS, Colchester, were second, and Mr. ELISHA J. HICKS third.

AMATEURS' CLASSES.

The competition in many of these classes was not so strong, nor was the quality of the blooms so good as in previous years, though there was much to admire. Mr. W. SUNDERLAND was alone in the premier class, and was awarded the 1st prize for 18 blooms of exhibition Roses for a creditable display, which included especially good blooms of Lemon Pillar and Frau Karl Druschki. Mr. S. V. BURGESS, including excellent blooms of George Norwood and J. L. Mock, was 1st in the class for 9 blooms of exhibition Roses. The Rev. F. R. BURNSIDE, who had the premier H.P. bloom in the section, was 2nd, and Capt. R. KILBEE-STUART 3rd.

The class for 6 blooms grown within 10 miles of Charing Cross found two competitors, and Mr. R. DE ESCHOFER, who had fine blooms of W. R. Smith and Gorgeous, was 1st, and Mr. H. S. SNOW 2nd.

The Tea and Noisette Roses in this section were of moderate merit. The Rev. F. R. BURNSIDE was alone in the chief class, and was awarded the 1st prize. The best 6 blooms were staged by Mr. H. F. MATTHEWS, who had excellent flowers of Maman Cochet and Mme. Jules Gravereaux.

Baskets of Roses were few, only the class for 1 basket being contested, and here Miss B. H. LANGTON was placed 1st.

Although the only exhibitor, Mr. H. R. DARLINGTON was awarded the 1st prize for an excellent exhibit of 12 vases, his sets of Mrs. Edward Powell, Mrs. E. G. Hill, and Caroline Testout were admirable. Mr. DARLINGTON also won 1st prize for hips of 5 distinct Roses.

The dinner-table decorations displayed a great variety and much taste, but the Amateurs' Class was far superior to that restricted to members of the trade. In the latter section Mrs. A. R. BIDE, Farnham, was 1st with a table decorated with Old Gold and Irish Fireflame Roses; Mr. H. DREW was 2nd; Mr. H. WELLEN 3rd.

In the Amateurs' Class Mrs. COLSTON HALE beat the remaining six competitors with a charming table decorated with Isobel and Golden Emblem; Mrs. A. F. TISDALL, the 2nd prize

winner, used Ophelia to give effect; Mrs. A. E. BROWN was 3rd.

Mrs. COLSTON HALE also won the 1st prize for a delightful basket of cut Roses. The best bowl of Roses was shown by Mrs. C. C. WILLIAMSON.

VEGETABLE SHOW AT MANCHESTER.

SEPTEMBER 7 AND 8.—The annual show of vegetables conducted by Messrs. DICKSON AND ROBINSON at Manchester was held this year on the above dates. The entries were numerous, and the quality of the exhibits was good, which made the competition in many of the classes particularly keen.

In Class 1, for four bulbs of "Premier" Onion (open to the United Kingdom), the Right Hon. Earl CURZON (gr. Mr. West) was 1st with four bulbs of good form and finish.

In Class 2, for four bulbs of "Premier" Onion grown north of Birmingham, Lieut.-Col. HEYWOOD LONSDALE (gr. Mr. Mills) took the 1st prize with four well-modelled and typical bulbs.

For the best bulb of "Premier" Onion the Right Hon. Earl CURZON (gr. Mr. West) won the 1st prize. This class was keenly contested, several of the bulbs entered being exceptionally fine.

In Class 5, for the best bunch of "Aviator" Tomato, Mr. Wm. ROBINSON gained the first place. Lieut.-Col. HEYWOOD LONSDALE (gr. Mr. Mills) was placed first for the best bunch of "Money-maker" Tomato. The same competitor was also successful in gaining the 1st prize for a fine dish of thirty pods of "Hercules" Pea.

For thirty pods of "Lancastrian" Pea Mr. Wm. ROBINSON was placed first for a very fine dish.

There were numbers of other classes for various vegetables, those for Beans, Celery, Carrots and Potatoes being remarkable for the high quality of the exhibits.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 7.—At the meeting held on the above date, the members of committee present were:—The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (secretary).

The following medals were awarded for groups:—

R. ASHWORTH, Esq., Newchurch (gr. Mr. W. Gilden), Large Silver Medal.

W. R. LEE, Esq., Heywood (gr. Mr. C. Branch), Large Silver Medal.

S. GRATRICK, Esq., Whalley Range (gr. Mr. Jemmission), Silver Medal.

Messrs. CYPHER AND SONS, Cheltenham, Silver Medal.

FIRST-CLASS CERTIFICATES.

Cattleya Sybil var. *Georgius Rex* (*Iridescens* × *aurea*), a flower of good shape and colour, sepals and petals yellow, with crimson lip. From W. R. LEE, Esq.

Laelia-Cattleya St. Gotthard var. *Hamilton* (*L.-C. Gattiniana* × *C. Hardyana*). A large flower, good colour, and brilliant lip. From J. WALKER, Esq.

Cattleya Venus var. *Evansiae*, a splendid flower, of good form and substance, from Mr. J. EVANS.

AWARDS OF MERIT.

Cattleya Noidia var. *Ruby* and *Rubella* (*Hardyana* × *Iridescens*), both from R. ASHWORTH, Esq.

Cattleya Sybil var. *Lord Kitchener* (*Iridescens* × *aurea*), and *Cattleya Anubis*, both from W. R. LEE, Esq.

Cattleya Sybil *Houghton*'s var. (*Iridescens* × *aurea*), from T. HOUGHTON, Esq.

YORK FLORISTS'.

SEPTEMBER 6.—The second and last minor show this year of the Ancient Society of York Florists was held in the Guildhall, York. There was a marked falling off in the number of exhibits compared with last year, but this was scarcely to be wondered at, many members being

absent on military service. The recent heavy rains were also in some measure responsible; there was not a single entry in one class for herbaceous flowers. The flowers and vegetables shown were of excellent quality. An interesting feature of the show was the exhibition by the Hon Mrs. WILKINSON, of Dringhouses Manor, of about seventy varieties of medicinal herbs.

LEADHILLS (LANARKSHIRE) HORTICULTURAL.

SEPTEMBER 2.—The exhibits at the annual meeting of this society were less numerous than usual, but the show was an attractive one, and characterised by some excellent produce. Besides fruit and vegetables, there were fine exhibits of flowers. Mr. H. ROBB, Dr. DUNLOP, Mr. T. W. SMITH, Mr. W. PATERSON and Mr. J. JENNINGS were among the most successful competitors.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

SEPTEMBER 11.—The monthly meeting of this society was held at the R. H. S. Hall on the above date, Mr. Chas. H. Curtis in the chair. Two new members were elected. Two members were allowed to withdraw from their deposit accounts, amounting to £29 2s. 8d. The sums of £44 4s. 3d., £42 2s. 1d., £22 8s. 4d., £7 12s. 8d., £5 10s. 11d., and £2 16s. were passed for payment to the nominees of six deceased members, three of whom had fallen on the field of battle.

LAW NOTES.

CLAIM FOR BULBS: WAR DEMURRAGE.

At Lancaster County Court recently, before his Honour Judge H. M. Sturges, an action was brought by MM. Lagarde and Spelman, bulb growers, France, against Messrs. William Shand and Sons, florists, New Street, Lancaster, claiming £34 9s. 6d. for goods supplied in October, 1914. Mr. J. T. Sanderson appeared for the plaintiffs, and Mr. T. Ponsonby Tilly for the defendants. The goods, it appeared, were ordered in April, 1914, and put on board in July of that year. In consequence of the war the goods were not delivered till September, and defendants refused acceptance, but later accepted the goods.

For the defendants it was contended that they accepted the goods as plaintiffs' agents to make the best use of them, and the only offer was one for £5. A representative of plaintiffs called upon defendants, and an arrangement was confirmed by letter for defendants to get rid of the bulbs to the best advantage. Defendants did so, and estimated the amount received at just over £20, and, deducting carriage, etc., they had paid £20 into court.

His Honour gave a verdict for the defendants, with costs.

FAILURE OF A NURSERYMAN.

At the offices of the Official Receiver for the Wandsworth district, York Road, Lambeth, S.E., on Monday last, before Mr. J. D. Turner, deputy Official Receiver, the first meeting of creditors was held under the failure re Arthur Richmond, nurseryman, 74, Endlesham Road, Balham, S.W. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £2,605 10s., of which £1,760 10s. was due to unsecured creditors; to fully secured creditors, £750; to partly secured creditors, £95; contingent liabilities, £162 10s. The total liabilities expected to rank against the estate for dividend were returned at £1,785 10s. The assets consisted of a metal chain valued at 1s., thus leaving a deficiency of £1,785 9s. The debtor alleged his failure to have been caused through bad trade in consequence of the war. Debtor was formerly connected with the music hall stage for many years, exhibiting feats of strength, and subsequently as manager of touring dramatic companies. In March, 1914, he commenced business as a nurseryman with a capital of £800 he had saved, when he purchased a portion of the nursery carried on by Messrs. Veitch, at Feltham. He borrowed £1,100 from a friend to assist him in the business. In January last he registered a limited company under the style of Richmond

and Sons, Ltd., with a capital of £2,000 for the purpose of taking over the nursery. He received from the company £1,500 in shares for his interest in the business. The security held by fully secured creditors consisted of a mortgage for £700 on 74, Endlesham Road, Balham, and the £1,500 worth of shares in Richmond and Sons, Ltd. The furniture was claimed by the debtor's wife on the ground that she purchased it before their marriage in 1905. The chairman said he thought it was a case which required careful investigation, as the debtor had parted with all his assets for £1,500 shares in the company, and those shares were now valued at £50, and were held by debtor's solicitor as security for costs. After dealing with the proofs of debt lodged, the Official Receiver held that some of them were informal, and, after a long discussion, it was decided to adjourn the meeting for a week to enable the creditors to put their proofs in order, and appoint an independent trustee to administer the estate.

ENQUIRY.

THE FRENCH PARADISE STOCK.

CAN any reader of the *Chronicle* help me to find the old French Paradise stock? This is distinct from the French Paradise used in French nurseries nowadays, as it never grows more than 2 or 3 feet high, and trees worked upon it seldom exceed 4 feet or so. Should any reader have dwarf Apples of French origin dating from some 30 years ago, such trees may possibly be upon this stock, and should there be any spawn coming up, a shoot or two with the leaves on would be much esteemed, as this old variety does not now seem procurable commercially. E. A. Banyard, Allington, Maidstone.

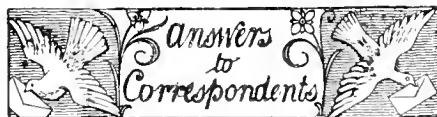
TRADE NOTE.

ONE & ALL.

By agreement between the parties associated in the purchase of the trade mark, goodwill, and copyrights of the Agricultural and Horticultural Association, Ltd. (One & All), the seed business and the publishing business will become separate properties. The seed business will be carried on at St. Albans by The One & All Seed Company. The publishing business will be owned and conducted by Mr. Walter P. Wright.

Obituary.

JAMES OGSTON.—Deep regret is felt at the death, at the comparatively early age of 52, of Mr. James Ogston, superintendent of the Grove Cemetery, Aberdeen. Born in Strichen, Aberdeenshire, he served his apprenticeship in the gardens, Arbutnott House. Then followed periods of service at Drumtochty, Kincardineshire, and Dalheltby, Aberdeenshire. When the Grove Cemetery Company was formed eighteen years ago, Mr. Ogston was appointed the first superintendent, and on him devolved the work of laying out the cemetery. Situated on the left bank of the River Don, its fine terraces and beautifully-laid-out grounds have given this cemetery an outstanding place among the burial grounds in and around Aberdeen.



APPLES DISEASED: Yanda. The Apples are attacked by Apple Scab (*Fusicladium dendriticum*). Syringe the trees in winter with a solution of sulphate of iron, and when the buds are beginning to open, with half-strength Bordeaux mixture, repeating the latter operation when the young fruits are about the size of peas.

GOOSEBERRY BUSHES: J. H. J. There is no disease present on the shoot sent for ex-

amination, but the bushes are attacked by red spider. Keep the roots moist during dry weather, and syringe the bushes frequently with clear, cold water. If these measures are not sufficient, mix a little flowers of sulphur with the water for syringing.

GRAPES: J. T. Your Grapes are well grown up to a certain point; the berries are of large size, but for some reason or another they sustained a check soon after the skins began to colour. This check may have been due to the roots entering some unfavourable soil-medium, or to want of care in ventilating the house during the prevalence of cold winds. The check has caused modified shanking, a condition in which the flesh becomes sour instead of increasing in sweetness. The best thing you can do is to try to find out the cause of the check; if this appears obscure, turn over a part of the border in the winter, and examine the roots and drainage materials to see whether the conditions are as they should be. One of the best books on vine culture is *Vines and Vine Culture*, by A. F. Barron, price 5s. 5d., post free. A cheaper book, but also a good one, is *The Book of the Grape*, by H. W. Ward, price 2s. 10d. Both can be supplied by our publishing department. The names of the plants are given under "Names of Plants" below.—P. J. P. The Grapes and box were smashed in the post; see the directions for sending Grapes given in last issue, p. 142.

GRASS: R. T. W. Please send another specimen; the one received had fallen to pieces.

LETTUCES DYING: H. B. The roots of your Lettuces have been attacked by wire-worms, which are the grubs of the so-called "click beetles." The worms can sometimes be destroyed by the use of Vaporite, the fumes of which permeate the soil. Another method is to turn over the soil at frequent intervals, so as to expose the worms to the beaks of birds. As deterrents, unslaked lime, superphosphate, and salt are good. (We do not send replies by post. The 1s. you sent we have placed in the collecting box for the Royal Gardeners' Orphan Fund.)

MELONS FLAGGING: W. C. R. There is no disease present in your Melon plants; it is evident that some wrong conditions in the treatment have killed the roots.

MULBERRIES: W. E. You are right in your opinion that your fruits are affected with canker, or "die back" disease. The article to which you refer is on p. 95 of our issue of August 26.

NAMES OF FRUITS: H. M. S. 8, Pitmaston Duchess; 10, Beurré Giffard; 17, Louise Bonne de Jersey; 31, Williams' Bon Chrétien; 23, Vicar of Winkfield; 5, Doyenné du Comice; 48, Iris Grégoire; 4, Beurré Hardy; 6, Beurré de Capiaumont; 44, Duchesse d'Angoulême; 19, Brockworth Park; 53, Le Lectier; 21, Maréchal de la Cour; 32, Doyenné d'Alençon; 50, Fondante du Pansiel.—P. B. C. 1, Warner's King; 2, Winter Hawthornden; 3, Lord Derby. G. E. B. Small's Admirable. J. L. The Peaches were not sufficiently packed, and therefore rubbed against one another in the box, with the result that when they arrived at this office they were both completely crushed. Please send fresh specimens, in a larger box, well wrapped in wadding and plenty of paper.

NAMES OF PLANTS: Ovum. 1, *Taxodium distichum*. 2, Seed better specimen. 3, Specimen withered. 4, *Pentstemon* sp. You should have supplied your full name and address for our own information.—W. R. The plant with red fruits is *Solanum Dulcamara*. It is known as the "Bitter-sweet." The black-fruited plant is *Solanum nigrum*. Both these plants have occasionally been used in medicine, but we imagine the plant in your mind is an allied species known as *Atropa Belladonna*, the Deadly Nightshade, which supplies the Belladonna of commerce.—G. N. H. 1, *Delphinium formosum*. 2, *Colutea arborescens*; 3, *Spiraea arnefolia*.—Constant Reader. 1, *Mentha hirsuta*; 2, *Prunella vulgaris*; 3, *Pieracium alpinum*; 4, *Ononis spinosa*; 5, *Arctium*

MARKETS.

COVENT GARDEN, September 20.

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Asters, Carnations, Chrysanthemums, Daisies, Forget-me-nots, Gardenias, Gladioli, Helianthus, Heather, Lapageria, Lavender, Lilium longiflorum, and others.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and plants, including Adiantum, Ferns, Hardy foliage, Mosses, Myrtle, and Smilax.

REMARKS.—The supplies of Chrysanthemums, both specimen blooms and bunched white, are still short, and good, well-bunched blooms of Roi des Blancs are soon cleared. The same remark applies to the best samples of white Aster, which were firm all the week. Single mauve and pink decorative Asters are more plentiful and lower in price. Michaelmas Daisies or Perennial Asters are now available in numerous varieties. Helianthus, Dahlias, Golden Rod and Bronze Acer foliage are also to be had. Some of the annuals are now almost finished.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various plants in pots and their prices, including Aralia Sieboldii, Araucaria excelsa, Asparagus plumosus nanus, Aspidistra, Cacti, Cocos Weddelliana, and others.

Plants in Pots, &c.: Average Wholesale Prices.—con.

Table listing various plants in pots and their prices, including Ficus repens, Geonoma gracilis, Hydrangeas, Kentia Belmoreana, and others.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Aubergines, Beetroot, Beans, Carrots, Cauliflowers, Celery, Cucumbers, Endive, Greens, Garlic, Herbs, Horseradish, Leeks, and others.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Bananas, Lemons, Lychees, Melons, Nectarines, Nuts, Oranges, Peaches, Pears, Plums, and others.

REMARKS.—Supplies of English Apples have increased during the week. Californian Newtown Pippins are also arriving. English and Californian Pears are fairly plentiful, and English and Dutch Grapes are arriving in good quantities. The supplies of Plums are decreasing, but the market is fairly well supplied with Damsons. Peaches continue to yield a good supply, and there are increasing quantities of Blackberries and Sloes in the market. Tomatoes—English, Channel Islands, French and Dutch—are abundant. All lines of ordinary vegetables are in demand. E. H. R., Covent Garden Market, September 20, 1916.

Potatoes.

Table listing various potato varieties and their prices, including Kent, Eclipse, Sharpe's, Epicure, May Queen, Bedford, and others.

Lappa; 6, Plantago major; 7, Abies sp., cannot name with certainty without cone.—W. F. and Co. The Lime is Tilia petiolaris (the pendent Silver Lime), the other probably Artemisia Absinthium (Wormwood); send when in flower.—J. T. 1, Spiraea callosa; 2, Veronica salicifolia; 3, Veronica Andersonii variegata; 4, Abutilon insigne; 5, Artemisia argentea; 6, Marrubium vulgare.—M. D. Miltonia Clowesii.—Kent. 1, Salvia coccinea; 2, Salvia pseudo-coccinea (see illustration in Bot. Mag., tab. 2,864).

PEACH TREES AFFECTED: H. D. The fungus which causes white root-rot is present in your Peach trees. Clear out all the soil in which the trees are growing, and replace with fresh soil, sprinkling the latter with a mixture of equal parts of quicklime and powdered sulphur.

PLUM TREES DISEASED: W. B. Your Plum trees are attacked by the Plum aphid, and should be sprayed with an insecticide to eradicate this pest. They appear also, however, to show signs of Silver Leaf, and the symptoms you describe point to the presence of this disease. In this case the best thing to do is to destroy all the trees which are badly affected, and cut back the less affected trees well beyond the first marks of discoloration on the wood, which are plainly visible in trees attacked by the disease. You should burn all cuttings taken from diseased trees, as it is thought by some that the disease may be infectious. You will find a fuller reply on this subject in our issue for June 10, 1916, p. 316, together with a short account of experiments which have been made with a view to finding a cure.

POTATOS DISEASED: J. W. C. The Potatoes are infected with Potato disease (Phytophthora infestans). Carefully separate all diseased tubers from the sound ones, as the complaint is very infectious; the diseased ones can be boiled and fed to pigs, but they are not fit for anything else, and if not used in this way should be burnt. When the crop has been gathered, take up and burn the whole of the haulms. To prevent future attacks, spray the plants early in July with Bordeaux mixture, taking care to reach the underside of the leaves, and again once or twice at intervals of a fortnight or so. Potatoes should be grown on well-drained soil, or ridges of a fair height.

SCARLET RUNNERS DYING.—The Beans have been injured by Pod Scab, or Colletotrichum Lindemuthianum. Grub up and burn all diseased plants, and next season spray with Bordeaux mixture just before the time of blooming.

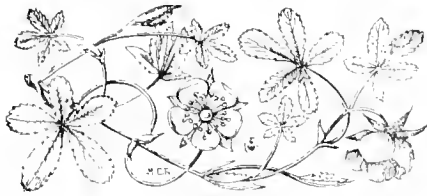
STICK INSECT: H. T. U. L. You cannot do better than employ an arsenical spray fluid, weak at first, until you assure yourself that the particular insecticide does not injure the plants. We may add that there is no reason why it should injure them.

TOMATO DISEASED: P., Sussex. Your Tomatoes are attacked by the fungus Cladosporium fulvum. Pick off and burn all diseased portions, as the disease is contagious; and keep the house in which the plants are growing well ventilated. In order to prevent future attacks spray the plants early in their growth with a weak solution of Bordeaux mixture, at the same time carefully watching the underside of the foliage for the brown spots which are the first sign of the fungus.

VIOLETS DISEASED: R. T. W. Your plants are attacked by a fungus known as Ascochyta violae. We fear there is no complete cure; your best plan will be to grub up and burn all infested plants, sterilise the soil, disinfect the frame, and plant clean stock in fresh soil. When the new plants are well established spray the plants and the soil every fortnight with potassium sulphide, in the proportion of 1 oz. potassium sulphide to 3 gallons of water.

WILLOW AFFECTED: D. H. The injury has been caused by a mite. The only remedy is to remove all the tufts early in the season.

Communications Received.—J. C., Trevanger—W. A. C.—F. W. C.—Chloris—J. G.—C. T.—J. O. B.—A. D. T., Pwllheli—F. J.—D. W. S.—J. F. E. M.—J. C. B. N.—W. G.—G. P.—T. H. P.—W. F.—J. T.—G. M., Berronsey—L. Bros.—W. J. P.—Miss C. W.—J. M.—J. W.



THE
Gardeners' Chronicle

No. 1553.—SATURDAY, SEPTEMBER 30, 1916.

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ALDENHAM IN LATE SUMMER.

IN a previous note (*Gard. Chron.*, July 15, 1916, p. 25) we described some of the features of the Hon. Vicary Gibbs' extensive gardens at Aldenham House, Elstree, Hertfordshire, in early summer, and dealt in particular with the more promising of the new Chinese trees and shrubs. From many points of view, late summer is the very best season to visit a well-kept garden of this description. The grounds are at their maximum of beauty, for the summer bedding plants are giving their full value and the borders of perennials are contributing a profusion of beautiful flowers and foliage. The Roses are recovering from the exhaustion which their early crop of blooms entailed, and are making their second display. Arch, pergola and terrace are covered with greenery, which here and there is brightened by patches of flowers, the dense growth overhead making a canopy that the sun's rays can scarcely penetrate. The pools and lakes are resplendent with Water Lilies, whose tones seem clearer than those of any land flower. But best of all is the magnificence of the arboreal vegetation, for tree and shrub have completed their season's growth, and each in its own way has something unique to offer in habit, tone and variety to the landscape. Nowhere else can the stately effect of a well-planned arborium be better studied than at Aldenham, where the colour effects in summer are magnificent. One, near Mr. Beckett's house, we will attempt to describe.

In the distance appears a large golden-tipped tree—a fine golden Elm—and at its

foot is a mass of red colour from the foliage of *Prunus pissartii*. Near by is a fine *Robinia* of sage-green hue, and a tall Lombardy Poplar stands clearly outlined against the sky. A big clump of *Acer negundo aurea* makes a patch of yellowish gold on the landscape, and contrasts sharply and pleasingly with the lustrous glossy greenness of *Thuja gigantea stricta*. Waving in the breeze are long plumes of seedling *Buddleia variabilis*, raised at Aldenham, the majority much finer than the type, and through a gap appears the rosy fruits of the Beauty of Montreal Crab. The glaucous foliage of *Eucalyptus gunnii* gives a touch of blue which justifies the common name, Blue Gum, which this plant bears. Golden Conifers contribute patches of yellow of varying tones, vying in beauty with the silvery variegated shrubs of their own and other kinds. Dotted about the beds and borders are climbing plants, such as *Vitis*, *Lonicera*, *Clematis*, *Rubus*, *Roses* and *Rhus toxicodendron*; these, beautiful now, in autumn paint the whole landscape with the gorgeous tints of their foliage. A short distance to the right of this spot is the residence, and in passing to the west front the visitor cannot fail to notice a large Thorn standing by itself on a lawn. It is a tree of *Crataegus punctata*, the largest of its kind in Europe, and probably as fine a specimen as anywhere in the world. Mr. Bean, in referring to this tree (*Trees and Shrubs*, p. 434) records that it was planted in 1845, and is 33 feet high, and has a spread of branches over 40 feet across. An avenue of Elms directly opposite the house opens up a view of Bushey in the far distance.

The south and east garden fronts are treated formally but in good taste and variety. Fuchsias enter largely into the scheme of planting, and W. T. (who writes so appreciatively of these old favourites in *Gard. Chron.*, Sept. 16, p. 140) would be delighted with the Aldenham flower-beds. They include Mme. Cornellison, which, to judge of the effect, must surely be the finest bedding Fuchsia ever raised. Others of the fulgens type, such as *Corrello* and *Thalia*, are perfectly shaped globular plants, for which the low-growing Ice Plant (*Mesembryanthemum crystallinum*) make a good carpet and *Echeveria secunda glauca* a trim edge. In a narrow border under the wall our attention was drawn to a Fuchsia with upright flowers of pink and white, bearing the name of Von Novelty. The illustration in fig. 61 affords a view of the enclosed beds on the east front, some of which are planted with *Plumbago capensis*, over a carpet of Maggie Mott Viola, others with standard *Heliotropes*, *Swainsonia alba*, *Pelargoniums*, and the like. Along one side of this broad terrace garden is a border of scented-leaved *Pelargoniums*. A few of the plants are trained as standards, but most are little bushes, although each sort seems to have a distinct habit of growth. The variation these plants exhibit in form of leaf is remarkable, and each seems to have a scent peculiar to itself. We made notes of a few varieties that seemed especially suited for

bedding out, and these include the "Unique" series, of which Rollisson's Unique is perhaps the oldest and best; indeed, it would be our pick of the collection. The flowers are purplish-rose with dark blotches on the upper petals. Scarlet Unique is a very bright, free-flowering variety, whilst Purple Unique has large blooms and makes an excellent standard. Lothario is a very pretty sort, with blooms of deep and pale pink colours mixed. Shottenham Pet has larger foliage and slightly bigger flowers than those of Rollisson's Unique; *Betulaefolium* has round, serrated, leathery leaves somewhat like those of the Birch, hence the name. Stagshorn has a very distinct shaped leaf, with a rough surface. The blade is some 6 inches long and deeply divided into horn-like lobes. The hybrid *Clorinda*, which is said to have as its male parent a variety of Zonal *Pelargonium*, is included in the collection, along with its mother parent, *P. quercifolium*. The variety Lady Plymouth is very serviceable as a carpet plant, to which use it is put at Aldenham, the silvery variegation of the leaves and low-spreading habit being qualities that make the plant adapted for this purpose.

The view of the stone-enclosed flower beds in fig. 61 shows, at the back, a glimpse of the massive Yew hedge which encloses the Rose garden. The latter is of rectangular shape, the hedge on each side admitting of entrance in the centre, with pathways leading to a lead sundial in the middle. The Yew is clipped like a solid wall, with massive buttresses at intervals, and the four archways are "carved" after the manner of masonry. The Roses are planted in big beds, each of one variety. One of the exits from the Rose garden is connected with a long pergola that surrounds two sides of a spacious lawn, contiguous with the extensive park. In the centre of the grass are two very large and splendidly preserved Elms, evidently of great age, and bordering on the park is an equally fine Oak. This beautiful retreat has four big corner pieces of closely-clipped panels of shrubs. One is of Golden Privet, another of *Cornus alba*, with *Prunus pissartii* in the centre, and still another of Purple Hazel and the silver form of *Acer negundo*. Trees of Golden *Hollies* especially attracted our notice, for the foliage was superbly coloured and the growth clean and healthy: like most other trees, the Holly enjoys the heavy soil of this garden.

Flowers are planted everywhere at Aldenham, and the walled-in kitchen gardens have wide borders of hardy herbaceous flowers. The paths in the kitchen garden are cruciform from a stone pool in the centre and are connected with other paths, the whole forming a square which is divided into four plots. We illustrate one of these quarters in fig. 62, showing the Celery beds and, amongst other things, a row of Scarlet Runner Beans some 10 or 12 feet high. Mr. Beckett's method of blanching the Celery by means of brown-paper is well shown in the illustration. The flower borders in the central part are about 900

feet long and 9 feet wide. Originally the limits were grass verges, but these have been replaced by dwarf rock work. This rockery border is planted with Alpines and is interesting the whole year round. The plants in the borders at the back are not graded in height as is usually done with herbaceous flowers, with the result that a more natural and pleasing effect is produced. At the same time as the rock edging was made a "grey" border was planted, the various subjects being selected for their silvery-grey leafage, and this border extends for some 70 feet. Opposite the "grey" border, and under the shelter of a wall, is a collection of herbs, reviving memories of the monastic gardens of old times, and the simples which our forebears prepared from plants. A bed of Antirrhinums, covering a space of about 1,800 square feet and furnished with 1,100 plants, provides a bright contrast to the herb border. As a background to the Snapdragons are six rows of summer-flowering Chrysanthemums, each row 60 feet long, and beyond these are similar rows of tall-growing Dahlias, for the express purpose of supplying cut blooms. Other large beds are planted with perennial Asters, China Asters, Shirley Poppies, Heuchera sanguinea,

and transplanted. The remarkable keeping quality of this new variety is not its only value, for it gives bulbs of exhibition size. Celery, Leeks, Runner Beans, Beets, Carrots, Lettuces, indeed, every kind of vegetable is grown at Aldenham to perfection, as our readers are well aware from the collections which Mr. Gibbs exhibits so frequently at the shows. Mr. Beckett's success with vegetables is little short of marvellous, and he must surely be the winner of more important medals and trophies, not only for vegetables but other subjects as well, than any contemporary gardener. To his success his office walls bear witness, for they are covered from floor to ceiling with gold medal cards from all the important horticultural societies. We will conclude with a brief notice of the famous collection of Michaelmas Daisies, and pass over many other features, such as the lake in the park; the tree nurseries intersected by avenues each bearing the name of some member of the family or horticultural friend, and terminated by a feature of special interest; the water gardens; glass-houses, and indoor plants generally. The Aster border, 230 feet long, with an average depth of 40 feet, contains nearly 400 plants in numerous variety, many being seedlings

FLORISTS' FLOWERS.

SWEET PEA HYBRIDS.

In the *Gardeners' Chronicle* of September 9 last reference was made (p. 126) to an address by Mr. David Burpee delivered at the eighth annual meeting of the American Sweet Pea Society, in which the possibility of a yellow Sweet Pea arising as the result of crossing *Lathyrus odoratus* with some other species of that genus was suggested. It was there pointed out that in the Leguminosae, as a family, species crosses are exceedingly rare, and that in spite of the work of many hybridists there is no record of a well-established case of a cross between *Lathyrus odoratus* and any other species of *Lathyrus*.

It may therefore be of interest to describe briefly a series of hybrids raised at the Research Station, Long Ashton, during the last few years. In the summer of 1912 Mr. William Camps and myself cross-pollinated a number of Sweet Peas with various other species of *Lathyrus*, the seed of which was obtained from the Continent. In only one case was any success obtained, this being between the Sweet Pea Kitty Clive, an orange-scarlet variety well known a few years ago, and a species of *Lathyrus*, the seed of which was supplied under the name of *Lathyrus hirsutus*.

The latter species as described in Bentham and Hooker's *British Flora* is a weak annual, much branched at the base, a foot long or more, with the young shoots slightly hairy; stipules narrow; tendrils branched, with a single pair of lanceolate leaflets; flowers in early summer; peduncles long, with one or two rather small flowers; standard bright red, the keel and wings paler; pod hairy. It occurs in cultivated and waste places, in Southern Europe to the Caucasus, spreading northward as a cornfield weed, and as such found in this country, but very rarely, in York, Essex, Kent, Surrey and Somerset.

This description applies generally to the plants grown here under that name, the only modification necessary being in the colour of the flowers, the standards of which were maroon rather than bright red, and the wings more of a lilac tinge than a paler red. There seems, therefore, no reason to regard the type used in these experiments as other than a form of *L. hirsutus*.

A comparison of the characters of this species with those of the ordinary Sweet Pea, *L. odoratus*, shows few points of material difference between the two, except as regards size and the structure of the outer seed-coat. In respect of size, *L. hirsutus* is practically a dwarfed and very much weaker form of Sweet Pea, not only the plant itself, but also the flowers, being miniatures of the latter type. The dwarf or Cnpid type of Sweet Pea is nevertheless quite distinct from it, the flowers of the former being larger and the plants dwarfed, sturdier, and more bushy. The seeds of *L. hirsutus* are much smaller than those of the Sweet Pea, and carry a greyish bloom. This is due to markings on the seed coat, which can easily be distinguished under a hand lens. They consist of a series of rounded excrescences, and form a complete and more or less regular network over the whole surface of the seed. Beneath the network the dark ground colour of the seed-coat is visible. It is of the brownish-black type characteristic of seeds of Sweet Peas other than those of the white and variegated seeded varieties.

The relationship between *L. odoratus* and *L. hirsutus* thus appears to be close.

The cross-pollination of the Sweet Pea Kitty Clive and *L. hirsutus* yielded a pod containing several well-developed seeds, each of which germinated when sown in gentle heat in January, 1913. The time required for germination was about the same as that for Sweet Pea seeds sown on the same day. The seedlings resembled those of Sweet Peas, but were slighter and less robust.



FIG. 61.—ALDENHAM HOUSE, ELSTREE: FLOWER-BEDS ON THE EAST FRONT.

(See p. 155.)

Carnations, and the sweetly-scented East Lothian Stocks.

Besides the vegetable crops in the kitchen garden proper, kitchen-garden produce is grown in more open parts and even in the plantations of seedling trees and shrubs, as shown in fig. 65. Vacant space everywhere that is suitable has been made of use in this way at Aldenham since the commencement of the war, and Mr. Gibbs has broken up many acres of hitherto unprofitable land for the express purpose of cropping it with vegetables. Amongst the great number of crops we were especially interested in the rows of Peas, some 20-feet apart and 100 yards long. The plants were laden with pods of exhibition quality. Such varieties as Edwin Beckett, Duke of Albany and Quite Content are favoured for the main crops, whilst Autocrat, which was just coming into bearing, is chiefly grown for late use. There was no sign of mildew on the plants, which, we suspect, was, in some measure, owing to the full exposure of the shoots to sunshine and air. The beds of Onions, too, were splendid, and contained plenty of "Champion" bulbs. The new variety Autumn Triumph was giving a good account of itself. It is found that this does best sown in the autumn

raised at Aldenham. The raising of novelties is continued each season, and a large bed is planted with new Michaelmas Daisies, which are expected to furnish many acquisitions to this popular autumn flower.

FRENCH NOTE.

LOSSES AMONG HORTICULTURAL STUDENTS.

THE losses among the Association of former pupils of the National School of Horticulture continue to be very severe. The number of killed among them is seventy-one. Among those recently killed are René Rouhaud, who occupied the post of foreman in the garden of the Natural History Museum of Paris; Antonin Sanitas, forester attached to the Greek Ministry of Agriculture (killed at Verdun); Le Cozannet, the official in charge of the horticultural station at Dahomey; and Paul Mottet, Second Lieutenant, son of Monsieur Mottet, the well-known and much-respected chief of the experimental garden of Messrs. Vilmorin, Andrieux and Co.

looking. For some time growth proceeded more slowly than in the case of the Sweet Peas, and a marked difference in the colour was noticeable. The hybrids gradually acquired a sickly yellowish-green tint, and appeared at one point likely to die. When the shoots attained a length of from about 6 inches to 1 foot, however, a healthier-looking, darker green colour developed, and subsequently the plants grew fairly freely and with a moderate degree of vigour. The unhealthy appearance during the seedling stage appears to be a regular feature with all the progeny of these seedlings, although in the batch of plants grown this year in much richer soil than had heretofore been used, the yellowish tint was decidedly less marked. The adult plants attained a height of 3.4 feet, and their vigour and vegetative characters were practically intermediate between those of the Sweet Pea and *L. hirsutus*. They flowered freely, the colour of the flowers being practically the same as those of the *L. hirsutus* parent. They were somewhat larger than the latter, although very much smaller than Sweet Peas. Generally two or three flowers were borne on a single stem, the stems during the early part of the flowering season being about 6 inches long. The flowers set seed surprisingly freely, many well-developed pods containing sometimes six or more seeds being formed. The seeds were similar in colour to those of *L. hirsutus*, but rather larger, and possessed the same characteristic markings on the seed-coat.

The 1913 crop of seed from these hybrids was sown during the late winter following. The seeds germinated regularly and freely, and the plants proved similar in vegetative characters to their predecessors. Individual plants varied somewhat in height and vigour of growth, but the main differences observable were in the size and colour of the flowers. In some cases the flowers were smaller than those of the original hybrids, the tendency being to revert very closely to the *L. hirsutus* type. The majority of the plants bore flowers about the same size as those of the previous generation, while some again produced blossoms which, without approaching the size even of a small Sweet Pea, nevertheless represented a distinct advance on the original form. The breaks in the colour of the flowers were interesting. Mostly the colour was, as in the plants of the previous season, of the type of the *L. hirsutus* parent, but several seedlings gave flowers of one or other of the following additional colour types: maroon standards and wings, purplish-maroon standards and bluish-lilac wings, bluish-lilac standards and wings, and pink standards and white wings faintly tinged with pink. Minor variations in shades of these respective colour types also occurred, and in some instances the maroon shades approached a rich dark red.

Similar colour variations have re-appeared in the 1915 and 1916 batches of plants, and in addition a pure white form has been obtained. Probably further colour varieties will yet appear, since the number of plants raised during the last two years has been limited and the large majority give flowers of the colour of the *hirsutus* parent. It is noteworthy that up to the present time no forms have arisen the colour of which in any way approaches the orange-scarlet of the Kitty Clive Sweet Pea. None of the 1915 and 1916 plants presented any striking developments in the size of the flowers.

The cross has thus so far not resulted in the production of any colour shades in the unfaded flowers which are not already to be found among existing varieties of Sweet Peas, but the colour changes which occur when the fading of the flowers first begins in certain of the types already obtained suggest that the chemistry of the flower colours of the hybrids is not entirely identical with that of Sweet Peas, and that accordingly there is a fair possibility that some new colour types may ultimately be obtained. These changes are most marked in the type with maroon standards and lilac wings, and are particularly well

shown by the wings. Their lilac colour, instead of becoming gradually paler during the fading of the flower, acquires a very characteristic greenish-blue hue, which increases in intensity until it becomes quite brilliant and approaches a striking peacock blue shade. Eventually it grows paler and more washy, until in the faded flower it disappears almost entirely and the wings are left with a greyish-white colour. The development of this colour change is not constant throughout the flowering season, being apparently rather closely dependent on the weather conditions.

None of the forms which have thus far appeared is of notable decorative value. They show to best advantage when grown in pots, under glass, about half-a-dozen plants sufficing for a 10 or 12-inch pot. The clumps then are fairly dense, and the effect when the plants are in full bloom is pleasing and dainty, the lack of size of the flowers being compensated for by their profusion. When grown in the open ground in clumps or rows they appear relatively insignificant owing to their want of boldness. Their growth under outdoor conditions is, however, healthy enough, and they can be ranked

have failed, although well-developed, yet seedless, pods were formed; but this season a few fairly plump seeds have been obtained by pollinating the hybrid with one of the perennial species of *Lathyrus*. *B. T. P. Barker.*

THE PROFITS FROM FRUIT FARMING.

How to make a comfortable living of, say, £150 a year by growing fruit on an acre and a half of land is the genial theme adumbrated by Mr. G. A. Dunn at a meeting held recently at St. Pancras Hotel. We are none of us infallible, not even the youngest, and therefore it would be improper for us to throw doubt on the possibility of realising such an aureate vision. It is, we believe, suggested that this easy and lucrative employment should prove very suitable to wounded soldiers, and therefore we would suggest to Mr. Dunn that before proceeding further with the publication of his scheme to the world at large, he should give experienced fruit-growers the opportunity of judging how far



FIG. 62.—VIEW IN THE KITCHEN GARDEN AT ALDENHAM HOUSE, SHOWING CELERY BEDS AND RUNNER BEANS.

(See p. 156.)

as hardy annuals and treated in the same way as Sweet Peas. They appear to be more subject to mildew than the latter, especially under glass, and they are also rather susceptible to streak disease.

These hybrids are thus practically miniature Sweet Peas, the reticulated seed-coats being the only prominent character which marks a departure from the Sweet Pea type. Attempts have been made to produce forms of a greater vigour and with larger flowers by crossing them further with the Sweet Pea. Fertile seed was readily obtained when the hybrids were used as the female parent, but the reverse cross was not successful. In appearance the plants obtained from these new crosses did not differ greatly from the earlier hybrids, although they were appreciably taller and the flowers distinctly larger. Unfortunately, further progress in this direction has been checked, since none of the new forms produced fertile seed, but a new set of crosses on similar lines was made this summer, and possibly more favourable results may follow.

Attempts are also being made to use the original hybrids as "bridging species" between the Sweet Pea and other *Lathyrus* species which will not give a direct cross. Most crosses tried

the results which he has obtained by means of his system justify the claims which he makes on its behalf. We gather that he favours Cox's Orange Pippin—indisputably a very nice Apple, albeit a trifle coquettish in dispensing its favours—grown on cordons on Paradise stock—4,000 to the acre, with a few bush trees dotted here and there, the trees to be supplied with shower baths. Manure is not to be used on the fruit farm. This is a great blessing, for manure is hard to come by. Mr. Dunn looks with stern disfavour on dung. It encourages weeds and breeds so-called pests. It is filth and dirt. Paths of stone and soil, rolled and coated with hot tar and pitch, are to be made between each row of trees. Unfortunately the paths will be only about 13 inches wide. If a little wider, the opulent cultivator might use them for touring the plantation in his motor-car. The natural soil is to be drained if it needs drainage, and on it are to be placed 2 to 4 inches of ground flint or similar material. This top-dressing has many advantages, some of which are more obvious than others. Chief among them, and not to be guessed readily by the ordinary grower, is this, that the interesting little creatures known as soil pests will be

so happy in the moist quarters underground that they will not need to leave their natural homes, where beneath the soil they may be performing much useful work. Thus will the wicked cease from troubling. For example, we may hope, if we share Mr. Dunn's views on entomology, that the wingless female of the winter moth will no longer leave its comfortable abiding place in the soil to climb laboriously up the tree trunks, and that grease banding will be unknown. So with reluctance we must leave this well-done orchard, without manure but with shower-baths and tarred paths, pestless and plentiful, the land covered with 2 to 4 inches of crushed quartz, and the gold—to the extent of £100 per acre—hanging on the trees. What a pity that Mr. Dunn has not devised a means of producing more than one crop a year—a spring yield of Cox's would more than double the profits! Yet, even as it is, we must be grateful to him for holding out to us so bright a prospect, whereby we may enter on the

ORCHID NOTES AND GLEANINGS.

CATTLEYA ILLUSTRIS.

A GOOD example of this charming hybrid raised by Messrs. Armstrong and Brown between *C. Acis* (*Dowiana Rosita* × *Maronii*) and *C. iridescens* (*bicolor* × *Eldorado*) has flowered from a small seedling with *Pantia Ralli*, Esq., Ashted Park, Surrey (Orchid grower, Mr. W. H. White), who kindly sends the flower.

As a worthy production of the hybridist it is highly interesting, disclosing some problems in structure and in the remarkable colour, or rather blending of colours, of its segments, which are worth recording.

Its prime ancestor, *C. Maronii* (*Dowiana* × *velutina*), took the form of *C. velutina* (*Gard. Chron.*, 1872, p. 1,259, figs. 288-9) strongly, but the purple spotting of its yellowish sepals and petals got merged in the yellow of *C. Dowiana* in the manner frequently noted in crosses with

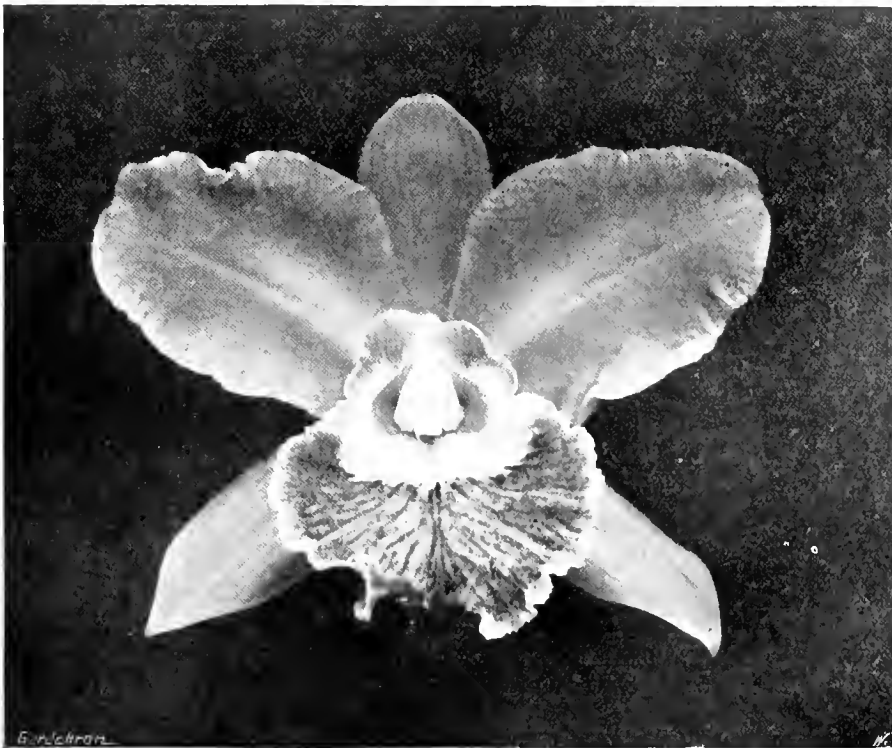


FIG. 63.—CATTLEYA ILLUSTRIS: PETALS AND SEPALS GOLD COLOUR, CHANGING TO PRIMROSE.

(Photograph by C. W. Cole.)

pleasurable and interesting occupation of earning £150 a year by the cultivation of Cox's Orange Pippin on an acre and a half of land. The paradise pictured by Gonzala comes at last almost within range of realisation, "and nature shall bring forth its own kind without sweat or endeavour" . . . for it is claimed on behalf of this system of cultivation that it may be practised by a person with one arm, one leg, or even no legs at all.

Like all reformers, Mr. Dunn must be prepared for a certain measure of criticism, especially from the experts. They are so sceptical. Yet Mr. Dunn has the means of silencing them. He should produce the evidence on which his claims are based. This should be easy to do, for, as we understand, Mr. Dunn has long been engaged in fruit-growing, and he has doubtless, like all good business men, kept careful accounts of cost and yield.

We shall await, therefore, with much interest the publication of the accounts on which Mr. Dunn bases his captivating claims.

blotched flowers on one side. In *C. illustris* the form of the lip, although amplified by the second use of *C. Dowiana*, is still very evident, the striated red purple markings on the yellow lip being suggestive of *C. velutina*. *C. bicolor*, which, with *C. Eldorado*, produced *C. iridescens*, is scarcely traceable except in the thickened white column.

The novelty is a worthy production, as it gives a well-formed flower over four inches across, of fine substance, and almost indescribable colour. The ground colour is of the tint of old gold, changing to primrose at the margins, a reddish-bronze tint appearing on the sepals and on the petals on each side of the apricot-yellow midrib. The base and centre of the lip are bright chrome yellow, the front lobe and tips of the side lobes being tinged and veined with rose-purple. It is very fragrant, the odours of both *C. Eldorado* and *C. velutina* being blended. The opinion that *C. velutina* is a natural hybrid between *C. bicolor* and *C. guttata* is disproved by the tenacity with which it asserts itself as a parent, and in this case dominates *C. bicolor*.

The Week's Work.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

PHALAENOPSIS.—The winter-flowering species of *Phalaenopsis*, including *P. amabilis*, *P. Rimsteadiana*, *P. Sanderiana* and *P. Stuartiana*, will soon be sending up flower-scapes. The roots must not be kept too moist, nor the atmosphere too damp; the surface of the soil should be allowed to become dry before watering it. The top ventilators may remain open an inch or so at night, to allow superfluous moisture to escape, but this must not be done if it entails a lower temperature than is necessary. Cold draughts must not pass over the plants, or growth will be checked; this can be avoided by closing the bottom ventilators when the top ones are open. Shade may still be necessary during the middle of the day, but it should be dispensed with at the earliest opportunity. Slugs are extremely fond of the flower-spikes, especially in the early stages of their development, and it may be necessary to stand each plant over a saucer of water, while a band of cotton-wool placed around the base of the spikes will also be useful in warding off slugs. Weak plants should not be allowed to flower, and specimens of moderate strength should be permitted to develop two or three blooms only.

ODONTIODA.—A useful selection of *Odontioda* includes *O. Charlesworthii*, *O. Bradshawiae*, *O. Devoniana*, *O. Vuylstekeae* and *O. Cooksoniae*. The plants are easy of culture, and may be grown in company with *Odontoglossum crispum* and other cool-house Orchids. Repotting is best done when the new growth is a few inches high; a mixture of *Osmunda*-fibre and *Sphagnum*-moss forms a suitable rooting medium for the majority.

LAELIO-CATTLEYA.—Many *Laelio-Cattleyas* are developing flower-spikes; others are completing their season's growth, and a few require repotting. When this operation is finished the plants should be arranged at the warmer end of the house and watered sparingly for a few weeks. With the exception of those recently repotted, shading may be dispensed with.

LAELIA ANCEPS AND ITS VARIETIES.—Plants that are pushing up their flower-spikes should be staked neatly before the scapes get out of hand. Expose the plants fully to the sunlight and let them have ample ventilation.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

HERBACEOUS PAEONIES.—From the present time to the end of next month *Paeonies* may be planted. If delayed till spring the roots are usually a mass of young fibres, so that it is next to impossible to lift and replant them without injury. For herbaceous or mixed borders, the wild garden, woodland walks, shrubberies and beds *Paeonies* are unequalled. Where beds or borders are to be planted the ground must be well trenched and an abundance of decayed cow manure well worked into the soil. Leaf mould may be used with advantage in conjunction with the manure. *Paeonies* are gross feeders, and often the plants will not flower because the soil has become exhausted. Where it is required to lift and divide the plants the work should be commenced at once, but this should only be done when it is really necessary. *Paeonies* dislike being removed. The dividing process must be performed by someone with experience, or much damage may result. Crowns with four or five eyes are a suitable size, and the eyes should be barely covered. A liberal mulching of manure should be placed round the crowns. If beds are to be planted for effect, plenty of space should be given the plants. This will allow room for bulbs being planted between, and so the beds will furnish a continuous display. For instance, *Narcissi* in variety (the trumpet section for preference) would be in flower

before the Paeonies, then Lilliums or Gladioli would form a charming succession after the Paeonies were over.

PINKS.—Those that were rooted under hand-lights or in frames will now be ready for transplanting into permanent or reserve quarters. If they are to be used as an edging to paths the soil should be made firm. Plant at about 6 inches apart, and water freely during dry weather. Groups of five may be planted in the herbaceous or mixed borders.

STOCK PLANTS.—Lobelias, Alyssums, Alternantheras and similar plants, that were prepared as advised in a previous article, should now be lifted and placed in pots or boxes. Shallow frames will be suitable for the Lobelias and Alyssum, and the frames should be kept close. Shade them from sunshine for a few days and spray them overhead occasionally. Keep Alternantheras in gentle heat and spray them during bright weather.

RAMBLER ROSES.—The flowering season being practically over, no time should be lost in cutting out all old and exhausted wood. Complete the tying in of the necessary young growths, allowing ample space to admit sun and air, to thoroughly ripen the wood. If the young growths are attacked by aphid or mildew measures must be taken against these pests.

BULBS.—The planting of bulbs should commence forthwith. A good variety is now available, including Tulips, Snowdrops, Scillas, Fritillarias, Narcissi, Anemones, Ranunculuses, Erythroniums and Winter Aconites. Woodland walks, shrubberies, grass banks, positions under trees and mixed borders are all suitable places to plant bulbs. Most varieties give the finest effect when planted in bold, irregular masses. Straight lines should be avoided.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

PINEAPPLES.—The season when the earliest plants must be rested is approaching, and the pots should not be disturbed much, as the slightest movement of the plunging material may cause the heat to increase, whereas it should decline steadily to about 75°. With this small amount of bottom-heat the plants, being plunged to their pot rims in the moist tan, will not need much watering, but a little tepid water may be poured around the pots to prevent the roots from becoming excessively dry. The night temperature throughout this period of rest should decline to 60° as the minimum and 70° on bright days. The main batch of plants may be kept growing actively for a short time longer, but they should be aired freely on fine days, watered only when necessary, and gradually brought to a condition of rest. Later plants that are still in pits should be removed to their winter quarters, where fire-heat may be used to prevent fluctuations in the temperature of the bed and the atmosphere of the house. Late suckers that have only recently been detached from the parent plants may still have a bottom-heat of 80°. If the soil is very dry water it, and keep the pit fairly close. Damp amongst the plants on bright days, making a very fine spray with the syringe.

MELONS.—The weather has not been very favourable for Melons, and unless the plants are treated with extra care the fruits will be inferior in flavour. Raise the amount of bottom-heat at the roots from the time the fruits finish swelling until they begin to change for ripening. Late fruits should be fairly well fed until they have attained to full size, when clear water only should be used. This is a very important detail to observe in the production of high-quality Melons late in the season. Discontinue syringing directly on the plants; moisture arising from damping the surface of the bed and floors, will be all that is needed in this direction. Under this treatment the fruits will not exceed the normal size, but they will be sound and deep in the flesh. An overfed Melon is never good at any season, and two smaller fruits are more serviceable at this season than one of large size. Admit a moderate amount of air early on fine mornings, and gradually increase the supply as

the day temperature rises; if needed, gentle warmth from the top and bottom water-pipes will expel superfluous moisture and keep the temperature regular.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

VIOLETS.—Violet plants should now be removed to a shallow pit for the winter, planting them in a compost of chopped loam and naturally decayed Oak and Beech leaves. Let the top of the bed be brought near to the glass, as the plants require all the light possible. Before planting dip the foliage in an insecticide as a precaution against red spider. Plant firmly, and thoroughly soak the materials when finished. Keep the frames closed for a few days till the roots are again active, then gradually inure the plants to cooler conditions, eventually removing the lights altogether except when sharp frosts are imminent.

RHODODENDRON INDICUM (AZALEA INDICA).—It is not safe to leave plants of Rhododendron indicum longer out-of-doors. Before placing them under glass lay the pots on their sides and syringe the leaves and stems thoroughly with an insecticide to destroy red spider. Choose a house where an abundance of air may be admitted until the plants are required for forcing.

DICENTRA (DIELYTRA) SPECTABILIS.—This useful greenhouse plant may be potted in 7 or 8-inch pots and plunged in a bed of ashes out-of-doors until growth commences, when they should be brought into a cool glasshouse.

CHRYSANTHEMUMS.—Some of the decorative varieties of Chrysanthemums need disbudding, and this should be done when the buds are large enough to handle. Attend carefully to watering, and give the roots stimulants until the blooms are well advanced. Keep the houses in which large blooms are expanding dry or the florets may damp. Stimulants should be withheld from plants which are developing large blooms.

MARGUERITE MRS. F. SANDER.—Few plants give a longer display of flowers than the double Marguerite, and it is most useful for greenhouse and conservatory decoration. A batch of cuttings may be rooted now if suitable shoots are available. They may be inserted either in pots or pans filled with sandy soil. Place the cuttings in a propagating case, and shade them until they are rooted. They may then be transferred to a moderately warm house for the winter.

CINERARIA.—The latest plants of indoor Cinerarias should be ready for their final potting. Use a rich compost, such as a mixture of loam, leaf-mould, manure from a spent mushroom bed, bone meal, soot and coarse sand. Use 7 or 8-inch pots, and place them on a cool base in a light house or frame. Water the roots with great care, and keep the plants growing in cool conditions all through the winter, using fire-heat only to keep out frost.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

FIGS.—The last two or three weeks have been unusually cold and comparatively sunless for the time of year, so that Figs have been checked in growth. The late fruits ceased to swell, and consequently were of inferior flavour, warmth being absolutely essential for Figs. The necessity of keeping the trees properly thinned is more than ever noticeable in a season like the present. Trees that have been overlooked in this matter should be taken in hand at once. Remove all gross and sappy growths, retaining only a moderate number of the best short-jointed shoots. Fasten these to the wall, and at this season do not remove the point of the shoot, but leave it its full length. Any old wood that can be spared should be cut out, also any weak growths that have been hidden from the light, as these will never make satisfactory wood. Where large trees are growing near to vegetable borders, and the roots are

allowed to get into rich, loose soil, the result is quickly apparent, in the increase of rank, sappy growths, which are unfruitful. The only remedy for this state of things is root-pruning, and this should be done within the next week or two. If it be done fairly early in the season the tree will recover from the operation quickly, and as the soil is still warm the roots will soon become active again. To make a start for root-pruning, a trench should be taken out about 3 feet from the stem of the tree. Work the soil out of the trench, severing all the strong, thong-like roots which are found running through the trench, continuing to remove the soil right down to the drainage. All small, fibrous roots should be carefully covered up with mats, and by cutting the strong roots the formation of fibrous roots will be encouraged in the small border left. As a rule, when Fig trees are seen in first-class bearing condition the current year's growth is short-jointed, firm, and somewhat stumpy in character. This class of tree is usually found with the roots in a restricted area, or in light, warm soil. If a permanent wall cannot be built to keep the roots confined, the trench should be filled up with crushed bricks and mortar rubble, or stones and chalk, finishing off with a layer of poor soil. The soil should be thoroughly rammed as it is put in. This treatment tends to keep the roots in the narrow border, where they are easily controlled, and can be given manure and water as required. If very large trees need root-pruning it will be advisable to make two operations, treating half of the roots now and half next season. Avoid using rich soil in top-dressing or planting Figs; nourishment is best given when the tree is carrying a good crop; rich soil tends to create a soft and delicate growth.

SEMI-PRUNING BUSH APPLE TREES.—Where it has not been found possible to do the usual summer pruning of bush Apples and Pears owing to the present scarcity of labour, every effort should be made to prune them now, in order to give them the benefit of full exposure during the remainder of the season. In most instances growth has ceased, and in this case the best plan will be to prune the trees thoroughly for this season. But if any doubt exists as to the wisdom of this (i.e., in the case of trees still growing), the leading shoots should be left their entire length for another month or so. Cut all side shoots out to the third or fourth leaf, and if the spurs have got unduly long, let a certain number be reduced in length each season. This will keep the trees in good form.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

POTATOS.—Continue to lift late Potatoes as soon as the tubers are fully grown. It is not necessary that the haulm should have died down fully before this is done, as in many cases, and especially after heavy rains, the tubers may develop secondary growth, whilst the common Potato disease spreads rapidly at this season.

ENDIVE.—The earliest plants of Endive should be lifted with a good ball of soil attached to the roots, and placed in pits or temporary frames, in readiness for bleaching. Others may have temporary frames placed over them and the lights placed in position when necessary. Late plants will make growth freely during October, and it is not necessary to protect these until the weather is very cold. Although excessive frost kills Endive, damp is more to be feared; therefore ventilate the frames freely at all times, except when blanching the leaves.

CAULIFLOWERS.—Prick out seedling Cauliflowers as they become ready into cold frames, which should be filled to within a few inches of the light with rather poor, calcareous soil. If rich soil is used there will be a danger of the seedlings damping; moreover, in mild winters they would grow too rapidly and become tender, and would not transplant well in the spring. Endeavour to have strong, sturdy plants, without unduly hardening them.

BEEF.—Continue to lift successional batches of Beet as the roots become large enough for use.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would oblige by delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR OCTOBER.

- TUESDAY, OCTOBER 3—
Roy. Hort. Soc. Ex. of British Fruits (2 days).
Hort. Club meeting at Hotel Windsor, at 6 p.m.
Scottish Hort. Assoc. meet.
- MONDAY, OCTOBER 9—
United Hort. Ben. and Prov. Soc. Com. meet.
Nat. Chrys. Soc. Floral Com. meet.
- TUESDAY, OCTOBER 10—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)
- MONDAY, OCTOBER 23—
Nat. Chrys. Soc. Ex. and Floral Coms. meet.
- TUESDAY, OCTOBER 24—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)
- MONDAY, OCTOBER 30—
Nat. Chrys. Soc. Floral Com. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53.7°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, September 28 (10 a.m.); Bar. 29.42; temp. 59.0°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

- MONDAY—
Bulbs, at 67 and 68, Cheapside, by Protheroe and Morris, at 1 o'clock.
- TUESDAY—
Nursery Stock, at the Sunningdale Nurseries, Windlesham, at 12 o'clock, by Protheroe and Morris (2 days).
- WEDNESDAY—
Bulbs, at 67 and 68, Cheapside, at 12 o'clock.
Trade Sale of Bulbs, at 67 and 68, Cheapside, at 2 o'clock, by Protheroe and Morris.
- THURSDAY—
Nursery Stock, at the Nurseries Hawkenbury, near Tunbridge Wells, at 12 o'clock, by Protheroe and Morris.
- FRIDAY—
Bulbs, at 67 and 68, Cheapside, at 1 o'clock, by Protheroe and Morris.

The use of immature "seed" tubers is generally practised by Potato growers, and, indeed, it is doubtful whether there are any who are not firmly convinced of the value of the practice. Nevertheless, the publication of the summary* of the results of experiments carried out of recent years is valuable not only because it supplies a vindication of the practice, but also because it may draw the attention of plant physiologists to a very curious and highly interesting problem. Mr. Hutchinson, the author of the article, beside giving a summary of the yields of mature and immature seed, discusses, albeit briefly, the causes to which the superiority of immature seed may be ascribed. He suggests, in the first place, that selection may in some measure account for the dif-

ference, and points out that the immature seed tuber may be potentially a large tuber, whereas the tuber taken from the crop at normal lifting time and used for seed purposes is small or medium-sized. He infers from this that prominence may be given to plants of medium or low productivity. The inference is, in our opinion, open to criticism, for when a crop is lifted we do not, as a rule, find exclusively small and medium-sized tubers on one root, and only large tubers on others. Inasmuch as the vigour of an individual plant must be reckoned by the sum total of the tubers it produces, we cannot infer that small tubers taken at random from a number of roots will result in the selection of the plants of low productivity. Another suggestion made by Mr. Hutchinson concerns the difference in structure of the coat of the mature and of the immature tuber. He thinks that the greater thickness of the coat of the mature tuber may be a disadvantage to its use as seed. It would be interesting to know whether the immature tuber "rots" more readily during the growth of the Potato to which it gives rise than does the mature tuber. For there is a general belief that the more completely the seed tuber disappears during the formation of the Potato plant the more vigorous is that plant. The cutting of tubers used for seed is, we believe, sometimes advocated on the ground that it promotes this decay, and thus enables the stored food which the tuber contains at planting time to pass into the young plant.

Another possible explanation discussed by Mr. Hutchinson is the larger quantity of water and smaller quantity of starch contained in immature tubers. The subject is one of considerable difficulty, and we do not think that anyone can give a completely satisfactory explanation of the phenomenon.

A further practical advantage derived from the planting of immature seed is the greater freedom from disease—both curl and blight—evinced by the progeny of immature as compared with mature seed.

Various methods of obtaining immature seed have been suggested, but the best seems to be the simplest, namely, planting at the usual time and lifting early.

It is claimed by various growers that by the use of immature seed a Potato may be grown for a number of years in succession from the same stock, and thus may be avoided the deterioration to which Potatoes are so apt, when grown in the South of England for successive years from "own-saved" seed.

On this point, however, we are not convinced. Nevertheless, it must be considered to be good practice for those who intend to use their own tubers for seed to select immature tubers.

The British Association.

In his presidential address to the Botany Section of the British Association, Dr. Rendle drew attention to the need which the war has created for botanists to

put their knowledge and energies at the disposal of the State and to engage in the solution of problems affecting the prosperity of the country. Among these problems are the increase of yields and returns of horticultural and agricultural crops, and the botanist can assist the plant breeder and the grower in the production of strains of plants which give heavier yields and in the discovery of races which are immune from disease. Furthermore, the botanist may assist the industry of horticulture in the search for new crops of economic value, and in this connection Dr. Rendle referred to the part played by Fortune in establishing the cultivation of the Tea plant in Further India. As an example of the useful work which botanists can do, Dr. Rendle mentioned Mr. Smith's survey and report on the Sphagnum areas around Edinburgh. Long ago Czapek drew attention to the antiseptic properties of Sphagnum, and, as is well known, this moss has recently been used on a large scale for surgical dressings. By surveying the area in his neighbourhood and recording the extent of the peat mosses and the freedom from admixture of the Sphagnum with grass and Heather, Smith has saved the collectors much waste of time and energy. Dr. Rendle cites as an instance of the co-operation between industry and science the establishment of the new laboratories in the R.H.S. Gardens at Wisley, and predicts that by means of the investigations carried on at such research stations British horticulture will be assisted materially in maintaining its present supremacy. He urges that professors in our great universities should encourage their most promising students to expend part of their time in working in nurseries or public gardens in order to obtain a knowledge which too often they conspicuously lack of the cultivation of plants. Referring to the subject of the utilisation of waste land, Dr. Rendle pointed out that botanical knowledge and observation are essential to success. Even so, the subject is one full of surprises even to the botanist. As an example, he mentioned an observation which he made some years ago in the neighbourhood of Lake Tarawera in the North Island of New Zealand. The area had been devastated by an eruption of Mount Tarawera in 1886, and the ground covered with ashes to a depth of several feet. Less than thirty years afterward much of the vegetation which had sprung up was of purely Central European origin—Poplar, Robinia, Elder, with an undergrowth of Dog Rose and Bramble.

Turning his attention to the wider field of the Empire, Dr. Rendle insisted, with cogency, that the botanical resources of the Empire remain even now but partially explored. The administrator only too often takes the narrow view which ignorance illuminates. What, for example, such an one may ask, is the good of botanical surveys and local floras? Yet, as we all know, such floras are repositories of knowledge not only of scientific, but also of economic value. With respect to the timber resources of a country they are of the greatest value, and so are they as in-

* "The Value of Immature Potato Tubers as Seed," *Journal of Board of Agriculture*, XXIII, No. 6, Sept., 1916.

dices of the medicinal, fibre, and other plants of a potential economic value.

Dr. Rendle concludes his address by the suggestion that there should be held from time to time an Imperial Botanical Congress at which problems should be discussed and programmes of work outlined. For our part, and although we are not enamoured of Congresses, we think the suggestion worth the consideration of both botanists and horticulturists, and the botanical departments of our universities, together with such institutions as Kew, the chief botanic gardens of the Empire, and the R.H.S., might well take counsel with one another as to whether a sufficiently promising programme could be drafted to justify the holding of such a conference.

HORTICULTURAL CLUB.—A dinner and meeting of the Horticultural Club will be held at the club room, Hotel Windsor, Victoria Street, Westminster, on Tuesday, October 10. Dinner will commence at 6 p.m., after which Mr. REGINALD FARRER will deliver an address on "Recent Explorations on the Tibetan Border." The lecture will be illustrated with lantern slides prepared from photographs taken by Mr. FARRER during his two years' tour.

MR. WILLIAM BAIN.—On retiring from the post of gardener at Burford, a position he had held for over 47 years, Mr. W. BAIN was presented with a cheque by Sir WILLIAM LAWRENCE, who has succeeded to the Burford Estate, and with a gold watch by the three other children of the late Lady LAWRENCE. Mr. BAIN has made his home at Gairloch, Ross-shire, where he was born. He carries with him the esteem and good wishes of many friends from Nickleham and Dorking.

AGRICULTURAL STATISTICS, 1916.—The usual statement issued by the Board of Agriculture and Fisheries, giving the area under certain crops and the number of live stock in each county of England and Wales, will not be published this year. Pending the issue of the detailed returns, the Board will be willing to supply the figures for the chief crops in any particular county on application.

METROPOLITAN RAILWAY GARDENS.—A presentation of prizes to the staff of the Metropolitan Railway for vegetable growing on the company's land at Wembley Park took place on September 16. The vegetables were grown for the use of local hospitals for wounded soldiers. For the best cultivated plot Mr. COOPER was placed first, and Mr. CARPENTER and Mr. B. W. SMITH (tied), second. For the heaviest root of Potatoes, Mr. C. HAINES was awarded the first prize, Mr. E. W. SMITH second, and Mr. A. W. SMITH third. Mr. B. W. SMITH gained the first prize for Beans, Mr. MARSH was placed second, and Mr. COOPER third.

RAIN AND BOMBARDMENT.—The widely held popular belief that the heavy rains of summer were due to the incessant firing in Flanders is not confirmed by experiment.* Tests made in Europe, America, Alaska and Australia have given only negative results.

BASIC SLAG.—The gardener who is considering the advisability of applying phosphatic manures to his soil should obtain and peruse leaflet No. 267 (Board of Agriculture pamphlets). Although the use of this artificial manure is therein considered more from the point of view of the farmer, there are several hints useful to the gardener. The alkalinity of basic slag, and the fact that it contains from 2 to 5 per cent. of free or caustic lime, make it a useful manure for peaty and sour soils. It is, however, an

heavy clays that it generally produces the most marked effect. Small dressings of 5 to 10 cwt. per acre, repeated at intervals of a year or two, are preferable to a more occasional heavier dressing. In the case of light soils it is well to add potash at the same time, for such soils are often deficient in potash, and in that case basic slag alone may fail to produce any effect.

FRUIT IN BELGIUM.—Fruit prices in Flanders are again being regulated by the German authorities. All fruits are yielding bad crops, and hot-house fruit would probably realise unprecedented prices were it not for this regulation and the prohibition of all export. The carriage of coal is very difficult, the trucks being delayed for weeks. The wet weather encouraged disease among Grapes, much damage having been caused by mildew.

RED CROSS SALE AT INGESTRE.—A sale of greenhouse and other plants was held at Ingestre Hall Gardens on the 18th inst., by order of the Earl of SHREWSBURY AND TALBOT, in aid of the funds of the Red Cross Society. There was a fair attendance, and a substantial sum was realised.

WAR ITEMS.—At a garden fête at Broomlands, Maxwelltown, Kirkcudbrightshire, held recently on behalf of the War Relief Fund of the Royal Horticultural Society, the proceeds



MR. WILLIAM BAIN.

amounted to £627. Upwards of £1,000 has now been obtained in the Stewartry of Kirkcudbright for this object.

—A commission as Second Lieutenant in the Seaforth Highlanders has been granted to Mr. CHARLES WEBSTER, junior, son of Mr. CHARLES WEBSTER, gardener to the Duke of Richmond and Gordon, Gordon Castle, Fochabers, N.B. Mr. WEBSTER was employed in the gardens, Woburn Abbey. On the outbreak of war he enlisted in the Seaforth Highlanders, with whom he has seen service.

—The Dumfries and District Horticultural Society has distributed among the various war and other charities the sum of £73, being the net proceeds of a sale of flowers, fruit and vegetables. £15 has been given to the Vegetable Products Committee and £5 5s. to the Royal Gardeners' Orphan Fund.

—Private S. G. BEALE, King's Own Yorkshire L.I., has been seriously wounded in the shoulder by shrapnel, and it is feared that it may be necessary to operate. Private BEALE was formerly employed in the glasshouses at MULLEN'S, Long Cross, Surrey.

—The Countess of Bessborough, as president of the Irish branch of the War Horticultural Relief Fund, lately organised a concert in aid of this fund. Two performances were given on

the 21st inst., the first in the afternoon at Bessborough House, and the second at the Court House, P.Town, in the evening. At the close of each performance the Earl of Bessborough explained the objects of the fund, and thanked all who had helped to make the concerts a success.

BOTANY CLASSES AT RUHLEBEN.—A correspondent in the *Daily Telegraph* of September 20 writes:—"One of the most striking features of the little English community of civil prisoners of war at Ruhleben is its educational organisation, which can bear comparison with that of many a progressive English municipality. Soon after the Englishmen in Germany were interned in the Ruhleben camp twenty months ago many of them decided to make the most of the leisure that had been thrust upon them, and they accordingly devoted it to intellectual improvement. The Ruhleben Camp School has now grown into quite an imposing institution. It has a total of 1,200 students, who are divided into 264 classes and taught by 200 teachers. The ages of the students range from 17 to 55. The bulk of the educational work is now concentrated in the loft of Barrack 6, which has been partitioned off by the teachers themselves into an office, lecture-room, twelve small class-rooms, and a laboratory. The walls and ceilings have everywhere been whitewashed, so as to brighten the room, and the windows have been enlarged. As none of the class-rooms has yet been provided with chairs, the students bring their own chairs or stools with them. The department for mathematics is very comprehensive, while the arrangements made for the teaching of the physical and biological sciences are nothing less than remarkable. The laboratory, with its benches, tables, shelves, and cupboards, has been fitted up entirely by the teachers and students. The class in practical botany, which is similar to any first year's university course, is conducted by Mr. A. E. LECHMERE, D.Sc. (London and Paris), and Mr. M. S. PEASE, B.A. (Cantab.), and it is attended regularly by twenty-one students. Dr. LECHMERE is also giving a complete course in invertebrate zoology, extending over twelve months; and lectures on plant physiology are given by Mr. M. S. PEASE. All the living material required is obtained from the pond in the centre of the Ruhleben race track, which contains a very good variety of flora and fauna. In practical physics an elementary course has been arranged by Mr. F. H. SMITH, B.A. (Cantab.), who was the first at Ruhleben to illustrate his lectures with experiments carried out with apparatus made in the camp, such as a magic lantern, optical bench, galvanometer, etc. Lectures in agricultural chemistry are given by Mr. DICKSON, whose students are mostly practical gardeners. The management of the school is in the hands of a committee, consisting of representatives of the various departments, and of a chairman, secretary, requisites manager, and treasurer. The total expenditure for the year 1915 was only 3,000 marks. Until recently the requisite funds, both for appliances and for paying some of the teachers, were obtained from the British Relief Fund, through the American Embassy in Berlin, but when this source was closed, a public meeting was held in the camp, with the result that 1,500 marks were raised by voluntary subscription for fresh equipment. It was decided to fix a voluntary fee of one mark per month for each student. The payment of these monthly fees is expected to realise 1,000 marks per month. About one-third of the school staff are professional teachers, though the great majority of the others, too, have sufficient academic qualifications for their respective subjects."

PUBLICATIONS RECEIVED.—*British Rainfall, 1915.* By H. R. Mill and C. Salter. (London: E. Stanford, 12-14, Long Acre.) Price 10s.—*The Royal Horticultural Society's True Work.* By Life Fellow. (London: Simpkin, Marshall, Hamilton, Kent & Co.) Price 6d.

* *Meteorological Office Circular*, No. 3 (Aug. 21).

TREES AND SHRUBS.

THE CATALPA IN LONDON.

A NOTE in the *Daily Chronicle* draws attention to the Catalpa or Indian Bean (*Catalpa bignonioides*) as a timber-producing tree in this country. Beside the value of the timber it has other excellent qualities. It is one of the best trees for planting in smoky localities, and as an ornamental tree it has few equals, the large, bronzy-tinted leaves and spikes of white and yellow flowers, which are tinged with violet and purple, rendering it one of the most distinct of North American trees. Regarding the value of home-grown timber of the Catalpa I am able to speak with confidence, having used the wood for various purposes, both in and out of doors, for the past thirty years. Fence posts of this age show no sign of decay, while for railway ties the timber of the Catalpa will far outlive that of the Oak. The timber is of average weight, works well under the tools of the carpenter, and, as will be seen from fig. 64, the home-grown wood possesses distinct and beautiful graining.

There are many fine specimens of the Catalpa in London, where it grows from 30 to 40 feet in height and seems to suffer little from smoke, dust, and heat. It grows with vigour in many smoky centres, as in the Middle Temple Gardens, by the Houses of Parliament, in Manchester Square, and at Chiswick and Camden Town.

Perhaps the largest, certainly the most remarkable, Catalpa in London is that known as Bacon's Catalpa. It is growing near the centre of Gray's Inn gardens, and has a tablet attached which bears the following words:—"Catalpa tree said to have been planted by Francis Bacon when Master of the Walks, Anno Domini 1598." The tree is of unusual appearance owing to having been partly uprooted many years ago. The stem, which is 18 inches in diameter, rests on the ground for about 9 feet of its length, and has, fortunately, been well preserved by filling up the diseased and hollow portions with cement, while the far-spreading, heavy branches have been supported by props and thus prevented from breaking away from the main stem. Though there are some dead and dying branches on the tree, yet its general health is good, and, should no accident befall it, will live for many years to perpetuate the memory of the great writer. It produced flowers abundantly in 1909.

On the opposite side of the gardens is a seedling from Bacon's tree which has far surpassed the parent both in size and beauty of appearance. This noble specimen has a branch spread of 60 feet in diameter. From the main trunk, which is about 2 feet across, three great limbs have been sent out, and altogether the tree is in a healthy, thriving condition. *A. D. Webster.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

THE INTRODUCTION OF THE DAHLIA (p. 143).—Mr. Harman Payne's interesting account of the introduction of the Dahlia, printed in your last issue, illustrates the importance of beginning at the beginning. The writer makes a gracious reference to some old specimens which I showed him at the National Herbarium; the information given on some of these sheets, when correlated with notes preserved at Kew, led to the discovery of the date of introduction of the Dahlia. Mr. Payne is, however, a little vague in his reference to these old specimens of cultivated Dahlias, and his remark that they "are understood to have been formerly in the herbarium of Sir Joseph Banks" indicates that he has not fully appreciated their bearing on the question. They were in Banks's herbarium, and are on the original sheets, written up in the old-fashioned way with the name of the species at the bottom and the source of the specimen in the left-hand top corner of the re-

verse side. The present Department of Botany has grown from Banks's herbarium, which was bequeathed to the nation at his death; it was for many years known as the Banksian Department. Further, the account in the *Gardeners' Chronicle* might be taken to imply that the specimens which proved of value in the investigation came from Lord Holland's garden. There are in the Herbarium several specimens from Lord Holland's garden, doubtless communicated by Mr. Buonaiuti, his lordship's librarian; they are named and sometimes annotated, and represent the four species of Buonaiuti's account of the genus which forms an appendix to McDougall's *Dictionary of Practical Gardening*, Vol. II. (1807). One of the sheets bears the date 1805. But the sheets which interest us specially, and which alone bear the indication C. G. Ortega (Lady Bute), have no connection with Lord Holland's garden. The plants were without doubt grown at Kew, from the seeds procured by Lady Bute from Dr. Ortega, and sent thence to the Banksian Herbarium, where

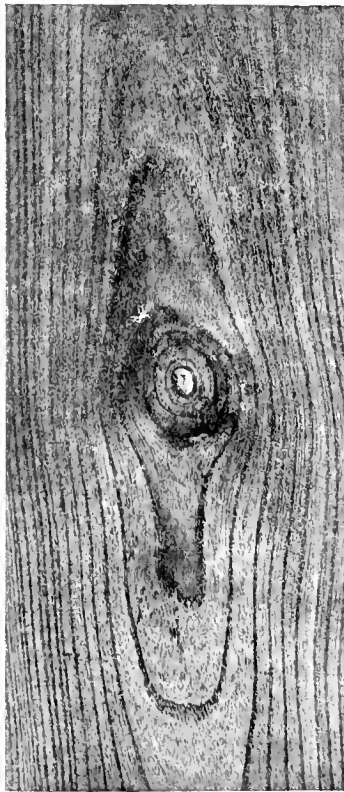


FIG. 64.—CATALPA WOOD, SHOWING THE GRAIN.

they were written up, *Dahlia pinnata*, *Dahlia rosea* and *Dahlia coriacea*, the reference to page and figure of Cavanilles' *Icones* being given in each case. They are therefore of unique interest in the matter of the introduction of the Dahlia into this country. The specimens in question are in very good condition, and those interested in the cult of the Dahlia might like to see them reproduced. We must bear in mind the intimate relations which subsisted between the Royal Gardens at Kew and the Banksian Herbarium and Library, and that the record, so far as Herbarium specimens is concerned, of the plants grown in the gardens is in the Banksian Herbarium. Mr. Britten has given an interesting account of these relations in his "History of Aiton's Hortus Kewensis," which appeared as Supplement III. to the *Journal of Botany*, 1912. He refers to the day-book, preserved in the Departmental Library, of the plants sent for names by Aiton from Kew and by others from various gardens to Dr. Solander and Dr. Dryander, who were successively curators of the Banksian Herbarium, which contains specimens from many other gardens besides those at Kew. Those interested in tracing the history of a cultivated plant might with advantage con-

sult the Banksian and other old collections at the Museum at an early stage in their enquiry. *A. B. Rendle, Department of Botany, British Museum.*

BRITISH POTASH.—I was much interested in the note (p. 149) in which reference is made to the production of potash salts by various processes in the United States of America. Although the customary sources of supply have been cut off by the war the impression that no potash is available for agricultural and horticultural purposes is erroneous. I shall be very glad to send to any reader of the *Gardeners' Chronicle* details of a British production with a really good percentage of potash; the quantity is quite unlimited. *Horace J. Wright, White Lodge, Liddington, Amphill, Beds.*

MESSRS. RICHMOND & SONS, LTD.—In your issue of September 23 last you published a notice of the bankruptcy of Mr. A. Richmond. This might be read to imply that the limited company of Richmond and Sons was involved. Such is not the case. The affair is purely one of personal interest and has nothing whatever to do with the company, whose business and affairs are in a thoroughly sound and prosperous condition. *H. I. Rees, Director.*

THE LATE CANON ELLACOMBE.—Many amateurs and gardeners bear in grateful memory the delight which their departed friend found in exchanging choice plants, and the liberality with which he gave of his best, without regard to the value of what he received in return. In the numerous obituary notices which appeared about him I saw no mention of the motto, so characteristic of his spirit and practice, which he showed me written, I think, at the beginning of his manuscript garden book, "Petimusque damusque vicissim" ("We ask for and receive in turn"). The last request I had from him, about a year before his death, was for a very homely little plant, far from decorative, namely, *Viola palustris*, which, it seems, does not grow on the Mendip or Cotswold Hills. *Herbert Maxwell, Monreith.*

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 26.—A competitive vegetable exhibition was held in conjunction with the fortnightly meeting of this Society on Tuesday last in the Vincent Square Hall, Westminster. The vegetables were much more numerous than the floral exhibits. The Orchids on this occasion were very few.

Numerous novelties were submitted to the Floral Committee, and twenty-two were recommended for Awards of Merit. Sixteen of these awards were for Dahlias, which were judged in conjunction with the National Dahlia Society, the First-class Certificate of this latter Society being also awarded.

The Fruit and Vegetable Committee made no award to a novelty, but collections of fruit and vegetables were exhibited, and medals were awarded, including a Gold Medal for a collection of vegetables.

At the 3 o'clock meeting in the Lecture Room, Mr. HERMANN SENN delivered a lecture on "The Cooking of Vegetables."

Floral Committee.

Present: Messrs. H. B. May (chairman), E. A. Bowles, G. Paul, J. W. Barr, W. J. Bean, W. J. Blakey, H. Cowley, J. Dickson, C. Dixon, C. R. Fielder, J. Green, G. Harrow, J. Heal, E. H. Jenkins, J. Jennings, H. J. Jones, J. F. McLeod, J. W. Moorman, R. Hooper Pearson, G. Reuthe and A. Turner.

AWARDS OF MERIT.

Clematis Campanile.—This is a hybrid belonging to the herbaceous section. It will be of great value for the hardy flower border in autumn. The leafy stems rise about 2 feet 6 inches high, and the Cambridge-blue flowers are borne in profuse terminal and axillary clusters as low down as the fourth pair of leaves from the apex. It is of very graceful habit, and the beauty of the blue flowers is enhanced by the prominent cluster of white filaments.

Pyrus Vilmorinii (syn. *Sorbus Vilmorinii*).—A very distinct tree, which has graceful pinnate—almost Fern-like—leaves from 4 to 6 inches long, freely terminated by abundance of bright rosy fruits, which are very suggestive of the early development of those on *Pernettya mucronata*.

Euonymus latifolius.—A well-known Spindle tree, which has broader leaves and larger, brighter fruits than the native species. These were all shown by Messrs. G. PAUL AND SONS.

Gentiana ornata var. — An autumn-flowering Himalayan variety not yet named. It is a dwarf plant, and bears a profusion of relatively large, very pleasing, blue flowers, which have white lines in the throat. Shown by Mr. CLARENCE ELLIOTT.

Chrysanthemums Dick Barnes and *C. Harry Thorp*.—See Awards by National Chrysanthemum Society, p. 165.

DAHLIAS.

The following Dahlias were adjudged by the joint committee, and have, in addition to the R.H.S. Award of Merit, the N.D.S. First-class Certificate:—

Dahlia Ermine.—A large, round, self-coloured collerette variety, with a tinge of pale yellow around the disk.

D. Mastiff.—A very large and showy bloom, of the decorative type. The flower is full, and borne on a stout stalk. The colour is rich golden-yellow, lightly tipped with apricot.

D. Alex. Kennedy.—An attractive exhibition Cactus Dahlia, of large size and great beauty. The narrow petals are rich carmine. This and the two foregoing were shown by Messrs. J. STREDWICK AND SON.

D. Cupid.—A medium-sized collerette variety of perfect form. The florets are heavily flushed with crimson-rose; the quills and edges of the florets are white.

D. Kangaroo.—This large collerette Dahlia has intense velvety-crimson florets and long white quills, lightly flushed with the same colour. It is a good, round flower, and has stout stalks.

D. Lemur.—A brilliant little single, of the deep scarlet colour of *Tithonia splendens*. To the Dahlia enthusiast it is a larger, brighter Othello, and it has the same distinctive bronzed foliage.

D. Profusion.—A small decorative type, of good substance and shape, old rose colour, with pale yellow tips. Apparently a very floriferous variety, of great garden value. These were shown by Mr. J. T. WEST.

D. Autumn Star.—A showy variation of the Star type, which was probably derived from crossing that new departure with a Cactus bloom. The result is a rather larger "Star," leaning towards the loosely-formed Paeony-flowered blooms. The colouring, rich yellow, heavily flushed with old rose, is very attractive. Shown by Messrs. J. CHEAL AND SONS.

D. Queenie.—A splendid golden-amber, tinged with salmon; a decorative variety of perfect shape and medium size. The stalks are long and stout, so that the flowers appear well above the foliage.

D. Rowena.—Another decorative variety, but not nearly equal in merit to the foregoing. Of pale lilac-mauve tone.

D. Marion.—This decorative variety has splendid stems. The golden-yellow basal colour is heavily suffused with deep apricot.

D. Janus.—A splendid Pompon, of perfect form, and very long stalks, which ensure all the flowers being displayed. The colour, bright purple-maroon, is distinct and pleasing.

D. Gipsy.—A handsome, large, round collerette bloom. The florets are of rich purple colour, with a broad maroon band along the centre. The white quills are occasionally flushed with purple. These were shown by Messrs. J. BURRELL AND CO.

D. Pastel.—A large, weak-necked single. The stems are long, and the colour is amber heavily shaded with rosy-mauve. Shown by Mr. R. CORY.

D. Yellow Prince.—A perfectly-formed yellow collerette Dahlia, which has paler quills. Shown by Messrs. DOBBIE AND CO.

D. Moonstar.—A novel and attractive single, of medium size and good shape. The florets are

milk-white, with a faint rosy-purple zone. Shown by Mr. J. JARRETT.

OTHER NOVELTIES.

Anna Gloire de Verdun.—A very gorgeous, intense crimson flower, of large size. Shown by Messrs. W. CUTBUSH AND SONS.

Salix pruinoso. — The narrow, drooping, light green leaves and dense tomentum on the mature branches make this a distinct and ornamental tree.

S. rosmarinifolia.—A Willow, bearing small, dense leaves, reminiscent of *Hippophae rhamnoides*.

Prunus Pissartii nigra. — The glossy, deep purple leaves of this variety are larger than those of the type, and the flowers are also larger and deeper. Its chief value at the present season would be as cut foliage. These trees were shown by Messrs. G. PAUL AND SON.

GROUPS.

The following medals were awarded to collections:—

Silver-gilt Flora Medal to Mr. JAMES BOX, Lindfield, for hardy flowers. This very imposing collection was staged with excellent effect, and presented a great mass of different colours, to which large épergnes of *Aconitum Wilsonii*,

border varieties, such as *Rosalind*, yellow ground, flaked red; *Highland Lassie*, white ground with picotee edge of red; and *Brilliant*, white ground, flaked chocolate; and Messrs. H. B. MAY AND SONS, Edmonton, for hardy and indoor Ferns in great variety.

Silver Banksian Medals to Messrs. J. CHEAL AND SONS, Crawley, for Dahlias and ornamental shrubs and trees. The Dahlias included their novelties in "Star" varieties, of which *Orange Star*, *Autumn Star*, *Western Star*, pale rose with purplish flush, *Scarlet Star* and *Morning Star* are new to the show-board; Messrs. W. CUTBUSH AND SON, Highgate, for a group of hardy border flowers; Messrs. PAUL AND SON, Cheshunt, for a collection of trees and shrubs of an ornamental character; Messrs. W. WELLS, JUNR., Merstham, for hardy flowers of good quality; *Aster King George*, a dark blue variety; *Delphinium Moerheimii*, white; *D. Lamartine*, dark blue, and *Senecio pulcher*, attracted special notice; Mr. G. PRINCE, Oxford, for Roses, and Mr. A. J. ALLGROVE, Langley Nurseries, for Roses.

Bronze Flora Medals to Rev. J. PEMBERTON, Havering-atte-Bower, Romford, for Roses; Mr. G. REUTHE, Keston, for hardy flowers, and Mr. R. F. FELTON, Hanover Square, for a florist's



FIG. 65.—ALDENHAM HOUSE, ELSTREE: ECONOMIC PLANTING AMONGST YOUNG TREES AND SHRUBS. (See p. 155.)

A. Fisheri, varieties of *Delphiniums*, *Solidago Golden Wings*, *Helianthus sparsifolius*, *Asters major* (of the *Amellus* section) and *Aldenham Pink*, varieties of border *Phloxes*, and *Scabious caucasica*, mainly contributed.

Silver-gilt Banksian Medals to Messrs. B. R. CANT AND SONS, Colchester, for Roses—a very meritorious exhibit of fresh clear blooms, that showed to advantage against a dark ground of velvet; Messrs. H. J. JONES, LTD., Hither Green, Lewisham, for *Michaelmas Daisies*, which this firm always shows attractively. On this occasion they had a single row of big épergnes, with a line of smaller vases in front, and a few others with the golden *Solidago* as foils. The choicer varieties of the *Michaelmas Daisies* were *Ryecroft Pink*, Mrs. S. T. Wright, Francis Sands, Lil Fardell, Don, and Climax; Messrs. CARTER, PAGE AND CO., 52, 53, London Wall, for Dahlias. The Cactus, Paeony-flowered, Decorative, Star, Pompon and Collerette varieties were represented by most of the best sorts. A vase of *Delice* (decorative), rose-pink, was especially good.

Silver Flora Medal to Messrs. ALLWOOD BROS., Wivelsfield, for Perpetual-flowering Carnations and a selection of the new Perpetual-

exhibit of *Physalis Franchetii* in fancy baskets and pots. One beautiful "piece" was arranged with *Statice sinuata*, the touch of violet-mauve colour setting off the handsome red "lanterns" admirably.

Bronze Banksian Medals to Mr. L. R. RUSSELL, Richmond, Surrey, for shrubs and climbers, the latter embracing species of *Vitis* with autumn-tinted leafage.

Orchid Committee.

Present: Sir Harry J. Veitch (in the chair), Messrs. Jas. O'Brien (hon. secretary), J. Wilson Potter, Frederick J. Hanbury, R. A. Rolfe, T. Armstrong, Walter Cobb, J. Charlesworth, H. G. Alexander, C. H. Curtis, J. E. Shill, A. Dye, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson and C. J. Lucas.

AWARDS.

FIRST-CLASS CERTIFICATE.

Sophro-Cattleya Sir Mervyn Buller (*S.-C. Wellesleyae* × *C. Empress Frederick*), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells. A great acquisition to the crosses with *Sophranitis grandiflora* in their ancestry, and in which charming colours are blended in a flower of the *Cattleya* form

and size. Through *S. C. Wellesleyae*, *C. labiata* and *S. grandiflora*, and through *C. Empress Frederick*, *C. Mossiae* and *C. Dowiana aurea* enters into its composition, with the result that in shape and size (6 inches across) it approaches *C. Mossiae*, while the blending of the scarlet of *S. grandiflora* and yellow of *C. Dowiana aurea* gives the beautiful tint to the sepals and petals, which have an apricot-yellow ground minutely dotted and veined with reddish-rose. Lip copper-red with darker freckling, yellow base and radiating lines.

AWARDS OF MERIT.

Laelio-Cattleya Lady Manningham Buller (*L.-C. Thyone Orchidhurst variety* × *L.-C. luminosa*), from Messrs. ARMSTRONG AND BROWN. A remarkable hybrid, distinguished by its clear colouring and the contrast between the delicately tinted sepals and petals and the intensely dark lip. The well-displayed flower had the sepals and petals pale canary yellow with ivory-white mid-ribs to the petals, the lip being dark maroon-purple with yellow lines from base to centre, the lighter margin being crimped.

Brasso-Cattleya Oberon var. Majestic (*B.-C. Digbyano-Mossiae* × *C. Schröderae*), from Messrs. SANDER AND SONS, St. Albans. A very large flower of the fine shape of the first, and still one of the best *Brasso-Cattleyas*—*B.-C. Digbyano-Mossiae*. Flowers white, delicately tinted with rose-pink, the broad, fringed lip having a yellow disc.

Cattleya Rhoda Langley variety (*Iris* × *Hardyana*), from Messrs. FLORY AND BLACK, Slough. A very richly coloured flower, with the general aspect of *C. Hardyana*, the constriction in the middle of the lip of *C. Iris*, inherited from *C. bicolor*, not appearing. Sepals and petals heavily flaked with mulberry red on a dark yellow ground. Lip ruby-red with yellow lines from the base. Column white.

GENERAL EXHIBITS.

MESSRS. CHARLESWORTH AND CO., Haywards Heath, staged an excellent group, for which a Silver Flora Medal was awarded. As in practically every group staged by Messrs. Charlesworth throughout the year, their forms of *Odontoglossum crispum xanthotes*, *O. eximium xanthotes*, and other albinos of the *xanthotes* class, were attractive features, one improvement of *O. crispum xanthotes* having the petals as well as the sepals spotted with the bright chrome yellow peculiar to the class. The best novelty was *Sopbro-Laelio Felicia var. luminata* (*L. punila* × *S.-L. heatonensis*), a flower of good size and shape, with the broad petals of *L. punila*. Sepals and petals rosy-mauve, lip claret-purple. *Laelio-Cattleya Rhoda var. spectabile* was a fine new form with copper-orange ground colour flaked and tinged with rose-red and with mauve-purple lip; all of excellent quality.

MESSRS. ARMSTRONG AND BROWN showed good forms of *Cattleya Armstrongiae*, *C. Ajax*, and a fine *Cyripedium* between *Ville de Paris* and *insigne Harefield Hall*.

Mr. E. V. LOW, Wivelsfield, Sussex, showed two very fine forms of *Laelio-Cattleya luminosa* and varieties of *Cattleya Enid*.

R. G. THWAITES, Esq., Streatham (gr. Mr. Hanington), showed a selection of varieties of *Cattleya Venus* of excellent quality.

Mr. C. ALWYN HARRISON, Sharnbrook, Bedfordshire, showed *Laelio-Cattleya Thyone Harrison's variety*, clear yellow with dark-reddish purple lip, and *Brasso-Cattleya Ilene var. Majestica*, a large light rose-coloured flower with yellow centre to the lip.

MESSRS. SANDER AND SONS, St. Albans, staged a group with good *Brasso-Cattleyas*, including the new *B.-C. Somme* (*B.-C. Madame C. Maron* × *C. Schröderae*), a very large and perfectly formed flower, white tinged with rose, the broad-fringed lip having a yellow disc.

MESSRS. FLORY AND BLACK, Slough, showed *Laelio-Cattleya Soulange Langley variety*, with large, deep rose flowers with broad purple lip.

Mr. HARRY DIXON, Spencer Park, Wandsworth Common, sent *Sopbro-Laelio-Cattleya Pandora var. excelior* (*S.-L. heatonensis* × *C. doliana Rosita*), with dark purple flowers with claret-coloured lip.

Fruit and Vegetable Committee.

Present: Sir Albert Rollit (in the chair), Rev. W. Wilks, Messrs. J. Cheal, A. R. Allan, W. Bates, A. Bullock, E. A. Bunyard, J. Gibson, A. Grubb, J. Harrison, W. Humphreys, J. Jaques, W. Pope, Owen Thomas, and P. D. Tackett.

The following medal awards were made to collections:—

Gold Medal to Messrs. EDWARD WEBB AND SONS, Stourbridge, for a collection of vegetables. This large exhibit embraced good dishes of the majority of vegetables in season, and was attractively staged. It included fine Parsnips of the Student and Marrowfat varieties, excellent new Red Intermediate and Prizewinner Carrots, large Cucumbers of the Telegraph variety, big heads of Solid White and Aldenham Pink Celeries, solid bulbs of Ailsa Craig, Webbs' Masterpiece and other Onions, Globe Beets, Autumn Giant Cauliflowers, Gladstone Peas, Ringleader and Champion Prize Leeks, Kohl Rabi, Aubergines, Capsicums, Lettuces and other kinds.

Silver Knighting Medals to Mr. J. C. ALLCROVE, Middle Green, Langley, Slough, for excellent cordon trees of Rev. W. Wilks Apple in pots, and gathered fruits of the fine early dessert Apple St. Everard, Worcester Pearmain, coloured red all over, and James Grieve; also fine Pears of Dr. Jules Guyot, Williams' Bon Chrétien and Marguerite Marillat; to Messrs. DICKSON AND ROBINSON, Manchester, for 80 large bulbs of Premier Onion; the PURFLEET SCHOOL GARDENS, Essex, for a collection of Apples, Pears, Plums and Damsons grown by the scholars; and Messrs. SUTTON AND SONS, Reading, for an interesting exhibit showing the progress made with varieties of the Scarlet Runner Bean. The common Scarlet variety, with pods some 6 or 7 inches long, was displayed on a board; next to this sort was the old Ne Plus Ultra, 8-10 inches; then Sutton's Scarlet, an abundant cropper, giving pods some 10 to 12 inches long; and, finally, Best of All and Prizewinner, varieties that are only to be distinguished by the seeds, the champion pod measuring by scale just 18 inches.

Competitive Vegetable Classes.

The Society offered money prizes in forty classes for vegetables, open only to amateurs.

A Champion Cup was offered to the winner of the greatest number of 1st prize points throughout the whole exhibition, the winner in Class I being excluded. The trophy was won by Mr. JAMES GIBSON, gardener to the Duke of Portland.

The exhibits, on the whole, were of excellent quality, indeed, the average seemed slightly higher than usual, although we missed several champion growers who were unable to compete.

The largest class was for 12 kinds, distinct, to be selected from a list given in the schedule. The "Sutton" Challenge Cup was included in the 1st prize, which was won by Capt. H. SPENDER-CLAY, M.P., Ford Manor, Lingfield (gr. Mr. David Gibson). This was an admirable collection, staged in the best exhibition style. The heads of Solid White Celery, Ailsa Craig Onions, Prizetaker Leeks, and Best of All Runner Beans, were the best specimens; the others were Black Beet, New Red Intermediate Carrots, Matchless Cucumbers, King Edward Potatoes, and Autumn Giant Cauliflowers. The 2nd prize was awarded to the DUKE OF PORTLAND, Welbeck Abbey (gr. Mr. James Gibson). This exhibit ran the other very close, and was considered by some its equal. Early Giant Cauliflowers and Student Parsnips were of outstanding merit, whilst Ailsa Craig Onions, Black Beet, New Red Intermediate Carrots and Edinburgh Castle Potatoes were of high merit; 3rd, Mr. G. MATTHEWS, Strathfieldsaye, Mortimer.

A class for 9 kinds, distinct, attracted sufficient exhibits to provide a good competition. Coming from the larger class, it was very noticeable how the size of the vegetables in this competition dropped, but the schedule gave the clue, for it contained the following paragraph: "The judges are authorised to disqualify any exhibit which they consider does not contain the most suitable vegetables, or contains specimens which are not in the most suitable condition in regard to size and quality for table use. In 1913 these prizes were withheld on account of the excessive

size of the specimens, the judges considering them too large for table use, except perhaps in hotels and restaurants." This warning was most carefully observed, perhaps too faithfully, although it must be admitted that the quality was exceptionally good, which is not surprising, it being easier to make a more rigid selection from the larger number of good vegetables of medium size in a garden than from the fewer that grow to gargantuan proportions. The restriction is clearly an advantage to the small grower, but it was not apparent why this particular class was alone dealt with in this manner. We have nothing but praise for the admirable exhibit from Mr. W. H. MYERS, Swaunmore Park, Bishops Waltham (gr. Mr. G. Ellwood), who gained the 1st prize. His collection comprised Gladstone Peas, Best of All Beans, Round Globe Onions, Superb Pink Celery, Early Giant Cauliflowers, Favourite Carrots and Snowball Potatoes; 2nd, Mrs. JENNER, Wenvoe Castle, Cardiff (gr. Mr. H. Wheeler); 3rd, E. E. PALMER, Esq., Sheffield-on-Loddon, Basingstoke (gr. Mr. H. E. Wallis).

The remaining class, for a collection, called for 6 kinds, distinct, in which Mr. T. JONES, Ruabon, excelled with splendid Carrots of the New Red Intermediate variety, fine Ailsa Craig Onions, Satisfaction Potatoes, Perfection Tomatoes, Celery, and Cauliflowers; 2nd, Mrs. E. L. BRADSHAW, Steeple Aston, Oxford (gr. Mr. R. Wadham), whose Sulham Prize Celery was notably good.

POTATOES.—Two classes were provided for Potatoes—for a collection of 12 and 6 varieties respectively. In the larger class Rev. T. McMURDIE, Woburn Park, Weybridge (gr. Mr. A. Basile), excelled with large, evenly matched tubers, with almost white skins, of such varieties as Favourite, Raynes Park White, Advancer, Excelsior, Goldfinder, The Factor, Sir John Llewellyn, Up-to-Date, and Long Keeper, the majority being of the same type and closely resembling each other; 2nd, G. THORN, Esq., Willesborough, Kent (gr. Mr. M. Head). In the smaller class Mrs. AUSTIN, Capel Manor, Horsmonden (gr. Mr. A. Woodgate), was awarded the 1st prize and Mr. T. JONES the 2nd prize.

ONIONS.—The schedule called for a collection of 6 varieties from a list given. The 1st prize was won by Mrs. JENNER (gr. Mr. Wheeler) with the varieties Premier, Brown Globe, Royal Keeper, Silver Globe, Crimson Globe Radishes, and Ailsa Craig; 2nd, Mr. R. STAWARD, The Gardens, Panshanger, for smaller bulbs of a similar selection.

SALADS.—There were two classes for salads; the larger one was for 9 kinds, distinct, and the 1st prize was won by the DUKE OF PORTLAND with Black Beets, Golden Ball Lettuces, Superb Pink Celery, Endive, Crimson Globe Radishes, Tomatoes and Cucumbers; 2nd, Capt. H. SPENDER-CLAY. For 6 kinds, distinct, Miss E. L. BRADSHAW, Steeple Aston, Oxford (gr. Mr. R. Wadham), was placed 1st and W. H. MYERS, Esq., 2nd.

The DUKE OF PORTLAND was the only exhibitor in a class for 6 kinds of vegetables of more uncommon kinds, and was awarded the 1st prize for Celery, Salsafy, Scorzonera, Capsicums, Aubergines and Kohl Rabi.

SINGLE DISH CLASSES.—The winners of the 1st prizes and the varieties were as follows:—*Scarlet Runner Beans*, Prizetaker, shown by Miss BRADSHAW; *French Beans*, Canadian Wonder, shown by Mr. A. THOMAS, Kingsnorth, Kent; *Globe Beet*, Red Globe, shown by Mrs. JENNER; *Long Beet*, Sutton's Black, shown by the DUKE OF PORTLAND; *Brussels Sprouts*, Dwarf Gem, shown by Mr. TOM JONES; *Brussels Sprouts*, 3 plants, Dwarf Gem, shown by Miss E. BRADSHAW; *Cabbage*, Vilmorin's Express; *Savoy*; *Cauliflower or Broccoli*, Early Giant; *Celery*; *White Celery*, Solid White; *Red Celery*, Pink; *Leeks*, Prizetaker; *Marrow*, The Sutton; all shown by the DUKE OF PORTLAND; *Mushrooms*, Mr. W. H. MYERS; *Cucumbers*, Every Day, shown by Mr. G. THORN; *Onions*, Premier, shown by Mr. WHEELER; *Parsnips*, Tender and True, shown by the Rev. W. HARVEY, Chipping Sodbury (gr. Mr. E. J. Bazley); *Carrots*—Long Red Intermediate; *Carrots*, Stump-rooted, both shown by Mr. TOM JONES; *White Turnips*, Snowball; *Yellow Turnips*, Yel-

low Globe; other Turnips, Green Top; all shown by the DUKE OF PORTLAND, who also exhibited the best *Kab.*, *Coloured Potatoes* and *Yellow Tomatoes*. Miss BRADSHAW had the finest *Pears*. Mr. THORN showed the best *Yellow Tomatoes*, and the Rev. T. McMURDIE was placed 1st for *Climbing French Beans*, *White Potatoes*, and any other vegetable not enumerated.

TRIAL OF ANNUALS

The following Awards have been made to annuals after trial at the Wisley Gardens:—

ANNUAL CARNATIONS AND INDIAN PINKS

HIGHLY COMMENDED.—*Dianthus Heddewigii Crimson Bell*, sent by Messrs. BARR; *Heddewigii New Deeply Fringed*, introduced and sent by Messrs. BARR; *Heddewigii Star of Devon Strain*, introduced and sent by Messrs. R. VEITCH; *Heddewigii superbusissimus mixed*, sent by Messrs. R. SYDENHAM.

COMMENDED.—*D. Heddewigii Fireball*, raised by Messrs. WATKINS AND SIMPSON, sent by Messrs. DOBBIE; *Heddewigii laciniatus*, raised by Messrs. WATKINS AND SIMPSON, introduced and sent by Messrs. R. VEITCH; *Heddewigii laciniatus Vesuvius*, from Messrs. BARR; *Heddewigii laciniatus Vesuvius*, from Messrs. WATKINS AND SIMPSON; *Heddewigii Salmon Queen*, from Messrs. BARR; *Heddewigii single mixed*, from Messrs. R. SYDENHAM; *Heddewigii superbusissimus Queen Alexandra*, raised by Messrs. WATKINS AND SIMPSON, introduced and sent by Messrs. R. VEITCH.

CLARKIAS.

HIGHLY COMMENDED.—Nos. 13, 14, 17, *Clarkia elegans Brilliant*, raised and introduced by Messrs. WATKINS AND SIMPSON, and sent by Messrs. R. SYDENHAM, WATKINS AND SIMPSON, and W. H. SIMPSON respectively; Nos. 27, 28, 29, *elegans fl. pl. Orange King*, raised and introduced by Messrs. WATKINS AND SIMPSON, and sent by Messrs. WATKINS AND SIMPSON, R. VEITCH AND BARR respectively; *elegans Rose Beauty*, introduced and sent by Messrs. BARR; *elegans Salmon Scarlet*, from Messrs. SUTTON; *elegans Scarlet Queen*, raised and introduced by Messrs. WATKINS AND SIMPSON, sent by Messrs. NUTTING; Nos. 18 and 19, *elegans fl. pl. Vesuvius*, raised and introduced by Messrs. WATKINS AND SIMPSON, sent by Messrs. WATKINS AND SIMPSON AND DOBBIE AND Co., respectively.

COMMENDED.—*Clarkia pulchella Double White*, from Messrs. R. SYDENHAM; *elegans Purple Prince*, from Messrs. BARR; *elegans fl. pl. Queen Mary*, raised, introduced and sent by Messrs. WATKINS AND SIMPSON.

ANNUAL DELPHINIUMS AND LARKSPURS.

AWARD OF MERIT.—*Blac Butterfly*, sent by Messrs. HURST (A.M. 1900 confirmed).

HIGHLY COMMENDED.—*Azure Fairy*, raised, introduced and sent by Messrs. DOBBIE; *Azure Fairy*, raised, introduced and sent by Messrs. WATKINS AND SIMPSON; *Rosy Scarlet*, from Messrs. R. SYDENHAM.

GODETIAS.

AWARD OF MERIT.—*Lavender*, introduced and sent by Messrs. CARTER (A.M. 1915 confirmed.)

HIGHLY COMMENDED.—*Godetia Duke of Fife*, sent by Messrs. DANIELS (A.M. 1890); *Schamini fl. pl.*, introduced and sent by Messrs. WATKINS AND SIMPSON (A.M. 1905); *Whitneyi Crimson Gem*, sent by Messrs. BARR; *Whitneyi Marchioness of Salisbury*, sent by Messrs. BARR (A.M. 1895).

COMMENDED.—*Godetia compacta Sunst.* from Messrs. R. SYDENHAM; *Schamini Double Carmine*, sent by Messrs. A. DICKSON; *Tall Double Mauve*, sent by Messrs. W. H. SIMPSON; *Whitneyi White Gem*, sent by Messrs. BARR.

MIGNONETTE.

HIGHLY COMMENDED.—*Giant*, introduced and sent by Messrs. DOBBIE; Nos. 36 and 39, *Golden Queen*, introduced by Messrs. SYDENHAM, and sent by Messrs. SYDENHAM AND BARR respectively; *Machet*, introduced and sent by Messrs. R. VEITCH; *Machet Giant Crimson*, introduced and sent by Messrs. WATKINS AND

SIMPSON; *Machet Hercules*, introduced and sent by Messrs. BARR; *Paris Market*, introduced and sent by Messrs. BARR.

COMMENDED.—*Mignonette Gabriele*, sent by Messrs. HURST; *Machet Improved*, sent by Messrs. BARR.

LATE POTATOS.

The following Awards have been made to Late Potatos by the Council of the Royal Horticultural Society after trial at Wisley.

HIGHLY COMMENDED.—*Donside Defiance*, raised and sent by Mr. D. COOK, introduced by Mr. H. SINCLAIR; *King Edward*, introduced and sent by Messrs. DOBBIE AND Co., raised by BUTLER; *Bob Roy*, introduced and sent by Messrs. R. VEITCH, raised by A. W. MCALISTER.

COMMENDED.

COMMENDED.—*Arran Chief*, sent and introduced by Messrs. DOBBIE, raised by W. KELVIE; *Cropper*, introduced and sent by S. ARKRELL-JONES; *Drumchindale*, sent by Mr. L. GAVIN; *Irish Chieftain*, introduced and sent by LISSADELL, raised by Mr. F. J. McKENNA; *Lanquorothy*, introduced and sent by Messrs. DOBBIE, raised by Mr. NIVEN; *Prolific*, introduced and sent by Messrs. DOBBIE; *Superlative*, introduced and sent by Messrs. SUTTON, raised by Mr. W. COLEMAN; *The Chapman*, raised, introduced, and sent by Messrs. DOBBIE; *The Factor*, introduced and sent by Messrs. DOBBIE, raised by Mr. CHAPMAN (A.M. 1901, F.C.C. 1905); *The Propost*, raised, introduced and sent by Messrs. DOBBIE (A.M. 1907); *White City*, introduced and sent by Messrs. SUTTON.

NATIONAL CHRYSANTHEMUM.

SEPTEMBER 25.—The first meeting of the Executive Committee for the season 1916-17 was held at Carr's Restaurant, Strand, on the 25th inst. Mr. Thomas Bevan presided.

The interim financial statement showed a substantial balance to hand.

Sir Albert Rollit will open the winter season of the Japan Society and Mr. Harman Payne will deliver a lecture on the Chrysanthemum on that occasion. It was hoped that facilities would be afforded to members of the N.C.S. to attend.

Mr. D. B. Crane has been re-elected chairman of the Floral Committee.

It was decided not to hold the usual dinner this year.

MEETING OF THE FLORAL COMMITTEE.

The first meeting for the season of the Floral Committee was held at the Royal Horticultural Hall, Westminster, on the 25th inst. As stated above, Mr. D. B. Crane was re-elected chairman. Generally the first meeting is of a formal character, but on this occasion there were many novelties before the committee, who made four awards to desirable market Japanese varieties, which are also valuable for garden decoration.

FIRST-CLASS CERTIFICATES.

C. Dick Barnes.—A medium-sized, compact market Japanese Chrysanthemum. The blooms are rather fuller than usual in this type, and they have good stalks. The colour is officially described as deep crimson, the texture of the florets seem to absorb the light, consequently indoors the colour is a trifle dull, but in a good light it is beautiful.

C. Harry Thorp.—Another early Japanese variety, though of rather more graceful habit and of bright bronzy-yellow colouring, which makes it very attractive. Both were shown by Mr. H. THORP.

CARDS OF COMMENDATION.

C. Lichfield Pink.—A light mauve pink-coloured bloom of great attraction, which should prove valuable for market purposes. Shown by Mr. H. THORP.

C. Antha.—This was the largest of the four novelties; like the previous one, it had a long, stout stem. The colour was a soft shade of deep mauve pink. Shown by Messrs. CRAGG, HARRISON AND CRAGG.

CHESTER PAXTON.

THE president, Mr. T. Gibbons Frost, Mollington Hall, Chester, offered in the spring of this year prizes for the best kept and best cropped cottage gardens, the competition being open to cottagers in several local townships. Twenty-two competed, and by invitation of Mr. and Mrs. Frost the successful competitors, together with their wives, and members of the Paxton Society and the Natural Science Society, visited Mollington Hall on the 20th inst., when the prizes and certificates were presented. Mr. Frost explained his reasons for offering the prizes, and stated that some of the credit was due to his gardener, Mr. Gilbert.

The silver Rose bowl, recently presented by the members of the Paxton Society to Mr. and Mrs. A. J. MacGillycuddy, the son and daughter respectively of the ex-president, Major MacGillycuddy, and the present president, Mr. T. Gibbons Frost, was displayed on the tea-table. It is inscribed as follows:—"Presented to Lieutenant and Mrs. A. J. MacGillycuddy, by members of the Chester Paxton Society, on their marriage, September 12, 1916, uniting the families of the president, T. Gibbons Frost, Esq., J.P., and the ex-president, Major MacGillycuddy, J.P."

LAW NOTES.

A NURSERYMAN IN BANKRUPTCY.

AT the offices of the Official Receiver for the Wandsworth district, York Road, S.E., on Monday last, the adjourned first meeting was held under the failure re Arthur Richmond, nurseryman, of 74, Endlesham Road, Balham. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £2,605, of which £1,785 10s. was due to unsecured creditors. Assets, 1s., leaving a deficiency of £1,785 9s.

The Official Receiver's report was to the following effect. The receiving order was made on a creditor's petition, the act of bankruptcy being the debtor's failure to comply with the requirements of a bankruptcy notice.

The debtor, who is 49 years of age, was connected with the music hall stage for many years in exhibiting feats of strength, and, subsequently, as a manager of touring dramatic companies. In March, 1914, he commenced business as a nurseryman, with a capital of £800, representing savings. He entered into an agreement to purchase a portion of a nursery previously carried on by Messrs. Veitch at Feltham.

The purchase price was fixed at £1,400 for the freehold land (about four acres), with the greenhouses, buildings, etc., thereon, and between £600 and £700 for the stock. He paid a deposit of £70 in respect of the purchase of the land, and the remainder was allowed to remain on mortgage at 5 per cent. per annum. A balance of about £380 is still owing in respect of the stock. He also rented adjoining land to the extent of about 18 acres, at a rental of about £70 a year.

He borrowed moneys at the time of the purchase, and, subsequently, from a friend, to whom he is now indebted in the sum of £1,100. On January 13, 1916, he registered a limited company in the name of Richmond and Sons, Ltd., which had been formed by him with a capital of £2,000 for the purpose of taking over the nursery. He transferred to the company all his interest in the business for a consideration of £1,500, paid in fully paid up shares, but he is to be paid a further £9,500 upon an increase in the company's capital being made to £21,000; £3,000 is to be paid in cash and £4,500 in the issue of fully-paid shares. He values the land, buildings, etc., at £4,000, and the stock at £4,025, and the goodwill, etc., at £2,975. The weekly wages bill is £10 a week only, and the receipts at the nursery for the last twelve months amount to £300. There is no prospect of further capital being raised for the company during the pendency of the war.

After dealing with the proofs of debt lodged, the Official Receiver said debtor had been adjudicated bankrupt, and it was for the creditors to appoint a trustee to realise the estate. Eventually it was decided to appoint Mr. Sidney Reginald Worley, C.A., of Lime Street, E.C., as trustee, to act in conjunction with a committee of inspection, which was also appointed.

THE WEATHER.

WEATHER IN WEST HERTS.

Week ending September 27.

Cold, very dull, dry, and calm.—Taken as a whole, this was another cold week, and the second in succession. The first four days and nights were very cold for the time of year, but after that a change to warmer weather took place, both during the daytime and at night. On the coldest day the temperature in the thermometer-screen did not rise above 58°, and on the coldest night the exposed thermometer registered 1 degree of frost. The ground is at the present time 3° colder than is seasonable, both at 1 and 2 feet deep. Although no rain at all fell during the week a quarter of a gallon of rainwater came through the bare soil percolation-gauge, and also the same amount came through that on which short grass is growing—this is the first measurable quantity of rainwater that I have recorded here from the latter gauge for over three months, or since the end of May. The sun shone, on an average, for 4 hours a day, which is nearly one hour a day short of the average daily duration for the time of year. Light airs and calms alone prevailed during the week. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by 3 per cent. R. W.

MARKETS.

COVENT GARDEN, September 27.

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices. Columns include flower names (e.g., Asters, Carnations, Chrysanthemum), quantities, and prices in s.d. and s.d.s.d. format.

REMARKS.—Chrysanthemums are the chief attraction. Disbudded blooms are improving in quality, and there is a better selection. Prices were a little easier this morning. Prices remain firm for good bunched sprays of white blooms, but coloured ones are getting more and more plentiful. Carnations are getting scarce, and prices are rising for all grades. Roses are few, but the majority are arriving in good condition. The finest varieties are Mme. A. Chatenay, Liberty, Sunburst, Melody, Ophelia, Mrs. Russell, White Molly Sherman Crawford and Lady Hillingdon. There is a good supply of large Princess of Wales Violets, and a few bunches of Marie Louise (double) are beginning to arrive. Physalis has begun to arrive, but better quality spikes are expected in a few days. At present prices are very high.

In pot plants, white and pink Ericas find a ready sale, but prices remain firm, owing to limited supply. Other flowering plants consist of Chrysanthemums, white and pink Spiraeas, white Marguerites, Lilium longiflorum, L. lancifolium rubrum, and a few white and coloured Asters.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices. Columns include vegetable names (e.g., Artichokes, Beans, Carrots, Celery), quantities, and prices in s.d. and s.d.s.d. format.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices. Columns include fruit names (e.g., Apples, Grape Fruit, Oranges, Peaches), quantities, and prices in s.d. and s.d.s.d. format.

REMARKS.—The bulk of Apples from home growers consists of the varieties Lane's Prince Albert, Warner's King and Bismarck. Of dessert varieties there are good supplies of Charles Ross, Duchess, Worcester Pearmain, also Newtown Pippins from California. The chief varieties of Pears on sale are Dr. Jules Guyot, Williams' Bon Chrétien, Clapp's Favourite and Pittman's Duchess. Californian growers are sending Beurré Hardy and Beurré Clairgeau. Pond's Seedling and Monarch Plums are still available, and Damsons are fairly plentiful. Figs from the Worthing district, the Channel Islands and Italy, are all plentiful. Pineapples are a short supply. The market is well supplied with Grapes from home growers, the Channel Islands, Lisbon, and Holland. Mushrooms are very scarce for the season of year. Blackberries are abundant. Melons are fairly plentiful. The market is fairly well supplied with Peaches. Tomatos are arriving from home growers, the Channel Islands, Lisbon France and Holland. Cabbages continue to be very scarce. Quinces are arriving from Malaga. Vegetables of all kinds are a short supply. E. H. R., Covent Garden, September 27, 1916.

Potatoes.

Table listing potato varieties and their prices. Columns include variety names (e.g., Kent, Eclipse, May Queen), quantities, and prices in s.d. and s.d.s.d. format.

REMARKS.—There is a fair amount of trade; consignments from growers are light. Edward J. Newborn, Covent Garden and St. Pancras, September 27, 1916.

ANSWERS TO CORRESPONDENTS.

"There are few gardeners, and still fewer amateurs, who do not on occasion require immediate information upon various points of practice. But either from an unwillingness to inquire, or from not knowing of whom to make the inquiry, they too often fail to obtain the information they are in want of. And let no one be alarmed lest his questions should appear trifling, or those of a person ignorant of that which he ought to know. He is the wisest man who is conscious of his ignorance; for how little do the wisest really know!—except that they know little. If one man is unacquainted with a fact, however common, it is probable that hundreds of others in the same position as himself are equally in want of similar information. To ask a question, then is to consult the good of others as well as of one's self."—Gardener's Chronicle, No. 1, Vol. 1, January 2, 1841.

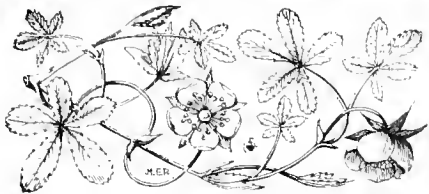
GARDENING FOR WOMEN: W. B., Bussum.—The college to which you refer is probably Studley Castle, Studley, Warwickshire. Other colleges in this country are the Horticultural College, Swanley, Kent; University College, Reading; University College, Leeds; School for Lady Gardeners, Glynée, near Lewes. If you write to the Principal she will send you all particulars. These colleges are not only kept going during the war, but are more active now than ever, on account of the great demand there is for trained women gardeners to take the place of men who have joined the Army.

MILDEW ON VINES: F. W. C. Flowers of sulphur will destroy mildew on Vines while there is sufficient sun heat to raise the temperature occasionally to 80° in the shade. There are several ways of applying the sulphur. It is not sufficient to merely dust it on the bunches, for the mildew attacks the leaves and stems as well as the bunches, and although very easy to destroy when it first appears, it is more difficult to combat when it becomes firmly rooted in the skin of the berry, the stem or the leaves, and marks of it cannot then be effaced. Sulphur may be mixed with water, using a little soap suds first to make it into a paste. Apply the sulphured water through the nozzle of a syringe, placing the finger against the nozzle to form a spray. Half-a-pound to one gallon of water is not too much, and the mixture requires to be kept well stirred from the bottom. Or sulphur may be applied in a dry state with the Malbec bellows; but both of these plans leave some sulphur in the bunches which can scarcely be washed out. The best plan is to use Campbell's Sulphur Vaporiser, the larger size will do for a house up to 6,000 feet, using 1 ounce of sulphur to each thousand cubic feet, and attending otherwise very strictly to the directions sent out with the machine. This quantity is not likely to cause any injury if used after stoning has commenced. A coating of dust will be left on the berries, but this can be easily removed early in the following morning with a pair of strong, ordinary bellows, or it can be washed off by a thorough drenching of soft water. If the dust remains for moisture to be condensed on it by rapid changes of temperature it cannot then all be removed. If the fruit is not cut later than the first week in September, a fresh treatment with sulphur should then be given, and the house closed while the sun is powerful during three or four days. When pruning is completed dress the Vines with soft soap, half-a-pound to a gallon of water, and as much sulphur as will make a thick paste. The Vines must not be syringed during the following spring or the sulphur will be washed off.

NAMES OF FRUITS: W. F. and C. Apple Debtling Pippin.—E. S. 1, Apples Minehill Crab; 2, Ashmead's Kernel.—J. M. Apple Frogmore Prolific.

NAMES OF PLANTS: "Leirion." Polygonum Baldschianicum (thanks for donation to R.G.O.F.—Eds.)

Communications Received.—W. Heney (you may expect proof shortly)—L. Bros.—J. M. Shavington—C. E. B.—Litchfield—A. L.—R. A. R.—B. W.—E. M.—F. G. P.—G. B.—F. W. G.—Old Subscriber—S. J.—T. W. M.—W. W. S.—Victoria—A. P.—J. H. S.—A. D. T.—A. H. S.—J. G. Hawkins—A. E.—W. M. L.—Up North—G. E.



THE

Gardeners' Chronicle

No. 1554.—SATURDAY, OCTOBER 7, 1916.

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GARDENS IN BURMA.

ALTHOUGH no one loves flowers more than the Burman, even in his own country market gardening is entirely in the hands of foreigners—Chinese, and natives of India.

Thus around Moulmein, at the mouth of the Saleween River, we find hundreds of Chinese gardens, not divided up by white walls with circular openings into a maze of compartments arranged ponds full of Lotus, and strictly arranged earthenware pots containing dwarf Azaleas, tangled Peach bushes, or yellow Cymbidiums, such as are the pleasure gardens of China, but market gardens in which flowers and fruits are grown for the bazaars.

No Burmese girl would come out on a holiday without flowers in her hair, a Rose stuck jauntily on one side, or a chain of white buds bound round her brow. Flowers, especially Roses, are placed in bowls in the houses, and thousands are sold on the pagoda steps as offerings to Buddha.

Roses flower all the year round in Burma, and a good deal of ground is given over to their cultivation in Moulmein and other big cities. It is such a typically English flower that it seems strange at first sight to find it growing at all in a monsoon climate at sea level, fourteen degrees north of the equator; but wild Roses are far more plentiful in the mountainous parts of China and Burma than they are in England. Still, it is strange to see them blooming all through the year in a country where we are treated to 160 inches of rain in six months, and to drought for the other six months. True, people at home might not think much of a Moulmein Rose, but nothing out here reminds me so much of England as to see baskets of these pink Roses being carried to market every morning on the heads of Burmese girls, or to walk amongst the flower stalls of the big bazaar.

The flowers are generally pink and almost scentless, sometimes deep red and scented, or

white, or yellow; but the pink are by far the commonest, and the best blooms. The bushes are about two feet high, never pruned, manured, or grafted, but go on unfurling bloom after bloom throughout the year; the soil is a sticky laterite clay, or sometimes pure laterite.

Acres of garden land are given over to the cultivation of the twining Piper Betle, the leaves of which are chewed with lime and betel nut (Areca Catechu) by the natives. It is a popular saying that you cannot learn to speak Burmese properly till you can chew betel, but it does not seem a pleasant habit to the Englishman. Every day hundreds of fresh leaves are carried down to the bazaars and sold. I have seen the plant growing wild away upon the eastern branch of the Irrawaddy, where the Marus used to climb the trees for it, chewing, not only the leaves, but the berries as well.

One would hardly have thought it worth while to plant an acre or two of rubber, but that is what the Chinese do in Moulmein; the trees seem to be left very much to their own devices, but they do well enough. Further south, in the Mergui district, there are several large European estates. Once upon a time the Kachins of far northern Burma used to collect wild rubber, but the trees seem to have been exhausted, and probably almost exterminated by indiscriminate tapping, though I have seen a few, covered with *dah* wounds criss-crossing all the way up the branches, in the Kachin Hills. Market vegetables are grown in much smaller quantity than any of the above—Cabbages in the spring, sweet Potatoes, Runner Beans, Ginger, and Arrowroot in the summer; small prickly or warty Cucumbers are also popular, and several Burmese delicacies are grown.

Certain popular beliefs, however, often contradicted, never seem to die, and one such belief is that tropical fruits are incomparable. If you ask, *what* tropical fruits? you may be told the Mango, and that is as far as the average man gets. Certainly a Mango is as luscious and well flavoured as a Strawberry—it is not better. A Mangosteen is the equal of an Orange, but not superior to it, and, beside these two, there are only the Durian, barred to most on account of its vile smell; the Papaya; the Banana, invaluable as a food, but not particularly delectable; the Pineapple; and the green Coconut, filled with milk enclosed in a soft, white shell, dug out with a spoon like blancmange, thirst quenching, but not inspiring. Against these we have the Strawberry, Mulberry, Cherry, Apple, Pear, Peach, Apricot, Greengage, Plum, and Gooseberry; and if to these we add the Grape, Date, Fig, and Orange from the Mediterranean, the old world tropics at least are out of the running.

Mangos are grown all down the Tenasserin coast, and the small green fruits, though not so large, are quite as good as the big grafted ones from southern India and elsewhere. Pineapples one finds growing in the hedges round Moulmein, absolutely uncared for, though they are taken to the bazaar. They are cultivated by the Chinese all down the Tenasserin coast, where they do well; in Victoria Point (the southernmost cape of Burma) they cost from two to four annas (pence) each. Papayas are commonly grown. Betel palms are, of course, universally grown, and form a conspicuous feature of the country round Moulmein. The best Mangosteens come from further south, but are to be bought cheaply enough in the Moulmein bazaars, though half of them are bad, due to careless handling and bruising. Wild Mangosteens are to be found on the N.E. frontier at least as far north as 26°,

where I picked up some excellent fruit in the valley of the eastern Irrawaddy, a thousand miles north of Moulmein. The ubiquitous Coconut Palm is grown along the coast, and in the autumn there are Limes and Oranges. Most tropical fruits have a very brief season, which is further evidence of the superiority of our own.

Besides Roses, no other flowers are cultivated on a large scale, not because they are the only ones in demand, but because there are plenty of wild ones; for instance, the Padouk (*Pterocarpus* sp.), another great favourite with the Burmans. It is said in Burma that the Padouk, which usually bursts into flower at the end of the hot weather (April) must flower three times before the rains. It bursts into full bloom in a single night, scenting the whole place with its long, hanging panicles of golden flowers, and raining gold dust on the wind. Then the Burmans come and break off whole branches recklessly, and carry the flowers to the pagoda, or wear them in their jet black hair. But, as with tropical fruits, so with tropical flowers.

It is true that the Goldmohur tree, the Padouk, or a tree draped with *Congea tomentosa*, to mention a few of the chief glories of Burma, are extraordinarily beautiful, but the setting is nearly always poor; I say nothing of western China, which is not tropical, nor of laid-out botanical gardens, such as those of Buitenzorg, Peradeniya, or Singapore. I am talking of ordinary tropical scenes, and where can one find anything to compare with a Surrey wood sheeted with Bluebells, a Kent Hazel copse in spring full of Wood Anemones and Primroses, an East Anglian cornfield scarlet with Poppies, or a Scotch moor purple with Heather dabbled with golden Gorse? Not in the eastern tropics, not even in the Indies themselves!

Yet people, realising the luxuriance and variety of tropical vegetation, continue to add an imaginary beauty of flower and lusciousness of fruit, never thinking of the gloom of endless Mangrove swamp, the deadly monotony of Bamboo jungle, or the total absence of anything that may be beautiful, once inside the rain forest.

Those who long to see the tropics and cannot, may console themselves with the fact that it is much more romantic to read about than to live in them; their dreams will far surpass actuality—why shatter them? How we long to taste English fruit, and see an English garden again! *P. Kingdon Ward.*

ORCHID NOTES AND CLEANINGS.

DENDROBIUM SANDERAE.

At the meeting of the Royal Horticultural Society on September 12 last, Messrs. J. and A. McBean showed plants of this beautiful Philippine Dendrobium (see fig. 66), with fifty to sixty large flowers on each—pure white, with purple lines on the lip—and in such vigorous condition that the Orchid Committee voted a Cultural Commendation. The exhibit deserves more than passing mention, for the plants serve to call attention to the group to which they belong: a group which includes *Dendrobium Dearei* (*Gard. Chron.*, 1882, p. 361), the earliest of the section; and *D. Schutzei*, the latest—imported by Messrs. Sander and Sons, the introducers of *D. Sanderae*, from the Philippines. All three species and *D. Dearei* McBean's variety secured first-class Certificates.

All the varieties are called evergreen, that is to say, they have persistent, bright-green leaves, which remain on the pseudo-bulbs for two years or more, thus redeeming the plants from the

reproach of shabbiness in the resting season, which is often applied to the deciduous section. The flowers are borne in racemes. *D. Dearei* has the smallest and greatest number of flowers, and *D. Schutzei*, whose white flowers have a green base to the lip, the largest and fewer.

The plants require a warm moist house, and not the rigorous drying off accorded to the *D. nobile* section, although a slackening of water in the resting season and a place in a lower temperature for a time until growth commences again are necessary. The plants of this section frequently fail from being grown with the general collection of *Dendrobiums*. When grown with *D. Phala-*

NURSERY NOTE.

NEW FRUITS AT BEDFORD.

THERE are very few nurseries this year that have produced more than the average yield of fruits. Yet it was information to the effect that Messrs. Laxton Brothers had good crops that induced us to pay a visit to Bedford a few weeks ago. In a plentiful year raisers of new varieties frequently obtain results that otherwise would be spread over two or three seasons, and the interest attaching to the debut of a new variety always appeals forcibly to the fruit-grower who is

the result of a cross between Green Gage and White Magnum Bonum, "as these varieties grew side by side." Victoria, one of the best cropping culinary Plums, was discovered in a garden at Alderton, in Sussex. Doyenne du Comice Pear was raised in the garden of the Comice Horticole at Angers, the original tree first fruiting in 1849; so that this delicious Pear, one of the very best in cultivation, may, on the contrary, be a case in which the seedling resulted from artificial crossing. But the choicest Grape, the Muscat of Alexandria, is believed to have come from the East several centuries ago, when artificial crossing as a means of raising new varieties can hardly have been practised in Eastern vineyards. For similar reasons the best Apricot, Moorpark, must also be attributed to circumstances other than deliberate cross-breeding.

It would be easy to multiply instances, but perhaps these will suffice to prove that, at any rate, many of the choicest varieties have originated as chance seedlings and have been taken up by nurserymen and other growers ever on the look-out for fresh varieties of superior quality and increased cropping capacity. Nevertheless, it is now generally recognised that the bounty of Nature must be supplemented by the patience, skill, and acumen of the professional plant breeder. Messrs. Laxton Brothers, Bedford, have been carrying out such work for a period extending over twenty-five years, and have raised seedlings of most kinds of fruits. In this case the raisers have not merely sown seeds gathered in the ordinary way from the choicest varieties at hand; on the contrary, they have cross-pollinated the flowers beforehand, selecting the parents for definite reasons and always with certain objects in view. Thousands of crosses have been made and kept to numbers agreeing with duplicates in a pedigree book which records, in every case, the names of the parents, the date of the pollination, and other valuable information. This work, therefore, is of quite an exceptional character, though similar to that of the late Thomas Rivers, who crossed Peaches and Nectarines and succeeded in raising varieties of choice quality and utility; to that of Seden, who engaged in similar work for the late firm of James Veitch and Sons; and Charles Ross, who raised a number of Apples by crossing Cox's Orange Pippin and Peasgood's Nonesuch.

In Messrs. Laxton's crossings the main object in view has been to prolong the seasons in which high quality is obtainable. In Apples Messrs. Laxton have endeavoured to cross early and late varieties with Cox's Orange Pippin so as to raise early and late sorts with Cox flavour. In Plums they have sought to get red and green Plums of free cropping habits and possessing the qualities of Greengage and to unite the extraordinary high qualities of Coe's Golden Drop, with the equally remarkably cropping capacity of Victoria.

Cox's Orange Pippin Apple crossed with Worcester Pearmain produced excellent fruits, but, unfortunately, they were not ripe at the time of our visit. Cox's was also crossed in one case with Court Pendu Plat and in others with Beauty of Bath, Gladstone, and Lady Sudeley. In the last case good fruits of conical shape and handsome appearance promised well, and it is confidently believed that some of these seedlings will supply fruit growers with early Apples of better quality than any at present on the market. For a late Cox, the Court Pendu Plat cross will be useful, for the fruits, which are distinctly of Cox's flavour, do not come into use until February. Lady Sudeley crossed with Beauty of Bath produced a variety known as Beauty of Bedford, a bright red fruit streaked with yellow, and possessing yellowish, firm flesh of agreeable sweetness; it ripens in September. King of the Pippins crossed with Blenheim Pippin and Gladstone crossed with James Grieve are two further cases

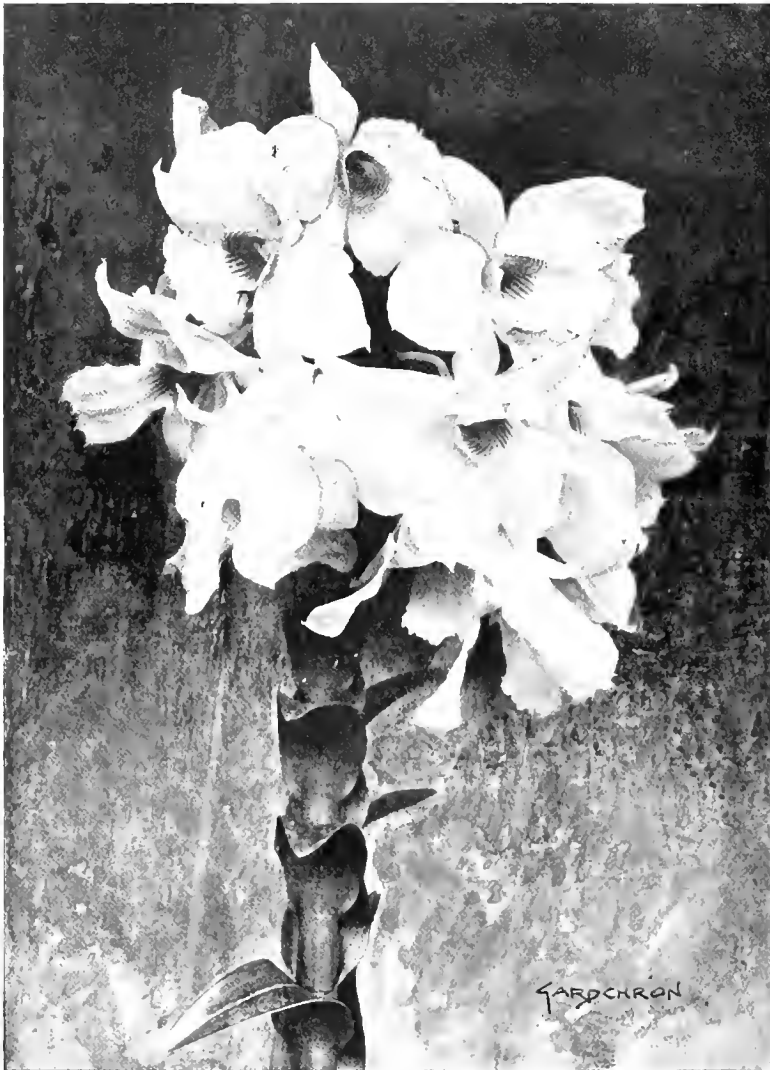


FIG. 66.—DENDROBIUM SANDERAE.

nopsis and that section, they are not difficult subjects. The beauty and abundance of their flowers should secure for them special attention.

HARDY FLOWER BORDER.

COLCHICUM AUTUMNALE MAJOR.

THIS handsome Meadow Saffron is superior to the ordinary autumn Colchicum, which is a troublesome weed in some meadows. *Colchicum autumnale major* is larger than the latter, and is of a pleasing rose-purple or rose, tinted with lighter shades; it is not at all common in British gardens. It came into flower this year in the second week of September. *S. Arnott, Murwelltown, N.B.*

familiar with most of the choice varieties in cultivation. Indeed, the student of pomology has few more interesting (if difficult) tasks than the investigation of the origin of varieties. Doubtless, many attribute the origin of the best fruits to purposeful cross-breeding. But would the facts, if known, justify such a conclusion? Cox's Orange Pippin, the premier dessert Apple, was raised by a Bermondsey brewer in his garden at Slough, where he had merely sown Apple pips. Blenheim Pippin was "discovered" in the garden of one Kempter, a labouring man who lived at Woodstock, Oxfordshire, more than a century and a-half ago; that most delicious Plum, Coe's Golden Drop, the late Dr. Hogg tells us in the *Fruit Manual*, originated in the garden of a market gardener at Bury St. Edmunds, who imagined it to be

of unusual interest. Cox's Orange Pippin crossed with Cellini and the seedling again crossed with Cox's produced a plant which was heavily cropped with the most brilliant fruits.

Of Plums, one of the most remarkable crosses is that of Green Gage with Victoria. The cropping qualities of the seedling may be seen in fig. 67, which is reproduced from a photograph. The first fruits ripened on August 23, and they were exceedingly good eating when we tasted some of the last fruits a week or more later. The crop was so heavy that the weight of fruit broke many of the smaller branches. The well-known Kirke's has been crossed on Victoria, the Czar on Pond's Seedling, Grand Duke on Green Gage (this in order to get a Green Gage with better cropping qualities), and Czar on Early Transparent. Jefferson's crossed with Peach Plum produced the variety Utility, a red-skinned fruit that ripens as early as Early Orleans and possesses a flavour equal to Denniston's Superb. Another fine Plum bearing well was produced by a cross from Magnum Bonum and Victoria: it ripens a week earlier than Victoria. Prosperity, a seedling variety already in commerce, is the result of crossing Grand Duke with Czar. The seedling is a black-skinned Plum with rich bloom, as large as Victoria, a great cropper, ripening ten days to a fortnight earlier than Victoria. Another interesting cross, of which we cannot say much at present, is one between Victoria and the very distinct Dunstable Prune or Damson that we first remember seeing during a visit to Mr. Wallace, the gifted Carnation grower, at Eaton Bray. What appeared to be a really first-rate Plum for bottling, with skin of brilliant red colour which darkens a little before ripening, is an offspring from Orleans crossed with Early Prolific. Messrs. Laxton have raised more new Strawberries than any other firm, but it was past Strawberry-time when our inspection was made, and they may be passed over. It ought to be mentioned, however, that in Raspberries the firm has a good novelty in Bountiful, a most vigorous grower, wonderful cropper, and a variety to be recommended without reserve. A first-class Black Currant is known as Blacksmith, and a good red variety is Laxton's Perfection.

We have mentioned some of the fruits that happened to be ripe when our inspection was made, but there are large numbers of trees already some years old, representing further crosses, most of them still without names. To the visitor it would appear that the public interest would be served if the best of these seedling fruits were distributed at once as widely as possible, so that the real test of cultivation might determine the economic value of each. But in this question is involved another, namely, how a fair return is to be guaranteed the raisers for the great amount of work cross-breeding necessitates. We have not space on this occasion to go into the matter, but there is no doubt much to be said for the view taken by Messrs. Laxton that some form of patentcy or registration is necessary to ensure that the raisers of new plants and fruits may be adequately requited for their work. Practical men know well enough that one firm may expend a wonderful amount of effort before it produces a first-class (or popular) fruit, and when this has been done the sale of the novelty during the first season is only a moderate one, whilst afterwards any other firm has the opportunity of propagating it for commercial purposes. There can be no good argument against patentcy for new plants any more than for new books, except on the ground that it would be extremely difficult to enforce the protection a patentcy should afford. Here, at present, is the difficulty, but there is no reason to suppose that it is insurmountable. At any rate, the problem is one that might usefully engage the attention of the Horticultural Trades Association, not for the purpose of discussing generalities, but with the object of endeavouring to draw up a tangible and practicable scheme.

FOREIGN CORRESPONDENCE.

COLOUR STANDARDS.

DR. RIDGWAY'S admirable book should certainly be fitted with a real index instead of a list of names, mostly unfamiliar and all in uniform small type, which is no index, but a nightmare, a labyrinth of dark, deep, dull, dusky paths.

An index is a means of guiding us from what we know and remember to what we want to learn from a book. Thus John, George and Mary wish to learn the place among colours and the colour-name of the showiest flower on our western railway banks, also known in England, the Great or Spiked Willow-herb (*Epiobium angustifolium*). They know it is pink or purple, for thus much we all know from our infant school and even our colour-chartless parents knew. They should find

information having page references. They know the colour wanted is symbolised by the letters V and R combined, in the six columns of pages 12 and 13; and the names of these six are given, as of all the thirty-six full (non-neutralised) colours of the middle horizontal row. There should also be references to the corresponding neutralised colours, neutralised to the 1st, 2nd, 3rd, 4th and 5th degrees.

I hope we may learn from Mr. Jacob and other correspondents (see pp. 32, 44, 66) what colours they consider to be omitted from the Ridgway Chart. Roses of the most intense carmine, such as Gruss an Teplitz, may perhaps be held to be between *i* and *k* of I. Red, Plate 1. The red of dark Paeonies is harder to place. Our author is a very faithful guide in some places: I should like to praise the exactness of his Hyssop violet, as well as of his



FIG. 67.—CROSS-BRED PLUM AT MESSRS. LAXTON'S NURSERIES, BEDFORD (MUCH REDUCED).
(The parent varieties were Green Gage and Victoria.)

pink in an alphabetical index, and in indented column the various kinds of pink,

- | | |
|------------|------------|
| Alizarine. | Mallow. |
| Amaranth. | Rose. |
| Chatenay. | Tyrian. |
| Coral. | Sea-shell. |
| Flesh. | Venetian. |
| Jasper. | |

They will spot the name Rose pink quickly and find page 12, and the Mallow colour wanted. Or, similarly, one of the seven purples indexed, "Mallow purple," page 12. The paging should be in plain figures, not in Roman numerals. Failing this kind of index, the pages have to be all turned over continually to search for a colour. There is no harm in some cross-indexing—a name appearing more than once when convenient, under its class name and its specific name. The names of colours not shown, but indicated as intermediates, should, according to the plan of the work, appear in the index in italic type; and so also should some important synonyms. The name Reseda is now well known, but has been too much tampered with to become a standard name; yet an entry, "Reseda, see Mignonette," would be useful.

More advanced students than John and Mary, with more "previous knowledge," to use a teachers' term, will prefer to consult the classifi-

Cornflower blue. Of the name Amethyst violet, as a full colour of the middle horizontal row, I am doubtful; and for the next shade below this most of us would prefer the name violet de violette, as in the French *Répertoire*, No. 192, to the name Hyaciuth violet. I should like the opinion of other colour-students as to the type colour of green leaves, and of Grass (lawn) green. What is the blue of wind-stirred water under a blue sky?

The place of Eton blue needs to be revised. I have a sample of the true colour before me, attested by the kindness of the Clerk of the Governing Body of Eton College. The colour is nearest to the "Nile blue" of the Ridgway chart; or perhaps more exactly "pale Nile blue," and the name appears superior to the little-known or understood "Nile" name.

One more query: Is any information obtainable as to Lovibond's tintometer? Its material is, I believe, glass, and unfading. *D. F. Kerr, Kelowna, B.C.*

ILLINOIS SCHOOL OF LANDSCAPE GARDENING.—According to the *American Florist* the Department of Landscape Gardening in the University of Illinois, the largest in the United States, gives instruction to sixty-two students.

NOTICES OF BOOKS.

"MY GROWING GARDEN."

This volume might well be on the bookshelf of every lover of a garden, but it ought to be read first. It is an exceedingly well-written account of a city man's efforts in turning an old two acre much-neglected garden into one after his own taste. The style reminds one of Nathaniel Hawthorn.

The book is in the form of monthly chapters, and is exceedingly well illustrated. Obiter dicta like the following are scattered throughout:—"Then Burbank has not done much that is of any real use to any climate outside California, and the spectacular seems to appeal to him much more strongly than the useful." The first portion of that sentence we have long thought to be true. Haven't we tried in Britain Burbank's Lilies, Potatoes, Daisies, and other things, and found them all wanting?

This garden is the garden of a man of moderate means, and therefore he says: "To hurry our sight of flowers in spring we have placed a modest cold frame in a sheltered spot, where in these sunny February days we get a glimpse now and then of a Violet, and see the readiness to grow of the Pansies, Campanulas, Foxgloves, and other carried-over perennials. We have been anticipating Spring, too, by cutting some twigs off the great old Forsythia bushes, which after two or three days in the water-filled vases and in a dark place, and two weeks more in whatever sunshine we have—yet in vases—are shaking their golden bells for us, just as brightly as their outdoor sister twigs will do in mid-April."

The writer, who is a printer by profession, has several interesting pages on catalogues. Though he writes in one place of "Catalogue humbugs," on the whole he justifies the catalogue makers, and also the seed-growers who scientifically work for improved strains of vegetables and flowers.

Every amateur gardener can learn much from the writer's dissertations on "muck heaps" and "green manuring." He speaks of his muck heap being the receptacle of all sorts of soft leafy refuse and animal excrement, which in two or three years resolved itself into beautiful black humus, which was easily screened, and became "the finest of all fertilisers."

Green manuring, of which we British gardeners take too little advantage, is thus graphically described:—"One bit of yellow-red shale grading, as uncompromising for growth as the side of a rock, has in three years been made into quite respectable soil by alternating crops of Sand-vetch and Rye with coatings of manure and crops of vegetables." A little later the writer tells us that the vetch alone is better than Rye, as "it gathers from the air the expensive and essential nitrogen, storing it in little nodules on the roots."

A sound practical hint is conveyed in the following:—"I have found that Gradus Peas sown the last days of March, in soil that had not felt the warming touch of the sun to any depth, hardly kept pace with those put into more cheerful ground some days later. It is the same with Sweet Peas."

The author has a sensible preference for native trees and shrubs, and most wisely goes to the Arnold Arboretum—the most perfectly organised educational museum in the world—to study the best trees and shrubs from other climes, and find out those which will associate and do well alongside the native ones. How would our amateur gardener in this country like to prepare thus for tree planting? "A hole 2 feet deep was dug, and at its bottom a crowbar was driven another 2 feet. Into this 4 feet depth was slipped a stick of 40 per cent. dynamite. After the thorough tamping in that followed, the dynamite was exploded, shaking up the subsoil quite thoroughly without bringing much of it to the surface!"

In May a reference is made to Tulips. Long since he gave up the early dwarfs, concentrating on the later sorts. "The Darwins are superb in their stately habit, as well as in their surpassing range of unusual and delightful colours. Bounton d'O: is an egg of yellow on a nodding stem of half a yard, and it is 'some Tulip.'"

Two most sensible references are made to weeds. I quote one:—"My effort has been to kill the weed before it has grown into its second pair of leaves, not only in the interest of a clean place, but because I have seen what constant and persistent stirring of the ground does."

Read this account of a Poppy border:—"An ounce of Shirley Poppy seed 'diluted' with a pint of sifted soil was sowed carefully about the second week in December along an 80-foot border. In May there was an hour of weeding, an hour of thinning, and in mid-June came days of Poppy glory, with flowers of red and pink and white and salmon, all of the texture one might expect to find in a fairy's wing. Very early in the morning, before the sun was high enough to steam off the dewdrops, this border, with every flower fresh open, was something to thank God for." Mr. McFarland must remember also to thank the Rev. W. Wilks in future.

Vegetable growing, also fruit culture, are copiously written about. The only crop which the writer absolutely failed to make successful was Potatoes. He now lets someone else grow these for him, allowing them to do "the spraying and the bugging." The spraying of fruit trees is most practically written about, and the illustrations showing the right and the wrong time to spray are excellent. How to succeed with Pansies—"let me say to any gardener growing Pansies that prosperity in bloom and much good manure go together," and may I, as an old Pansy grower, add, early planting. There are other samples of the interesting things contained in this most readable book, which I have enjoyed from cover to cover. I feel rather sorry for the author. His big Maple "shades most satisfactorily a place where visitors may sit in comfort to look over the garden (visitors only; the 'boss' has never time to sit in comfort in *this* garden!)." Poor boss! To me a garden would not be a garden if I could not sit down every summer evening and enjoy a pipe under mine own Vine and Fig-tree. W. Cuthbertson.

FRUIT REGISTER.

PLUM DENBIGH.

THIS Plum, which is also known as Cox's Emperor and Cambria, is not so extensively known as it should be. By some it is only regarded as a cooking variety, and it is so described in Hogg's *Fruit Manual*, but if the fruits are allowed to hang until they are well ripened they are suitable for dessert. The fruit is between large and medium size, round, of a dull red colour, with a pretty wax bloom. The skin is rather delicate, compared with some varieties, but I have not seen it split in damp weather. The flesh is firm and succulent, of a rich yellow, but until the fruit is quite ripe it clings to the stone. The tree is a strong grower and stands well as a bush, or it will do on an east wall. Very good trees may be seen in North Wales in exposed places, and I am led to believe that the variety comes nearly true from seeds. It grows well and fruits freely where many Plums would not be likely to succeed.

On wall trees the leaves partly curl over the fruit, so that at a distance of a few yards no fruit can be seen. This, I think, may explain partly why cracking does not occur, as the leaves keep the fruit dry. I find it is a natural protection against birds to some extent, and even wasps pass the fruit for a time. A. D. T., *Pwllheli, N. Wales.*

PUBLICATIONS RECEIVED.—*Fruit-Growing for Amateurs.* By H. H. Thomas and J. Gardner. Price 1s. (Cassell & Co.)



The Week's Work.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

DENDROBIUM.—Plants of *Dendrobium thyrsiflorum*, D. *densiflorum*, and D. *suavissimum* that have completed their season's growth may be removed to a cooler and more airy house, and rested. They will need only sufficient water to prevent the pseudo-bulbs from shrivelling, but will enjoy all the sunlight available. A few plants belonging to this group may have started into growth for a second time, but if they are arranged in the warmest house the pseudo-bulbs will soon attain to a moderate size. When the terminal leaf is noticed the plants should be gradually accustomed to cooler treatment, and placed finally with the main batch.

SHADING.—All the permanent shading and blinds that have been tacked on the roofs may be removed, and where the glass has been clouded it should be washed clean again. The roof blinds should be allowed to remain on for a few weeks, as they may be required for an hour or so during the middle of bright days; they may especially be needed on the cool houses, unless they face due north. *Masdevallia*, *Odontoglossum*, *Odonotoda*, and *Phalaenopsis* need more shade than *Cattleyas*. The Mexican *Laelias*, which are producing their flower-spikes, will be benefited by all the sunlight available.

TEMPERATURES.—October is one of the most critical months for the Orchid-grower, the weather being usually cold and damp, and it often follows a warm September. But if proper attention is paid to the fires and damping down, trouble will be obviated. Prevent sudden fluctuations in the temperature, especially when the atmosphere is heavily charged with moisture, and when the plants have been recently watered. Never water the plants when the temperature is falling, and do not damp the house until the normal temperature is attained.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

WATERING AND SYRINGING.—Greater care must be exercised in watering plants under glass as the season advances. Only in the warmer houses should syringing be practised, and the amount should be curtailed, especially in the afternoons. By reason of a forced economy in fuel the temperatures in nearly all houses are lower than normal, and in these circumstances the plants do not require nearly so much water either at the roots or in the atmosphere.

BEGONIA GLOIRE DE LORRAINE.—Some of the plants of *Begonia Gloire de Lorraine* may be allowed to develop their flowers, but the blooms of others should be removed for the present. Attend to the tying of the shoots regularly to keep the plants in good shape. It is a mistake to grow this *Begonia* in a very warm house, for much heat not only causes the plants to grow weak and spindly, but the colour of the flowers is inferior. Admit air on all favourable occasions and keep the atmosphere drier than formerly.

CAMPANULA PYRAMIDALIS.—Repot young plants of *Campanula pyramidalis* when they are sufficiently rooted. Next season's flowering plants may also be shifted into their flowering pots and plunged in a bed of ashes in a cold frame. Water the roots with extra care in autumn and winter. Place the lights on the frames during very wet weather. This *Campanula* will not stand coddling, but requires an abundance of fresh air whenever the weather permits; remove the lights entirely in fine weather.

PRIMULA.—The late *Primula* plants should be ready for their final potting. Five-inch pots are large enough for ordinary purposes, but if very large specimens are required 6-inch

pots may be used. Grow them in a position near to the roof-glass in a light house or pit, and use a little fire-heat on cold nights. The earliest plants should be given a little stimulant.

CLIMBERS IN THE CONSERVATORY.—Climbers in greenhouses and conservatories should be overhauled thoroughly before the winter arrives. In some cases the pruning or thinning of the shoots may be done now, which will be an advantage to other plants growing beneath them. Such strong growing plants as *Cobaea*, *Tacsonia*, and *Passiflora*, which make an abundance of growth during the summer months, may be trimmed severely. All the old flowering growths of *Bougainvillea* should be cut hard back. Remove useless shoots entirely from climbing *Roses*. Before filling the house with plants for the winter wash the glass, both inside and out, and remove all temporary shading.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

SWEET PEAS.—It is not too late to make a final sowing of Sweet Peas to obtain plants for flowering early next year, but only in favourable districts is the autumn sowing of this annual to be recommended. The safest and surest method is to raise the plants in cold frames, or on shelves near the roof-glass in late fruit houses. Sow the seed in pots, boxes, or dibbled in turves. Admit air whenever it is possible, to encourage a sturdy growth.

DAHLIAS.—The Dahlia plants will require a considerable amount of attention during the next few weeks. Remove all dead and decaying flowers, and cut off useless or damaged shoots. Give prompt attention to the renewal of broken stakes and the tying of the shoots secure against high winds. Examine and replace labels that need renewal before the names become obliterated by autumn rains. Make notes of varieties that are to be increased or discarded. If convenient to do so, prepare mats or tiffany for suspending over the plants on long stakes, when there is danger from frost. It sometimes happens that a few degrees frost on one night destroys the plants, and fine weather obtains afterwards for several weeks.

PITS AND FRAMES.—Admit air to cuttings in pits and frames directly they are rooted, for in a close atmosphere they would grow weak and tender, and eventually damp off. *Pelargoniums* that are rooted in boxes should be placed in frames or houses, near the roof-glass, and air admitted on all favourable occasions. Pick off dead leaves and all flowers. Lift the best of the old plants from the beds, place them in boxes or pots, and shorten the shoots considerably. These old plants will make suitable specimens for placing in vases and the centres of beds. They will also be valuable for stock purposes. Pinch out the tips of the shoots of *Coleus*, *Verbena*, and similar plants where necessary. Watering must be done with care. If *Verbenas* or *Iresines* are found to be infested by aphid, fumigate or syringe them with an insecticide. If there is a shortage in the stock of any variety through failures or otherwise, propagate more without delay.

CLIMBERS AND WALL PLANTS.—The final thinning and tying of the shoots of most wall plants and climbers should be concluded. Thin freely, retaining only sufficient shoots to fill the space. If the borders are dry, water the soil freely. Make notes of any plants it is intended to remove. A few wall plants that give a bright and cheerful effect during autumn and winter are *Cotoneaster frigidula*, *C. Simonsii*, *C. microphylla*, *Crataegus*, *Pyracantha Lalandii*, *Escalonia macrantha*, and *Garrya elliptica*.

ASTRANTIA.—The Masterwort has a splendid habit of growth, and thrives in any soil or aspect. *A. major* has pinkish bluish flowers, and is the best of the genus; *A. carnolica* has greenish-white blooms, which are not very showy, but they always attract attention. The plant grows rapidly, and the present is the best time to lift, part and replant it. Other subjects, such as *Doronicums*, *Pyrethrums*, *Chelone*, *Iris*, and

Trollius may be lifted and divided now. Cultivate the soil thoroughly, adding a liberal amount of well-decayed manure. Plant firmly, and water the soil to settle it about the roots.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOE, Eastwell Park, Kent.

PEARS.—The Pear crop in this district is extremely light, the majority of trees not bearing a single fruit. The earlier varieties, including *Williams' Bon Chrétien*, *Jargonelle*, and *Souvenir du Congrès*, were complete failures. It is interesting to note which varieties are cropping this season, in different localities. In nearly every instance with us cordon-trained trees on walls are bearing best, fan-trained and bush trees being generally quite bare of fruit. Cordon trees of *Durondeau* have cropped exceedingly well. This variety is particularly valuable in a season of scarcity, as it is one of the most regular croppers. The fruits are usually of a medium size, and suitable for dessert. Another excellent variety that has cropped well this season is *St. Luke*. The fruit is handsome, with a russet skin; it is a good shape and of first-class flavour, ripening in October. *Charles Ernest* is another good variety that is prominent, cropping well this season; the large, handsome fruits are of good flavour and ripen in the early winter. The tree is of particularly healthy growth, and has a good habit. *Trees of Beurré Bosc* are carrying a fair crop. This practically exhausts the list of varieties bearing well this season. Of other sorts bearing just a sprinkling of fruits are *Michaelmas*, a small Pear of excellent flavour; *Triomphe de Vienne*, *Beurré de Mortillet*, *Marguerite Marillat*, *Marie Louise*, *Louise Bonne of Jersey*, and *Pitmaston Duchesse*.

CULINARY PEARS.—The two best cropped varieties of stewing Pears are *Verulam* and *Vicar of Winkfield*; in both cases they are bush trees. *Uvedale's St. Germain*, on a wall, has a moderate crop, but *Catillac* has none. As suggested in the case of Apples in a previous calendar, where there is room to spare it is advisable to plant a fair number of varieties of Pears, as in seasons of dearth like the present a few are almost sure to bear. The fruits of the latest varieties should be left on the trees for as long as possible, picking off the ripest specimens first, and leaving the remainder for a few days. This method tends to prolong the season of any particular variety. All fruit that has been attacked by birds or wasps, however slightly, should be used forthwith, and not stored with the sound fruit. Pears for keeping should be laid carefully in drawers in the fruit room, and examined at intervals with great care.

SEMI-PRUNING THE TREES.—In the case of trees that have not cropped, all side growths should be cut out, in order that the fruit buds may be fully exposed to the sun. Trees that constantly fail to fruit and are making extra strong growths should be noted for root-pruning, which may be done at once, unless the weather turns more than usually hot.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

ORCHARD HOUSE TREES.—The general stock of these trees may be potted at the first opportunity, as the ripening leaves will assist the trees to make fresh roots before the trees are forced. Let the ball of soil be thoroughly moist before the roots are turned out of the pots. Follow previous directions (see p. 75) as to compost, syringing, and other details. The reducing of the balls of soil of old trees may seem a severe treatment, but it is better to have a medium-sized pot full of roots than a larger one containing too much compost. The fruits of *Pear*, *Plum*, and *Cherry* set best when the roots are pot-bound; they will swell to fine specimens if the trees are top-dressed and fed during their season of growth. Give one good watering, and afterwards keep the soil moderately moist.

TRAINED TREES.—Trained trees in borders are not so easily managed as pot specimens. The wood of the current year may be perfect and develop a fine crop the following season, yet if the roots have gained the lead through neglect of root pruning the young growths will become gross and unmanageable. Much depends on the compost and the kind of stock the trees are worked on, also many difficulties are due to change of management. To ensure good crops for a long number of years, examine the trees at least every other autumn, and shorten all strong roots; trees planted in elevated borders specially need this attention. All stone fruits require a fairly strong loam, enriched with bone meal and lime rubble. If the compost is dry at planting it cannot be made too firm by ramming. When all is finished the border should be watered copiously to settle the soil amongst the roots. Succession trees should be pruned, trained and washed first with an insecticide and then with clear water to prevent the spread of red spider. Make preparations for lifting such trees as need a check of this nature. The planting of young trees, and especially those raised in the garden, may follow the work of root-pruning. These home-grown trees should be prepared for lifting by watering the roots copiously. After replanting another watering is necessary to settle the soil firmly. Trees from the nursery may be planted a little later in the season, but make the selection and give the order to the nurseryman without delay.

POT STRAWBERRIES.—Whilst the weather remains mild the plants will continue to develop leaves, and this fact necessitates keeping those of the earliest batch fully exposed in the open. Select plants with hard, red, single crowns for very early forcing, as they are most likely to respond well to gentle warmth. The general stock of plants should be moved occasionally to prevent the roots from growing through the drainage holes; at the same time the pots may be set a little wider apart. Nothing will be gained by feeding the roots after this date.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

CABBAGES.—Continue to plant Cabbages as the later-sown batches become large enough for transference. Follow the direction for planting given on page 125.

CARROTS.—Early Carrots should be lifted or they will become coarse and poor in flavour. There will also be a danger of the roots splitting if allowed to remain in the soil. Store them in a cool shed in a bed of ashes or sand or in a clamp out-of-doors. The latter method is most suitable if no cool place is available, as Carrots do not keep well in warmth.

AUTUMN DIGGING.—It is too late to sow seeds on vacant sites, but in view of the shortage of labour and possible further depletions of the garden staff, it may be advisable, in many cases, to manure and dig ground that is usually cultivated at a later date. This remark applies to all classes of soils with the exception of heavy, tenacious clays, which consolidate into an impenetrable mass if they are dug in the autumn. In view of this fact it is advisable to ridge tenacious soils, so that they may be again broken down in the spring to expose them to the disintegrating influence of the weather.

LABOUR MANAGEMENT.—The importance of economically distributing garden labour is always great, but at the present time it is highly important to employ foresight and ingenuity in dovetailing duties to prevent wasteful overlapping of labour. The ordinary routine may have to be abandoned to allow of concentration of labour for the accomplishment of pressing duties. For example, all the staff may dig or trench in the forenoon, dry afternoons being devoted to the earthing up of *Celery* while the stems are dry, and any inside work which is not urgent may be conveniently deferred for employing the full staff during inclement weather. It is highly important not to defer until the spring any kitchen garden work that may be accomplished now.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would oblige by delay in obtaining answers to their communications and save us much time and trouble if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 9—

United Hort. Ben. and Prov. Soc. Com. meet.
Nat. Chrys. Soc. Floral Com. meet.

TUESDAY, OCTOBER 10—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)
Hort. Club meet. at 6 p.m.; subject, Recent Explorations on the Tibetan Border, by Mr. Reginald Farrer.

WEDNESDAY, OCTOBER 11—

North of England Hort. Soc. Fruit Show and Conference at Knarborough (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 50.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. Thursday, October 5 (10.0 a.m.); Bar. 29.3°; temp. 65°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY—

English and French Bulbs, by Prothero and Morris, 67 and 68, Cheapside, at 1 o'clock.

TUESDAY AND WEDNESDAY—

Nursery Stock, at Shortlands Nursery, Ash, Surrey, by order of Mr. H. Sleet, at 12 o'clock, by Prothero and Morris.

WEDNESDAY—

English and French Bulbs, at 67 and 68, Cheapside, at 12 and 2 o'clock.

FRIDAY—

English and French Bulbs, at 67 and 68, Cheapside, at 1 o'clock.

The Effects of the
Somme Battles
on the Soil of
Picardy.

Sir William Matthews, in the course of a graphic account of the state of the ground in Picardy which has been recently recovered as the result of the Allies' offensive, makes the serious observation that the thin layer of marl which constitutes the surface soil of that district has in large measure disappeared as the result of artillery fire, mining and other operations of war. So churned up are the soil and subsoil that when once again levelled the surface will consist mainly of chalk. It is certain that with this state of affairs confronting them the peasantry and farmers returning to their homes will be faced with a terribly serious problem. The cost of levelling and creating once again a fertile soil will be undoubtedly beyond the resources of the peasant proprietors and farmers. Sir William suggests that the work of levelling might be undertaken by prisoners of war, and the cost reckoned as military outlay. For our part, we have no doubt that the French cultivators will be able, with such or similar assistance from the State, to

restore their land to its previous state of fertility. Nevertheless, we fear that it will be a slow process, for a natural soil is of slow growth, and to hasten the formation of a surface soil must prove inevitably a costly operation. We are not aware of the existence of any recorded experience of reclamation of this type. For reclamation of peat moors there is now a well-understood routine, but the conversion of the naked chalk into a marl must require very different methods. It is possible, of course, that after levelling and cultivating, the ground lime-loving plants may prove efficient agents of reclamation—or, rather, of soil reconstruction. Of one thing we may be sure: that if any people can discover a rapid way of rebuilding their devastated soil that people is the French. Of this also we may be certain: that if the British people can help in any way in this work that help will be forthcoming, and in no unstinted measure.

We may be sure, moreover, that the necessity to bring the land devastated by bombardment once again into cultivation will be the occasion for the introduction of many improvements in what may be called the more economic reconstruction of the countryside. Of such reconstruction the French have had practical experience in Lorraine in the days when Lorraine was French. In such work of reconstruction re-parcelling of the land is an important item. As those know who have travelled in France, the law of morcellage—of dividing lands among the members of the family—often results in an uneconomical parcelling out of the fields. So that, instead of a compact holding, a proprietor may possess scattered and separated fields. Consolidation could hardly fail to be difficult in normal times, but in the present tragic circumstances the State or Communal authority should be able to carry it out without undue opposition on the part of the proprietors. An interesting account* of such a re-parcelling of the land shows how many improvements may be introduced thereby; thus boundary suits are avoided, the cultivators save in time and in cost of working, and better and more direct roads can be made in lieu of the winding and often ill-kept lanes and tracks which lead from field to field and from farm to farm.

An Analytical
Key of Pears.

Not long ago Mr. E. A. Bunyard, in the course of a lecture before the Royal Horticultural Society, drew attention to the importance of the classification of cultivated fruits. He described the various systems of classification which had been proposed, and came, if we remember rightly, to the conclusion that there was room for further improvements in these classifications.

The most recent attempt to classify Pears is described by M. Gabriel Luizet, the president of the Pomological Society of France, who has written a summary of the classification proposed and elaborated by M. Chasset. The work of M. Chasset is

the more interesting in that it has been completed whilst the author was on active service at the front, in the Hautes-Vosges—"carried out in the calm of the forests—a calm, alas! often broken by fusillade and cannonade." The object which M. Chasset has in view is the all-important one of providing a key to the identification of any given variety of Pear. That he appears to have succeeded in that object is clear from the fact recorded by M. G. Luizet that, when tested on a large number of varieties, the key enabled a small commission to name each of a large number of varieties rapidly and with certainty.

Briefly summarised, the classification is as follows:—

The first character chosen is the ratio of height to width of fruit.

Four categories are defined.

1. Fruit as broad as high.

2. Breadth greater than height.

3. Height one-tenth, two-tenths, three-tenths and four-tenths greater than breadth.

4. Height upwards of four-tenths greater than breadth.

The first and second categories are subdivided according to shape: spheriform, turbiniform (short), doliform (short), cydoniform (short), maliform, turbiniform (flat). Each sub-group is illustrated by a figure.

The third category is divided into doliform, ovoid, turbiniform, turbiniform truncated, pyriform truncated, cydoniform.

The fourth into pyriform long, calabash form, and oblong.

The next sub-division is based on time of maturity, of which there are twenty-one epochs—June, June-July, July, July-August, August, August-September, etc.

The Pears which fall into one or other of these epochs are arranged in a table and grouped according to the colour of their skins as it appears at gathering or shortly afterwards, but not at maturity, for when ripe the yellow colour predominates, and it is not possible to define the tint exactly.

Further sub-division is based on the character of the stalk, long, medium or short; on its consistency, fleshy or not fleshy at the base; its position, straight, oblique, or curved. Next comes the character of the flesh; colour, white, yellowish, greenish, pinkish; and the flavour, sugary, acid, "vinouse," musk-flavoured, sharp. In those cases in which constant and known variations occur the variety is entered in more than one place. M. Chasset has included in his five volumes all the Pears recognised by the Pomological Congress of France, by the National Horticultural Society, communicated by M. Abel Chatenay, as well as varieties communicated by M. Pinquet-Guindon, M. Lucien Charles Baltet and M. Viand-Bruant.

We hope that when the war is over this great work, carried out with such devotion and assiduity by M. Chasset, may be examined by the Fruit Committee of the Royal Horticultural Society with a view to its adoption in this country.

* The International Review of Agricultural Economics.

BRITISH GARDENERS' ASSOCIATION.—In connection with the Red Cross Fruit Show and Conference to be held at Knaresborough next week, a public meeting of the British Gardeners' Association will take place in the Rural Secondary School, Knaresborough, on Tuesday, the 10th inst., at 7 p.m. Mr. C. W. H. GREAVES will preside, and the speakers will include the Rev. J. BERNARD HALL and Mr. CYRIL BARRING.

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY.—The Council of this society inform us that it is impracticable to hold an autumn show this year. Although some exhibitors kindly offered to show without taking prizes, many others are unable to do so, through themselves or their assistants being called up; this fact, combined with the impossibility of obtaining a suitable hall in a convenient position, has compelled the Council to abandon the show.

SCOTTISH VETERANS' GARDEN CITY ASSOCIATION.—The Countess of WEMYSS laid the

foundation-stone of the first cottages in the new settlement of the Scottish Veterans' Garden City scheme at Longniddry on the 23rd ult. Towards this settlement upwards of £19,000 has been secured, and the Earl of WEMYSS, from whom the site of six acres has been obtained, will not charge any feu duty for the first five years.

the nation for afforestation, and evinced the keenest interest in the scheme. On Mr. TENNANT's own recently acquired estate in Edinglassie, Aberdeenshire, large areas have been put under trees, and, like many more landed proprietors in the North, he is cutting down, for Government and industrial purposes, big stretches of ripe timber, all with the view of replanting when the proper time comes. Edinglassie is situated some seventeen or eighteen miles from a railway station, in the wilds of beautiful Strathdon, Aberdeenshire. The view around the mansion is picturesque in the extreme, and typically Highland.

R.H.S. RED CROSS SALE.—The sum of £2,000 has been handed over to the Red Cross Society and Order of St. John as part proceeds of the sale of plants held by the Royal Horticultural Society in June last. The secretary regrets that it is not yet possible to hand over the balance or to publish a statement of accounts

off all the live stock, but that he cannot permanently damage the soil. In this case a large proportion of the surface soil has simply disappeared, partly by the trenching of the Germans, partly by the action of high-explosive shells, and the mining of our own army. It appeared to be a curious mixture of a thin chalky-clay, with pure chalk underneath, interspersed with a loam over gravel. It does not seem to me to be commercially feasible to reclaim this area. The cost of levelling it would be considerable, though not excessive per acre over the whole area. But when levelled the top soil will be gone. It will take a generation at least to get sufficient cover on the chalk to carry vegetation; a century to make it of any appreciable value. How large this area may be it is impossible to say. The trenches, shell-holes, and mine craters, and general upheaval, affect the whole surface several miles from our observation point, but if the soil is deeper the damage will be of a less permanent

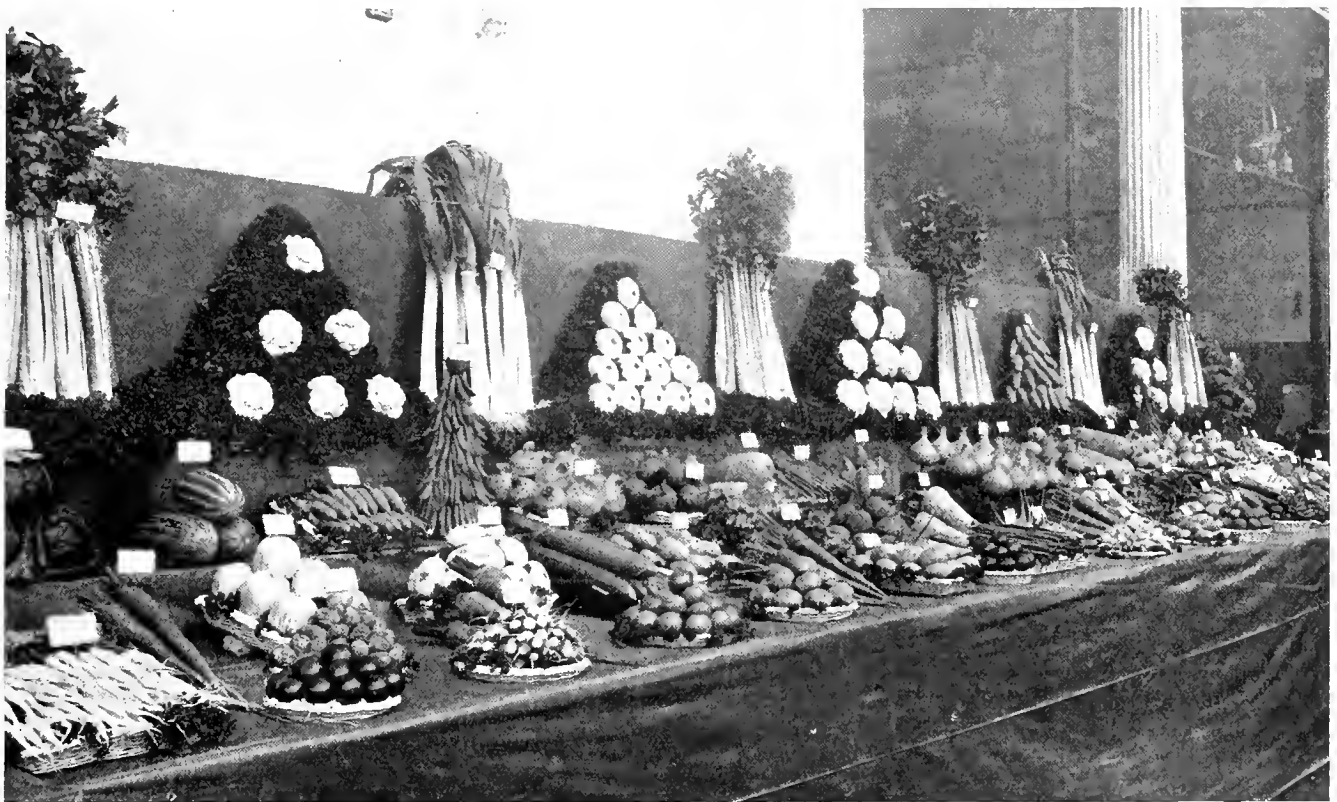


FIG. 68.—COLLECTION OF VEGETABLES EXHIBITED BY MESSRS. EDWARD WEBB AND SONS ON THE 26TH ULT., AND AWARDED THE R.H.S. GOLD MEDAL. (See report of exhibition in last issue, p. 164.)

owing to certain small balances yet to be received from purchasers.

POTATO PRICES IN SCOTLAND.—At a recent sale by auction in the Crieff district of Perthshire, £89 per acre was realised for the crop of Arran Chief, grown by Mr. W. A. DRON, of Midrieftvechter. Until then the highest price obtained was £81 per acre in Ayrshire. Other lots brought from £20 to £62 per acre.

THE SCOTTISH SECRETARY AND AFFORESTATION.—Great expectations are being entertained by those interested in afforestation in Scotland by the keen interest manifested in the subject by the Right Hon. H. J. TENNANT, the Secretary for Scotland. He recently visited the land which the Duke of SUTHERLAND has presented to

WAR ITEMS.—Dominion agricultural representatives, who recently visited the farming lands near the battle area of France, have returned much impressed by the enormous damage caused to the agricultural areas on the Somme and in Champagne. In a report to the Agricultural Relief of the Allies Committee, Sir HERBERT MATTHEWS, who accompanied the deputation, says that in the area in which the battle of the Marne was fought one is struck by the efforts that have been made either to rebuild or erect temporary shelter for farm stock, or barns for storing the crops. Through the courtesy of the British Embassy, the deputation obtained permission to visit the site of the fighting which began on July 1 last. Sir HERBERT MATTHEWS says:—"The condition of this area is difficult to describe. It has been said that an enemy army may wreck every house and building, burn all the crops, and drive

character. There is everywhere a very serious shortage of labour. The French Government have liberated some of their soldiers, but, as in England, it is largely a matter of the local C.O. as to whether they are really available. Some let troops go for this purpose, while others refuse. We saw women working binders. Many were at harvest work, doing jobs usually done by men. A lot of corn was still out, and a good deal still uncut, though dead ripe and black in the straw."

—Second Lieutenant (now promoted Captain) ERNEST GILBERT TURNER has received the D.S.O. award for conspicuous gallantry during operations. By a combined bombing operation with another platoon he cut off and captured 63 of the enemy. Two days later he did fine and gallant work during an attack, and afterwards returned under close machine gun fire and rescued wounded men. On the outbreak of the war Captain TURNER, D.S.O., who is a native of Edinburgh, and had

been a private in the 9th Royal Scots (Dandy Ninth, Territorials), at once rejoined his old regiment, and afterwards got his commission. Captain TURNER was in the seed trade, and at the time he rejoined was with Messrs. R. B. LAIRD, DICKSON AND SONS, LTD., Edinburgh.

—Second Lieutenant WILLIAM HUMPHRIES, Royal Sussex Regiment, only son of Mr. W. E. HUMPHRIES, gardener at Blendon Hall, near Bexley, Kent, was killed in action on the 9th ult. He was educated at Dartford Grammar School, went to Sandhurst in May, 1915, passed in November, and duly obtained his commission. Leaving England with his regiment on August 28, he was sent into the trenches on September 3, and his fall in the cause of duty within only a week of his reaching the battle front adds to the poignancy of the sorrow at his death.

—Private A. BROTHERSTON, son of Mr. R. P. BROTHERSTON, Tynninghame, East Lothian, has been awarded the Military Medal for great bravery on July 1, when he acted as guide to his company through a heavy barrage of shell fire. Prior to enlisting he was employed as foreman in the gardens at Tynninghame. Another young gardener who left Tynninghame at the beginning of the war, Private A. TAYLOR, lost his life in the same engagement.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CLUBBING IN BRASSICAS (see p. 144).—The only way in which I could grow Brussels Sprouts in a garden I had charge of was by making shallow trenches as for Celery, 2 feet 8 inches distant, and placing sufficient soil on the manure to plant in, so that the roots did not come in contact with the manure at the outset. The trenches were filled with soil when the plants were large enough for this to be done. Cauliflower plants turned out of pots were grown between the Sprouts, and were usually ready for cutting in time for earthing up the Sprouts, which root up the stem and below into the manure. The result was plants 2 feet 6 inches high, requiring some strength to pull up. I am in favour of puddling the roots with soot, lime and soil, as practised by A. N.'s gardener, but my Brussels Sprouts were lifted with balls of soil out of a frame and planted with a trowel. I never noticed frame-grown plants of these and Cauliflowers with club, but I have seen the disease in seed beds in the open, so that it is always advisable to examine the roots of each plant. W. P. R.

AN UPRIGHT-FLOWERED FUCHSIA.—The variety Von Novelty, referred to in your notes on "Aldenham in Late Summer," might, so far as age is concerned, have been included among the old varieties mentioned by me on page 140. It is many years ago—I should say, twenty-five at least—that I first met with it in Messrs. H. Cannell and Sons' nursery at Swanley. I understood then that it was a variety of German origin, though the name then applied to it—Erecta Von Novelty—was, to say the least, a nondescript one. It was impossible not to be struck with the distinct character of this variety, but owing to its stiff growth and erect blossoms it was wanting altogether in the grace and elegance which characterises most of the garden varieties of Fuchsia. Another distinct variety, some of the blossoms of which are at times borne in a semi-erect position, is Countess of Aberdeen. Grown in a shaded greenhouse, the flowers of this Fuchsia are almost self-white, though when fully exposed to sun and air they have a reddish suffusion. I have often tried to obtain seed of this distinct sort, but though the fruits obtained a fair size and apparently ripened, they never contained fertile seed. This experience is also shared by other raisers with whom I have consulted on the subject. W. T.

NEED FOR A SMALL MOTOR CULTIVATOR (see pp. 73, 139).—If practical men such as your correspondents *Down South* and *Southern Grower* could take up this matter along with a maker of agricultural implements, and put

together a useful and dependable tool at a moderate price, they would be doing a considerable service to the country. The benefits from the use of such an implement would be very great at the present time, and, indeed, at any time. *Up North*.

THE CARROT FLY.—In a garden under my charge, after a few years' trial in various situations, I failed to grow Carrots of any value in the ordinary way, the soil being stiff and sticky, with clay below. I made a trench the width and depth of the spade, wheeled part of the excavated soil into the refuse yard, where for most of the year I had a smother fire, and burnt it. The fire was kept going by sprinkling fine slack over the heap when necessary, the burnt material being drawn out at the bottom as it was needed. A layer of manure was placed in the trench, and on that was placed the remainder of the soil, burnt material from the yard, and some red sand, the whole being turned over twice to the manure. When finished the level was 3 inches above the surrounding ground, to allow for sinking. Short Carrots and a few of James's Intermediate were sown, and the result could not have been better. The following year I prepared another bed in the same way, and in this grew good Carrots for twenty years. The contents of the bed, including the manure, were thrown out annually. As soon as the Carrots were lifted fresh manure was added; the last two seasons peat moss was substituted for ordinary stable manure. I nearly lost one crop by an attack of fly. I noticed some plants flagging, and I pulled one up to examine it; the roots appeared all right, but fly was present on the midrib. Spraying with paraffin mixture three nights in succession destroyed the pest. In subsequent seasons I made a practice of examining the plants frequently. In order to detect the fly I had to go on my knees, as it much resembles the leaf in colour. Perhaps A. N. will experiment in this matter on a small scale and record his results. W. P. R., *Holywell, N. Wales*.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

SEPTEMBER 26.—*Present*: Mr. E. A. Bowles, M.A. (in the chair), Messrs. W. C. Worsdell, E. M. Holmes, J. Fraser, G. Wilson and F. J. Clittenden (*hon sec.*).

Polyporus betulinus.—Mr. Fraser showed a large specimen of *Polyporus betulinus* from a Birch tree measuring 8½ inches in diameter.

Lobed-leaved Pear.—He also showed three-lobed leaves of Pear from a shoot springing from a cut-back branch, and a twin fruit of Victoria Plum with two separate stones.

Proliferation in Dianthus barbatus.—Mr. Worsdell showed a curious case of proliferation in the Sweet William from Mr. Miller Christy's garden, in which, after flowering, shoots had developed from the bracts just below the flower.

Carpelody of anthers in Papaver orientale.—Mr. Bowles showed an example of *Papaver orientale* from Mr. Sidney Morris' garden in which a very large number of the stamens had become transformed into carpels and were tightly packed around the ovary. He also showed, from the same garden, shoots of seedlings from *Laburnum Vossii* in which the leaves had a remarkably curled appearance due to the failure of the midrib to elongate normally while the lamina had developed to the usual extent.

Peronospora grisea on Veronica Hulkeana.—Mr. Bowles also showed, from the same source, shoots of *Veronica Hulkeana* attacked by *Peronospora grisea*, a fungus common on wild *Veronicas* in this country. Spraying with Bordeaux mixture or Burgundy mixture would probably check the spread of this trouble, but affected parts in which the resting spores are produced should also be burned.

Apple Sporting.—Mr. E. A. Bunyard showed two forms of Apple from a standard tree of Royal Jubilee, one normal, the other russeted and a little smaller. The leaves on the shoots bearing these forms respectively were similar to one another, and the flavour of the two forms was approximately the same.

Exhibition of British-Grown Fruits.

OCTOBER 3, 4.—The Royal Horticultural Society is to be congratulated on the splendid success which has attended both its special vegetable and fruit shows this autumn. The fruit show, which was held on Tuesday and Wednesday last in the Vincent Square Hall, Westminster, was the twentieth of the series, and in quality was equal to the best of former years, but a little smaller than some. Never in the history of these shows have Grapes been exhibited better or more numerous, nor have there been finer collections of choice dessert fruits. Although we missed the exhibits of some important nurserymen, trade collections of Apples and Pears were of a high standard of merit, and there were fine exhibits of these fruits from amateurs. The single dish classes attracted a fair number of competitors, but the county classes, which seem to show a decrease in the number of exhibits each succeeding season, were but poorly represented. Messrs. GASKAIN AND WHITING are to be congratulated for their outstanding exhibit of Apples in the market growers' classes, and Mr. MULLINS on his fine win in the champion Grape class.

DIVISION I.

FRUITS GROWN UNDER GLASS.

OPEN TO GARDENERS AND AMATEURS ONLY.

There were three exhibits in a class for a collection of 9 dishes of ripe dessert fruit to include 6 kinds. The 1st prize was won by Lord SOMERS, Eastnor Castle, Herefordshire (gr. Mr. G. Mullins), for a magnificent exhibit tastefully decorated with coloured sprays of Ampelopsis. The Grapes were small, compact bunches of Muscat of Alexandria, of superb finish, and shapely bunches of Black Hamburg with large, Sloe-black berries. The fruits of Doyenné du Comice Pears were splendid, and there were good dishes of Marguerite Marillat Pears, highly coloured Rival Apples, Humboldt Nectarines, Barrington and Sea Eagle Peaches, and a Melon; 2nd, The Duke of NEWCASTLE, Clumber, Worksop (gr. Mr. S. Barker); 3rd, C. A. CAIN, Esq., The Node, Welwyn (gr. T. Pateman).

For a collection of 6 kinds there were five entries, and the 1st prize was awarded to Lord HILLINGDON, Wilderness, Sevenoaks (gr. Mr. J. Shelton). The bunches of Muscat of Alexandria Grapes were large and shapely, with fine berries. Peaches (of the Lord Palmerston variety) were of exceptional quality, betokened by the rich golden-orange colour suffused with red; Chas. Ross Apples, Triomphe de Vienne Pears, Madresfield Court Grapes, and the Hero of Lockinge Melon completed the collection; 2nd, J. LIDDELL, Esq., Sherfield Manor, Basingstoke (gr. Mr. R. Learmouth); 3rd, F. R. RODD, Esq., Lauceston (gr. Mr. F. A. Billings).

GRAPE.

The largest class for Grapes called for a collection of 6 kinds, distinct, 2 bunches of each. This was a splendid competition amongst six, the quality being high for these shows. The 1st prize was won by the Duke of NEWCASTLE, Clumber, Worksop (gr. Mr. S. Barker). A bunch of Gros Colmar was exceptionally fine, and on either side of it was another of Muscat of Alexandria, a well-shouldered, solid bunch of perfectly finished berries, and the paler Chasselas Napoleon of equally good quality. The others—Black Hamburg, Buckland Sweetwater and Madresfield Court—were up to the best exhibition standard; 2nd, G. MILLEB, Esq., Newberry, Padlett (gr. Mr. J. Kidd); W. MACKAY, Esq., Ascot, Bute (gr. Mr. D. Halliday), had splendid bunches of black varieties, of which Appley Towers, Madresfield Court, Mrs. Pince and Black Hamburg may be specially instanced, but as he only included one white variety he was disqualified. A special prize was awarded by the Council.

For 4 varieties selected from a list enumerated in the schedule only one exhibit was forthcoming; it was shown by Lord HILLINGDON (gr. Mr. J. Shelton), and was awarded the 1st prize.

Black Hamburg.—The best exhibit of two bunches amongst eight of this popular variety was shown by Lord HILLINGDON, whose large bunches, with deep-black berries, were the best

shaped and matched; 2nd, Lord SAVILE, who followed closely.

Mrs. Pince.—Lord HILLINGDON was again successful, his bunches being models of this fine black Muscat variety, perfectly matched, and with berries carrying a fine bloom; 2nd, W. MACKAY, Esq. (gr. Mr. D. Halliday).

Black Alicante.—The 1st prize for this variety was won by Mrs. W. RAPHAEL, Englefield Green (gr. Mr. H. Brown), whose bunches were the most shapely and had the largest berries; 2nd, Exors. of the late J. BRUNTON, Esq., Stourport (gr. Mr. W. H. Wilson), for big bunches with large shoulders.

Madresfield Court.—There were seven entries for this popular late variety, and Lord HILLINGDON excelled with bunches of moderate size composed of large, finely finished berries; 2nd, the Duke of NEWCASTLE (gr. Mr. S. Barker).

Prince of Wales.—The largest bunches of this variety were shown by G. MAYER, Esq., Woldingham, Surrey (gr. Mr. T. Newman), and those with the biggest berries by Lord SAVILE, Rufford Abbey, Ollerton (gr. Mr. J. Doe), to whom the 1st and 2nd prizes were awarded respectively.

Any Other Black Grape.—The 1st prize for any other black Grape was awarded to the variety Muscat Hamburg, shown by the Duke of NEWCASTLE.

Muscat of Alexandria.—The 1st prize in this class was won by the Duke of NEWCASTLE, for excellence of finish and general high quality. The 2nd prize was won by Lord SOMERS, Eastnor Castle, Herefordshire (gr. Mr. G. Mullins), who also scored for high finish. Very large and excellently shaped bunches were shown by C. W. MANN, Esq., Bexley (gr. Mr. J. Simon).

Any Other White Grape.—The 1st prize was awarded to Canon Hall Muscat, shown by the Duke of NEWCASTLE.

COLLECTION OF HARDY FRUIT.

The "Cain" Silver Cup was offered for the best exhibit of hardy fruits on a table space of 12 feet by 3 feet. Thirty dishes were required to include not more than 12 varieties of Apples or 8 sorts of Pears. Two excellent collections were staged, Lord SOMERS (gr. Mr. Mullins) winning in splendid form; his Gascoyne's Scarlet, Houblon, Chas. Ross, and Washington Apples being of grand quality. Excellent Pears were shown in Durondeau, Souvenir du Congrès and Triomphe de Vienne, Hambling's Seedling, Rev. W. Wilks and Peasgood's Nonesuch culinary Apples were of exceptional size. There were also Figs, Morello Cherries, Nectarines, Plums and Peaches; 2nd, Major POWELL COTTON, Birchington, Kent (gr. Mr. J. Cornford).

DIVISION II.

NURSERYMEN'S CLASSES.

This section included three classes for collections and one for orchard house fruit. The largest class for fruits grown in the open called for an exhibit occupying 30 feet run by 6 feet of tabling, and it attracted two exhibitors. The finer exhibit was staged by Messrs. H. CANNELL AND SONS, Eynsford, who were awarded a Gold Medal. It was a fine display of Apples and Pears, to which a row of small Cocos Palms along the centre served as foils. The most prominent variety was Apple Peasgood's Nonesuch, which was given place of honour in the centre. There were fifty fruits of this variety each not less than 1 lb. in weight. Other Apples shown especially well were James Grieve, Warner's King, Reinette du Canada, Bramley's Seedling, The Queen, Grenadier, Alfriston, Dumelow's Seedling (Wellington), Bismarck and Norfolk Beauty amongst culinary sorts, and Winter Ribston, Claygate Pearmain, Galloway Pippin, Golden Russet, Cornish Aromatic, Cox's Orange Pippin, Worcester Pearmain and Hereford Pearmain amongst dessert sorts. The exhibit included Pears and Plums; 2nd, Messrs. W. SEAROOK AND SONS, Chelmsford, who were awarded a Silver-gilt Knightian Medal.

For a collection occupying a space of 20 feet by 6 feet of tabling four competed, and the 1st prize was well won by Messrs. J. CHEAL AND SONS, Crawley, with highly coloured, clean fruits of principally Apples and Pears, attractively staged (Hogg Memorial Medal); 2nd, Messrs. LAXTON BROS., Bedford (Silver-gilt Knightian

Medal); 3rd, Messrs. G. SPOONER AND SONS, Hounslow (Silver Knightian Medal).

Mr. EDWARD PARSONS, Worcester, was the only exhibitor in the class for a collection occupying a space of 12 feet by 6 feet, and was awarded the 1st prize—a Silver Knightian Medal. He showed Apple Madresfield Court finely and a reputed hybrid between the Black Currant and Gooseberry named Worcester Berry. The shoots of this new fruit are spiny, with leaves like the Gooseberry, but the fruit is in bunches of twos and threes, black, with a mild flavour of Black Currant.

The only exhibit in a class for a collection of fruit grown in orchard houses and trees in pots was shown by Messrs. T. RIVERS AND SON, Sawbridge-worth, and it was awarded a Silver-gilt Knightian Medal. The gathered fruits were of superb quality. Probably the best feature were numerous trees of Cox's Orange Pippin Apple, which were laden with choice fruits of that mellow appearance which is so characteristic of Apples grown under glass. Plums, too, were splendid, trees of Late Orange and President being heavily cropped. Apples Gascoyne's Scarlet and Washington, Peaches Galway and Sea Eagle, and Plums Primate and Coe's Golden Drop were the pick of the gathered fruits.

MARKET GROWERS.

The classes for market growers numbered three, two for Apples and one for Pears. For 20 baskets of cooking and dessert Apples of distinct varieties Messrs. GASKAIN AND WHITING, Dargate, Faversham, Kent, excelled with the best individual exhibit in the show. The size of such varieties as Lord Derby, Warner's King, Stone's Mère de Ménage and Peasgood's Nonesuch was remarkable, whilst, in addition, they were unusually clear and bright of skin. Varieties such as Chas. Ross, Worcester Pearmain, Guelphe and Emperor Alexander were coloured to a high degree (Gold Medal); 2nd, Lieut.-Col. LUMLEY-WEBB, Sittingbourne, who was awarded a Silver-gilt Hogg Memorial Medal for a very meritorious collection.

The HORTICULTURAL COLLEGE, Swanley, was successful in winning the silver-gilt medal offered by the Fruiterers' Company for 12 baskets of Apples, 6 dessert and 6 culinary sorts; 2nd, Lieut.-Col. LUMLEY-WEBB, who excelled in the class for 6 baskets of Pears of distinct varieties.

DIVISION IV.

FRUITS GROWN ENTIRELY IN THE OPEN, OPEN TO GARDENERS AND AMATEURS.

The classes in this section numbered fifteen. Three were for collections of dessert and culinary Apples, the largest being for 16 culinary and 8 dessert sorts, in which five competed. Lord SOMERS (gr. Mr. G. Mullins) led easily with specially choice fruits of Chas. Ross, Wealthy, Blenheim Pippin, King of the Pippins, Tyler's Kernel, Rev. W. Wilks, and Gascoyne's Scarlet; 2nd, J. LIDDELL, Esq., Therfield Manor, Basingstoke (gr. Mr. R. Learmouth), whose dish of Rev. W. Wilks variety was the finest we have seen of this new Apple.

Three competed in the class for 18 dishes of Apples, including 12 culinary and 6 dessert sorts. The 1st prize was won by E. E. PEARSON, Esq., Brickendonbury, Hertford (gr. Mr. W. Stephenson), whose fruits of Emperor Alexander, Norfolk Beauty, Baron Wolseley and Allington Pippin were deserving of high praise; 2nd, Major POWELL COTTON, Birchington, Kent (gr. Mr. J. Cornford).

The Fruiterers' Company's Silver Medal and the sum of £2 were offered for the best exhibit of 12 varieties of Apples, including 8 culinary and 4 dessert sorts. The only exhibit was shown by G. MILLER, Esq., Newberries, Radlett (gr. Mr. J. Kidd), and well merited the 1st prize which was awarded.

Lord SOMERS (gr. Mr. G. Mullins) excelled in the class for 6 dishes of dessert Apples, his fruits of Wealthy, J. Grieve, King of the Pippins, The Houblon and others being of moderate size, well matched and splendidly finished; 2nd, J. LIDDELL, Esq.

PEARS.—Mr. C. A. CAIN showed the best dessert Pears in a class for 18 dishes, in which Mr. LIDDELL was placed 2nd; Major POWELL COTTON

had the finest exhibit of 12 dishes of dessert Pears; E. E. PEARSON, Esq. (gr. Mr. W. Stephenson), excelled in the class for 9 dishes of dessert Pears, and Mr. CAIN was again successful in the class for 6 dishes of distinct varieties.

The finest stewing Pears were shown by Major POWELL COTTON.

PLUMS.—The better of two exhibits of 3 dishes of dessert Plums, distinct, was exhibited by C. H. BERNERS, Esq., Ipswich (gr. Mr. W. Messenger), with the varieties Coe's Golden Drop, Pond's Seedling and President.

Mr. F. G. GERRISH, Pendley Manor Gardens, Tring, was the only exhibitor of Damsons or Bullaces in 3 varieties, and was awarded the 1st prize for Prune Damson, Merryweather Damson and the Common Damson.

Morello Cherries were shown by four. The size and general quality of those exhibited by Mr. F. G. GERRISH, who was placed first, could scarcely have been better.

Lord SUFFIELD, Gunton Park, Norwich (gr. Mr. W. Allan), showed the better of two exhibits in a class for autumn Raspberries, the variety being Alexandria.

SPECIAL COUNTY CLASSES.

The schedule contained eleven classes for single counties, groups of counties, Scotland, Ireland and the Channel Islands respectively. In each case prizes were offered for 6 Apples, 4 culinary and 2 dessert varieties, also for 6 dessert Pears, of distinct varieties.

KENT.

Apples.—The better of two exhibits in the class for Apples was shown by Rev. J. R. LEIGH, Yalding Vicarage (gr. Mr. C. Johnson). Fruits of Bramley's Seedling, Bismarck and Lord Derby were exceptionally fine, and there were choice, highly coloured fruits of Cox's Orange Pippin and Ribston Pippin; 2nd, Rev. H. BULL, Wellington House, Westgate-on-Sea (gr. Mr. F. King).

Pears.—The Rev. BULL was the only exhibitor in this class and was awarded the 1st prize for good quality fruits of Marguerite Marillat, Pitmaston Duchess, Durondeau, Beurré Diel and others.

SURREY, SUSSEX, HANTS.

Apples.—Two exhibitors competed in this class, and the 1st prize was won by Sir JAMES HORLICK, Bart., West Dean Park, Chichester (gr. Mr. W. H. Smith). This was a very praiseworthy exhibit, fruits of Lord Heuniker, Peasgood's Nonesuch, Ribston Pippin, and Warner's King being exceptionally good; 2nd, C. H. COMBE, Esq., Cobham Park, Surrey (gr. Mr. A. Tidy).

Pears.—The fruits of Marguerite Marillat, Durondeau, Beurré Diel and Chas. Ernest, shown by Rev. THOS. McMURDIE, Woburn Park, Weybridge (gr. Mr. A. Basil), who was awarded the 1st prize were large and of excellent quality; 2nd, Mr. COMBE.

WILTS, DORSET, SOMERSET, DEVON AND CORNWALL.

Apples.—Splendid fruits of Rev. W. Wilks, Mère de Ménage, Peasgood's Nonesuch, Warner's King and Ribston Pippin, shown by F. B. WINGFIELD-DIGBY, Esq., Sherborne Castle, Dorset (gr. Mr. T. Turton), were awarded the 1st prize; 2nd, Lady MARY MORRISON, Tisbury, Wiltshire (gr. Mr. H. H. Mills).

Pears.—The 1st prize was awarded to Mr. WINGFIELD-DIGBY for Durondeau, Beurré Boussoch, St. Luke, Doyenné du Comice, Beurré Bachelier and Pitmaston Duchess; 2nd, Lady MARY MORRISON.

GLOUCESTER, OXFORD, BUCKS, BERKS, BEDS, HERTS AND MIDDLESEX.

Apples.—Three competed, and the 1st prize was well won by C. GURNEY, Esq., Biggleswade, Bedfordshire (gr. Mr. A. Carlisle), the fruits of Emperor Alexander being of superlative merit, whilst those of Mère de Ménage, Peasgood's Nonesuch and Cox's Orange Pippin were equal to the best; 2nd, J. B. FORTESCUE, Esq., Dropmore, Buckinghamshire (gr. Mr. Chas. Page).

Pears.—Mr. GURNEY also won in the class for Pears, and was again followed by Mr. FORTESCUE.

ESSEX, SUFFOLK, NORFOLK, CAMBRIDGE, HUNTS
AND RUTLAND.

Apples.—Two competed from this group, and the 1st prize was awarded to Rt. Hon. J. W. LOWTHER, M.P., Campsea Ashé, Wickham Market (gr. Mr. A. Andrews); 2nd, Sir MONTAGU TURNER, Romford (gr. Mr. A. Barrett).

Pears.—The exhibit shown by Lord SUFFIELD, Gunton Park, Norwich (gr. Mr. W. Allan), was the best, so far, in any county class, Triomphe de Vienne, Marguerite Marillat and Chas. Ernest being of high quality and large size. C. H. BERNERS, Esq., Woolverstone Park, Ipswich (gr. Mr. W. Messenger), was a worthy competitor.

LINCOLN, NORTHAMPTON, WARWICK, LEICESTER,
NOTTS, DERBY, STAFFS, SHROPSHIRE AND
CHESHIRE.

The whole of these counties was only represented by a single exhibit, a magnificent collection of Pears shown by the Duke of PORTLAND, Welbeck Abbey, Worksop (gr. Mr. James Gibson), to whom the 1st prize was awarded. The fruits were large and ripe.

WORCESTER, HEREFORD, MONMOUTH AND WALES

Apples.—There were two exhibits, the better from G. CROOKS, Esq., Impney, Droitwich, whose fruits were much larger than those shown by Mrs. SMART, Abergelge (gr. Mr. R. Rogers).

Pears.—Mr. CROOKS was the only exhibitor of Pears in this class, and was awarded the 1st prize. The fruits of Louise Bonne of Jersey were highly coloured, very pretty specimens.

SCOTLAND was represented by a single exhibit of Apples shown by Capt. GORDON, Castle Douglas (gr. Mr. J. Duff), the high colour of Lady Sudeley and Worcester Pearmain giving a decided character to the collection.

IRELAND also was only represented by one collection, an exhibit of good Apples shown by Rt. Hon. Earl of Bessborough, Piltown, Co. Kilkenny (gr. Mr. T. E. Tomalin), whose fruits of Lord Derby, Tyler's Kernel, Loddington, Hambling's Seedling, Cox's Orange Pippin and Rival held their own well with those from the best fruit-growing districts in this country.

AFFILIATED SOCIETIES.

The only exhibit in the class for 6 dishes of culinary Apples, 6 of dessert Apples and 6 of dessert Pears, open to societies affiliated with the R.H.S., was one from the Ipswich and District Society per Mr. F. W. Salmon.

SINGLE-DISH CLASSES.

In the whole of the single-dish classes, which numbered 106, the number of exhibits was below the average, and there were fewer dishes of outstanding merit. The winning dishes were, generally, of a high standard. Colour in Apples was not so pronounced as in some years, and in the case of Pears it would appear the season is a late one. Varieties of Apples that seemed especially good were Egremont Russet, the winning dish of mellow, russety fruits from the Rt. Hon. J. W. LOWTHER's garden being exceedingly good; Rival, a very showy Apple, exhibited well by Mr. WINGFIELD-DIGBY; St. Edmund's Russett, a variety of attractive appearance, with pale russety skin, shown best by Mr. WINGFIELD-DIGBY, who also excelled for Worcester Pearmain, with fruits coloured an intense red all over; and the model specimens of Ribston Pippin, exhibited by Mr. GURNEY. Amongst culinary sorts fruits of Bismarck, shown by the Earl of Bessborough, were splendid; Bramley's Seedling was well represented by six excellent dishes, and there was the same number of exhibits of Ecklinville Seedling, but only two exhibited the fine cooking Apple Dumelow's Seedling (syn. Wellington). One of the most imposing varieties in this section was seen in Emperor Alexander, the big, conical fruits having a heavy flush of red on a yellow ground. Gascoyne's Scarlet Seedling was not so good as we have seen it at former shows, but Lord Derby was splendid. There was only a small competition for the highly coloured Mère de Ménage variety, but the fruits shown by Major ST. MAUR were well worthy of the 1st prize. Nine exhibited

in the class for Peasgood's Nonesuch, which is a popular exhibition variety, in which Rev. J. R. LEIGH, Yalding, excelled with finely coloured fruits; Warner's King was shown well by nine exhibitors. The 1st prize for a variety not enumerated in the schedule was given to Roubour Franc. The fruits are as large as Lord Derby and somewhat resemble that variety in shape, but they have not such pronounced ribs around the eye, whilst the side next to the sun is streaked with red.

Exhibits in the classes for Pears showed a decided drop in numbers. The Rev. McMURDIE had a fine dish of Durondeau; Conference was shown well by several growers; Doyenné du Comice was only of moderate quality and size; Souvenir du Congrès and Triomphe de Vienne were exhibited well by Rev. McMURDIE and others. Le Brun, a Pear somewhat like Pit-maston Duchess, but with a distinct out-growth at the stalk end, was conspicuously good. It was interesting to observe that the judges placed Doyenné Boussoch 1st in the class for early varieties not enumerated in the schedule, and the same Pear, labelled Beurré Boussoch, 1st in the class for any other late sort.

TRIALS OF SUMMER-FRUITING AND AUTUMN-FRUITING
RASPBERRIES.

Trials of both summer-fruited and autumn-fruited Raspberries will be held at Wisley. Three plants of each variety should reach the Director by November 15, 1916.



THE LATE GUSTAV MANN.

FLOWER SHOW AT BERMONDSEY.

SEPTEMBER 23.—An exhibition of fruits, flowers and vegetables was held at the Bermondsey Town Hall on the 23rd ult., under the patronage of Princess Marie Louise of Schleswig-Holstein. The show was opened by the Mayor of Bermondsey, and was of a parochial nature, for it was mainly to show the good work that is being done by the Gardens and Open Spaces Committee of the Borough Council, under the superintendence of Mr. W. H. Aggett. The large hall was well filled with exhibits, including non-competitive collections from traders and others. The latter included collections of vegetables from Messrs. ED. WEBB AND SONS, Steurbridge, and the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson). Dahlias were shown by the BERMONDSEY BOROUGH COUNCIL, MR. REGINALD CORY, Messrs. RIDING AND SON, CARTER PAGE AND CO., and J. CHEAL AND SONS. Hardy plants were shown by Messrs. W. CUTBUSH AND SON; R. WALLACE AND CO., Colchester; and J. KELWAY AND SON. A collection of fruits was contributed by Mr. WM. POUPART, Twickenham; whilst a group of foliage plants was shown by Messrs. MALLER AND SONS, Lee; and Messrs. WELLS AND CO. staged Early-Flowering Chrysanthemums.

A very substantial sum was realised, and the profits of the show will be given to the Princess Hospital situated in the borough.

Obituary.

GUSTAV MANN.—The *Gardeners' Chronicle* for October 29, 1859, contains an announcement that Gustav Mann, then of the Royal Botanic Gardens, Kew, had been appointed to succeed the deceased Charles Barter as botanist to the Niger Expedition, and had sailed for Lagos on the previous Monday. His predecessor was a pioneer, and a successful one, but early fell a victim to the climate. Mann was an individual of splendid physique and careful habits; he survived several severe attacks of illness, and returned to England in robust health in 1862 or 1863. This was the prelude to a long and active career in plantation and forest work, first in India and later in Bavaria. Ever since those early days at Kew there has been an occasional interchange of letters between the writer and the subject of this short appreciative memoir, and now I have just received from his widow an obituary card recording his death at Munich on June 22, in his eighty-first year. The communication was "opened by the Censor," hence, probably, the long delay in delivery.

Circumstances not permitting of Mann's joining the "Niger Expedition" on his arrival in west tropical Africa, he at once commenced collecting in accessible districts on the rivers Nun, Bagroo, Bonny, Old Calabar, and as far south as the Gaboon. Being a discriminating collector, his collections were rich in novelties, including a number of Palms, described and figured by himself and H. Wendland in the 24th volume of the *Transactions of the Linnean Society*. They comprised four or five new genera, the illustrative plates of which were built up by W. H. Fitch from an admirable series of sketches by Mann himself. In spite of the fact that Mann was unable to explore the interior, he discovered a number of new genera belonging to other families, among them *Allanblackia* (D. Oliver) of the *Guttiferæ*; *Mannia* (J. D. Hooker), referred to the *Simarubaceæ*; and *Manniophyton* (Jean Mueller), belonging to the *Euphorbiaceæ*. Of many previously established characteristic genera he collected several new species, including half a dozen of *Oncoba*. Mann's disappointment at not being able to penetrate the interior of the country was more than compensated for by his successful ascents of the mountain peaks of Cameroon, Fernando Po and other places. These journeys were accomplished under great difficulties and hardships; but Mann was not easily defeated, and the results amply rewarded his perseverance. His collections revealed new facts in the distribution of the plants of the mountains of tropical Africa. They form the subject of two important papers in the sixth and seventh volumes of the *Journal of the Linnean Society*, 1862-1864. Previously nothing was known of the mountain flora of tropical Africa, except that of Abyssinia. Contrary to expectations, Mann's mountain collections were poor in number of species, although everything was taken, and not rich in new species. About half were common to Abyssinia, a considerable proportion of species European, and there was an almost total absence of a generic endemic element. Only one new genus, *Ardisia*, is described, and this is a member of the *Primulaceæ*, with the habit of *Sibthorpia*. The coming of Mann's packages of dried plants was one of the many excitements of my earlier years in the Kew Herbarium. They were usually small, but the specimens were always good, and most carefully and skilfully packed. He spared himself no trouble from the beginning to the end; from the selection of his specimens to their despatch by any and every opportunity. I have confined my remarks to that period of Mann's career familiar to me, though I might add much more. Mann was not born to remain in a subordinate position. When there was trouble or friction he was usually transferred to a higher post. At least that is what one of his best Indian friends told me. Whatever he undertook he carried out thoroughly. He was twice married, first to an Englishwoman. I may add that Mann introduced a number of tropical African plants into cultivation, several of which are figured in the *Botanical Magazine*, among them *Helichrysum Mannii*, plate 5,431. W. Botting Hemslay, Strawberry Hill.

MARKETS.

COVENT GARDEN, October 4.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices. Columns include item names (e.g., Asters, white per doz. bun.), prices (s.d., s.), and descriptions (e.g., extra special, Marguerites, yellow, per doz. bunches).

Plants in Pots, &c.: Average Wholesale Prices.—con.

Table listing various plants in pots and their prices. Columns include item names (e.g., Ferns in thumbs, per 100), prices (s.d., s.), and descriptions (e.g., larger, per doz., in 48's, per doz.).

REMARKS.—The prices for cut flowers generally are similar to those of last week; those for Lilies at this season show a tendency to rise towards the week-end. These flowers are in demand for harvest festivals. Large and medium-sized blooms of Chrysanthemums, and especially of coloured sorts, promise to become cheaper in a few days. For white blooms and spray white good prices are maintained. The finest blooms on the market now are Debutant (white), Cranford Pink, Cranford Yellow, Almirante Bronze, Alcady (bronze), and Amber King. Several good varieties are sent to market under numbers instead of names. Asters are almost finished for this season. A few bunches of good white flowers are still obtainable. Roses are not over-plentiful. Some fine blooms with long stems of red, pink, yellow and cream varieties are on sale and meet a good demand. Lily-of-the-Valley is more plentiful, but the consignments are soon cleared at the prices quoted. There are large supplies of Michaelmas Daisies. The mild weather is not favourable for single Violets keeping fresh, especially after they have been on the rail for several hours. Inquiries are already being made for French Parma Violets, which are not obtainable at present. A few boxes of Gladioli find a ready sale, especially the scarlet Brenechleyensis. There is a good selection of hardy foliage, including fine bunches of well-berried Pernetias. Good Physalis finds a ready sale.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various plants in pots and their prices. Columns include item names (e.g., Aralia Sieboldii, dozen), prices (s.d., s.), and descriptions (e.g., ex-celsa, per doz., plumosus nanus, per doz.).

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices. Columns include item names (e.g., Artichokes, Globe, per doz.), prices (s.d., s.), and descriptions (e.g., extra special, Brussels Sprouts, per 1/2 bus.).

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices. Columns include item names (e.g., Apples—California, per case), prices (s.d., s.), and descriptions (e.g., new, per case, English, per bush).

REMARKS.—The market continues to be well supplied with Apples from home growers. Californian growers are also contributing some good samples of Newtown Pippin, in boxes containing about 10 dozen fruits. The first shipment of Apples from Nova Scotia arrived this week, and consisted of 10,000 barrels. The market is fairly well supplied with Pears. California is also sending some good fruits of Beurré Hardy. Prunellums are the only variety now available, and Damsons are finishing. Blackberries continue to be plentiful. Peaches are a good supply. Walnuts and Cobnuts are scarce. The market is well supplied with Grapes of all varieties. Figs, both English and Continental, are abundant. The first shipment of Oranges from Jamaica is to hand. Cape Cod Cranberries are just arriving. There are good supplies of both Tomatoes and Cucumbers. Mushrooms, both outdoor and cultivated, are limited in numbers. Scarlet

Runner Beans are getting scarce, whilst Peas are finishing for the season. Brussels Sprouts are already on sale, and there are some good heads of Cauliflowers. E. H. R. Covent Garden Market, October 4, 1916.

Potatoes.

Table listing potato varieties and their prices. Columns include variety names (e.g., Kent, Eclipse), prices (s.d., s.), and descriptions (e.g., Blackland, Lincoln).

THE WEATHER.

THE WEATHER IN SCOTLAND.

September was an almost ideal "Indian summer." The month was a dry one, with mild westerly winds and considerable spells of brilliant sunshine. Rain fell on eight days, the greatest fall, of 0.62 inch, being on the 3rd, the total fall reaching 1.72 inch. Of sunshine we had 126.3 hours—a percentage of 36—the brightest day being the 1st, with 10.7 hours; there were seven sunless days. During the month the barometric variation was from 30.419 inches on the 7th to 29.429 inches on the 18th, with a mean of 30.041 inches. The mean temperature was 53°, with a mean maximum of 61° and a mean minimum of 45°. The highest maximum, of 70°, was on the 12th, and the lowest minimum, of 49°, on the 30th, while the highest and lowest minima, of 55° and 33°, were registered on the 7th and 20th respectively. Thus we had a mean range of temperature of 16° and an absolute range of 37°. The dry and wet bulb thermometers gave means of 54.0° and 50.9°. The mean minimum temperature on the grass was 37°; there were three nights of ground frost, the thermometer registering 30°, 28° and 25° on the mornings of the 14th, 16th and 20th. At a depth of 1 foot the soil temperature fluctuated, falling from 57.4 to 56°, then rising to 58°, where it remained from the 9th to the 13th, again falling by a degree a day to 52° on the 20th, at which it remained up to the end of the month. Three rainbows were seen on the 1st, and a display of aurora on the evening of the 4th. James Malloch, Director of Studies, St. Andrews Provincial Training College Gardens, Kirkcaldy, near Dundee.

GARDENING APPOINTMENTS.

- List of gardening appointments including Mr. W. Humphries, Mr. E. Wilde, Mr. J. Watson, Mr. Clerk R. Hill, Mr. F. Cannon, Mr. Henry J. Baldwin, and Mr. J. Whiting, detailing their roles and locations.

DEBATING SOCIETIES.

BATH GARDENERS.—A meeting of the Bath Gardeners' Debating Society was held on the 25th ult., presided over by Mr. T. Parrott (chairman). The paper for the evening dealt with "The Streptococcus," and was read by Mr. Baston, of the Bristol Gardeners' Society.

BRISTOL AND DISTRICT GARDENERS.—The usual monthly meeting of this Association was held at St. John's Parish Rooms on Thursday, the 28th ult. Mr. G. W. Harford presided. Mr. T. Young read a paper entitled "The Possibility of England Feeding Herself." Mr. Young's remarks were followed with keen interest, and an excellent discussion took place by the members. Prizes offered by Messrs. Sutton and Sons, Reading, for a collection of 6 distinct kinds of vegetables were won by Mr. Young (1st), Mr. Thoday (2nd), and Mr. Woodward (3rd).



BIRDS DESTROYING PODS OF CULINARY PEAS: *Gard.* The most effective method is to prevent the birds from reaching the pods by covering the rows with old fish netting. Tie strips of white calico to the sticks so that they

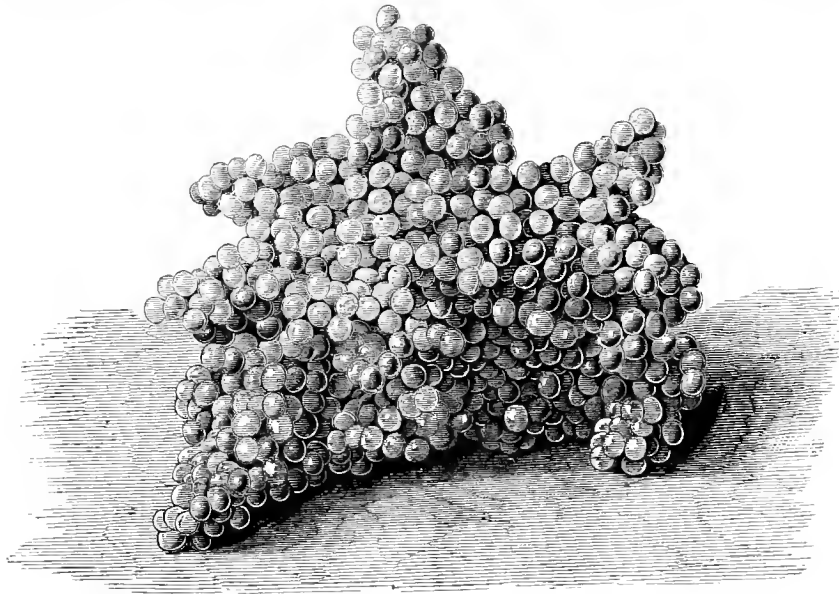


FIG. 69.—BUNCH OF GRAPE TREBBIANO, EXHIBITED IN 1875; WEIGHT 26 LBS. 4 OZS.

will flutter in the wind and scare away the birds; a few big feathers stuck in a Potato tuber and fastened with a string to a stick pushed obliquely in the ground, so that it dangles with the wind, is another useful bird scarer.

CORRECTION.—For *Chrysanthemum Harry Thorp*, pp. 163, 165, read *Harry Thorpe*. This and the varieties *Dick Barnes* and *Lichfield Pink* were shown by Mr. Alexander W. Thorpe.

EVER-BEARING STRAWBERRY: *W. W. S., Victoria.* You refer, doubtless, to varieties of the *St. Joseph* and *St. Antoine de Padoue* type. These plants are grown fairly extensively in gardens in this country for fruiting in summer and autumn. They are not cultivated extensively for market in this country, but we believe a certain number is grown for the purpose at *Combe Martin* in Devonshire.

"F.R.H.S.": *H. S.* The letters F.R.H.S. denote that the holder is a Fellow of the Royal Horticultural Society. You can become a Fellow by election and payment of an annual subscription of one guinea and an entrance fee of one guinea; professional gardeners are not required to pay the entrance fee. For further particulars write to the secretary of the society, Vincent Square, Westminster, London.

FUNGUS IN A LAWN: *A. P.* The dark circular patches in your grass are known as fairy rings. They are usually caused by the fungus *Marasmius oreades*, which obtains its food partly from humus and partly from the living roots of the grasses. Sulphate of iron may destroy the fungus if used at a strength of 1 lb. to 1½ gallon of water. Three applications at intervals of a fortnight are recommended, the later applications to be at half strength. The outer parts of the ring contain most living mycelium, and need most attention with the specific.

HEAVIEST BUNCH OF GRAPES: *Gardener.* The heaviest bunch of Grapes on record weighed 26 lbs. 4 ozs., and was of the variety *Treb-*

biano. It was exhibited by Mr. Curror, of Eskbank, at the Edinburgh International Fruit Show, 1875. The variety was shown as *Raisin de Calabre*, but has since been proved to be *Trebbiano*. A bunch of the variety *White Nice* was exhibited at the same time by Mr. Dickson, gardener to John Jardine, Esq., Arkhleton, Langholme, Glasgow. This second bunch weighed 25 lbs. 15 ozs. It is remarkable that these two bunches of Grapes should have appeared at

border has been allowed to become too dry cracking is likely to occur when water is applied.

NAMES OF FRUITS: *W. M.* 1, Apple *White Melrose*; 2, *Amie Elizabeth*.—*S. J., Rugby*, 1, Apple *Queen Caroline*; 2, *Allington Pippin*; 3, *Warner's King*; 4, *Allen's Everlasting*; 5, *Lane's Prince Albert*; 6, *Alfriston*; 8, *Scarlet Nonpareil*; 9, not recognised.—*F. W. G.* *Cox's Orange Pippin*.—*H. E. K.* 1, Apple *Beauty of Kent*; 2, *Hollandbury*; 3, *Lodgemore Nonpareil*; 4, *Warner's King*; 5, *Cox's Pomona*; 6, *Bramley's Seedling*.—*G. D.* 1, *Cox's Pomona*; 2, *Horthead Pearmain*; 3, *Yorkshire Greening*; 4, *Pine Apple Russet*; 5, *Benoni*; 6, *Hanwell Souring*.—*J. J.* 1, *Apples Allington Pippin*; 2, local variety, not recognised; 3, *Old Hawthornden*; 4, *King of the Pippins*.—*Old Subscriber.* 1, *Apple Small's Admirable*; 2, *Cox's Pomona*; 3, *Red Winter Reinette*.

NAMES OF PLANTS: *E. J. W.* 1, *Asclepias curassavica*; 2, *Cassia corymbosa*; 3, *Eupatorium Weinmannianum*.—*G. C.* *Haemanthus albiflos*, a South African species, which varies considerably in its foliage, some forms being ciliate at the margins, others having a hairy surface.—*M. D.* 2, *Berberis*, probably *Darwinii*; 3, *Pernettya mucronata*; 4, *Leycesteria formosa*; 5, *Pernettya mucronata*, white fruited variety; 6, *Plumbago Larpentae*; 7, *Enonymus europaeus* (*Spindle Tree*).—*O. E. R.* *Michaelmas Daisies*, 1, not recognised; 2, *Purple Prince*; 3, *The Nun*; 4, *Decorator*; 5, seedling; 6, *Aldeboran*; 7, seedling; 8, *Mrs. F. W. Raynor*; 9, *Silene Armeria fl. pl.*; 10, *Chrysanthemum maximum Ostrich Plume*; 11, *Heliopsis scabra excelsa*; 12, *Helianthus sparsifolius*; 13, *Campanula persicifolia Woodbridge Blue*.—*G. M. W.* *Woodcott Michaelmas Daisies*, 1, not recognised; 2, seedling; 3, *Coombe Fishacre*; 4, resembles *Vaga*; 5, *St. Egwyn*; 6, seedling; 7, seedling; 8, *Paragon*; 9, seedling; 10, seedling; 11, *Wm. Bowman*; 12, *Lil Fardell*; 13, *Aster acris*; 14, seedling; 15, *Coombe Fishacre* or a seedling from that variety; 16, *St. Egwyn*; 17, *Comeliness*; 18, not recognised; 19, *Aster Amellus var.*; 20,

the one show, for they constitute the largest pair ever exhibited.

MUSCAT GRAPES CRACKING: *J. Mills.* It is difficult to determine why the cracking of the *Muscat* berries should assume a kind of horse-shoe shape near the stem, but

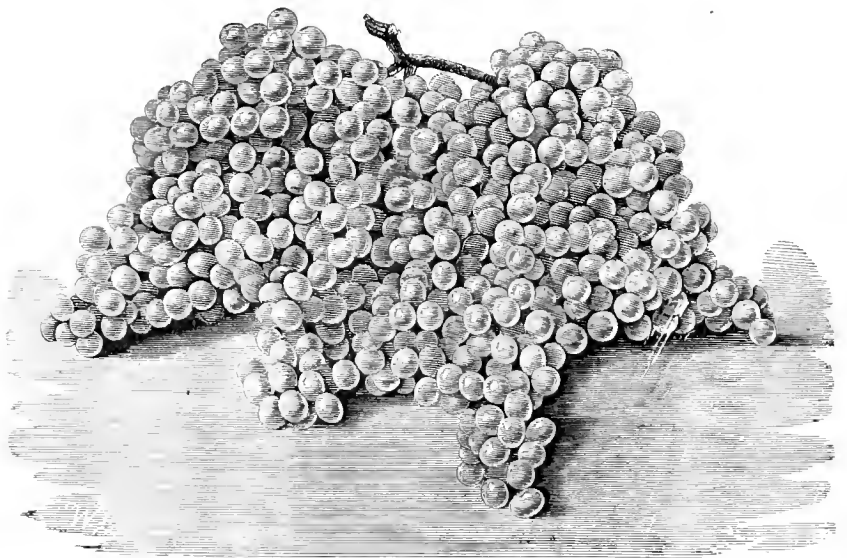
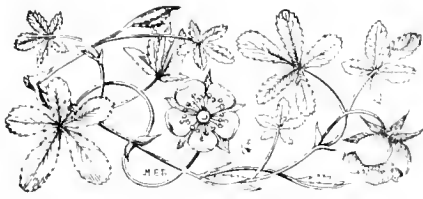


FIG. 70.—BUNCH OF WHITE NICE GRAPE: WEIGHT 25 LBS. 15 OZS.

the trouble has been found to arise when the condition of the atmosphere or that of the soil is at fault. When vigorous vines are kept too close and too moist at the time of the berries ripening, or the ventilators opened too late and closed again too early in the day, the cracking of the berries, as you describe it, is likely to happen, also if the

Daydream; 21, not recognised; 22, *The Nun*.

Communications Received.—*E. H. J.*—*J. F.*—*Gladys, C. W. M.*—*D. W. S.*—*E. M.*—*J. C.*—*Norwood*—*W. H.*—*Mrs. P. M.*—*H. C. B. N.*—*W. B.*—*A. O.* (Thanks for photographs)—*G. M. P.*—*Plan*—*A. B. R.*—*W. A. W.*—*W. E. B.*—*H. D.*—*H. E. L.*—*W. T.*—*W. M.*



THE
Gardeners' Chronicle

No. 1555.—SATURDAY, OCTOBER 14, 1916.

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THE MARKET FRUIT GARDEN.

SEPTEMBER at my place was a month of moderate rainfall, with two rainless and sunny weeks which were very valuable for fruit picking and killing weeds by horse cultivation and hand-hoeing. Rain was measurable on only ten days, the total fall being 1.52 in. The complete absence of the usual autumnal gales is an item of much importance in the present season. There was a strong wind on September 3, which amounted to a gale in many parts of the country, but not here. Never before, since my Apple and Plum trees came into bearing, have there been so few windfalls as in the present season.

THE CONDITION OF THE APPLE CROP.

Besides yielding in most cases beyond expectations, the Apple crop of the present season is a particularly sound one, and the fruit of most varieties is beautifully coloured. The almost complete absence of "serumps" was mentioned in last month's notes; but, apart from this advantage, there is to be noticed a larger proportion of firsts than usual. Also there has been much less dropping in still weather than there is in many seasons, even from trees heavily loaded. Cox's Orange Pippin is an exception in relation to size, being below average in this respect, but it is well coloured. Allington Pippin is larger than usual and brilliantly coloured except where the fruit is shaded, and this is the case also with Charles Ross and Blenheim Pippin. The latter, which gave a great crop last season, bears a good one this year, the fruits being large and coloured beyond any of that variety ever before produced in my orchards.

CHARLES ROSS APPLE (see fig. 71).

A separate notice is due to this splendid Apple. As a small investment, the purchase of one of the first trees of the variety offered to the public, at a guinea and a-half, or thirty shillings, was a very profitable one. Many stocks were grafted and more budded from this tree in the first two seasons, and it is a matter of regret that many more trees were not raised or purchased subsequently. But, until experience had shown how the variety would succeed, there was naturally some hesitation in planting it extensively. As the Apple was in no hurry to come into liberal bearing, this waiting for experience was somewhat prolonged. It was not till the ninth year from the planting that the trees raised by me bore good crops. Last year the yield was so heavy that many of the branches had to be shored up. This year there was a moderate yield of such splendid fruits that two-thirds of the crop were sold as selected specimens (every Apple perfect and beautifully coloured) at 8s. per half-sieve of 20 lbs., a price touched before by me only for Cox's Orange Pippin when sold by the half-sieve, although possibly choice fruits of Beauty of Bath in boxes holding a dozen may have made as much in proportion. The two lower grades made 5s. and 3s. 6d. respectively. Commission has to come off these prices, which, of course, are war prices obtained in a short Apple season.

IF I COULD START AFRESH.

Many years' experience are needed to enable a fruit grower to judge as to the best course to pursue on a particular tract of land, and if I could start afresh I should modify my procedure on many points. This is particularly the case in reference to varieties of Apples and Plums to be planted, but not in that connection alone. In the first place, I should not plant on any piece of land which was not thoroughly drained. My fields had all been drained at one time or another, and some of them two or three times, before the farm came into my possession, but many of the drains were blocked, and in one field the draining had been so scandalously done that it possibly did more harm than good. Many of the blocked drains were opened and made to run freely, while many new drains were provided where they appeared to be most needed. It would have been better, however, to lay drains at regular intervals, ignoring the old ones, except in carrying the new ones over or under them when they were found to be clear.

As to preparations for planting, no alteration in the plans pursued would be necessary, except in relation to two fields which were planted in the first autumn after double steam cultivation of the soil to the utmost depth to which I could get it done. In other fields well manured crops of Potatoes were grown for two or three years, after which the land was ploughed and subsoiled for planting. While Potatoes were being grown,

trees were raised by grafting and budding, and bushes by planting cuttings. This procedure would be repeated. No Gooseberries would be planted so long as the American mildew is unconquered. Black Currants would be the only bottom crop.

In choosing varieties of Apples to plant, several that have proved disadvantageous in my soil would be discarded. These include Stirling Castle, Potts's Seedling, Ribston Pippin, Gascoyne's Scarlet and Warner's King, because they canker badly. The last would be discarded with regret, as it is a splendid Apple. Irish Peach would be rejected on account of its extreme liability to scab, and Domino because it is one of the worst victims of brown rot. Bismarck would be left out in view of liability to scab and powdery mildew, while it has no merit of any kind beyond its heavy bearing in alternate years. Duchess of Oldenburg would not be accepted as a gift, as it is not of any account for dessert, and is not big enough for a cooker. Golden Spire is an Apple of the highest quality, and it fruits tremendously in alternate years, but it is not big enough. Fearn's Pippin, grown by me only on a small experimental scale, would be rejected as of no merit beyond its good crops of very small fruit. Mr. Gladstone, one of the nicest of early Apples, would be dispensed with, except for private use, because it is less productive than Beauty of Bath, and sells at a lower price. Early Julyan, another first-year grown by me, would be retained, as it sells for dessert when other dessert Apples are scarce, though Early Victoria is superior as a cooker. There would be no need to extend the area devoted to Early Julyan or Beauty of Bath, as it is extensive enough. Early Victoria would be relied on as the first of cookers for market, and Lord Grosvenor as a second. Mid-season cookers would consist of Queen, Royal Jubilee, Norfolk Beauty and Lord Derby. For late cookers Lane's Prince Albert, Bramley's Seedling and Newton Wonder would suffice, the space devoted to the Bramley's being four times as much as it is, and that of the Newton Wonder double. With me the best of mid season dessert Apples is Charles Ross, the area of which would be considerably extended. James Grievie is greatly inferior to it in quality and market value, while it is somewhat subject to canker. Worcester Pearmain would hold its own as a profitable market variety. No late dessert Apples other than Blenheim Pippin, Cox's Orange Pippin and Allington Pippin are grown by me, and I should stick to them on a moderate scale, in spite of the liability of the last two varieties to scab. But Blenheim Pippin would encroach on the area now devoted to Allington Pippin.

With respect to Plums, Early Rivers would be grown about as extensively as at present, and Czar also. Black Diamond would not be accepted as a gift. Belle de Louvain would supersede Victoria to a great extent as a mid-season Plum, on account of the liability of the latter to silver-leaf. Pond's Seedling would be relied on

mainly is a late Plum with or without President. The latter has not been grown long enough by me to enable me to decide as to its merits; but I fear it is a bad subject for brown rot. Monarch, splendid Plum though it is, would be discarded or grown in very small numbers, as it has never yielded me a full crop, in spite of the utmost pains taken to keep birds from eating its buds. The same statement applies to Old Greengage, Denniston's Superb Gage and Coe's Golden Drop.

All the preceding remarks as to varieties of Apples and Plums relate to those grown for market. For private use many others would be grown, and, of course, Red Currants and Gooseberries. Similarly, many choice sorts of Pears would be grown for private use, but none for market, as they certainly do not pay in my district.

Cobnuts would be planted in one piece of land which suits them well, but not on heavy land, where they failed badly. In the latter case the shoots made in the summer died off in the winter, and the trees were grubbed up after this had occurred in three or four successive years. Out-door Figs, which have now only one-eighth of an acre, would be planted on three or four acres.

is *S. laxifolius* from the South Island. There is no doubt which is the better for the west coast, for the newcomer is not only far more free in growth than the other, but the foliage is much more beautiful and the flowers brighter and more abundant. Moreover, it has the merit, if the summer flower panicles are removed when they wither, of producing a second bloom in autumn. A bush of this species is now, September 29, very gay, the clear yellow flowers contrasting charmingly with the silvery foliage—a colour scheme very different from that of another Groundsel near it, namely *Senecio pulcher*, with bright rose-coloured ray florets, deep yellow disc and laurel-green leaves. *Herbert Maxwell, Monreith, Wigtownshire, N.B.*

CULTURAL MEMORANDUM.

VIOLAS AT CLARENCE PARK, ST. ALBANS.

CUTTINGS of Violas inserted not later than the middle of October root readily.

We raise from 14,000 to 15,000 Violas from cuttings each year, and I will briefly describe the method. A position is chosen on a border sloping a little to the south-east, and sufficient land is dug to insert the first row of cut-

be far enough advanced to plant out into their permanent quarters, and will be found to lift and divide very readily, while retaining sufficient soil at the roots to shift well. We do not use any fresh manure in preparing the site for their summer quarters, but well rotted manure and leaves are employed; for Violas revel in an abundance of organic matter of this description.

About midsummer, when the rush of summer bedding is over, we mulch all our Violas with a layer about 1½ inch thick of decayed manure and leaf-mould well broken up, so that it is almost as easy to handle as wood dust, and find that by so doing we get scarcely any break in the flowering period. In mid-September our plants were a mass of bloom, although during the whole season there has been no labour available to remove seed pods or dead flowers. *D. W. Simmons, Superintendent, Clarence Park, St Albans.*

VEGETABLES.

POTATO TRIALS IN GUERNSEY.

DURING the autumn of 1915 Messrs. W. Mauger and Sons decided to carry out a trial of some of the leading varieties of Potatoes at their Brookdale Nurseries, Guernsey, with a view to

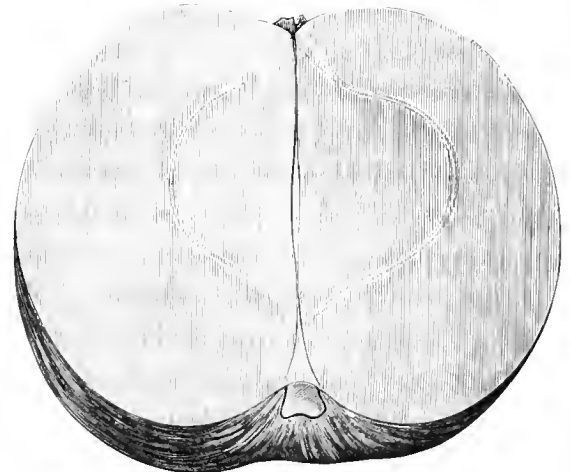
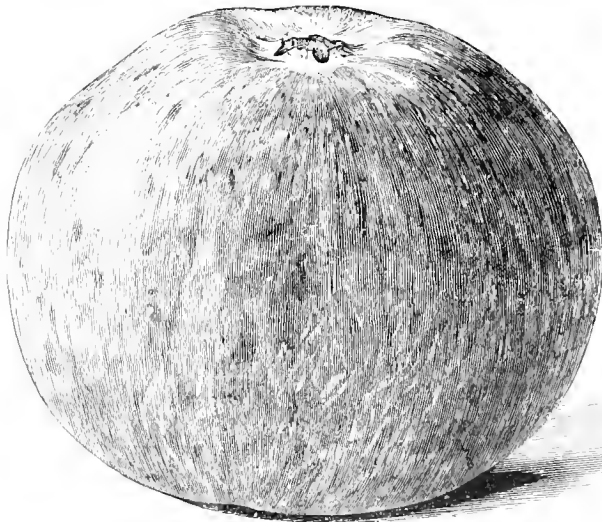


FIG. 71.—DESSERT APPLE CHAS. ROSS.

(See p. 179.)

As to the form of the Apple trees to be planted, cordons would be tried on a moderate scale, but no bush-shaped trees, as the latter become hindrances to horse cultivation after a few years, and soon grow out enough to shade bottom fruit, while they also keep the surface of the land from drying enough to kill quickly weeds turned up by the cultivator or the hoe. The short half-standard would be the only form other than the cordon. With respect to stocks for Apples, distances of planting, and shelter trees, remarks must be postponed for the present. *Southern Grower.*

PLANT NOTES.

SENECIO GREYI.

In the vast family of Groundsel only a moderate percentage of species are worth cultivating for a decorative purpose. Among these must be reckoned *Senecio Greyi*, from the North Island of New Zealand—at least, if I am right in identifying it. For many years a Groundsel has been grown here under the name of *S. Greyi*, which we did not esteem highly, for it grows slowly and is not very lavish of flowers. But two or three years ago we got a plant under the same name, which I take to be the true *S. Greyi* from the North Island, and I suppose the other

tings without treading on freshly moved ground. On this is laid a "straight-edge," the width of the border; a spade is used to make a V-shaped trench or drill about 3in. to 4in. deep, and the same width at the top. The trench is filled with sharp road grit, and in it the cuttings are inserted closely in two rows, so that the leaves almost touch, or, say, about one inch apart each way. The sandy soil is pressed closely around them, and the next spit is dug and prepared in the same way to receive the next row at one foot distance. The shoots inserted as cuttings are about 3 inches long, and those taken direct from the base of the parent plant are preferred, for these require little or no preparation. At the same time we do not hesitate to use the tops of old plants, making the cuttings carefully from pieces of top growth about 3 inches long, and removing both leaves and stipules from two joints.

In about a fortnight or three weeks after the cuttings are planted we run a "Bucco cultivator," or aerator, between the rows on a dry day, then tread the rows one foot on either side of the row, and as close as possible to the cuttings without actually treading on them; and again run the cultivator between the rows, repeating the operation as soon as practicable after hard frost or very heavy rains.

During March or early in April the plants will

ascertaining which were the more suitable for their district, taking into account the cropping and cooking qualities. Land to the extent of one acre, on which bulbs had been grown for about ten years, was set apart for the purpose and prepared as follows:—Seaweed at the rate of 30 tons per acre was spread on the surface and allowed to lie for a month or so, after which it was dug in about 5 inches deep. That was in the fall of 1915. In January of this year the ground received a further dressing, but this time of stable manure, at the rate of 20 tons per acre. This was ploughed in about 9 inches deep. At the end of February and early in March the trials were planted, beginning with the first earlies. Two feet were allowed between the drills, and about 16 inches between the sets. A liberal dressing of Peruvian guano was sown in the drills during the planting (½ ton to the acre), and as soon as the tops were clearly visible they were forked between and earthed up a fortnight later. At the end of May, when the plants were growing strongly, they were sprayed with Bordeaux mixture, and again after a fortnight. The result was that practically no blight (*Phytophthora infestans*) was seen on the early varieties. Fog and close, sunless weather after rain are often the forerunners of an attack of blight, so that no surprise was felt when the disease was noticed in the second early and main

crop varieties. This was during the early part of July, after several days of continuous fog. Fortunately, however, this only affected the haulm, as at digging time hardly 1 per cent. of the tubers were affected, a result which is no doubt entirely due to the spraying with Bordeaux mixture.

The following are the average crops obtained per statute acre:—First Earlies: Midlothian Early, 12 tons 10 cwt.; Sharpe's Express, 12 tons 8 cwt.; Witch Hill, 10 tons 18 cwt.; Dunottar Castle, 10 tons 14 cwt. Second Earlies: Great Scot, 24 tons 18 cwt.; Edinburgh Castle, 19 tons 12 cwt.; Dobbie's Favourite, 19 tons 12 cwt.; Stirling Castle, 15 tons 1 cwt. Main Crop: Dobbie's Prolific, 19 tons 10 cwt.; Arran Chief, 16 tons 19 cwt.; Sutton's Flourball, 14 tons 17 cwt.; White City, 10 tons 8 cwt. *J. B. Mcfie.*

ORCHID NOTES AND CLEANINGS.

CATLEYA TRIUMPHANS THE BARONESS.

This noble hybrid between *C. Dowiana aurea* and *C. Rex* is one of the largest, best shaped and most beautiful of yellow Cattleyas, the colour of its broad sepals and petals being clear, pure yellow without the cream or primrose tint seen in both parents. The lip shows *C. Rex* very plainly in form, but it is expanded in a remarkable manner. The ground colour of the lip is yellow beautifully marked with rose-purple, the base being dark red with yellow lines. It flowered in Baron Bruno Schröder's collection.

LAELIO-CATLEYA IVANHOE.

This fine hybrid, from *L.-C. eximia* and *C. Dowiana aurea*, which we recorded as flowering for the first time in Baron Schröder's gardens last year, has again bloomed even better than on that occasion. The influence of both parents can be seen in the hybrid, and in the large ruby-purple lip. *C. Warneri*, which, with *L. purpurata*, produced *L.-C. eximia*, makes for increased size, and provides the frilled margin.

HYBRID ORCHIDS.

(Continued from August 12, p. 74.)

Hybrid.	Parentage.	Exhibitor.
Brasso-Cattleya cantoniensis	B.-C. Diglyano-Mendelii x C. Dowiana aurea	Sander and Sons.
Brasso-Cattleya Enid Hye	B.-C. Madame Hye x C. Enid	Duke of Marlborough.
Brasso-Cattleya Le Sans	B.-C. Pinto x C. Warszewiczii	Sander and Sons.
Brasso-Cattleya Madame Rosa	B.-C. Madame Chas. Maron x C. Rosa Leemann	Duke of Marlborough.
Brasso-Cattleya Maroniris	B.-C. Madame Chas. Maron x C. Iris	Duke of Marlborough.
Brasso-Cattleya Somme	B.-C. Madame Chas. Maron x C. Schröderae	Sander and Sons.
Brasso-Laelio-Cattleya Sylvia	B.-L. Diglyano-purpurata x C. Eldorado	Mrs. Bischoffsheim.
Cattleya Ataligas	Atalanta x Warszewiczii	H. Worsley, Esq.
Cattleya Claesiana alba	intermedia alba x Loddigesii alba	Armstrong and Brown.
Cattleya Freda Sander	Mrs. Myra Peeters x Mossiae Wagneri	Sander and Sons.
Cattleya Guillemon	Gaskelliana x Pittiana	Duke of Marlborough.
Cattleya Kitty Wren	Fabia x Gaskelliana	Charlesworth and Co.
Cattleya Leonos	Fabia Leonora x Mossiae	Duke of Marlborough.
Cattleya Lodorado	Loddigesii x Eldorado	C. J. Lucas, Esq.
Cattleya Migueteo	Octave Doin x Dowiana aurea	Floy and Black.
Oattleya Rachel	Syros x Gaskelliana	P. Smith, Esq.
Cattleya Sir Douglas Haig	Warszewiczii x Sylvia	Sander and Sons.
Cattleya Veiris	Venus x Iris	Duke of Marlborough.
Cattleya Weedonaren	Weedonensis x Dowiana aurea	Duke of Marlborough.
Cypripedium Calneus	Fairiescum x Nobile	Charlesworth and Co.
Cypripedium Endora	Gowerianum x Mary Beatrice	R. Windsor Richards, Esq.
Cypripedium Snowflake	Cono-bellatulum x niverni	W. H. St. Quintin, Esq.
Cypripedium Venizelos	Lawrenceanum x Lord Ossulston	Mr. C. F. Waters.
Laelio-Cattleya Aiglessa	L.-C. Nysa x C. Iris	C. J. Phillips, Esq.
Laelio-Cattleya Bucharest	L.-C. Martinetii x C. Caduceus	Mr. C. F. Waters.
Laelio-Cattleya Corinna	L.-C. Wellisiana x C. Triame	Mansell and Hatcher.
Laelio-Cattleya Fleury	L.-C. Issy x C. Dowiana aurea	Mr. C. F. Waters.
Laelio-Cattleya Geoffrey	L. Jongipes Lucisiana x C. Warszewiczii	C. J. Lucas, Esq.
Laelio-Cattleya Golden Wren	L.-C. Thynne x C. iridescens	Armstrong and Brown.
Laelio-Cattleya Jewel	L.-C. Garnet x C. Dowiana aurea	W. H. St. Quintin, Esq.
Laelio-Cattleya Kavala	L.-C. Epieasta x C. Elvina	Mr. C. F. Waters.
Laelio-Cattleya Lady Munningham Buller	Thyone Orchidhurst variety x luminosa	Armstrong and Brown.
Laelio-Cattleya Lemberg	E. tenabrassa x C. Germana	Hassall and Co.
Laelio-Cattleya Longueval	L.-C. Berthe Fournier x C. Dowiana aurea	Duke of Marlborough.
Laelio-Cattleya Mrs. Harry Worsley	Dominiana x callistoglossa	H. Worsley, Esq.
Laelio-Cattleya Olive	L.-C. callistoglossa x C. Adula	Stuart Low and Co.
Laelio-Cattleya Oreen Marie	L.-C. Walter Gott x C. Dowiana aurea	Sander and Sons.
Laelio-Cattleya Romania	L.-C. Lusitania x C. Dowiana aurea	Hassall and Co.
Laelio-Cattleya Stonehouse	C. Triame x L.-C. Canhamiana	H. Worsley, Esq.
Laelio-Cattleya Suez	L. P. Ophir x C. Adula	Sir Jeremiah Colman, Bart.
Laelio-Cattleya Zena	L.-C. Ophir x C. iridescens	Hassall and Co.
Odontioda Mars	Oda. Charlesworthii x Odm. Lawrenceanum	De B. Crawshaw, Esq.
Odontioda Nigella	Oda. Charlesworthii x Odm. Thwaitesii	De B. Crawshaw, Esq.
Odontioda Vivienne var. Dainty	Oda. Cooksoniae Goodson's variety x Odm. crispum	Mansell and Hatcher.
Odontoglossum Tarent	mirum x Killarueanum	C. J. Phillips, Esq.
Sopbro-Cattleya Sir Mervyn Buller	S.-L. C. Wellesleyae x C. Empress Frederick	Armstrong and Brown.
Sopbro-Laelio-Cattleya Hamingtonii	S.-L.-C. Goodsonii x C. Dowiana aurea	Floy and Black.
Sopbro-Laelio-Cattleya Lutetia	S.-L.-C. Sandhage x C. Falia	Charlesworth and Co.

FOREIGN CORRESPONDENCE.

NOTES FROM FRANCE.

It is instructive to note how French nursery gardeners are making every effort to keep their establishments going in spite of the lack of

ing, while even the men on two days' leave will spend most of the time in the nursery where they were formerly employed, endeavouring to keep things up to the mark. In Messrs. Vilmorin, Andrieux and Co.'s I saw one of the Messrs. Vilmorin in uniform with a bandaged hand—badly burned. In the gardens of Moser and Sons, M. Villette, the capable director,



FIG. 72.—CLAREMONT: LILY BASIN DRAPED WITH DOROTHY PERKINS ROSES. (See p. 184.)

(Photograph by H. N. King.)

labour. Those who have military duties near enough to their places of business are to be found in uniform, early morning and late even-

ing, still undertakes the laying out of gardens, and appeared in smart uniform at 8.30 a.m. to receive me. His fruit nurseries are employing many women, who are to be seen forming the trained trees for which this establishment is famous. Later they will do the pruning, and as both they and the boys employed have a good knowledge of the principles and practice of the training and pruning of fruit trees, the work will be done efficiently.

At M. Poirrier's nursery at Versailles, where so many of the new Pelargoniums are raised, I was shown a very beautiful Ivy-leaved variety, mauve in colour, with large dark eye. Their Madame Hamelin had grown into a great hedge at Deauville, where I was doing some work, and as late as September 28 was a mass of large, salmon-coloured flowers, or rather "malmaison" pink, almost hiding the leaves.

I was much struck with the beauty of the Sophora trees at Versailles. In a small town garden was to be seen from the street a fine specimen, with great panicles of creamy-yellow blossoms, the finely-cut foliage looking fairy-like against the blue sky. There was a magnificent specimen of Sophora in the garden of the Villa Trianon, of great girth and height, but with no flowers, while it is well represented in the garden of the Petit Trianon. It is a pleasure to go to gardens where a setting of such magnificent specimens can be found.

I find as a rule that effect of colour and the design of a garden are more appreciated in France than are the actual plants themselves. Still, the demand for a certain thing can always be created in gardening as well as in commerce, and, judging by the great interest in the beautiful herbaceous borders of the Champs de Mars in Paris, the Parisiens, at any rate, love flowers for their own sakes. *Alice Mortimer, Hurst, Berkshire.*

DUTCH SEED CROPS.

A FIRM of Dutch seedsmen has issued a review of the seed crops in Holland and the prospects for the coming season.

It appears that frosts caused very little harm last winter, but in some districts the inundations in January, 1916, due to the breaking of the sea-dykes, effected considerable damage. Owing to the mobilisation of the army there was a scarcity of labour, and many fields had to be ploughed on account of overgrowing weeds. The weather during the spring of 1916 was very unfavourable, and many fields were ploughed again at that period. The summer in Holland has been cool, and at times even cold, so that seed ripening has been retarded. The report predicts a considerable deficiency of seed of all kinds.

The following remarks are offered on vegetable seeds:—The prospect for a good crop of Cauliflower seed is good; Red Cabbage is expected to yield only a bad crop; Savoy, Brussels Sprouts, and Borecole promise better, but considerable plantations of Borecole were ruined by the inundation; Turnips and Swedes are far below average yields; Kohl-rabi is a very

The Week's Work.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq.,
Castleford, Gloucestershire.

BOLLEA AND PESCATOREA.—These Orchids may now be repotted, or, if this is not necessary, a portion of the old soil may be replaced with fresh material. Frequent or annual disturbance of the roots is not desirable, as both *Bolleas* and *Pescatoreas* are more or less difficult subjects. Shallow pans or teak-wood baskets are the best receptacles, and they should be filled to one-half of their depth with drainage material. The rooting medium should consist of clean Sphagnum-moss, partly decayed Oak leaves, and peat in equal parts. Divide the materials in moderately fine portions and mix with them a few crushed crocks. Before repotting, remove all the decayed soil from the

a long, narrow box, about 1 foot deep, partly filled with material for drainage. The stems should be planted fairly thickly, and made secure to the wall. If the walls are syringed frequently the roots will soon become attached, and grow freely. Those of *E. radicans* type may be grown as pot plants, placing about ten stems in a receptacle 7 or 8 inches in diameter. It is necessary to propagate fresh stock from some of the side growths, at intervals, to take the place of exhausted specimens. Several of the shoots may be rooted in one receptacle. Very tall plants may have about 2 feet of their top growth removed, and if five or six of these pieces, according to their strength, be placed in a 6-inch pot they will develop into useful plants. Fill the pots one-third of their depth with drainage and plant the stems about 6 inches deep, employing the same kind of mixture for the compost as advised above. Make each stem secure by tying it to a strong, green stake. Grow the plants either in the *Cattleya* or intermediate house near to the roof glass. Thrips are occasionally troublesome, especially in the warmer houses, but these can be held in check by fumigating and spraying the plants with an insecticide at intervals. The rare *E. Endresii* grows about 1 foot high, and *E. Armstrongii* from 18 inches to 2½ feet. Both are fine decorative plants, and they should be grown in the intermediate house. They may be repotted when the new growth is 2 or 3 inches long in small pots filled with a mixture of peat or *Osmunda*-fibre and Sphagnum-moss. The pots should be filled one-half of their depth with drainage material. Weak growths of *E. Endresii* should not be permitted to flower, as this so weakens the plant that it often succumbs to exhaustion, and this is partly the cause of the species being rare in collections. A large number of *Epidendrum*s have pseudo-bulbs instead of scandent and flexuose stems. These embrace *E. prismatocarpum*, *E. alatum*, *E. ciliare*, *E. cochleatum*, *E. fragrans*, *E. osmanthum*, *E. radiatum* and *E. Allemanii*. They require much the same treatment as *Laelias* and *Cattleyas*, and will as a rule succeed in the same house with these plants. *Epidendrum vitellinum* is largely grown in some collections, its dark, cinnabar-red flowers giving a nice touch of colour amongst the plants of *Odontoglossum crispum* during the autumn months. The variety known as *majus* is more brilliant than the type, and produces its scapes a little earlier in the season. Both plants require cool house treatment. Repotting should be done when new growth begins in a compost of *Osmunda*-fibre with a sprinkling of crushed crocks. Frequent disturbance at the roots is harmful, but the soil must be kept in a sweet condition.



[Photograph by H. N. King.]

FIG. 73.—A BORDER OF PENTSTEMONS AT CLAREMONT.

(See p. 184.)

poor crop; Mangels, Sugarbeets and Beets are all small plantations but satisfactory; Radish, including Winter Radish, is a small crop; several sorts, both of Radish and Winter Radish, have failed entirely; Onion seed is likely to be in great demand by Dutch growers, and only small quantities will be available for exportation; Parsley is a small crop, and some varieties are unsatisfactory; Chervil, of which a very small area was planted, promises a moderate crop; Spinach is scarce, and scarcely half the normal yield is expected; Cucumbers gave poor returns, and in some cases a very late crop is predicted. Only a small area was sown with Peas; Dwarf Beans are a moderate crop, but if the weather continues unfavourable a total failure is predicted. Of Runner Beans a small area only was planted, and it is not expected that the yield will be equal to the average. The area sown with Broad Beans was not large, but the prospects are good, although here and there the results are poor. Parsnips are satisfactory, but *Scorzoneria* is only expected to yield a small crop. The crop of Celery seed may be sufficient for needs.

roots with a pointed stick. After the first watering, moisture will not be needed for some time, but the surroundings should be kept damp, and the plants sprayed lightly overhead in favourable weather; this must be done sufficiently early in the day for the foliage to become dry before sunset. Some of the best specimens I have seen were growing at the warmer end of a *Phalaenopsis* house, the pans being plunged in Sphagnum-moss to three-parts of their depth. The moss assisted in keeping the immediate surroundings of the plants moist, and therefore prevented any attack of red spider in winter. The principal requirements of *Pescatorea* and *Bollea* appear to be a warm, humid atmosphere, even temperature, and a certain amount of shading whenever the sun is bright.

EPIDENDRUM.—Several species and hybrids of the large genus *Epidendrum* are of horticultural merit, such as *E. radicans*, *E. xanthinum*, *E. kewensis*, *E. O'Brianianum*, *E. erectum*, *E. Bonndii*, and *E. Wallisii*. The plants produce long, slender stems and numbers of aerial roots, which render them valuable for covering walls and pillars in Orchid houses. For furnishing walls they should be planted, in a mixture of *Osmunda*-fibre and Sphagnum-moss, in

THE FLOWER GARDEN.

By W. J. GRUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

THE ROCK GARDEN.—The work of dividing and re-planting rock garden plants should not be delayed longer. Seedlings and young plants that were propagated earlier in the season should be in suitable condition for replacing plants that have died or are exhausted, also for planting new rock gardens. The soil is still warm, and advantage should be taken of the open weather to finish all planting in time for the roots to become re-established in the soil before cold, wet weather sets in. Certain kinds of rock plants are not exacting as to soil, of which *Aubrieta*, *Arabis*, certain species of *Saxifraga*, *Campanula*, *Armeria*, *Thymus*, *Cheiranthus*, *Sedum*, *Cerastium*, *Dianthus* and *Phlox* may be instanced. All these plants are suitable for massing. They will thrive in ordinary loam containing coarse grit and leaf-mould, or even old potting soil, if it be sweet. Choose a sunny position for these subjects. A compost consisting of loam, peat, leaf-mould and sand is necessary for *Daphne*, *Gaultheria*, *Shortia* and *Ranunculus*, and they should be planted in a shady situation. No rock garden is complete without bulbs, of which *Anemone*, *Scilla*, *Tulipa*, *Chionodoxa*, *Erythronium* and *Fritillaria* are the most useful. Old, established plants should receive attention, cut-

ting away dead foliage, flowers and superfluous growths. These old plants will be greatly benefited by a top-dressing of soil of a gritty nature mixed with a small quantity of fertiliser. Farmyard manure should not be used, as this would favour rank growth at the expense of flowering.

CAMPANULA.—Bellflowers do exceedingly well in partially shaded positions in the herbaceous or mixed borders. Most of the species and varieties are useful for furnishing cut bloom, but *C. latifolia grandis* and its white variety; *C. celtidifolia*, *C. E. Molyneux*, *C. persicifolia humosa*, and *C. p. Moerheimii*, which is probably the finest white *Campanula*, are the best for the purpose. Divide and transplant these *Campanulas* forthwith. They will grow to perfection in ordinary soil mixed with manure and leaf-mould, which is also suitable for *Pyrethrum*, *Lycnis*, *Veronica* and *Phlox*, although the last species grows more robust in light, sandy soil. Slugs are very partial to the young shoots of *Phlox*.

TUBS AND VASES.—Make preparations at once for the housing of specimen plants in tubs and vases. Where plenty of fruit houses are available there will be no difficulty in wintering most of the plants. *Hydrangeas* may remain out-of-doors for some time to come, as a few degrees of frost will not harm them. Wash the receptacles, whether pots, tubs or vases, tie the plants neatly, and thoroughly syringe them with clean water or an insecticide. Myrtles, *Camellias*, *Oranges*, *Agapanthus*, *Hydrangeas*, *Aloysia* and similar subjects, may be placed in cool houses from which frost may be excluded. *Fuchsias* and *Cannas* may be stored under the stages in cool, airy houses. If it is decided to retain plants that were used for summer bedding, lift and pot them for wintering in suitable quarters. Ivy-leaved *Pelargoniums* should be kept in a close atmosphere for a short time after they are potted. *Echeverias* may be placed closely together in shallow boxes and wintered in cold frames. Damp is very injurious to these succulents, therefore admit air on all favourable occasions. If trouble is experienced in wintering *Begonias*, a good plan is to lift them with plenty of soil, place them in boxes, and allow them to dry gradually. The soil at the roots should not be disturbed until next year. The tubers may be wintered under stages with *Fuchsias* and *Cannas*, but not where drip from plants above can reach them.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOLE, Eastwell Park, Kent.

PREPARATIONS FOR FRUIT-PLANTING.—The ground is still warm, and trees planted in October will make roots and become established by winter. It is best to make the selection of the trees for planting in the nursery, which should be visited for the purpose, but if a personal visit is not possible, and doubt exists as to the best varieties for the especial purpose in view, the nurseryman will, as a rule, advise the purchaser on the subject. Points to consider include the local conditions of the garden; the amount of shelter the trees will receive, whether naturally or by walls and other wind-screens, also whether the situation is low and therefore susceptible to late spring frosts, or whether it is on a slope, and consequently higher and drier. Place the order at once, before the best trees are sold, for the early purchaser gets the pick of the stock and there is a better chance of early delivery. The next step is the preparation of the ground, which should have time to become settled again before the time for planting arrives. The preparation of the ground will vary according to the previous crop. Soil that has been trenched and manured regularly, and cropped in the ordinary way with vegetables, will need little preparation beyond levelling, or adding such materials as wood-ash, bone-meal and lime-rubble. Where the trees are to be planted in grass the turf should be taken off in a circle 6 feet in diameter, the holes made and the subsoil loosened. The turf should be chopped small and mixed with the

top soil for filling in the hole. The soil may need draining; fruit trees will not remain healthy for any length of time in a water-logged soil.

THE BEST TYPE OF TREE FOR GARDENS.

As a rule the bush form is the most suitable kind of tree for planting in gardens (as distinct from those planted against walls). Bushes occupy but very little space, and if treated correctly will flourish for twenty or thirty years without unduly encroaching on the surrounding space. Standard trees take up a large area of ground. For the small or medium-sized garden bush trees may be planted by the side of the paths. By planting the trees 6 to 8 feet distant from the main paths room is allowed for a border of hardy, herbaceous perennials in front of them. For many months the flowers and fruit trees will be a source of great interest and pleasure.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

EUCARIS.—A few of the plants that have been resting since they completed their growth may be placed in the stove house to flower. The others may be introduced into heat at intervals to continue the supply of flowers. Water the roots copiously with tepid rain-water, and, when the spikes appear, give them plenty of stimulants. If mealy bug is present on the plants, sponge the leaves with strong soapy water.

CANNA.—A cool, frost-proof shed is the best place in which to store *Cannas*. The roots are often unduly shrivelled through storing them under the stages in warm houses. They may be placed quite closely together, and should be watered occasionally until the foliage has died down, when they should be covered with leaves or straw.

HUMEA ELEGANS.—*Humeas* need very careful treatment in winter, or many of them will die. Grow them in cool conditions until the spring. Plants that require re-potting should be attended to at once; pot firmly, and do not overpot them.

CHRYSANTHEMUMS.—There should be no difficulty in maintaining a good supply of *Chrysanthemum* blooms from now onwards. The earlier-flowering sorts are coming into bloom freely. The later varieties should be kept out of doors for as long as possible, but they must not be crowded together, or they will lose their foliage. Houses containing *Chrysanthemums* should be fumigated occasionally to destroy aphides.

PLANTS FOR FORCING.—Plants which are to be forced early should now be thoroughly matured. Those which have been planted in the open, such as *Lilacs*, *Pyruses*, *Prunuses*, *Wistarias*, and *Dentzias*, should be dug up and potted. Ordinary garden soil is suitable for this operation, and only small pots should be used. Pot plants which were not re-potted after flowering may need top-dressing. Examine the drainage, and put it in order if needed. Plants not required for forcing early should be plunged in a bed of ashes as a precaution against frost.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

VINERIES.—It is most important to have the vines and houses free from insects before forcing is commenced, therefore the work of cleansing both should be done thoroughly. The pruning of the vines and the cleansing of the houses should be done in their respective order for forcing, but it is too early to deal with the latest houses. The inexperienced should avoid the use of strong insecticides and unknown mixtures, which often injure the vines and do not kill the insects, especially mealy bug and red spider. If the houses are well scrubbed and the vines washed carefully there are few safer specifics for the vines than Gishurst compound.

The cleansing of the vines is not the most difficult business, as mealy bug often harbours in the woodwork of the roofs, trellis, and in loose parts of the border, where it is most difficult to dislodge. The work of exterminating mealy bug has only commenced when the vines have been washed, the house painted, and the walls washed with hot lime and sulphur. This winter cleansing must be followed in the spring by daily attention with a small brush and methylated spirits, from the time the vines break. If only a few bunches of fruit remain in succession houses, these should be cleared to economise fuel and allow the vines a rest before they are pruned. Most varieties of thin-skinned *Grapes* will keep now as well in bottles as on the vines. Muscat varieties are ripe and well coloured. Do not employ much fire-heat, but only sufficient to counteract damp. Gentle warmth in the pipes, with a moderate circulation of air on fine days, will keep the berries fresh and plump.

LATE VINERY.—If the berries of *Lady Downes* variety or other thick-skinned *Grapes* are not well finished, keep the pipes sufficiently warm to create a steady circulation of air, taking care to prevent sudden fluctuations in the temperature. The surface roots may be watered moderately with water raised to 80°, on a bright morning with warmth in the pipes. *Vineries* containing *Grapes* that are well finished should be kept dry. If the laterals are still growing they should be pinched, but not removed entirely, as these keep the roots in action and retard the ripening of the premier leaves.

HELLEBORUS.—The flower-buds of *Christmas Roses* are showing, and should be protected from damage by rains. This may be done by placing a spare frame over the plants, which, in addition to keeping the blooms clean, will cause the flower-stalks to lengthen considerably. Before placing the frame in position, lightly fork up the soil between the plants, and afford them a top-dressing of some rich material. Slugs must be constantly watched for, or they will do much damage to the blooms. The variety *Altfolius* is the best for winter use.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

ONIONS.—When the weather is too wet for work in the open examine the stores of *Onions* and remove decaying bulbs, for these would cause the loss of others through contact. Generally a few bulbs amongst the best samples will be found to show signs of decay, and these, together with those obviously unsound or split, should be removed immediately. Many of these rejected bulbs will be suitable for present consumption. The old plan of tying *Onions* to sticks and ropes is a good one, and the soundest bulbs should be treated in this way.

POTATOS.—The common *Potato* disease is very prevalent this season, and examination may prove that many of the tubers lifted in an apparently sound condition are affected. Unsound tubers should be removed and burnt immediately; they should not be given to pigs. If the late varieties, which are now being lifted, show signs of disease, do not store them in a clamp but in a building where they may be examined frequently.

LATE CAULIFLOWERS AND AUTUMN BROCCOLI.

—Examine the plants of late *Cauliflowers* and *Broccoli* frequently, and cut any that are sufficiently developed for use. The curds of those approaching maturity should be carefully protected by bending some of the leaves over them and tying the remainder of the foliage together. This will prevent injury from frost and rains. If the plants mature faster than they can be used, lift them with the roots intact and suspend them head downwards in a cool building. Plants showing no signs of development at present may be lifted and planted closely together in a cold frame or in any light structure from which frost can be excluded. The flower of these plants will develop in early winter, when they will be of great value.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, October 12 (10.0 a.m.); Bar, 29.7; temp, 64°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

At 1 o'clock, English and French Bulbs, by Protheroe and Morris, 67 and 68, Cheapside, E.C.

MONDAY AND FOUR FOLLOWING DAYS—

Nursery Stock, at Ottershaw Nurseries, Chertsey, at 11.30 o'clock, by Protheroe and Morris.

WEDNESDAY—

Bulbs, at 12 and 2 o'clock, at Protheroe and Morris's rooms.

The Use of Lime in Gardens.

Gardeners are nowadays so alive to the importance of maintaining a supply of lime in the soil that it might seem unnecessary to insist further on the subject. But inasmuch as examples are constantly coming to our notice in which otherwise good soils are deficient in lime, it seems desirable once again to point out how anyone may determine for himself whether or not the soil of his garden contains a sufficiency of lime. As is well known, one main use of lime is to neutralise the acidity which is set up in soils as the result of the decomposition of organic matter. Therefore a good indirect indication of a shortage of lime in the soil is obtained by testing the acidity of the soil. This may be done by the use of litmus paper, obtainable at any chemist's. A handful of soil in a somewhat moist condition is taken, a small slip of blue litmus paper is placed in the soil, which is then kneaded gently for a minute or two so as to bring the particles of soil in close contact with the litmus paper. If the soil be acid the colour of the litmus paper will change in the course of 5 to 10 minutes to red. By this means a series of tests may be made in different parts of the garden. Or instead of this test, which

only tells whether the soil be acid or not, the direct test for lime may be employed. This may be performed by adding to half a teacupful of soil enough spirits of wine (made by adding to the commercial article an equal quantity of water) thoroughly to moisten and just cover the soil. If lime be present in considerable quantity a lively effervescence occurs, but if the effervescence be only very slight it is to be inferred that lime is deficient in the soil.

It is often claimed that the form in which lime should be added depends on the nature of the soil, and that it is best to apply slaked lime to heavy soils and powdered chalk to light soils. Experiment, however, does not altogether confirm this belief, for comparative trials both in this country and in America* indicate that ground limestone (carbonate of lime) is somewhat superior in its action to lime (hydrate of lime). A convenient method for applying quicklime to the soil is given in an excellent account of the use of lime in agriculture by Professor R. Harcourt.† Quicklime is distributed in small heaps at the rate of one ton to the acre. Water is added at the rate of one-third the weight of the heap, and the latter is covered with about an inch of soil. When the heap is slaked it may be spread with a shovel. It is important that the slaked lime be not allowed to come in direct contact with organic manure. If chalk (carbonate of lime) is applied it should be in a finely pulverised state and at the rate of 2 tons per acre. Its action is less rapid than that of slaked lime (calcium hydrate), and its use on light soils is recommended because lime itself appears to hasten the oxidation of organic matter—a process which goes on fast enough already in well aerated light soils. On the other hand, peaty soils are improved more quickly by the use of lime, for in such soils much of the organic matter is not sufficiently decayed for use as plant food, and lime hastens the rate of decay. A further and important effect of lime, either as the hydrate or the carbonate, on clay soils is the well-known "opening" of the soil which it induces. Anyone who cares to observe this effect may do so by means of a simple experiment. To this end pour a little clay soil into a decanter half filled with water. After the roughly shaking let the decanter stand for a few minutes; then pour half of the cloudy liquid into another decanter. To one of these samples add a pinch of lime and observe that whereas the untreated liquid remains turbid for a long time, that to which lime was added soon becomes clear. The fine clay particles have been induced to hang together, or, as it is said, flocculate. Thus concentrated, they fall by their natural weight, whereas the scattered, unflocculated particles are so minute that they remain in suspension for a very long time. Since the stickiness and unworkableness of clay depends on the extremely fine particles of which it largely consists, it will be evident—and experience proves it—that the addition of lime makes the

soil more open and less sticky and unworkable when wet. This brief account by no means exhausts the list of benefits which lime confers on soil, and we may hope to return to the subject on a future occasion. One further point needs emphasis. It by no means follows that a soil lying on a chalky subsoil is rich in lime. Particularly if such a soil has been long under cultivation all the lime which it once contained may have been bleached out of it or used in neutralising the soil acids. Therefore gardeners who cultivate such soils do well to bear in mind the need for occasional dressings of lime. For garden work mortar rubble should be used whenever it can be obtained, and gas lime also if it be put on in the winter, when no crop is growing. Similarly the refuse from acetylene gas plants, which is rich in lime, may be used if several months elapse between its distribution and the planting of the land.

CLAREMONT, ESHER (see figs. 72, 73, and 74), which has been temporarily let to Mrs. ALMERIE PAGET, has an historical interest through its connection with the great Indian statesman, Lord CLIVE. It has also been the home of many Royal and other notable personages, including the Duke of NEWCASTLE, in whose time the grounds were improved by KENT; the Princess CHARLOTTE, daughter of GEORGE IV., and her husband, Prince LEOPOLD, Queen VICTORIA, LOUIS PHILIPPE and his Queen, the Marquis of LORNE and Princess LOUISE, and subsequently the Duchess of ALBANY. The mansion is a massive, rectangular building, and stands on rising ground overlooking a landscape of hill and dale. One of the most charming views is from the terrace across the lake. The pleasure grounds are well wooded, with glades, dells, swelling undulations and water pools, the whole forming a typical specimen of English park scenery. The gardens have been under the care of many distinguished gardeners, including MCINTOSH, of Dalkeith FAIRBAIRN, JOHN GREENING, who raised the Claremont Nectarine, E. BURRELL, and latterly JAMES S. KELLY. The illustration in fig. 72 shows the Lily pool surrounded with Dorothy Perkins Roses, the shoots hanging in festoons almost to the water. The border of Pentstemons illustrated in fig. 73 is a good example of the value of these beautiful flowers for massing, and further shows how well they succeed at Claremont. In fig. 74 are depicted portions of the herbaceous borders, with a handsome sundial.

BRADFORD CHRYSANTHEMUM SHOW ABANDONED.—The committee of the Bradford Chrysanthemum Society has cancelled the exhibition it was intended to hold November 10 and 11.

APPOINTMENT.—The *Kew Bulletin* announces that Mr. A. SHARPLES, Assistant Mycologist in the Agricultural Department of the Federated Malay States, has been appointed Mycologist of the Department.

THE LABOUR PROBLEM.—The President of the Board of Agriculture and Fisheries desires to call special attention to the following extracts from a letter which has been issued by the Army Council:—"I am commanded by the Army Council to inform you that in order to maintain the production of food supplies, to allow of the autumn cultivation, and generally to review the agricultural situation, it has been agreed that, subject to any decision of the Man-Power Board, and subject to any revision which developments of the military situation, and further information in regard to the agricultural situation, may demand, no more men from among those

* See Russell, *Soils and Manures*, p. 192.

† *Lime and its Uses in Agriculture*, Ontario Agricultural College, Bull. 238.

now employed in agriculture will, till January 1, 1917, and, in the case of men whose whole time employment on a holding is necessary for maintaining milk production, till April 1, 1917, be called to the Colours, except in return for men released from the Colours for work at agriculture. Prior to these dates, however, so far as is feasible, direct substitution of men not fit for general service now with the Colours will be made for men fit for service now in civil life, but it is recognised that cases will occur where it is more in the national interest to call up a man now employed in agriculture from one place, and to send from the Colours a man not fit for general service to work at agriculture in another. The procedure to be followed in carrying out this substitution will be laid down in a subsequent circular letter. To this general agreement the cases of certain men who have been refused exemption by Tribunals, but who, at the urgent request of the President of the Board of Agriculture and Fisheries, have been allowed to remain for a further stated period in civil life for agricultural work, will be treated as exceptions, and their retention in civil employment should be considered by local military authorities, together with the representative of the Board of Agriculture, on the County Appeal Tribunal. The President of the Board of Agriculture and Fisheries will instruct his representatives throughout the country to co-operate in every possible way with recruiting officers in securing fit men for general service under this arrangement." The foregoing extracts apply to all persons engaged in agriculture, including those men whose whole-time employment on a holding is necessary for maintaining milk production. The War Office has decided, subject to any decision of the Man Power Distribution Board, that in order to keep up the supply of milk, and, as far as possible, to prevent its rise in price, the existing labour scale for such men will be maintained until March 31, 1917. Before the New Year steps will have been taken by the War Office to obtain a census of men of military age still engaged in farming, and the President of the Board of Agriculture and Fisheries desires to emphasise that in each of the cases referred to in the first extract from the letter of the Army Council there is a definite terminal point. The President of the Board accordingly thinks it his duty to urge in the clearest possible manner that farmers should strain every nerve to prepare for changes which may become necessary during January and April, 1917, and to do their very utmost to further a scheme, which has been framed in the national interest, with a view to enable the land to be cultivated and the head of stock maintained while releasing men who are fit for general service. A period of respite is afforded, during which every effort should be made to prepare for replacing the men who may be lost later on, and no available alternative should be neglected, either as regards women or elder men.

DISTRIBUTION OF SURPLUS BEDDING PLANTS FROM THE L.C.C. PARKS.—The surplus bedding plants at the London County Council's parks and gardens will be distributed to the public on Saturday, the 14th inst., between the hours of 9 a.m. and 11 a.m. Persons desiring of participating in the distribution should make personal application at the parks or gardens.

SYMBIOSIS BETWEEN A BACTERIUM AND A FLOWERING PLANT.—DR. PETER GEORGEWITZ has discovered an interesting case of symbiosis between a bacillus and a flowering plant, *Kraussia floribunda*. On the leaves of the latter many nodules occur. The nodules are minute, elliptical bodies, and are formed of spongy tissue, in which a rod-like bacterium habitually lives.

CHRYSANTHEMUM DAY IN BELFAST.—Great success attended the holding of a Chrysanthemum day in Belfast last year by the Ulster Horticultural Society and others in aid of war

relief funds. It has been decided to hold another Chrysanthemum day this autumn, to raise funds for the benefit of sailors and permanently disabled soldiers. At a meeting of the Court Ward Committee, held on the 18th ult., it was resolved to deliver envelopes throughout the ward, and make a house-to-house collection in aid of the movement.

CALEDONIAN RAILWAY STATION GARDENS.—First-class premiums of £5 each have been

from attacking plants is claimed to meet with success.* Add a cupful of kerosene to a bucketful of dry sand and place the sand at the base of the plants. Maggots attempting to work through it are killed. Another method said to be efficacious for all root-maggots consists in applying the following mixture about the base of the stems: One pound of soap, boiled in one gallon of water; half a gallon crude carbolic acid; mix and add half as much water. The first application to be



[Photograph by H. N. King.]

FIG. 74.—SUNDIAL AND HERBACEOUS FLOWERS AT CLARIMONT.

(See p. 184.)

awarded for the best kept gardens at the following stations on the Caledonian Railway:—Montrose, St. Fillan's, Stonehouse, Bowness, Balquhiddier, Colliston, Eglinton Street, Killin and Loch Tay, Loch Awe, Barnhill, Kirkbuddo, Kirklee, Liff, Newtyle, Oban, Paisley (St. James's), Bowling, Greenloaing, Peebles and Laurencekirk. Upwards of thirty stations which had obtained first-class premiums for two years in succession were excluded from the competition this season.

ONION ROOT MAGGOTS.—The following method of preventing the Onion root maggot

given soon after the plants are up or transplanted, and repeated at weekly intervals.

PETROLEUM A PLANT PRODUCT.—Prof. W. S. BOULTON suggests in the course of his presidential address given before Section C (Geology) of the British Association that coal and petroleum are both genetically and chemically connected. Although petroleum occurs to some extent in rocks of every age, it occurs in largest quantity in rocks laid down in the two great coal-making periods, the Carboniferous and the Cretaceous-Tertiary. He puts forward the

* Bulletin of Miscellaneous Information, Kew, No. 1, 1916.

* Agric. News, Vol. XV., No. 307, 1916.

view that petroleum is derived from the natural distillation of the plankton which flourished in the muddy waters adjacent to the luxuriant land flora which "grew" the coal. Diatoms and Peridinæ—microscopic plants—may have played the chief part in the production of petrol. Although petroleum is not found in these islands to an extent sufficient for commercial production, Prof. BOULTON points out that the extraction of fuel oil from peat has passed the experimental stage, and that this process of manufacture is now about to be tried on a commercial scale. He estimates that a ton of Lanarkshire peat, after the moisture has been reduced to 25 per cent., yields 40 gallons of crude oil, 18-20 pounds of sulphate of ammonia, about the same amount of paraffin wax, considerable quantities of coke, and between 5,000 and 6,000 cubic feet of combustible gas. Another mode of accumulation of petroleum in the earth has been put forward as a result of observations in Burma. In that country it has been shown that oil, derived, no doubt, from disintegrating plant and animal tissues occurring in streams and swamps, is carried to the bottom by adhering to particles of mud. These mud deposits, containing globules of oil, becoming covered with other deposits of sand, are subject to increasing pressure, the oil and some water are squeezed into the over-laying sand, and thus there occurs an accumulation of petroliferous sands and clays.

WAR ITEMS.—The Worthing Local Tribunal has decided that the growing of Grapes, Cucumbers and Tomatos is work of national importance, and exemption from military service has been granted to a number of men engaged in the local nurseries, including a boilerman. The military representative (Colonel BROWNE) raised the question that Grapes, Tomatos and Cucumbers were luxuries, and that it was not in the national interest for men solely engaged in the growing of such produce to be exempted. Mr. F. MARTIN, rate collector and assistant overseer for Worthing, said the gross assessable value of the borough was £250,000, and the rateable value £200,000. The gross capital value of the fruit-growing property, calculated the same as for rating purposes, was £200,000. The estimated rental on that value was £11,000, and the rateable value £7,150, producing annual rate revenue of £1,530. The total rates collected for the borough amounted to approximately £74,000. The total area of glasshouses in the borough was 34½ miles if the houses were placed end to end, and the superficial area of glass was 4 million feet. He had not included in the figures market gardens or allotments, but only nurseries with glasshouses. Figures were quoted showing the extent of the local industry. In the height of the season the quantity of produce handled at Worthing station averaged from 2,500 to 3,000 "packages" each day, on Mondays, Wednesday and Fridays, with a third to a fourth of that quantity on other days except Saturday, so that roughly it worked out at about 10,000 packages a week. In the Cucumber season as many as 15 tons, and in a heavy season 18 to 20 tons, a day of this one item alone were despatched by the Worthing fruit train to London. On the three main days this special train averaged five van loads or large coaches. A letter from Messrs. Geo. MONRO, Ltd., Covent Garden, was read, which showed that Grapes are now chiefly sold to the hospitals, mainly for the wounded soldiers. A certain quantity is exported to America. Dealing with Cucumbers and Tomatos, Messrs. MONRO stated that apart from those consumed by the workers in munition and other factories and miners, large quantities are sent to training camps and also to the Fleet. Mr. JOHN POUPART, wholesale salesman, Covent Garden, said that the chief destination of the Worthing Tomatos was the mining centres, iron foundries and large factories and shipbuilding districts—in fact, anywhere where the workers

had to face a great deal of heat and were in a dry, dusty atmosphere. The miners took the Tomatos down in the pits with them because they must have moist food. Before the war more Cucumbers were sent to Germany than almost anywhere; now they went to Nottingham, Derby, Birmingham and Manchester, and the Welsh mining centres. Cucumbers took the place of butter, and with some men, he believed, they were used as a substitute for beer. Tomatos were being imported into England from Holland, but not to any great extent. Mr. DIXON gave the Board of Trade figures showing that the following quantities were imported into England during the month ending September 22:—Tomatos, 6,023 tons; Cucumbers, 17,000 dozen; Grapes, 7,200 tons. Mr. POUPART stated that, estimating the value of Tomatos at £30 a ton, this country was paying £180,000 a month for imported Tomatos. The value of the imported Cucumbers was £2,000 a month, and the value of the Grapes £216,000 a month. The chairman pointed out that the country was paying over two millions a year for imported Grapes, Tomatos and Cucumbers, and the appellants stated that the Worthing growers and others were trying to reduce this cost to imports.

—Company Quartermaster-Serjt. C. P. RAFFELL, of the Royal Botanic Gardens, Kew, has returned from the Front, and is temporarily attached to the Document Office, Grantham.

—We learn that the National Horticultural Society of France, besides starting a fund in aid of wounded soldiers connected with horticulture, has also created a fund to help nurserymen in the invaded districts who have suffered by the war.

—Captain BALTET, of TREVES, has recently been mentioned in the Army Corps order of the day for gallant service, and has received the War Cross.

—The son of M. FRANCOIS BLOT, of the firm of VILMORIN, ANDRIEUX AND CO., who was wounded some time ago and again quite recently, has been mentioned in the Army order. M. MAURICE BLOT is a sub-lieutenant in the infantry.

—M. HENRI NOMMÉJA, a young lad of 17 years of age, the son of a well-known Chrysanthemum amateur, M. RENÉ NOMMÉJA, joined as a volunteer before he was liable for military service. He has already been wounded twice and mentioned in the order of the day, which carries with it the award of the War Cross.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

IMMATURE SEED TUBERS OF POTATOS.—In reference to your leader on p. 160 dealing with Mr. Hutchinson's suggestion as to utilising immature seed tubers, after many decades' experience, going back to the sixties, when, as a pupil at the Government Farming College at Glasnevin, near Dublin, I had charge of experiments with forty varieties, permit me to say that, unless immature tubers are "greened" and fully exposed to the sun for a considerable time, I would be very unwilling to depend on them for a crop. All the varieties I plant in my garden are invariably "greened," that is, they are left on the ground, often for a month or more, especially during July and August. They are almost invariably free from blight, and commence an active growth in early spring—much earlier than matured varieties left unlifted until September or October. Last year I tried an experiment with "immature" Potatos. The blight came earlier than usual, when I cut down the stalks, so as to prevent the fungus attack reaching the tubers, carting away the tops. The tubers never properly matured, and when planted this year were a comparative failure, even though I tried to mature them by "greening." I am, therefore, disposed to agree with your conclusion, that you are not convinced the use of immature seed Potatos, when grown for successive years, as "own saved seed," is not

liable to cause deterioration. I am satisfied that both quantity and quality are deficient, and that nothing is gained—rather the contrary—by using immature seed. W. J. Murphy, Clonmel.

PEA AUTOCRAT (see p. 146).—I can fully endorse all Mr. Beckett's remarks on this fine variety of culinary Pea. It is one of the best and latest varieties. From a sowing made in these gardens in the first week of June we are still gathering good pods. A. B. Wadds, *Englefield Gardens, Reading.*

TILLAGE AND FRUIT IN IRELAND.—The Department of Agriculture and Technical Instruction of Ireland has issued, amongst other returns, the following: The total area of green crops, including Flax and fruit, amounted in 1916 to 2,400,356 acres, as compared with 2,404,281 acres in 1915, a decrease of 3,925 acres, or 0.2 per cent. The total area of Potatos in 1916 is 586,308 acres, as compared with 594,467 acres in 1915, a decrease of 2,378 acres. The area under Cabbage in 1916 is 34,309 acres, as compared with 35,936 acres in 1915, a decrease of 1,627 acres. The total area under Beans in 1916 is 998 acres, as compared with 1,032 in 1915. The area under Peas in 1916 is 148 acres, as compared with 180 acres in 1915, a decrease of 32 acres. The total area under fruit in 1916 is returned at 15,567 acres, as compared with 15,885 acres in 1915, a decrease of 318 acres, or 2.0 per cent. In the provinces the fruit has decreased in Ulster by 220 acres, in Connaught by 39 acres, in Munster by 34 acres, and in Leinster by 25 acres. *Correspondent.*

CATERPILLARS, WASPS, AND BIRDS (see p. 140).—I can assure J. F. that the immigration of the common Cabbage butterflies from the Continent is a well-established fact, based on plenty of first-hand evidence, as he will find if he can consult the scientific magazines. *The Entomologists' Record*, Vol. 12 (1900), pages 254 to 257, will give him some useful references. I am not aware, however, that the wind has much to do with the question, or that the immigrations are in any way periodic or even frequent. It is not probable that these species would die out in this country if the immigrations could be prevented. On the contrary, the fact that in the year or years following the immigrations, the butterflies are usually not more than of average abundance, suggests that their enemies, the ichneumon flies and other creatures, have also increased inordinately, and thus kept the butterflies in check. This sort of thing has frequently been observed in the case of groups of animals other than insects. Mr. John Eittle (p. 150) may be quite sure that the wasps knew no more than he did that there would be no Plums this year! The reason for the absence of Plums is no doubt the same as that for the absence of wasps, viz., inclement weather at a critical time.

It may be quite an accident that he saw only one queen in the spring, because here and in other parts of the country they appear to have been exceptionally numerous; yet, as with him, wasps have been decidedly scarce here and in other places during the summer. As to his remarks about birds and water, was the water in the barrels and tanks available to the birds? If not, where is the argument? If birds are so numerous as to take more than a fair share of fruit, of course they must be kept in check, but they are fully entitled to a share of the fruit which, without their aid, would not exist at all, because of insect and other pests. Why has John Eittle and his neighbours more than their share of "most kinds" of wild birds, and what does he mean by "most kinds"? If it be really true that birds are unreasonably abundant in his district, why does he not find out why this is so, and take steps to rectify it, not by killing off the birds, but perhaps by combating the game preservers, who selfishly kill off birds and beasts of prey, for the purpose of their miserable pheasants in order that they may be brutally maimed or killed by so-called sportsmen. C. N., *Chingford.*

WASPS AND BIRDS (see p. 150).—I have seen few wasps this year and heard no complaints, so that my experience is much the same as that of Mr. John Eittle. They are not all dead, however, and will give trouble again when the season suits them, for they breed very fast during a

single season when it fares well with them. A few weeks ago, while climbing a steep chalk bank, I walked over the opening of a large nest and saw about a dozen entering or leaving during the short time it took me to walk deliberately past it. I have had a good deal of experience in destroying wasps' nests, hung up in the Gooseberry bushes, made in the ground amongst them, and elsewhere, having been deputed for the job when others failed. One in the bushes had been much disturbed, and the wasps were ferocious, but I knew it, and elected to destroy the nest during the evening. Wasps, unlike hive bees, keep returning long after dusk. I had some rags dipped in fused sulphur, and, tying these on a long cane, I lay down flat, lighted the rags, and held them under the nest while large numbers of late arrivals were flying over me all the time. The destruction was complete before I moved. Those which I dug out of the ground I watered well first, and this acted like smoke on hive bees. I then started digging, and could kill every one as fast as it emerged from the soil. I have never been stung by a wasp, except when gathering Gooseberries that had been hollowed by them and contained a live one inside. I also learned that the autumn rains soon made them torpid, and I could then dig out the nest without any preparation. Mr. Eittle seems to accuse birds generally of doing mischief in the garden; but I think it would be more fair to bird and gardener alike to lay the blame on the culprits. My experience is that domestic pigeons [and the hawkfinch and jay.—EDS.] will destroy garden Peas; the wood pigeon will also eat the haulm and leaves of Cauliflowers, and Gooseberries, swallowing these when nearly full sized. Blackbirds are destructive to Apples and Pears; they and the song-thrush eat Cherries, Raspberries and Strawberries, but go for any of the small fruits when berries are getting scarce. Netting is the best remedy in private gardens, but market gardeners employ a boy to walk amongst the trees during the ripening period, making a noise with some sort of scare. Bullfinches tear the fruit buds to pieces in spring, and sparrows learn to destroy all sorts of things, apparently out of pure mischief. J. F.

PLANTING HERBACEOUS PAEONIES.—On p. 158 Mr. W. J. Guise writes, "From the present time to the end of next month Paeonies may be planted." This is useful enough as a reminder; but it ought to be said that autumn planting for Paeonies is essential. Unfortunately for the Paeony, not a few of the text-books state that "the best time to plant is when a few inches of new growth has been made in spring." Nothing is farther removed from the fact. Root production in the case of the Paeony differs from that of the majority of herbaceous plants. One of the best gardening lessons I ever learnt was that while the majority of herbaceous plants are more or less perpetual in their rooting—making replanting possible over several months of the year—a few others are distinctly periodical, i.e., they produce their roots at fixed intervals only. Into this latter category fall the Paeony, the Christmas Rose, and some others; and because of it their planting must be undertaken within certain limits of time if success is to be achieved. The plants mentioned produce only two sets of root-fibres each year; the main or basal roots in autumn, usually in September, and the fibrous roots, which, issuing from the former, make their appearance contemporaneously with the new leafage of the plants in spring. In these circumstances the work should be completed prior to the emission of the basal roots. The succession of these roots is, however, for the time being considerable, hence the work of replanting may be extended with impunity for a few weeks. At the same time, it should be regarded as the "dormant" period: that season of least activity which is paralleled by the "dry" or "dormant" period in bulbous plants, and for both the advice to plant early, and while the subjects remain more or less dormant, is practical and sound. It planted in autumn everything follows in order, and there is little or no loss of vitality. Transplanted in spring Paeonies suffer materially, directly and indirectly, and because of it these plants are writ down as "impatient of removal." The only thing they are

"impatient" of is being disturbed at the wrong time. What happens in consequence of spring planting is that the main roots are intercepted in the midst of developing, and, powerless to retake to the soil, perish outright. To some extent the loss may be modified by lifting and dividing in September, heeling in the divisions in dryish soil. In this way root action is retarded for a time; and, because of it, the replanting may be done over a longer period. This is, however, of greater service to the commercial grower than the private gardener. The best month for planting is September, and the earlier the better. At that time root and crown development is completed—the season's work is done. The Paeony should never be planted in big clumps; these should be divided. Clumps of Paeonies are best divided by laying them on their sides, plunging hand forks or small garden forks back to back into the root-stock below crown level and wrenching outwardly in opposite directions. In this way they are rent asunder with a minimum of loss. The spade and the chopper—both occasionally recommended—are the worst of tools, only hacking the plants to pieces. In dividing old clumps, much of the lower portion of the root-stock may be detached and discarded; it is useless so far as the future progress and development of the plant is concerned. New roots in the Paeony issue from the base of the current season's crown. Hence for the planter a few strong crown-buds to each division are of high import. These, in the case of the Chinese Paeony, will be of the size of one's index finger. In the official Paeony they are larger. Plants having three to five crowns are large enough for all purposes. In planting, keep the crowns fully 3 inches below the ground level; the new roots demand this. Established Paeonies will descend 3 feet or more if the soil is good, hence the soil should be deeply and well prepared. In this and soil richness the planter is not likely to err. Accorded so generous a treatment, a Paeony border may be good for twenty years, lacking nothing meanwhile in imposing grandeur or floriferousness, rather demonstrating the high ornaments of this noblest and best of herbaceous plants. To attain perfection on these lines it is essential that the beds be saturated during autumn and winter, when root growth is in active progress, with liquid manure. The orthodox mulching is quite inadequate to the needs of the plant. At or near the flowering time, flooding with clean water will also be of service, while the effectiveness of these applications will be assisted in those instances where the surface of the bed approximates to the level and is slightly below that of the adjacent ground. E. H. Jenkins.

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 10.—The exhibition at the meeting on Tuesday last in the Vincent Square Hall, Westminster, was almost sufficient to fill the building, there being good collections in the Orchid, floral and fruit sections.

The Orchid Committee recommended three Awards of Merit to novelties and awarded six medals to groups. Many novelties were submitted to the Floral Committee, and twelve Awards of Merit were recommended, four of these being for Dahlias. Fourteen medals were awarded by this Committee for collections. The Fruit and Vegetable Committee awarded three medals to collections of hardy fruits.

At the 3 o'clock meeting in the Lecture Room an address on "A Sussex Rock Garden" was delivered by Mr. Frederick J. Hanbury.

Floral Committee.

Present: Mr. H. B. May (in the chair), Messrs. John Green, G. Reuthe, J. W. Moorman, W. Howe, John Heal, John Jennings, C. R. Fielder, John Dickson, Chas. Dixon, Chas. E. Shea, Chas. E. Pearson, W. P. Thomson, George Paul, W. G. Baker, W. J. Bean, R. Hooper Pearson, E. A. Bowles, Jas. Hudson, E. H. Jenkins and W. B. Cranfield.

AWARDS OF MERIT.

Nerine Botherside. A hybrid of which *N. corusca* was the seed-bearer, the other parent being most probably *N. Fothergillii* major. The colour is deep salmon, and the anther filaments a little paler shade; the segments are more crinkled than in *Fothergillii*, and there is a glitter on them from numerous small facets, known as gold-dust. Shown by Messrs. H. CHARMAN, LTD., Rye.

Geum Borvii. A form, apparently, of *G. minimum*, the height of the plant being only 10-12 inches. The flowers are large, single, and of a beautiful orange-red colour. Shown by Mr. CLARENCE ELLIOTT.

Aster J. S. Baker. A double white Michaelmas Daisy of the *Novae-Belgiae* section. The blooms are 1 inch across and are produced with great freedom. Shown by Messrs. BAKER'S, Codsall, Wolverhampton.

Pelargonium General Joffre. A sport from King of Denmark, with deep salmon-coloured flowers, occasionally showing other tints, including orange-scarlet. The plant makes a compact specimen, and will be sure to make a good bedder. Plants in pots carried fine, well-shaped trusses of bloom. Shown by Mr. H. ROBBINS, Lewes.

Viburnum dasyanthum. This new species of *Viburnum* is a native of Western Hupeh, China, where it grows at an altitude of 1,200-2,250 m. The leaves are a dark metallic green on the upper surfaces, paler beneath, prominently veined, 2½ inches long, serrate, and pointed at both ends. The inflorescence forms a lax panicle; the flowers are succeeded by small red fruits that are very showy at this season, and resemble those of a *Cotoneaster*.

Aster King of the Belgians. A new variety with large, soft heliotrope blooms and prominent gold-coloured centres. The plant exhibited was a beautiful specimen, crowded with blossoms, on strong, robust growth. Both these were shown by Hon. VICARY GIBBS (gr. Mr. E. Beckett).

Colchicum illyricum Hort. A *Colchicum*, shown under the provisional name of *C. illyricum* (syn. *speciosum*), having large, spreading, rose-coloured flowers, with white centres. Shown by Messrs. BARR AND SONS.

Chrysanthemum Lichfield Pink. An early, decorative, market variety of the incurved-Japanese type. The blooms are of good shape and coloured pink with a lilac sheen. Shown by Mr. ALEXANDER W. THORPE.

DAHLIAS.

The following varieties of Dahlias received the R.H.S. Award of Merit and the National Dahlia Society's First-class Certificate:—

Dahlia Elaine. A Colerette variety of regular outline. The florets are vinous-red, edged with deep yellow, which is also the colour of the quills; the disc is orange-coloured. Shown by Mr. J. T. WEST.

D. Autumn Tints. This variety also belongs to the Colerette section. The colour is terracotta, and the broad, numerous quills are almost flat against the centre of each floret, which enhances the effect by sharp contrast. Shown by Messrs. SREDWICK AND SON.

D. Anerley Yellow. A large, Paeony-flowered variety of clear sulphur-yellow colour.

D. J. A. Jarrett. A distinct type of flower which was classed with the Paeony-flowered section, but the shape of the florets having a resemblance to some of the Cactus sorts. The flower has a revolute appearance, the florets in the centre being twisted on themselves. This leaves the centre open, revealing a rich shade of golden yellow in the middle that contrasts finely with the scarlet tips of the upstanding segments. The stalk is rather thin. Both these Dahlias were shown by Mr. J. A. JARRETT.

OTHER NOVELTIES.

Mr. CLARENCE ELLIOTT, Stevenage, showed a plant of *Gentiana sino-ovata* flowering freely in a small pan. The plant is very similar to *G. ornata* var. *Veitchii*, figured in *Gard. Chron.*, November 6, 1915, p. 238.

Mr. H. J. ELWES, Colesborne, exhibited varieties of *Nerine*, of which the best were Mrs. O.

Aimes, having white petals and sepals tipped with cherry-pink, the unopened buds being very charming; Lady Foster, white, marked with rose; and Lady Violet Loder, salmon-red.

Messrs. R. F. FELTON, LTD., Florists, Hanover Square, showed the new American Rose, Hoosier Beauty, a variety of intense crimson, and very suitable for florists' decorations.

Messrs. G. and A. CLARK, LTD., Dover, showed their beautiful new form of *Cimicifuga simplex*, which is a great improvement on the type.

The Hon. VICARY GIBBS (gr., Mr. Edwin Beckett) brought several new Michaelmas Daisies. The plants were shown in small tubs. The varieties Namur (soft pink), Mons (deep pink), Aerschott (a blue double variety), Brussels

(pale violet), Ypres (blush-pink, with white tips) and Liège (pink) were all good.

Messrs. JOHN WATERER, SONS AND CRISP, LTD., Twyford, showed the new *Cotoneaster pyrenaica*, a low-growing shrub, with spreading, trailing shoots.

GROUPS.

The following medals were awarded to collectors:—

Silver-gilt Banksian Medal to Mr. J. B. RIDING, Chingford, for Dahlias. This large, attractive exhibit included varieties of the Cactus, Decorative, Pacony-flowered and Collette types. Fine new Pacony-flowered Dahlias were shown in Mrs. Warnaar (flesh-pink), Avalanche (white), Garibaldi (crimson lake), and Leo XIII. (yellow). The decorative varieties were shown numerous, the brightest being Colibri (crimson with white tips), St. George (red and white), Brentwood Yellow and Princess Juliana (white). The small decorative sorts included Marianne (amber), Barlow's Bedder (bright crimson), and Futurity (salmon).

Silver Flora Medals to Messrs. CHEAL AND SONS, Crawley, for clipped trees and shrubs, and Dahlias. The examples of topiary were uncommonly fine specimens; Messrs. PIPER AND SONS, Bayswater, for a large floor group of trees and shrubs, including many newly introduced species from China; Mr. J. J. KETTLE, Corfe Mullen, for Violets; and Mr. L. R. RUSSELL, Richmond, Surrey, for excellent pot plants of tree Ixias.

Silver Banksian Medals to Messrs. ALLWOOD BROS., Wivelstield, for perpetual-flowering Carnations; Messrs. BAKER, Codsall, Wolverhampton, for hardy flowers; Messrs. W. CUTBUSH AND SON, Highgate, for a group of hardy flowers, including many fine Michaelmas Daisies; Mr. ELISHA HICKS, Twyford, for Roses, including his novelties Princess Mary and Joanna Bridge; Messrs. H. B. MAY AND SONS, Edmonton, for Ferns, Bouvardias and Hydrangeas; Mr. G. BERTHE, Keston, Kent, for hardy flowers; Mr. G. PRINCE, Longworth, for Roses; Messrs. JOHN WATERER, SONS AND CRISP, LTD., Twyford, Berkshire, for new and rare shrubs and Michaelmas Daisies; Messrs. W. WELLS, JUNR., Merstham, for hardy flowers, including excellent Delphiniums and the newer perennial Asters.

Bronze Flora Medal to Rev. J. H. PEMBERTON, Havering-atte-Bower, Essex, for Roses.

Orchid Committee.

Present: Sir Harry J. Veitch (in the chair), Sir Jeremiah Colman, Bart., Messrs. Jas. O'Brien (hon. secretary), Pantia Ralli, Stuart Low, R. A. Rolfe, F. J. Hanbury, R. G. Thwaites, T. Armstrong, Walter Cobb, J. Charlesworth, J. Cypher, C. H. Curtis, W. H. White, S. W. Florv, W. Bolton, C. J. Lucas, Clive Cookson, R. Brooman White and Gurney Wilson.

AWARDS OF MERIT.

Odontoglossum percultum var. *Nicator* (*ardentissimum* × *Rolfae*), from ERNEST G. MOCATT, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson). A fine variety, of which a highly creditable specimen was shown; it had two spikes, each of eleven flowers. The flowers are large, possess very broad segments, and the petals and lip are fringed. The sepals and petals are reddish-claret colour, the margins and tips pure white. The lip has a yellow crest and ruby-red markings around it; the front half is white.

Cattleya Venus Orchidhurst variety (*Iris* × *Dowiana aurea*), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells. A grand hybrid of gorgeous colour, and the best of its class yet shown. The sepals and broad petals are bronzy-yellow with chrome-yellow margins. The lip is an intense ruby-red with a glowing orange shade, and there are deep yellow markings on the base and isthmus between the short side lobes and expanded front.

Sophro-Laelia-Cattleya Lutetia (S.-L.-C. *Sandhage* × *C. Fabio*), from Messrs. CHARLESWORTH AND CO., Haywards Heath. In this complex hybrid the Cattleya, as might be expected, gives the form and size, but *Sophonitis grandiflora*, with its red tint, handed on through S.-L. *heatonensis*, which, with *C. Enid*, produced S.-L.-C. *Sandhage*, gives a very attractive and unusual shade to the flower. The sepals are coloured gold-bronze with a slight violet shade;

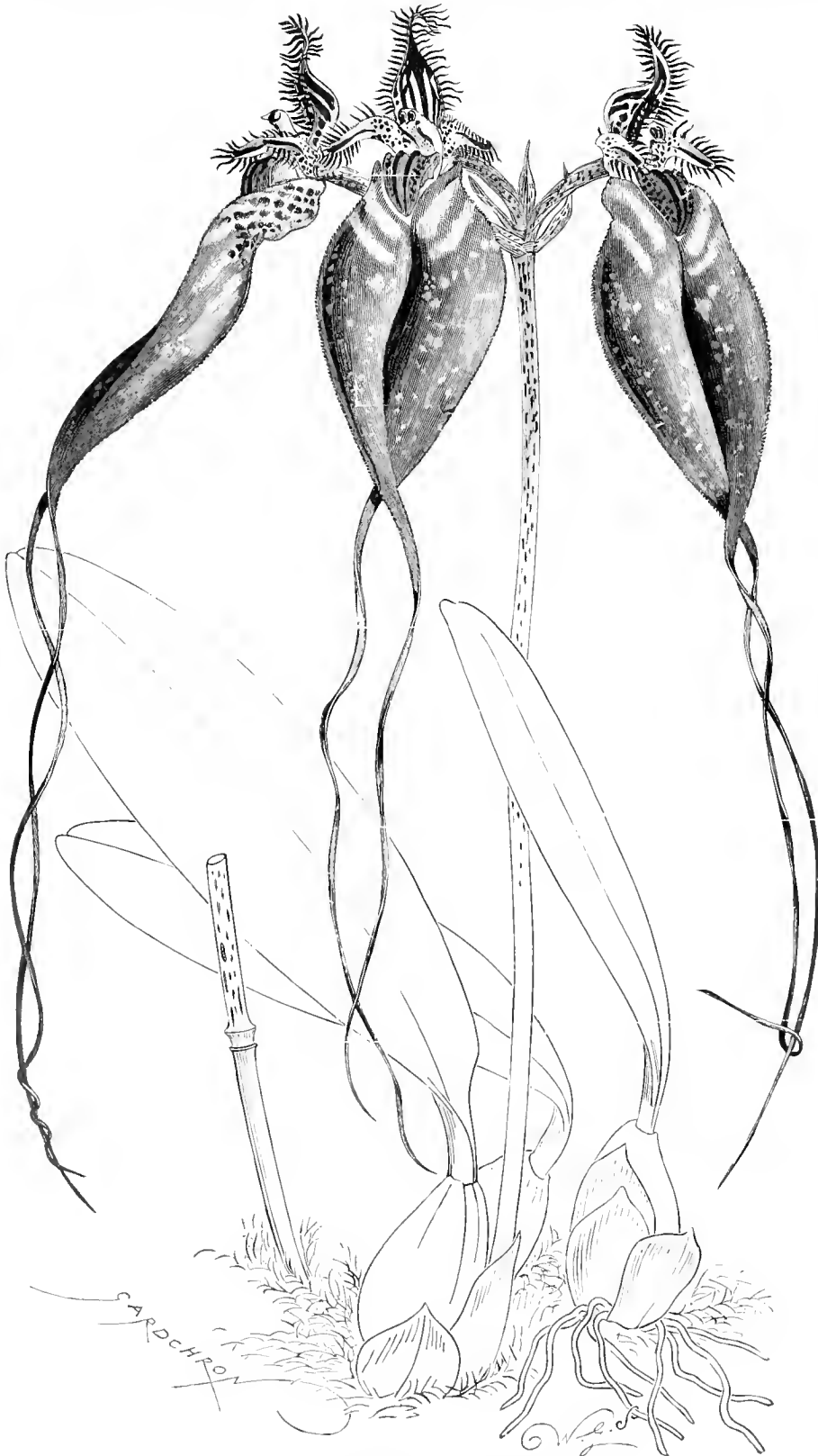


FIG. 75 —*CEREHOPETALUM ROTHSCHILDIANUM*
(See report of R.H.S. Orchid Committee, p. 189, col. 1.)

the petals are rose purple on a white ground, the bronze shade of the sepals appearing on the tips. The lip is dark claret colour with orange colour in the centre, and there are basal lines of the same shade.

GROUPS.

Messrs. CHARLESWORTH AND Co., Haywards Heath, were awarded a Silver Banksian Medal for a group of showy hybrids. Novelties included *Cattleya Mignolito* (Octave Doin \times *Dowiana aurea*), a charming white flower with the crimped petals tinged with pale violet, and a deep claret-coloured lip with yellow veining at the base; *Odontioda Brewii* var. *nigra*, with a fine spike of large, blackish-chocolate flowers having broad, rose-mottled labellums; *Miltonia vexillaria* *Hesperia*, a *M. v. Leopoldii* cross with dark mark on the lip; and the elegant *Odontonia Cybele* (*M. candida grandiflora* \times *O. cirrhosum*), in which both of the botanically well separated parents are well defined.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, were awarded a Silver Banksian Medal for a group of new hybrids, including their fine form of *Cattleya Venus*, *C. Acis* Orchidhurst variety (*Maronii* \times *Dowiana aurea*), with clear yellow flowers having a distinct emerald green tint on the sepals, the lip being red, changing to rose-red in the veining at the margin; *Odontoglossum Victory*, var. *Sir Douglas Haig*, a new form from the batch one of which secured a Preliminary Commendation on October 12, 1915. The new variety is large and of perfect form; the segments are bronzy claret colour with white margins.

Messrs. SANDER AND SONS, St. Albans, were awarded a Silver Banksian Medal for a group of *Cattleya Fabia*, both white-petalled and coloured varieties; a fine form of the pure white *C. Lady Veitch*; the new *C. Sir Douglas Haig* (*Warszewiczii* \times *Sylvia*), a noble plant with six flowers of the *C. Hardyana* type, sepals and petals deep rose, lip ruby-purple with yellow disc.

Messrs. HASSALL AND Co., Southgate, received a Silver Banksian Medal for a very effective group of their beautiful autumn-flowering *Cattleya Sylvia*, *C. Adula* and *C. Naidia*, also a pretty extension of their *C. iridescens* crosses in *Laelio-Cattleya Zena* (*L. C. Ophir* \times *C. iridescens*), with pretty yellow flowers with rosy-crimson lips.

Messrs. J. AND A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a group with a handsome set of forms of *Cattleya Hardyana*, *C. Lord Rothschild*, and other hybrids, a noteworthy example being *Cymbidium Hanburyanum* (*erythrostylum* \times *Tracyanum*), with cream-yellow flowers with red markings.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, staged an effective group for which a Silver Banksian Medal was awarded. A good selection of hybrid *Cattleyas* and *Laelio-Cattleyas* was included, the best of the latter being the new *L. C. Olive* (*C. Adula* \times *L. C. callistoglossa*), a very promising hybrid.

R. WINDSOR RICKARDS, Esq., Usk Priory, Monmouthshire, sent a selection of fine hybrid *Cypripediums*, among which the handsome new *C. Eudora* (*Goverianum* \times *Mary Beatrice*) was conspicuous. The large flower well showed the massive proportions and fine colouring of *C. Lawrenceanum* and *C. Curtisii*, the parents of *C. Goverianum*, which again enters into its composition through *C. Mary Beatrice*. Good forms of *C. Curlew*, *C. Mrs. Alfred Fowler*, *C. Cavalier* and *C. Nito-Cynthia* were also shown, and a good form of *Odontoglossum Albion rubescens* (*percultum* \times *Rossii rubescens*).

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. Hannington), showed two distinct forms of *Laelio-Cattleya luminosa*, the one with primrose and the other with canary-yellow petals, and both with a dark purple lip.

Mr. F. C. WATERS, Balcombe, showed a superb form of *Vanda coerulea* with fifteen flowers, netted with bright blue, on a spike.

Messrs. FLORY AND BLACK, Slough, showed the remarkable *Cirrhopetalum Rothschildianum* (see fig. 75), with an umbel of large cream-white flowers densely spotted with claret-red, the lateral sepals being continued into long, slender tails.

Fruit and Vegetable Committee.

Present: Mr. Jos. Cheal (in the chair), Sir Albert K. Rolitt, Messrs. Owen Thomas, P. D. Tuckett, Edwin Beckett and E. A. Bunyard.

COLLECTIONS OF FRUIT.

The following medals were awarded to collections of fruit:—

Hogg Memorial Medal to C. A. CAIN, Esq., Welwyn, Hertfordshire (gr. Mr. F. Pateman), for a collection of hothouse and hardy fruits. This splendid exhibit occupied the whole of a long table, and included excellent bunches of Muscat of Alexandria, Lady Hatt, Appley Towers and Madresfield Court Grapes; Lady Palmerston, Sea Eagle and other Peaches; Coe's Golden Drop Plums; several Melons; Doyenné du Comice, Durondeau, Marguerite Marillat, Doyenné Bouissoch, Fondante d'Automne and other Pears; and Washington, Golden Noble, Emperor Alexander, Rival, Gloria Mundi, and other Apples, all of the best exhibition quality.

Silver Knightian Medal to BARHAM NURSERIES, for fifty varieties of Apples, arranged on a separate table. There were choice fruits of such varieties as Lane's Prince Albert, Allington Pippin, Warner's King, Wealthy, The Hombton and Winter Ribston.

Silver Banksian Medal to J. CHIVERS, Esq., Wychfield, Cambridge (gr. Mr. F. J. Sage), for Apples and Pears. Ribston Pippin, Cox's Orange Pippin, James Grieve and Winter Banana were the best Apples. Bartlett Pears, from trees imported from California, were very good.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 21.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, R. Handley, A. Hamner, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Hamilton, *O. eximium Xanthos* var. *citrona* and *Cattleya Gaskelliana* var. *Reine Blanche*, all from Dr. Craven Moore.

AWARDS OF MERIT.

Cattleya Venus var. *Conyngham* (*Iris* \times *aurea*), *C. Naidia* var. *Conyngham* (*iridescens* \times *Hardyana*), and *Adula* var. *Conyngham* (*bicolor* \times *Hardyana*), all from Dr. Craven Moore.

Cattleya Venus var. *Mary Gratrix* (*Iris* \times *aurea*) and *Cypripedium Actacus* var. *Majestic*, both from S. GRATRICK, Esq.

Cattleya Venus var. *Cylops*, from R. ASHWORTH, Esq.

Cypripedium Dallas Carter Place var. (*Curtisii superbum* \times *Fairrieatum*), from Tom WORSLEY, Esq.

Odontonia Scylla (*Miltonia vexillaria* \times *Odm. cirrhosum*), from Messrs. J. and A. McBEAN.

MEDAL AWARDS.

Dr. CRAVEN MOORE, Victoria Park, Manchester (gr. Mr. F. Arnold), was awarded a Large Silver Medal for a group of *Cattleyas* in variety.

The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), staged a group of *Cypripediums* for which a Silver Medal was awarded.

Messrs. HASSALL AND Co., Southgate, London, were awarded a Silver Medal for a group of hybrid *Cattleyas* of the *bicolor* and *Hardyana* sections.

THE APIARY.

By CHLORIS.

AUTUMN CARE OF THE HIVES.—The time has come when the last work of the season must be performed, for all operations in the apiary should be completed by the middle of October. In previous notes I have strongly recommended that there should be a complete autumn cleansing of the apiary—such as thoroughly scraping all floor boards and removing debris from the walls of the hives. Having done this, carefully examine the frames to ascertain if there be sufficient sealed food to carry the bees until next April. Some bee keepers believe that 20 lbs. is enough, but 30 lbs. gives a safe margin and removes all doubt. Should feeding be necessary, then give good thick syrup made as

follows:—White lump sugar (cane), 10 lbs.; water, 5 pts.; salt, $\frac{1}{2}$ oz.; vinegar, 1 oz. To save time boil the water, add the sugar, and boil a few minutes, taking care not to burn it, as burnt syrup is hurtful to bees. Give the syrup to the bees warm and in the evening, so as not to encourage robbing. Wrap up the feeding-bottle warmly to prevent the escape of heat, opening all the feed-holes so that the syrup may be taken down quickly and sealed. Crowd the bees on eight frames, using a wide and a narrow metal end alternately, placing the combs filled with honey on the outside and shutting off the unused space by means of the dummy. To avoid the necessity of the bees going under the frames for food, thus exposing themselves to chills, put two or three pieces of wood, three-quarters of an inch square, across the frames to make passages. Close the entrances so that only one bee may pass at a time, and to exclude the light and bright sunshine in winter have a zig-zag passage made like a "V" on its side. To make the bees quite cosy, when all feeding has ceased cut a quilt of some non-conducting material, such as carpet, the exact size, as ill-fitting quilts cause draughts. Over this put several folds of brown paper of the same size as the quilt, and then over all put a lightly-filled cushion of cork-dust, sawdust, shavings, dry leaves or chaff. If the hive has double walls, fill all the inner space with similar material to that in the cushion. This will help to maintain an even temperature during very cold and stormy weather. The sides of the hives and roofs should be closely examined to find if there are any cracks; if so, give a coat of paint, and when dry fill in with putty and again give a coat of paint. Throughout the winter the entrances should be slightly opened during very fine days, and all dead bees raked out by means of a bent piece of strong wire. All overhauling examinations must be performed when it is dry and warm. Bees wintered under the above conditions should go through the winter without doubt, and if a plug be driven in the ground on one side, and to each plug a rope which is thrown over the hive and on the other end a brick is tied, there will be no fear of the hive being blown over in the strongest gales, and certainly no chance of the roof being blown away.

Obituary.

ROBERT RAMSAY TAIT.—We regret to record the death, on October 7, at 96, George Street, Cheetham Hill, Manchester, of Mr. Robert Ramsay Tait, late of Messrs. Dickson, Brown and Tait, nurserymen and seedsmen, Manchester, in his 86th year.

GEORGE DROVER.—We learn with regret of the sudden death of Mr. George Drover on the 23th ult., in his seventieth year. Mr. Drover was a leading member of the nursery firm of Messrs. Drover, Farnham, famous cultivators of Chrysanthemums, especially of the incurved varieties. Messrs. Drover won a Gold Medal offered by the *Journal of Horticulture* for two dozen blooms, with one of the finest exhibits ever staged. The late Mr. Drover was greatly esteemed by all who knew him.

JONATHAN NASH.—The American horticultural Press records the death of Mr. Jonathan Nash, a member of the firm of Moore, Hentz and Nash, florists, New York. Mr. Nash was a native of Essex, and settled in America twenty-two years ago, to become, according to *The American Florist*, "an honour to the country of his adoption and to the florist business."

JOHN PATTERSON.—*Horticulture* records the death, on September 13, of Mr. John Patterson, aged seventy-two years, florist, of Ashton, U.S.A. Deceased was a native of Stockport, Cheshire.

HENRI CRÉPIN.—We have to announce the death of M. Henri Crépin, a famous French Chrysanthemum grower and exhibitor, and the donor of the special Crépin Challenge Cup, value 1,000 francs, offered for competition every year at the Paris Autumn Show.

M. DUBREUIL.—The death is announced of M. Dubreuil, treasurer of the French Chrysanthemum Society at Lyons.

MARKETS.

COVENT GARDEN, October 11.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday...

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Asters, Carnations, Chrysanthemum, Gardenias, Gladiolus, Heather, Helianthus, Lapageria, Lilium, and others.

REMARKS.—There has been a considerable increase of cut flowers throughout the market since last Saturday...

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various plants in pots and their prices, including Aralia Sieboldii, Araucaria, Asparagus plumosus, Aspidistra, Cacti, Chrysanthemum, Cocos Weddellii, and others.

Plants in Pots, &c.: Average Wholesale Prices.—con.

Table listing various plants in pots and their prices, including Kentia-Con, Lantana borbonica, Lilium longiflorum, and others.

REMARKS.—There is nothing fresh to record in this department. Ericas are the chief attraction...

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Aubergines, Beetroot, Brussels Sprouts, Cabbages, Carrots, Cauliflowers, Celery, Cucumbers, Endive, Greens, Garlic, Herbs, Horseradish, and Leeks.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Grapes, Bananas, Asparagus, Lemons, Melons, Nuts, Blackberries, Corn Cobs, Cranberries, Damsons, Dates, Figs, Grapes, and others.

REMARKS.—The market continues to be well supplied with Apples from home growers. Large cooking varieties are in demand...

Potatoes.

Table listing various potato varieties and their prices, including Kent, Eclipse, May Queen, Sbarpe's, Bedford, Epicure, Lincoln, Blackland, Eclipse, May Queen, and King Edward.

ANSWERS TO CORRESPONDENTS.

ADDRESSES: D. W. T. Department of Agriculture, Washington, U.S.A.—M. B., Javo, Donard Nursery Co., Newcastle, Co. Down, Ireland.

ARTIFICIAL MANURE FOR POTATOS: W. M., Lympington. Seeing that the ground is old pasture which has been treated liberally with fertilisers...

HORTICULTURAL EXAMINATIONS IN THE MIDLANDS: C. B., Monmouthshire. The only examinations in horticulture held in the Midlands...

NAME OF FRUIT: C. L. Resembles Colmar d'Été. NAMES OF PLANTS: W. J. C. Paliurus aculeatus; Christ's Thorn, or Garland Thorn. In some parts of Italy and other countries bordering on the Mediterranean...

ROSES DISEASED: Miss L. The leaves are, as you suspect, affected with leaf-spot, caused by the fungus Phragmidium subcorticatum. The disease is at the stage when the red-spores are present...

TOP-DRESSING A TENNIS LAWN: A. H. S. As soon as the courts are vacated dress them with rich soil, mixed with well-rotted manure and wood ash. If you have old potting soil available...

Communications Received.—S. Williams—L. J. P.—F. J. C.—E. H.—R. P. R.—L. B.—E. S. S.—A. B. R.—A. D. W.—T. H.—B. Sutton—Hambleton—Ragley.—Constant Reader—D. C. M.

THE

Gardeners' Chronicle

No. 1556.—SATURDAY, OCTOBER 21, 1916

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THE ORGANISATION OF HORTICULTURE.

THE following paper on the Organisation of Horticulture was read at the North of England Fruit Conference and Red Cross Society's Show at Knaresborough, Yorks, on the 12th inst. by Dr. F. Keeble, Director of the Royal Horticultural Society's Gardens.

The subject on which I have been invited by your secretary to address this Conference—the Organisation of Horticulture—is so large that I can make no attempt to traverse the whole ground. Some of the questions which I must omit are of great and pressing importance, as, for example, the part which horticulture must play in any attempt to enlarge the rural life of the community. On this great theme I will only remark that when the outline of the scheme for settling ex-Service men on the land was published, the R.H.S. communicated at once with the President of the Board of Agriculture offering to lend every assistance in its power towards the carrying out of that part of the scheme which concerned the establishment of a centre for the training of men in fruit and vegetable cultivation.

Other questions are so bound up with matters of national policy as to make it premature to attempt to consider them now. Of such questions are the means to be taken to foster and extend such industries as that of bulb growing or medicinal herb growing and seed-raising. Others, again, are so complex as to require fuller consideration than can be given them at a conference. For example, the question of international agreement after the manner of the Rome Convention to restrict the communication of disease from one country to another.

In proper time and place all these problems which concern the interest of horticulture will be considered and solved; but for the moment I propose to myself the simpler task of laying before the Conference certain considerations and suggestions which, if adopted, would be of definite advantage to the craft and industry of horticulture.

I think that we shall all agree that few people outside its ranks have a just idea of the magnitude or importance of the horticultural industry. When a few years ago a Committee of the R.H.S. was drafting the programme for the National Diploma in Horticulture—a programme devised to insist on a great preponderance of practical over book know-

ledge—it became necessary to state for whom the examination was designed. The list drawn up for that purpose ran as follows:—Florists, fruit growers, gardeners, horticultural inspectors and instructors, landscape gardeners, market gardeners, nurserymen and seedsmen. Truly a formidable list, and one that represents the personnel of a whole series of professions, trades and industries which collectively employ a large capital, give occupation to a great number of people, and contribute in an important measure to the prosperity of the nation.

It so happened that a few months ago many of the societies whose object it is to advance technology were asked to nominate representatives to a committee, the object of which was to form a central powerful organisation to watch over and forward the interests of technical science. So little comprehended is the importance of horticulture as a national industry that no representative of horticulture was included in the invitation, and, moreover, when attention was drawn to it, the omission was explained on the ground that provision had been made for the representation of agriculture, and that therefore a special representative of horticulture was not thought necessary. I need not labour the point; it is manifest that the first step in the organisation of horticulture must consist in a resolute campaign to secure the recognition of horticulture as one of the great basic industries of the nation. If this object is to be secured it will only be by bringing home to the people at large that horticulture is not a mere branch of agriculture, but an independent craft and industry.

The best definition that I know of the scope of horticulture is that laid down by the R.H.S. in the preamble to the syllabus of the National Diploma already referred to. "Horticulture is a definite craft in itself and not a department of agriculture. Horticulture as differentiated from agriculture includes the more intensive cultivation as usually practised in (market and private) gardens of fruit, vegetables, flowers, shrubs, and ornamental trees." In the interests of horticulture it is greatly to be hoped that the Board of Agriculture, which has already taken a first step towards the recognition of the independence of horticulture by establishing a horticultural branch, may be able, when the war is over, to take the further step of creating at least a sub-department for horticulture, giving to that sub-department a larger measure of power and initiative and providing it with ample resources.

There is no need to point out to this Conference that there are many outstanding problems in horticulture the solution of which would add to the prosperity, not only of those who practice that industry, but also of the people at large.

There is the great problem of manuring; the determination of the most suitable green manures for diverse kinds of soil to supplement the decreasing supplies of farmyard manure. That problem is under investigation at Wisley and elsewhere, but much work will have to be done before our knowledge can be confirmed, systematised and disseminated. There is the problem of American Gooseberry Mildew. Many hundreds of acres of Gooseberries are being grubbed up owing to the ravages of the disease. I am glad to say that Dr. Horne, the mycologist at the R.H.S. Gardens at Wisley, has succeeded this year in preventing absolutely the infection of the berries in a diseased plantation, and has thus made an important step towards the control of the disease. But more investigators and testers of the results of investigations are wanted. We are not ungrateful to the Board of Agriculture and the Development Commissioners for establishing such research stations as Long Ashton and for aiding Rothamsted, Wye and the other colleges and institutions which are engaged in horticultural work; but we feel that the time has arrived when we may ask that more help shall be forthcoming for horticulture. All will agree that the results of such work must be tested thoroughly and often before they are recommended to growers for adoption. Yet to ob-

tain results of certain value is a slow business, and each piece of research requires the whole energies of several workers. At present the horticultural research personnel of the country is far too small. One man has often to attempt to carry on several lines of investigation. What we must aim at is not one man many lines of research, but one research many researchers.

The new laboratories at Wisley, built by the R.H.S., provide accommodation for upwards of thirty investigators, and it is no exaggeration to say that if the war had not absorbed the men and sufficient funds were available, there are enough problems awaiting solution to keep those thirty workers busy for many a year to come. The harvest of problems is plentiful but the labourers are few; and I would plead on behalf of all the horticultural stations in the country the pressing need for a larger measure of assistance from the State.

Here is an extract from a letter received whilst writing these lines which will illustrate the need for such help. One of the largest growers writes: "We have a fly here which every year causes us some hundreds of pounds' worth of damage in Chrysanthemums. We are not the only people who suffer through this fly, neither are Chrysanthemums the only plants which it attacks, but we have never seen it illustrated or referred to in any published work. Can one of your people who make a speciality of studying such things come over and investigate it?" Many similar examples could be cited, but I mention this one in order to emphasise the fact that over and above the large and well-known, although unsolved problems, many special problems are constantly coming into prominence, the solution of which would be of great financial benefit to commercial growers.

Nor is there less need for increasing the means whereby a discovery thoroughly proved and tested may be brought to the knowledge of growers of all kinds. The Horticultural Press helps very largely to spread new knowledge; but there are unfortunately some who lie outside its range. Nor is spreading new knowledge only wanted; widespread and repeated demonstration of its value is no less necessary; and more highly organised horticulture demonstration gardens in every part of the country under the charge of the county instructors would add to the value of the excellent services which those instructors at present render to horticulture. I should like to see a Canadian custom, that of holding short courses of practical demonstrations for instructors and other practical men, adopted in this country. We have it on our programme at Wisley and only await the conclusion of the war to try to carry it into effect; and there is no reason why, if it proved practicable, the custom should not be adopted by all the more important horticultural institutions in the country. One more suggestion and I have done: As you know, the R.H.S. has been engaged for many years in carrying out annually trials of vegetables and other crops. The trials are arranged three years ahead, and seedsmen, raisers and others send stocks to Wisley, where the plants are grown and judged. One of the chief objects of these trials is to determine which varieties are the best and which are inferior; which stocks are true and which are not. These trials are of undoubted service to the trade, to the grower, and to the general public. But if they are to achieve their ultimate objects of giving a certain guide to the choice of the best varieties, and encouraging raisers in their work of improving the strains of plants, they must be extended widely both in time and place. Everyone of us recognises the importance of the objects of such periodical tests. The loss sustained by growing inferior sorts of vegetables and fruits is enormous. But without a very considerable extension of this system of trials, the final and certain decision as to the best varieties of a given crop cannot be attained. To give but one reason why supplementary trials are needed: The soil at Wisley is light, and though it crops well, it is not equally favourable

to all varieties. These trials are of national importance, and I would suggest that it is in the national interest for the State to aid the R.H.S. in making them as thorough and conclusive as possible. Consider, for example, the extraordinary importance of the Potato as a source of food. Is it open to doubt that not all the kinds that are grown are the best that might be grown? Is the present average yield throughout the country as high as it might be? At Wisley we have the practice of continuing an important trial for a second or third year. This year, for instance, we continued our last year's trial of early Potatoes, but with us the season has been so bad that none of the kinds grown which did best last year has given anything like its maximum crop, and so for want of duplication the results cannot be claimed as decisive. I therefore suggest that an effort be made to establish in connection with the R.H.S. a Northern Trials Station to carry out, in conjunction with Wisley, trials of plants of economic importance. I feel sure that the Board of Agriculture would receive such a suggestion

How necessary is this latter may be illustrated by such a fact as this, that certain allotment holders who were growing the Potato Arran Chief were this year puzzled to know whether it has white or mauve flowers, because the stocks they were growing had both.

In the hope that there may be present representatives of horticultural institutes, I would add that—as doubtless they know—there is no horticultural work more instructive than the conduct of trials. Students have opportunities of studying at first hand the distinguishing differences between varieties, and investigators who watch the trials cannot fail to find problems which both await solution and are well worthy of investigation. Neighbouring growers come willingly to inspect such trials. They often gain information, and in my experience always impart it, and thus cordial relations are established between the growers and the trial officers. I therefore suggest to this Conference that the establishment of a Northern Trials Station would be a material contribution to the organisation of horticulture.

PLEIONE LAGENARIA.

Two pans of this pretty "Indian Crocus," each with over sixty rose, white and purple flowers, suspended from the roof-rafters, in one of the greenhouses at Belsize Court, Hampstead, are noteworthy by reason of their beauty and from the fact that Mr. H. A. Page, the gardener, has grown the plants from two pseudo-bulbs obtained some years ago. The flowers are generally in pairs, and produced from the new growths, two of which proceed from each of the strong pseudo-bulbs. The plants will be kept in the greenhouse and watered until the new pseudo-bulbs are fully developed and the leaves begin to fade, when they will be placed in an airy fruit house and kept dry until flowering time comes round again. Mr. Page considers the careful, dry rest until the buds are about to appear the main point in the successful treatment of his pretty Indian Orchid and others of the Pleione section of Coeloglyne.

SINGLE ASTERS AT KEW.

DURING comparatively recent years the cultivation of the single-flowered China Asters has much increased, and they are regarded by many as surpassing the double sorts in effect. They are easier to cultivate, and they furnish large quantities of cut blooms during September. But their chief value is as decorative subjects in pleasure grounds. The illustration in fig. 76 shows masses of these single Asters in the Arboretum at Kew. From the wide stretch of ground depicted in the illustration turves were cut during the winter to repair worn patches on the lawns and verges in the more frequented parts of the garden. Surplus soil from this and other work was carted to the ground in place of the turves removed, and early in April the whole was levelled and dug. On a still, dry day in the middle of April the Aster seeds were scattered broadcast over the ground, and lightly raked in. At the beginning of July the plants were watered with diluted liquid manure from the stable, and about the middle of August some of the larger weeds were removed. Labour was not available for thinning and transplanting, which had been done to a limited extent in previous years. There was, however, little, if any, evidence of this inattention when the plants were in flower; indeed, the effect was enhanced by the rather crowded condition of some, the thin patches elsewhere, and a few solitary specimens at intervals. The flowers of the Kew plants include a fairly wide range of colours, but purple, blue and mauve varieties predominate; there is also a fair number of white, pink and rose shades. These single-flowered Asters ripen seeds freely in this country, and at Kew self-sown seedlings are common, though it is generally found better to harvest the seeds and sow during April. A. O.



FIG. 76.—SINGLE CHINA ASTERS IN THE ARBORETUM AT KEW.

[Photograph by E. J. Wallis.]

with sympathy, and that when the war is over it would be prepared to provide the finances necessary for the establishment of such a station, and if that proved to be the case I personally believe that the R.H.S. would be ready to assume the responsibility of organising and directing the work of the Northern Station. There is in the matter of these trials large scope for co-operation between the R.H.S. and the horticultural institutes of the country. The trials could be co-ordinated both with respect to subject and method; and in this way it would be possible to confirm, extend, or modify the results obtained at the trials stations. Reports based on such exhaustive trials, widely published, would be of help to growers throughout the length and breadth of the land. Such reports giving the lists of best varieties with brief descriptions of their characters, would guide the grower in his choice, and aid him in knowing that his stocks were true to name.

ORCHID NOTES AND CLEANINGS.

CYPRIPEDIUM STREATHAMENSE WISETON HALL VARIETY.

A FLOWER of this stately form, sent us by the raiser, Mr. G. W. Musk, gardener to Lt.-Col. J. F. Laycock, D.S.O., Wiseton Hall, Bawtry, shows its great superiority over the original form and places it in the front rank of *C. Fairrieanum* crosses. The size and form of the dorsal sepal resemble those of *C. Lawrenceanum*, the other parent, the dark purple lines on a rose-shaded, white ground clearly indicating that species, and the labellum and staminode adding further to the resemblance. The petals, which are sharply decurved, as in *C. Fairrieanum* crosses generally, are two and a-half inches long, the ground being greenish-white, with dotted lines of dark purple and a rose-tinted margin,

NOTICES OF BOOKS.

A CENSUS OF NEW SOUTH WALES PLANTS.*

THIS work is similar in plan to F. von Mueller's *Systematic Census of Australian Plants*, and includes references to Bentham's *Flora Australiensis* throughout; the places of publication of additional genera and species are also given. The author has not summarised his work, so that exact numbers cannot be given without a laborious calculation; but, reckoning an average of twenty species to a page, the

* *A Census of New South Wales Plants*. By J. H. Maiden, director of the Botanic Gardens, Sydney, and the late Ernest Betche, chief botanical assistant. (With Supplements to follow on "Vascular Cryptogams.") 8vo. pp. xx. + 216. (W. A. Gullett, Government printer, Sydney, 1916.) Unpriced.

approximate total would be about 4,000 species of vascular plants in an area of some 310,000 square miles. It may be mentioned in passing that "vascular cryptogams" in the title is evidently a slip, and should read cellular cryptogams. Engler's classification has been followed, and no better exists; but why Mr. Maiden should assert that Alexander Braun's system of 1864 is the earliest that has a real claim to the designation "natural" we fail to see. Surely John Lindley's classical work of 1845 to 1853—*The Vegetable Kingdom*—deserves to rank high in the evolution of the "Natural System." It is a book that did not pretend to finality; yet it merits the attention and study of the botanist of the present day.

Mr. Maiden's "Census" is only a skeleton, but it contains much useful and interesting information, besides revealing the peculiarities, composition and richness of the flora.

TREES AND SHRUBS.

VIBURNUM HENRYI.

SOME of the more striking of the species of *Viburnum* recently introduced from China are now finding their way into collections of trees and shrubs. *Viburnum Henryi* (see fig. 77) is fruiting in the grounds of Holland House, Kensington. The fruits are at first red, but finally black, and the whole plant is totally distinct from *V. dasyanthum*, which received an Award of Merit from the Royal Horticultural Society on the 10th inst. The berries are of the same size, but they are produced in pyramidal panicles, either axillary or on short axillary shoots, and assume an ascending direction like the lateral branches, not in a sharply drooping or recurving panicle of cymes, as in *V. dasyanthum*. The long, narrow leaves resemble those of a species of Willow rather than the European and American *Viburnums* with which we are now familiar. The change in colour of the ripening fruit recalls what happens in our native *V. Lantana*. J. P.

VIBURNUM RHYTIDOPHYLLUM.

A SHRUB of this species planted here shortly after its introduction has this autumn borne clusters of red berries for the first time. Though not so showy in flower as *V. Carlesii*, *V. rhytidophyllum* ranks high amongst flowering shrubs. The large, drooping, wrinkled, dark green leaves are always handsome and striking, especially in winter, whilst the rich brown tomentum of the stems and buds is very fine and the general habit neat and shapely. At this season of the year stout flower-buds are conspicuous, and apparently about to expand, but they will remain dormant through the winter and open in spring. Botanically the shrub forms an interesting link; the buds suggest a glorified *Laurustinus* (*Viburnum Tinus*), but the tomentum, the berries, and the sturdy growth recall the native Wayfaring Tree, *V. Lantana*. Harold Evans, Llanishen, Cardiff.

VIBURNUM LOBOPHYLLUM.

VIBURNUM lobophyllum Graebner was introduced by Mr. E. H. Wilson from Western China, where it is apparently a fairly common shrub, he having collected specimens in Western Hupeh and Western Szech'uan in 1907, 1908, and 1910, also during his earlier Veitchian expedition of 1901. The fruiting shoot illustrated in fig. 78 is from a bush raised from seeds collected by Mr. Wilson in 1907, the seed number being 238 W. *V. lobophyllum* is a deciduous shrub of upright growth, at present 6 to 8 feet high, and promising to become taller with age. The leaves are roundish ovate, coarsely-toothed, dark-green above, lighter beneath, and prominently veined,

2 inches long and as broad, wider on vigorous young shoots and up to 4 inches long. The small, white flowers measure $\frac{1}{4}$ inch across, and are freely produced in branched corymbs up to 4 inches wide during June. The blossoms are followed by shining vermilion-red fruits in autumn, compressed at the top and base, $\frac{1}{2}$ to $\frac{1}{4}$ inch long and as much broad. They may be described as Crab-Apple shaped. *V. lobophyllum* promises to be a useful addition to the shrubbery because of its ornamental fruits, which are ripe in September and October. The plant grows freely in ordinary garden soils. J. O.

properly I know of few vegetables which are more appetising than Gourds or Pumpkins. A large Pumpkin may be cut much in the same way as a cheese, and used as required; if stored in a dry place it will keep good for a considerable time. Edwin Beckett.

A FINE CROP OF ONIONS.

WHEN visiting the gardens of my friend, Mr. A. Malcolm, of Duns, in summer, I observed several very promising beds of Onions. I asked Mr. Malcolm to send me particulars when he harvested the crop. He has now done so, and I



FIG. 77.—VIBURNUM HENRYI IN FRUIT.

VEGETABLES.

PUMPKINS AND GOURDS.

WERE the value of Pumpkins and Gourds as vegetables fully recognised they would be grown much more extensively in this country. I fear that a certain amount of prejudice has much to do with their neglect, and my object in calling attention to them at this time is to induce all who may be in possession of any at this season to take the greatest care of them for use during the coming winter, when many vegetables, and especially Potatoes, promise to be extremely scarce. Cooked and served

am sure the figures will interest many as showing what is possible. Mr. Malcolm sowed his Onion seed (Cranston's Excelsior and Dobbie's Golden Globe) in boxes thinly on January 20. The boxes were placed in heat until the plants were a few inches tall, when they were transferred to cold frames, where they remained till planting out time, the first week in May. Mr. Malcolm had 16,000 plants put out, so his experiment was on a fairly large scale. The figures he sent me relate to one bed, 42 yards long by 7 yards wide. The plants were planted in lines 15 inches apart and 8 inches from plant to plant. The produce from this bed weighed

one ton. At this rate the produce of one acre would be 17 tons, but Mr. Malcolm is a careful man, and he suggests 14 tons as the finished sale weight, i.e., after dressing and allowing something for shrinkage.

Foreign Onions are now worth about £15 per ton. Mr. Malcolm is finding a ready sale for his in cwt. at 23s. per cwt., which is, of course, £28 per ton. For the sake of a calculation let us say £20 per ton. Fourteen tons at £20 is £280 per acre! Many of the Onions weigh 1 lb. and over. The ground was trenched and manured two years ago. No fresh manure was given for this crop, and only one dressing of nitrate of soda. A very large plantation of Onions was made in Lincolnshire this season. Are any figures available as to the crop? *W. Cuthbertson.*

SOME SEPTORIAS OF WHEAT.

An opportunity has fortunately occurred of comparing a number of specimens of Septoria on Wheat, some gathered in England by Dr. J. W. Ellis or myself, others sent to me from West Australia by Dr. F. Stoward, Government Pathologist for that State. The results of the comparison appear to be worthy of special record

SEPTORIA NODORUM BERK.

(*S. glumarum* Pass.)

This species was first described by Berkeley in *Gard. Chron.*, 1845, p. 601, from the nodes of Wheat-culms, just before the Wheat was ripe, but, as was common in these days, he did not give the size of the spores. Berkeley's de-

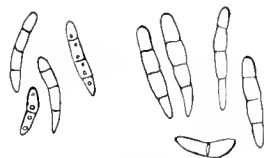


FIG. 1.—*S. NODORUM* ON LEAVES OF WHEAT. (Magn.)

scription was as follows:—"Spots pale fawn-coloured, with a dark border, depressed, at length confluent; pycnidia slightly prominent; spores oblong, very slightly curved or irregular, containing a row of guttules. Makes its appearance at first under the form of little discoloured depressed spots on the knots of the stem, especially the upper one." He did not find it extend to the straw.

Dr. Ellis, in 1911, sent me from Cheshire some pycnidia on nodes of Wheat (and also of *Dactylis*), which answered very well to Berkeley's account, but contained more mature spores. There is only a single node left of Berkeley's specimen in Herb. Kew, but the pycnidia on that are identical in all respects with Dr. Ellis's specimens.

Dr. Stoward sent the same thing from West Australia on nodes of Wheat (No. 236), on leaves of Wheat (Nos. 235, 286), and also exactly the same (No. 231) on the glumes, especially at the tips, just before the ears were ripe. The latter form was evidently *S. glumarum* Pass; the differences were of a quite insignificant character.



FIG. 2.—*S. NODORUM* ON GLUMES OF WHEAT. (Magn.)

The following description is that of the form on the leaves and leaf-sheaths.

Pycnidia on the dead parts of the leaves, but without any distinct spots, very numerous,

epiphyllous, scattered all over the leaf, but arranged in short lines, somewhat crowded, 70-100 μ in diameter, honey-coloured with a reddish tinge, then black, immersed, just perforating the epidermis with the minute pierced ostiole; texture very thin and soft, sinuately proenchy-matous, pellucid, ochraceous-brown, thicker and darker just around the ostiole, where the cells are more distinct and parenchymatous. Spores oblong fusoid or oblong-cylindrical, straight or angularly bent, or slightly curved or flexuous, obtuse at the ends or slightly pointed below, plainly 3-septate when mature, often with one or two guttules in each cell, sometimes faintly constricted at the septa, or more strongly at the middle one, about 15-16 μ long when 1-septate, 20-26 by 2½-3½ μ when mature, singly colourless, but very abundant and long



FIG. 3.—*S. NODORUM* ON NODES OF WHEAT. (Magn.)

remaining clustered together in masses which generally showed a faint pinkish-isabelline tinge. (Fig. 1.)

As for the pycnidia on the glumes, the only difference was that they were larger, more erumpent, and prominent; the spores were identical. (Fig. 2.) On the nodes the spores were the same, except that in the Cheshire specimens they were slightly narrower (22½ μ), and in those from West Australia many were quite 3½ μ wide. (Fig. 3.) They were either non-septate or had one, two, or three septa, with frequently one or two minute highly refringent oil-guttules at each end, and on each side of the septa. The nodes show the pycnidia best after the leaves have withered; then the node shrinks and falls in, being fully invaded by the mycelium, which, of course, stops the flow of sap and kills the host. The part of the node occupied by the pycnidia assumes a more reddish tinge, and the pycnidia becomes more prominent. There cannot be the slightest doubt that all three forms belong to the same species, occurring on the leaves, the nodes, and the glumes as the host plant advances in age. The same plant, in the Australian specimens, was sometimes infested with *Puccinia triticina* on the leaves, or with *P. graminis* on the leaves and stems. *W. B. Grove.*

(To be concluded.)

TREATMENT OF PEACH TREES AFTER FRUITING.

THE results from Peach trees growing against walls in the open in small gardens are often unsatisfactory, and this is usually the result of wrong treatment of the trees after the fruit has been gathered. During a spell of dry weather in September the soil at the base of a south wall, for example, is almost dust dry, and unless the roots are watered the tree cannot store up sufficient nutriment to build up the flower buds for next year's crop. The trees do not lay the foundation for a fruit crop at the eleventh hour, so to speak, but make preparations months before the blossoms appear. If there is a suspicion that the soil is at all dry after the fruit is gathered soak it thoroughly, not once, but twice. Another item of importance is to remove useless shoots directly the fruit is gathered, to allow the sunlight and air to ripen the wood. Of all fruit trees, perhaps, this is most necessary for the Peach and Nectarine, and when it has been done the trees can be more easily cleansed from red spider by syringing. *E. M.*

The Week's Work.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

PLANTING ROSE TREES.—The ground for planting Roses should be prepared at least a month in advance. Rich loam of a greasy, retentive nature is the most suitable, but light, sandy soils may be improved by the addition of stiff loam. Select an open situation, sheltered from cold winds but well away from large trees, the roots of which would grow into and exhaust the soil of the Rose beds. If the soil is not naturally well drained, drainage must be used, although it is not essential to employ drain pipes, for bricks, stones, rubble, and even clinkers from the boilers, may be requisitioned. Make the holes for the drains about 30 inches deep and 12 inches wide; this will allow for 9 inches in depth of drainage material. Trench the ground not less than 18 inches deep, and incorporate with it a liberal amount of decayed manure. Turf that has been stacked for some considerable time may be used freely in making new beds. Firm planting is essential. The point of union between stock and scion should be just below the surface of the soil. Spread the roots to their fullest extent, and trim with a sharp knife any that are damaged. Varieties planted here last year which I can strongly recommend are General Janssen, Lady Pirrie, Mme. E. Herriot, Pharisier, Juliet, Mme. Abel Chatenay, Lady Ashtown, La Tosca, Joseph Hill, Dorothy Page Roberts, Sunburst, Mme. Mélanie Soupert, Mme. Ravary and Rayon d'Or. The plants have done remarkably well this season, with the exception of Rayon d'Or, which is a poor grower, but is included because of its beautiful colour. Rose Christine is described on p. 151 as a glorified Rayon d'Or, and may be of a more vigorous growth than the older variety.

FLOWER-BEDS.—The summer bedding plants should be removed from the beds, and preparations made for planting the spring flowers. Dig the ground thoroughly, incorporating with it decayed manure and leaf-mould. Grass borders should be mown finally for the season, grass verges trimmed, and everything made ready for planting directly the soil has settled.

CALCEOLARIAS AND VIOLAS.—If the cuttings of Calceolarias and Violas are not already inserted they should be put in at once. Prepare a bed of sandy soil in a cold frame, and make it firm. Dibble the cuttings in 3 or 4 inches apart. When the plants are rooted admit air on all favourable occasions. Beyond a slight protection for the Calceolarias during frosty weather, the plants will need but little attention until the spring.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

CALANTHE.—Plants of *Calanthe* belonging to the *vestita* group, and especially *C. Veitchii*, will soon complete their pseudo-bulbs, and then the flower scapes will develop from the base. Grow the plants in the lightest parts of the house, and let the minimum temperature be 60°. Keep the atmosphere rather drier than hitherto, and only give the roots sufficient water to keep the soil moist. The foliage should be allowed to fall naturally, and not receive the usual periodical trimming practised by some, which does not help the plants in any way or improve their appearance. *Calanthes* are excellent decorative Orchids, and the flowers remain in full beauty for several weeks after they are cut. The plants should not be forced in any way; their blossoms are most valuable at about Christmas, and the colour will be more intense if the plants are not grown in much warmth.

HABENARIA.—After the foliage of *Habenarias* has decayed water should be withheld entirely

from the roots. Store the plants in their pots on a dry shelf, where the temperature does not fall below 50°. It will be necessary to examine them occasionally to ascertain if drip from the roof rafters is wetting the soil.

AERIDES, SACCOLABIUM, ANGRAECUM AND LISTROSTACHYS.—These Orchids will soon complete their season's growth. They will then need less water, but moisture must not be withheld for any great length of time, or the foliage will show signs of injury, and a leaf badly shrivelled rarely recovers. The present is a suitable time to examine each plant separately for insect pests: even if they are free of them each leaf should be sponged carefully.

ONCIDIUM LANCEANUM.—The foliage of *Oncidium lanceanum* is often marked or spotted with disease that causes the plants to deteriorate gradually and eventually die. Excessive moisture, both at the base and in the atmosphere, or low and uneven temperatures are the most frequent causes of the trouble. Grow the plants in a shady part of the warmest house, and let the tips of the leaves be within two feet of the roof-glass. Re-potting should be done when growth begins afresh. Osunda-fibre only should be used as a rooting medium. Fill the pots to within one-half of their depth with material for drainage, and incorporate a sprinkling of crushed crocks with the fibre. Careful watering of these plants is necessary at all times, and they should not be sprayed overhead; moisture should not be allowed to accumulate around the rhizome.

CATLEYA CITRINA.—This *Cattleya* does not require a large amount of soil about its roots, but it may be necessary to add a little fresh compost to plants that are growing and rooting freely when the pseudo-bulbs are fully developed. The roots need very little moisture, as the plants should remain dormant throughout the winter. *C. citrina* should be grown either on a raft or in a oak-wood basket filled one-half of its depth with drainage material.

CATASETUM.—When the flowers are over shift the plants of *Catasetum* to a light position in the Dendrobium house, and, when the foliage falls, keep them quite dry at the root. Those that promise to retain their foliage for a few weeks longer should be given sufficient water at the roots to prevent the pseudo-bulbs from shrivelling. Some of the plants will produce a second crop of flower spikes, which should be removed directly they are seen.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcote, Eastwell Park, Kent.

THE ROOT-PRUNING OF FRUIT TREES.—There is no better period for root-pruning fruit trees than October and November, and advantage should be taken of favourable weather to complete the work. By root-pruning now, whilst the leaves are still on the trees, and the soil warm, the roots will quickly recover from the check, and become re-established before the winter. The necessity for root-pruning may be determined by the condition of the trees; those making an extraordinary amount of growth year after year, and producing little or no fruit, need this operation. The nature of the soil influences growth in a very marked degree; young, healthy trees planted in rich garden soils of average depth usually grow very vigorously. Open a trench around the tree, and sever the strong roots that are growing downwards into the sub-soil. Also a few of the strong, thong-like roots branching from the root-stock with very few fibres. Smaller trees that were planted as maidens a few years ago should be merely lifted out of the ground and transplanted again, if necessary, on the same site. Large, established trees in full growth may have half their roots pruned this season, leaving the work to be completed the next season, or two seasons later, as the effects on the tree are noted. In the case of fairly large bush trees, make a semi-circular trench, and deal with half the roots first, replacing and ramming the soil firmly into position before operating on the other side. This obviates the necessity of using supports for the

tree while the work is in progress. Spread the roots evenly, and towards the surface, then work fine soil amongst them, and tread firmly. Root-pruning should always be done when the ground is in good condition for working and the weather fine. Trees that have been root-pruned should be staked and tied as soon as the work is finished. If the weather subsequently is dry, water the soil lightly to settle it about the roots, and thus assist them to start into growth quickly. Do not mix animal manures with the soil after root-pruning—a light mulching of suitable material is all that is required. For Plums, Cherries and other stone fruits, mix mortar-ribble or lime with the soil before returning it to the trench.

UNHEALTHY TREES.—If a tree has fallen into an unhealthy condition through over-cropping and poorness of soil, it should be examined with a view to root-pruning, and decayed roots cut away. Replace the old soil with chopped loam mixed with wood-ash or charcoal, and a small quantity of crushed bones. In all cases the soil should be made firm about the roots of fruit trees when they are planted, for loose, rich soil often brings about the conditions that render root-pruning necessary.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady Wantage, Lockinge House, Berkshire.

EUPHORBIA PULCHERRIMA (POINSETTIA).—Exercise great care in watering *Poinsettias*: the plants will not need so much moisture as during their growing season, but they must not be allowed to suffer for want of it. Many of the plants are developing their bracts, and it will be advisable to keep the atmosphere of the house drier than formerly. Keep the ventilators open at all times, regulating the amount of air admitted by the state of the weather. A mean temperature of 50° or 55° is suitable unless the weather is unusually warm.

PELARGONIUM.—Plants of *Pelargonium* may be kept in flower for a long period in favourable conditions. Grow them in a light, airy structure and use a little fire-heat in dull, wet weather. Give the roots plenty of water, but not an excess, or the growths will be soft, which is not conducive to flowering.

ROMAN HYACINTHS.—The bulbs of Roman Hyacinths which were potted early are ready to be taken from the ash-bed into cold frames, where they may be exposed fully to the light. Batches of the bulbs may be placed in the forcing-house as desired.

PAPER WHITE NARCISSUS.—It is unwise to attempt the forcing of *Narcissi* until the pots are filled with roots: it is better to delay introducing them into heat for a week or two if they are not ready. Bulbs potted early in the season should be well rooted, and may be taken from the ashes to a cold frame. Do not force them in a high temperature, they will develop just as readily in a moderately warm house and will flower much more freely.

SCHIZANTHUS.—Repot young plants of *Schizanthus* when they are sufficiently well rooted. A compost consisting of loam, leaf-mould, manure from a spent Mushroom-bed and coarse sand is suitable. Arrange the plants on a cool bottom as near the roof-glass as practicable, and keep them growing in cool conditions, using fire-heat only to keep out frost. If very dwarf plants are desired, stop the shoots once or twice during the growing season. Should aphid attack the plants, fumigate them with a nicotine compound.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady Nunburnholme, Warton Priory, Yorkshire.

FIGS.—As soon as the shoots are matured, and the wood ripe, the crop may be cleared and the trees receive a preliminary cleansing. Brown scale and mealy bug spread rapidly in warm, dry fruit houses, and where Fig trees are infested with these pests they should be treated with a fairly strong insecticide at short intervals, until the

more thorough winter cleansing is done. Pot trees may be taken out-of-doors to be syringed, where there is more room to place the plants on their sides. To have ripe Figs in May, the house must be provided with plenty of fire-heat in winter and a moist bottom heat equal to that required for early Melons. But those who possess a good heated pit, or even a cool house with a south aspect, have the means to grow Figs, although they would ripen not quite so early.

CUCUMBERS.—Plants raised in July are in full bearing. Old plants showing signs of exhaustion should not be retained, for it would not be profitable to attempt to get them into a fruiting condition again. Young Cucumber plants produce a greater number of fruits than they can develop in dull weather, and can only be kept in good health in winter by cropping them in moderation. As the night lengthens the cold strengthens, and a greater amount of fire heat will be needed. The extra fire heat will necessitate the use of more moisture, but it is not advisable to syringe the plants freely: atmospheric moisture may be promoted by sprinkling the beds and damping the paths. Where the bottom-heat is supplied by pipes, the soil should be watered freely with tepid water, and as often as is necessary to keep the lowest roots always moist. Plants in pots obtain a considerable amount of nourishment from the plunging material, but as they have a restricted rooting area weak liquid manure and soot water should be used freely. Later plants which are intended to occupy the places where late Melons are still growing should be transferred at once to their fruiting pots and their growth pushed forward with all speed.

MELONS.—If late plants of Melons show no promise of maturing their fruits they should be removed to make room for Cucumbers or some other crop. In order to obtain good flavour in late Melons, keep the house very warm and dry. There has been very little sun-heat recently, and not sufficient to permit of a little ventilation without a risk of lowering the temperature. Exercise great care in watering and damping, in order to avoid the risk of the fruits cracking. Late Melons which do mature will keep much longer after being cut and stored in a dry fruit room than those which ripen earlier in the season.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

TOMATOS.—Pollinate the flowers of late Tomatos at mid-day on every favourable occasion. Remove all lateral growths as soon as they appear. Maintain dry atmospheric conditions, and ventilate the house freely when possible, but guard against cold draughts passing over the plants, as these would favour attacks of mildew. A temperature of 60° at night is suitable, allowing a rise of 10° by day, with ventilation.

FRENCH BEANS IN POTS.—Small, quick-fruited varieties of French Beans are the most suitable for growing in pots. Follow the directions given in the issue for Jan. 15, 1916, p. 33, for early forcing in January.

PROTECTING CROPS FROM FROST.—The weather is unusually mild, but cold may be expected at any time now, therefore get ready protective material for covering such crops as late Marrows and Beans. It may be necessary in extra cold districts to protect Celery during times of severe frost, but if this be done the protective material should be removed directly the frost is over, or the plants may show signs of decay.

RHUBARB.—Roots intended for forcing can be lifted when the leaves have died down. They should be exposed to the weather for ten days or so before being placed in the pit for forcing.

BEEETROOTS.—It is now time to lift late sown Beets. Great care should be taken, when lifting the roots, not to scratch or break the skin. The roots should be stored in a cool, dry shed, which must be perfectly frost-proof. If the least frost is permitted to reach them, they will deteriorate in value.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 23—

Nat. Chrys. Soc. Ex. and Floral Coms. meet.

TUESDAY, OCTOBER 24—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 47.8°.

ACTUAL TEMPERATURE:—

Gardener's Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, October 19 (10.0 a.m.): Bar. 29.6°; temp. 54°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

At 10 o'clock, Bulbs, by Protheroe and Morris, at 67 and 68, Cheapside, E.C.

MONDAY AND TWO FOLLOWING DAYS—

Nursery Stock, at Wm Paul and Sons' Nurseries, Box-houise, at 12 o'clock, by Protheroe and Morris.

WEDNESDAY—

Bulbs, at 12 and 2 o'clock, at Protheroe and Morris's Rooms.

Early-flowering Tulips, Daffodils, Roses and Perennials, at Stevens' Rooms, King Street, Covent Garden, at 12.30 o'clock.

THURSDAY—

Roses, at 1 o'clock, at Protheroe and Morris's rooms. Nursery Stock, at Hollamby's Nursery, Groombridge, at 11.30 o'clock, by Protheroe and Morris.

Celery Leaf Spot.

The leaf spot disease of Celery appears to be as prevalent in the United States as in this country. Here it has been specially rife this year, and hence it may be useful to summarise the results of recent experiments having for their object the prevention and control of the disease. Inasmuch as a full account of the life history of the fungus (*Septoria Petroselinii* var. *Apii*) which causes leaf spot has been published in these pages (*Gard. Chron.*, June 21, 1913, p. 414), we will at present confine ourselves to points which concern methods of prevention of the disease.

It is now well known that one general source of infection lies in the seed itself. The seed may carry the fungus which gives rise to leaf spot, and in that case the plants show infection at an early stage.

Hence it is necessary to use sterilised seed. Fortunately it is fairly easy to destroy the fungus harbouring in the seed. One method recommended by British mycologists consists in the use of hydrogen peroxide, and experiments with this anti-

septic re-agent have proved it to be efficacious. One objection to the use of hydrogen peroxide lies, however, in the fact that this substance is unstable, and apt to deteriorate on keeping. Another re-agent employed with success in America* is corrosive sublimate. To use this substance for seed disinfection one part by weight is dissolved in 1,000 parts of water. The Celery seed is soaked for half an hour in warm (not hot) water, and then, the water having been drained away, the seed is covered with the solution of corrosive sublimate and left for half an hour. After draining away the solution the seed is rinsed with water and is ready for sowing.

The operation must be carried out in an earthenware or wooden vessel, and not in one of metal.

Needless to say, corrosive sublimate is highly poisonous if taken internally, hence care must be exercised in its use. The germination of seed so sterilised is apt to be reduced somewhat, and therefore rather thick sowing is necessary.

Inasmuch as infection may occur at a later stage in the growth of the plant, vigilance should be exercised, and at the first sign of the outbreak—a puckering of the leaf—the beds should be looked over every day. As soon as the discoloured areas—more marked on the lower than on the upper side of the leaf—are discovered, and the minute black dots which occur on the patches—the minute spore-cases or pycnidia—are identified, spraying should be resorted to without delay. Bordeaux mixture may be used. Seedsmen would do well to remember that on two or three year old seed the spores of the fungus (*Septoria Petroselinii*) are usually dead, so that if of good germination capacity such seed may be used with safety. In the case of a virulent outbreak the worst diseased leaves should be picked off (and burned) before the spray is applied. As an instance of the value of spraying, the following figures given in the Bulletin already referred to may be cited: "Produce from $\frac{1}{2}$ -acre sprayed yielded 125 dollars; that from an unsprayed equal area yielded 9 dollars. The cost of spraying was 2 dollars, and therefore the net gain was 114 dollars."

GARDENERS AT KEW.—The gardeners at Kew are now paid better wages, 28s. per week, including a war bonus of 4s. and 9d. per hour for Sunday duty: a substantial improvement on pre-war conditions. Women gardeners, however, are paid 2s. per week less, owing to the decision that all women workers in Government departments are to receive only half the amount of war bonus awarded to men. The trained women gardeners, who perform the duties of the men who have enlisted, are dissatisfied with this difference. There has also been a reduction in the working hours, which are now as follows:—Summer: 6 a.m. to 8; 8.45 to 12; 1 p.m. to 5. Winter 8 a.m. to 12; 1 p.m. to 4.30. Saturday afternoons generally free.

SMALL HOLDINGS FOR EX-SERVICE MEN.—In his paper read before the Northern Fruit Congress at Knaresborough last week, Mr. W. F. EMPAGE criticised with considerable severity, and, as we think, with justice, the assumptions

on which are based the scheme for providing small holdings for intensive fruit and vegetable cultivation. He drew attention to the fact that many small holdings established in this country have not proved successful. He referred, as an instance, to the Wayfords Tenants, Ltd., undertaking, and mentioned that in recent conversation with those still engaged on the land the men find that a five-acre holding is too small. Again, he insisted that it is an error to suppose that this type of holding is suitable for men lacking ordinary agricultural experience. Mr. EMPAGE referred with appreciation to Mr. A. D. HALL's suggestion that much good work might be done by employing men in land reclamation in such areas where the reclaimed ground would be of agricultural value. He holds, also, that the most promising holding is that for dairy purposes, but thinks that the most profitable size for such a holding is not 25, but 30 to 35 acres.

THE BAOBAB AS WATER TANK.—An interesting account of the use in the Sudan of trees of *Adansonia digitata* (the Baobab) as water reservoirs is given in the *Kew Bulletin* (No. 8, 1916) by an officer engaged in the Darfur campaign. In the region around Kordofan there are no wells for hundreds of miles. Each native family owns certain Baobabs, and after rain it turns out to fill the tree reservoirs from the water collected in small ponds scraped out at the base of the trees. The water is hauled up the tree in skin buckets, and is poured by a man standing at the top of the bole into the hollow of the tree, where it keeps sweet.

POT HERBS.—Attention is drawn by Mr. W. DALIMORE in the *Kew Bulletin* (No. 8, 1916) to the cultivation of culinary herbs, an industry of some importance to cottagers and small farmers in the neighbourhood of large towns. In many of the villages of Lancashire this industry is carried on, and the produce marketed in Liverpool, Manchester, Bolton and other towns. Among the herbs so cultivated mention is made of Thyme (*Thymus vulgaris*), raised either from seed, "annual Thyme," or by division "stock Thyme"; Sage (*Salvia officinalis*), also grown from seed or from layers; Marjoram (*Origanum Majorana*), grown from seed, and popular for flavouring purposes; Mint (*Mentha viridis*), and Parsley, sown broadcast in beds, alone or with Onions.

"THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA."—Part II. (1916) of this *Journal* contains articles of scientific value and an admirable preface by Mr. JOHN X. MERRIMAN. We are glad that Mr. MERRIMAN lays stress on the value of the garden at Kirstenbosch, not only for experiment with economic plants, but also as a place to be enjoyed for its beauty. An article on the Cycads of South Africa describes the two Cycadean genera, *Enephalartos* and *Stangeria*. Of the fourteen or more South African species of the former genus all but one or two are now growing at Kirstenbosch. Of *Stangeria*, three forms are known, but whether they are specifically distinct is as yet uncertain. They are *S. paradoxa* Moore, *S. schizodon* Bull, and *S. Katzeri* Regel. The two former are found in shady forests and the last in open grass veld.

SPRAYS FOR POTATOS.—The hope that lime-sulphur might serve to replace Bordeaux mixture as a spray fluid for Potatos has not been realised. Mr. M. T. MUNN*, who has carried out experiments with lime-sulphur during five seasons reports that, unlike Bordeaux mixture, this spray fluid has proved valueless as a check to late blight. Its use has resulted in a shortening of the period of growth, a reduction of yield, and a dwarfing of the plants. Mr. MUNN summarises his results thus. During five seasons

* *Special Bull.* 77. March, 1916. Michigan Agric. Coll. Exp. Station.

* *Bull.* 421, N.Y. Agric. Exp. Station. Geneva, N.Y. May, 1916.

the average increase due to spraying with Bordeaux mixture is 63.6 bushels of marketable tubers per acre; spraying with lime-sulphur resulted in an average decrease of 25.6 bushels.

EUCALYPTUS.—The twenty-seventh part of J. H. Maiden's *Critical Revision of the genus Eucalyptus*, plates 112-115, treats of four more or less critical species, namely: *E. maculosa*, R. T. Baker; *E. praecox*, Maiden; *E. ovata*, Labillardiere; and *E. neglecta*, Maiden. With the exception of *E. ovata*, these are species of recent definition and probably unrepresented in British herbaria by authenticated specimens. *E. ovata* was described and figured by Labillardiere in 1806, but owing to a geographical error by the author Bentham was unable to identify the species, being under the impression that it was West Australian. Maiden had the advantage of

one of the hardier species of Gum tree. Maiden gives three plates in illustration of the species.

HORTICULTURAL TRAINING IN EDINBURGH.—The number of students at the classes in horticulture of the Edinburgh and East of Scotland College of Agriculture, Edinburgh, is highly satisfactory. The attendance at the classes this session of many women students is symptomatic of a readiness on the part of women to respond to the demand for women gardeners.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual exhibition of the National Chrysanthemum Society will be held in the Royal Horticultural Hall, Vincent Square, Westminster, on Thursday and Friday, November 9 and 10. The exhibition will be opened at 12.15 p.m. on November 9 by the president of the society, Lieut.-Col. SIR ALBERT K. ROLLIT, D.C.L.

weathers, and found no mountain to be inaccessible. For many days at a time he would travel alone in the mountains, sleeping at night under the stars. He died in Formosa in his sixty-eighth year, after upwards of forty years' strenuous botanical work, and his last words were of thankfulness to have lived so long in the world. Mr. BUNZO HAYATA, who has done so much to increase our knowledge of the flora of Formosa, pays a sincere tribute to Father FAURIE's untiring energy, and, despite diffidence of his powers to write in English, we do not remember to have read a more generous or delicate appreciation of a good man's work and courage.

HOPS.—A preliminary statement is issued by the Board of Agriculture showing the estimated total production of Hops in the years 1916 and



FIG. 78. FRUITING SHOOT OF VIBURNUM LOBOPHYLLUM.
(See p. 193)

[Photograph by E. J. Wallis.]

seeing the type of *E. ovata* in Paris, and devotes some fifteen pages to the elucidation of the species. As circumscribed by Maiden, *E. ovata* has a wide area in Eastern Australia, ranging from Tasmania, South Australia and Victoria to southern and western New South Wales. *E. ovata* is a valuable timber-tree and very abundant in Tasmania and Victoria, where it attains its maximum dimensions. Maiden remarks that it is probably the largest tree in Tasmania, and quotes writers for 250 feet to the first branch and girth of 150 and 102 feet at the ground and three feet above it, respectively. The synonymy is copious, and includes *E. persicifolia*, Loddiges, *Botanical Cabinet*, plate 501; a form that flowered in Loddiges' establishment early in the last century. Bentham cites several of these synonyms under *E. Stuartiana*. *E. ovata* inhabits mountainous regions, reaching altitudes of 2,000 to 4,000 feet, and is, therefore, probably

PERE URBAIN FAURIE.—Among the names of French missionaries distinguished for their zeal as botanical collectors, that of Père URBAIN FAURIE will take a high place, and European botanists are laid under a deep debt of gratitude to Mr. BUNZO HAYATA, who has written* an admirable and sympathetic life of this distinguished collector. We learn from this biography that Father FAURIE was born in 1847 at Aveyron, in France, and went to Japan in 1873. There he lived and laboured until his death in July, 1915. For the purpose of his botanical collections Father FAURIE travelled throughout the length and breadth of Japan, and beyond to Formosa and Hawaii in the south, and the Kurile Islands and Sachalin in the north. His enthusiasm was such that he travelled in all

1915, with the acreage and estimated average yield per statute acre in each county of England in which Hops were grown. In 1916 the yield was 307,844 cwts., compared with 254,609 cwts. in 1915, and the acreage 31,352, compared with 34,744 acres in 1915. The figures for Kent are 196,089 cwts. and 19,499 acres. The total production is 307,844 cwts., being 53,235 cwts. more than in 1915, and about 25,000 cwts. below the average of the past ten years. The average yield per acre amounts to 9.82 cwts., which is 2½ cwts. above that of 1915, and ¾ cwt. above the ten years' mean.

WAR ITEMS.—Mr. MONTAGUE HERBERT CHAPMAN (only son of Mr. F. HERBERT CHAPMAN, of Rotherside Gardens, Rye), who has been serving for the last eighteen months with the Artists' Rifles, has been given a commission in the Rifle Brigade.

* *The Botanical Magazine*, Tokyo, XXX., August, 1916, No. 356.

— Private JOHN E. MYLES, of the Cameron Highlanders, is reported as having died of wounds, aged 19 years. Private MYLES was a son of Mr. MYLES, gardener at Eastbarns, near Dunbar. He served his apprenticeship as a gardener at Broxmouth Park. He afterwards obtained an appointment on the garden staff at Drumlanrig Castle, Dumfriesshire, under Mr. D. INGLIS, where he remained until he enlisted.

— Mr. R. P. BROTHERSTON, Tynninghame Gardens, informs us that in respect to the award of the Military Medal to his son, ARTHUR BROTHERSTON (see p. 174), the letter from the General of Division mentions July 22 and 23. In addition to leading men through a barrage of fire, he volunteered to bring in the body of his friend, TAYLOR, and several wounded, and was promoted at the time. TAYLOR was a son of M. A. TAYLOR, gardener, The Grange, Edinburgh. JOHN WINDER, son of Mr. JOHN WINDER, gardener, Howden Dene, Corbridge, was killed in action on September 16. He was employed at Tynninghame a few years ago. Mr. BROTHERSTON'S youngest son, A. J. BROTHERSTON, was gassed in August, but is slowly improving. He is at present in hospital near Wadhurst, Sussex.

— The following interesting letter has been received by the Secretary of the Royal Horticultural Society from the Internment Camp at Ruhleben:—"I have been instructed by my committee to inform you that on Monday, September 25, 1916, a horticultural society was formed with the title 'Ruhleben Horticultural Society,' the aims of this Society being to cultivate and beautify the ground around the barracks and public thoroughfares in the Lager, and to further the knowledge of horticulture. We desire to become affiliated to the Royal Horticultural Society. Under the circumstances in which we are presently situated we are unable, of course, to remit the usual fee, but trust this will be no hindrance to our enjoying the privileges of affiliation. It may interest the members of your Society to know that gardening started immediately after our internment in the camp and since then has steadily increased. During this, our second summer, the magnificent show of flowers and tasteful decorative schemes which were carried out have done much to alleviate our lot. Although the individual efforts of our barrack gardeners have been very satisfactory, we nevertheless feel that as a Society we shall have greater scope and receive more support. As the work we have in view is a large one, we should be very grateful for gifts of bulbs and seeds.—THOMAS HOWAT, Secretary." In accordance with Mr. Howat's request, the Council has accepted the application for the affiliation of the Camp Horticultural Society. The President and Council of the Royal Horticultural Society would be pleased to receive gifts of bulbs and seeds for despatch to Ruhleben. They should be addressed to:—"The President, Royal Horticultural Society, Vincent Square, Westminster, for the English Internment Camp Horticultural Society at Ruhleben." The R.H.S. will supervise the despatch from London.

— Lance-Corporal JOHN WILLIAM HART, one of the most promising of the younger generation of horticulturists, was killed in action on September 15. JOHN HART showed a strong bent for practical and scientific horticulture from his early student days at University College, Reading, and was one of those students, rare among English youths, who knew what he wanted to work at, and did work at it. He obtained his diploma in horticulture at Reading, and received the B.Sc. (war) degree of the University of London. At the outbreak of war he was in charge of the Botanic Garden of Bedford College, London. Volunteering in the early days of the war, he was on active service at the Front for eighteen months. He met his death whilst

taking part in the first wave of an attack on the enemy trenches. His teachers and many friends deplore his loss, for not only was JOHN HART a youth of most lovable disposition, he was also a hard worker and well equipped, both by his industry and courage, to play an important part in the advancement of the science and practice of horticulture.

CONFESSIONS OF A NOVICE.—XII.

BEFORE I became a novice it used to puzzle me why gardeners took such an interest in the weather and surrounded themselves with all sorts of apparatus in the way of thermometers and rain gauges in order to keep records of its badness. "Let well alone" may be a good motto, but "Let ill alone" seemed to me a better. I used in those unregenerate days to hold the conviction that Byron had said the last word on this eternal subject when he remarked that "the English winter ends in July, to begin again in August." I supposed vaguely that, like a sergeant in a police court who takes a sombre pleasure in reciting the tale of previous convictions against a prisoner, the meteorological apparatus of the gardener served the sad satisfaction of showing how illimitable are the depths of evil to which English weather can sink. Now, however, in this late autumn, the sun is shining and the garden is passing through a phase of loveliness like that of the autumnal beauty of a society belle whose mature but overwhelming charms throw in the shade the natter and paler perfections of youth. I now know that the weather which is bestowed upon these islands is a constant condemnation mitigated by eleventh-hour reprieves. Such a reprieve my garden is now enjoying, and the things which were under sentence have resumed full liberty of growth. The garden "annuals" and biennials are flowering again, some for the second and others, like Canterbury Bells, for even a third time. Hydrangeas, although they want warmer sun to mature their flower heads, are maintaining week by week such blossoms as they have matured in intermittent perfection. When the strong south-west wind blows, those that are in large earthen pots flag and look as though about to die, but a canful of water revives them again: for a flagged Hydrangea is one of those things that open out again with water like an umbrella. Weigela rosea is blooming once more, and the self-coloured Colerette Dahlias are brilliant among the Asters, the blooms of which are of a magnificence not to be described. Even my lawn, which is a living herbarium of British botany, has taken heart of grace, and is tolerating here and there, amongst self-sown seed-beds of Clarkias and hosts of other annual things, the growth of real grass.

The pleasure which these unexpected flowers give is, I think, the greatest of all that the garden can bestow; for they are not returns for work done by the gardener; they are free gifts.

Despite the fact that the wasps get all the fruit that the birds had not time to spoil, I have decided to make a little fruit garden; not with the sure expectation of acquiring annually wealth at the rate of £100 per acre, but in order to learn by practical experience how to prune fruit trees. So much indebted am I to gardeners that I hesitate to make a single comment which might suggest ingratitude; nevertheless, I find it most extraordinarily difficult to select the best varieties of trees. The number of kinds is so great that the choice is bewildering. Of Apples, I should like to grow Cox's Orange Pippin; but on my ground it seems to be but a skimpy doer. I should like to grow Charles Ross, but the days are gone when I can, unless I become entirely fruitarian, eat one of these excellent monsters at a sitting. I should like to grow Newton Wonder, but the catalogues warn me that it is a vigorous grower, and I cannot allow more than about 9 feet between my bushes. My gardener has strong views, and

although I am set on Paradise—as my stock—he asserts that the Crab won't get away too strongly on my light soil. He wants cookers, but I think that an Apple cooked is an Apple spoiled. So, also, with Plums. I find it difficult to know what kinds to try. Of course, I have consulted my friends the experts, and the advice which they have given me is invaluable. Yet it makes me feel that although in the multitude of counsellors there is wisdom, it requires a wise man to sort it out; for the varieties favoured by one are not by any means always those which another recommends. What are the six best varieties of table Apple for bush trees of moderate growth on a light sandy soil in a small garden, giving fruit fairly freely, of good quality—nothing below American Mother will do—of medium size, and with as long a season as possible? Ought they to be bush trees, or shall I plant cordons? While asking such elementary questions as these, I should like to express my best thanks to W. P. B. for his valuable notes (p. 174) on clubbing in Brassicas and on the Carrot fly. I shall certainly try the methods of cultivation which he has found effective, and shall hope to report my results at a later date.

If any scientific horticulturist does me the honour to read these articles, I wish that he would investigate one of the most curious of all garden problems: the nature of the virtue of soot. The fact of that virtue is a commonplace with gardeners, but of the nature of that virtue I confess to ignorance. I shall, of course, be answered by the words "traces of ammonia." It may be so, but I should like better evidence than is at present forthcoming. As an example, which practical gardeners can, of course, multiply indefinitely, my gardener top-dressed the Aubrietias with soot a fortnight or three weeks ago, leaving one clump undressed. The difference between those which had and which had not soot is now extraordinary. In the one, deep green luxuriant foliage and vigorous growth; in the other, the plants at a standstill. A. N.

THE MARKET FRUIT GARDEN.

THE COLOURING OF APPLES.

AN unnamed correspondent on page 151 raises the question as to the effect of stocks on the colouring of Apples. As anything that checks the gross growth of a tree tends to render its fruit highly coloured, it is probable that Apples on the Paradise stock are commonly more coloured than those of the same variety on the Crab in the same season. My Bramleys generally are highly coloured this season, but one lot on trees on the Paradise stock are so brilliant that the fruit might be mistaken on cursory inspection for Newton Wonder. As to partial shade having an effect on colouring, the writer in question appears to indicate that it intensifies colouring. This seems to me almost paradoxical, as exposure to sunshine is essential to colouring, and my experience is that shaded Apples remain green. This season the fruit of several varieties on the exposed portions of the trees is brilliantly red, while that on the underneath boughs is green all over. Moreover, it is always the upper side of an Apple which is red, and the under side that is green. This often leads to great disappointment, because from an outside view of a crop the observer may suppose that a variety for which high colour is essential to the best market results is quite fit to be gathered, whereas, when placed in the receptacles for it, the fruit may be found too green.

THE HAILSHAM BERRY.

It would be interesting to learn from growers of this fruit for more than one season whether they find it different from the ordinary Raspberry, and, if so, in what respects. My experience of it is limited to this season, the first after the planting, and I have not been able to discriminate between it and the common Raspberry in any respect. *Southon Grower.*

CULTURAL MEMORANDUM.

INTENSIVE CUCUMBER GROWING IN HOTHOUSES.

CUCUMBER plants thrive at a high temperature, and require plenty of moisture; in a dry atmosphere they are liable to attacks of red spider and aphid, root action is checked, the fruits become deformed, and the foliage is subject to a fungus known as "spot," and to mildew. Experience has proved that fresh air is also essential to their welfare. It sweetens the atmosphere of the greenhouse; and if ventilation is afforded regularly, be it only for a few minutes during inclement weather, the Cucumber plants will be hardy, healthy, and practically immune from disease.

The best compost consists of one part fresh field-loam and one part strawy manure. Most growers mix it at the time of building the ridge upon which the plants will be set. The necessary drainage is established by making the ridges on a narrow platform (12 inches wide), two or three inches off the floor of the house. The ridge is about 10 inches high. The plants are top dressed with a similar compost three weeks after they have been set, and subsequently every fortnight. A span-roofed house 12 to 14 feet wide is the most suitable for Cucumber growing. There should be four rows of 4-inch pipe, and the return pipes should run along the middle path. The boiler must be easily driven, as it is essential to keep a minimum temperature of 60° F. in cold weather. Artificial heat is always needed at night until early in July, and from early in September onwards. From the first week of April the fire is not needed in the daytime, except in unusually cold weather. Although Cucumbers can be grown all the year round, the majority of growers divide the season, producing three batches of fruit, so as to maintain a supply from April 1 to October. The first batch, to be set early in February, is sown about Christmas, at a brisk temperature of 70°. The germination is often slow and uneven at such an early date, and excess of moisture often causes the decay of many seeds. If, however, they are set on a damp soil, in a seed tray placed in a large box, and the space between the two boxes filled with damp hay or short manure, kept covered with a pane of glass, the seeds will come up with no more attention than that involved in turning over the glass every day. The plants, when sufficiently strong, can be potted singly in 60's, and afterwards afforded room as required. It takes about five weeks to rear plants suitable for setting out.

A few days previous to the final planting, the house here is thoroughly cleaned. The ridges of soil are built on each side of the wall. Some fine compost, to place round the ball of roots, is brought in; and when the heat has been on for a couple of days, the plants are set 2 feet apart.

The whole house is kept damp, and the soil suitably moist. Watering is increased with the approach of warmer weather and the growth of the plants. Pruning and training vary greatly among growers, but the method usually adopted is the "fish bone" principle. The main stem forms the "backbone," and the side shoots stopped on the second leaf represent the small bones.

The leader is stopped three times in the whole length, and the nearest side shoot is trained as the new main. The idea is to secure all possible fruits and to give them time to reach a marketable size before the following batch is formed.

The thinning of fruits consists in the removal of all those appearing on the leader and of all deformed ones; but it is essential to pick all marketable fruits when they are ready, or they will injure the shape of the smaller ones.

The pruning and tying are the most important part of this culture. All plants have to be

examined every week, and when they are very active even more often.

It is usually necessary to whitewash the roof of the greenhouse in May, and the shading is kept on throughout the season. There are numerous varieties; practically every large grower has a strain of his own. "Chennell's Challenger" and "Rochford's Market" are, however, recognised by growers as good standard sorts. The former is longer than, but not so prolific as, the latter, which is an especial favourite near London. *P. Aquatics*.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE RAT'S TAIL RADISH (RAPHANUS CAUDATUS).—I recently acquired a catalogue of the International Horticultural Exhibition of 1866, containing the schedule of prizes, lists of exhibitors, and awards made. Many of the items are full of interest, especially to myself, as it was the first flower show I had ever seen. A group of the Rat's Tail Radish aroused a great deal of general attention, and it was boomed largely as a new vegetable which had come to stay. This did not, however, prove to be the case, as it was soon forgotten. This Radish forms a branching specimen, of which the long, pendulous, succulent pods form the edible portion. That this particular exhibition was not the means of unearthing any new vegetables is shown by the fact that the two subjects that gained certificates awarded in Class 220 (for any newly introduced vegetable, distinct, cultivable in this country, and not a garden variety), were the Radish in question, and the Yam (*Dioscorea Batatas*), neither of which has held its own here. *W. T.*

AN UPRIGHT-FLOWERED FUCHSIA (see p. 174).—Like *W. T.*, I was also interested in the name of the Fuchsia Von Novelty. I suspected it was my old acquaintance, and had no doubt of it when he called it Erecta Von Novelty. I can also confirm his statement as to its probable age, and add eleven years to that, for it was in the Chiswick collection of the Royal Horticultural Society in 1880, under the name of Erecta Novelty. It would be interesting to know whether this was the original name, or whether it was sent out under another appellation, uncouth to English ears. As it was in Messrs. Cannell and Sons' nursery, the name included a mixture of Latin, German and English. Although such a word as Novelle has been permitted in German schools since 1880, yet their words for novelty are *Neubeit* and *Neuigkeit*, which few gardeners here would care to tackle. The merits of Fuchsia Countess of Aberdeen consisted in its white sepals and petals, but the flowers were not freely produced as I saw the variety in the nursery of Messrs. B. S. Williams and Son, Upper Holloway, about 1888. On the contrary, Erecta Novelty flowered quite freely, though the habit of the plant looked stiff and unnatural compared with all the other Fuchsias I had ever seen. *J. F.*

WARNING TO GARDENERS.—There is a man going about—he was lately in Reading—posing as a practical gardener, and showing a fictitious character. He borrows money under various pretences, and in Reading he has left several victims to his frauds. He has a glib tongue. All horticulturists should beware of this man, and not trust him. If you will publish this warning you will be doing gardeners in general a good turn. *A Victim*.

"SOUTHERN GROWER'S" APPLE SELECTION (see p. 179).—I shall be surprised if *Southern Grower's* rigid selection of varieties of Apples for market purposes does not meet with almost unanimous approval. There is a growing feeling that far too many sorts of Apples are planted in preference to a greater number of trees of some few approved varieties. I have long been of the opinion that intending planters should ascertain the local requirements and plant in such a manner as would ensure a bulk of the right sort at a given moment. I am not surprised to find *Southern Grower* discard Stirling Castle, Potts's Seedling, Ribston Pippin and Bismarck. I have always considered that

the last is an over-rated variety; the cooking quality is not to my taste at all, apart from the liability of the fruit to attacks of scab. What a remarkable selection of mid-season and late cooking varieties he makes! Quite the pick of the basket. Some will say the present season has taught a lesson in selection, arguing that as many standard varieties have failed it is wise to include others of not such high repute. I am pleased to see that your correspondent thinks so well of Norfolk Beauty. I have said since its introduction that it would oust Warner's King. I was not surprised to see Bramley's Seedling figure so prominently, and I am sure Newton Wonder will be more extensively planted in the future when its merits become generally known. How rigid is his selection of late dessert varieties! Blenheim Pippin has outgrown its reputation of being slow in coming to bearing when properly treated. Trees double grafted fruit much more freely; indeed, they crop within four years. Allington Pippin is yearly improving its position; its cropping can be relied on, and the growth is of the right character. *E. M.*

ISLE OF WIGHT BEE DISEASE (see p. 123).—Seeing that the honey bee is a domestic animal, it is not surprising that it should suffer from various diseases, as the outcome of the pampering and irrational treatment it receives. It is quite probable that restricting the wax-making of the bee may have something to do with the trouble, as *A. M. L.* suggests, but it seems to me that the silly fashion of feeding the bees on all sorts of rubbish called candy is at least a possible cause. The proper food of bees is honey, and if they are not given their proper food when it is needed it is natural that they should suffer. It seems to me more than likely that the continued feeding of bees on artificial food has at last produced the bad effect which it might have been expected to do sooner or later. I am not a bee-keeper, but know something of the art, and I merely throw out this suggestion for what it is worth. Is there anything to show that the Isle of Wight disease has been getting more deadly as the habit of feeding bees on faked foods has been getting more general? *C. N.*

THE GREY SQUIRREL.—In the *Gardeners' Chronicle*, April 22, 1916, p. 224, you referred to the depredations of the grey squirrel at Kew. But Kew Gardens, unfortunately, is not the only place where the grey or American squirrel has committed damage to trees and plants. In Regent's Park not only are the flowers of the Crocus eaten, but the bulbs are unearthed wholesale by the squirrels, while beneath the Horse Chestnut trees the ground in spring is littered with the partly-devoured bulbs and scales. The fruit of the Hawthorn and of various species of Pyrus are being eaten. So fond are the squirrels of Carnation buds that the cultivation of this plant has been given up, also to a great extent that of the Canterbury Bell, various species of Cacti and Saxifrage. Plants in frames require to be protected by netting, particularly such as are of a succulent nature. But, worst of all, by ousting our native squirrel there is a grave danger of the fauna of our country being interfered with. That the grey squirrel will eat eggs and young birds we have ample proof. Probably owing to the fact that previous to the war the squirrels were regularly fed by visitors, a practice that has fallen off of late, the trouble is felt more acutely. *W.*

PLANTING HERBACEOUS PAEONIES.—In his note on this subject on p. 187, Mr. Jenkins does not mention the fact that it is possible to transplant herbaceous Paeonies with very considerable success immediately the flowers have fallen. The discovery that this is possible is not my own. A few years ago Mr. John Hoog, of the well-known firm of Von Tubergen, in Haarlem, was in my garden at the time of the Chelsea Show, and, as we passed some clumps of *Paeonia officinalis*, astonished me by asking whether I knew that the best time to move them was in the summer, when the flowers fell. Last year I had occasion to move a few clumps, and tried the experiment late in June. This year the flowers on these clumps were quite as numerous, if not quite as large, as on those that remained undisturbed. *W. R. Dyke, Charterhouse, Godalming.*

SOCIETIES.

ROYAL HORTICULTURAL.
Scientific Committee.

OCTOBER 10.—*Present*: Dr. A. B. Rendle, M.A., F.R.S. (in the chair), Col. Rawson, J. Hudson, W. Fawcett, Sir Everard in Thurn, J. Fraser, H. J. Elwes, J. Ramsbottom, W. Hales, E. A. Bowles, E. J. Allard, Dr. Voelcker and F. J. Chittenden (hon. sec.).

*Fungus gall on *Alnus glutinosa**.—The Rev. W. Wilks sent a curious reddish gall on the "cones" of *Alnus glutinosa*, which he had found in Scotland. The gall is produced by the growth of the fungus *Ascomyces alnitroquum* on some of the bracts, which become several times their normal size and project almost like leaves from the cones.

Lychnis from China.—Mr. Allard showed a *Lychnis* with large flowers somewhat like those of *L. Flos-cuculi*, but with much longer sepals and considerably larger in all its parts, raised from seed sent home by Mr. Farrer from inland China. It has flowered at Wisley and in other gardens, but has not yet been named, and its perennial character remains to be proved.

*Variations in *Tropaeolums**.—Col. Rawson showed some specimens of *T. tuberosum*, which bore entire leaves on one part of their growth and more divided leaves in another. This he attributed, as with other variations in this and allied species, to differences in illumination. He also showed variations in *T. majus* towards the production of divided leaves. He had secured parallel variations in flowers and foliage in the two species.

Crocus from Guntersburg.—Mr. Hudson showed some flowers of a *Crocus* which he had originally received from Mr. Smith, of Newry, as a new species. Mr. Bowles took them to examine further.

Kniphofia modesta, etc.—Mr. H. J. Elwes showed a spike of this white-flowered plant, which is not quite hardy, and of an *Aeschynanthus*, with bright, scarlet flowers, which he had found at an elevation of 7,000 feet in Sikkim, growing as an epiphyte. It is apparently an undescribed species, and might prove hardy in Cornwall.

HORTICULTURAL CLUB.

OCTOBER 10.—On Tuesday, the 10th inst., the members of the Horticultural Club met at dinner at the headquarters, Hotel Windsor, Victoria Street, Westminster. The president, Sir Frank Crisp, Bart., presided over a company of thirty-two, and Mr. Reginald Farrer gave a lecture entitled "Recent Explorations on the Tibetan Border."

Mr. Farrer began by paying a warm tribute to his travelling companion, Mr. W. Purdom (formerly of Kew, now Assistant Adviser to the Department of Agriculture and Commerce, Peking), to whose indefatigable courage, energy and cheerfulness the expedition owed so much, not only of its success, but also of its pleasure. Mr. Farrer also expressed his gratitude for the courtesy and kindness that he invariably met with at the hands of all Chinese officials, no matter how pressing the perils of the time. He then proceeded to show slides of his flower-photographs (all taken by Mr. Purdom), many of which have already appeared in the *Gardener's Chronicle*. Particularly interesting were those of the two new Poppies, *Meconopsis lepidia* and *M. psilonomma*, the wonderful natural rock-garden full of *Isopyrum*, and, hitherto unexhibited, the new *Primulas*, *Reginella*, *hylophila*, and *Farreri*. Mr. Farrer also gave an illuminating sketch of the distributions of *Meconopsis Pratii*, and the confusions that have arisen between this plant and *M. racemosa* (also shown). Specially apropos was the slide giving an *in situ* picture of the new *Gentian*, *G. Farreri*, which has lately caused so much excitement by blooming at Edinburgh and revealing itself not only as a vigorously thriving plant, but as by far the most dazzlingly beautiful as yet of all its race. Having finished with the flower-slides, Mr. Farrer then gave an

illustrated account of his two years of exploration, from the alps south and west of Siku up through Lanchow and Si-ning, among those of the Da-Tung, and the great abbeys of Tien Tang and Chebon; and thence back, down West-Central China, to the Yang dz' Jang and its famous gorges. Incidentally Mr. Farrer pointed out, as he went, the homes of many of his treasures, from the desolate high-alpine scree of *Meconopsis Pratii*, to the dry, hot limestone cliffs, low in the low range of the Da Ba S'an, where he established a new record for *Primula sinensis*. After the lecture was over, and a few questions answered, Mr. Farrer exhibited a selection of his flower-paintings, which include all the most interesting of his finds, portrayed against a background of their natural surroundings. Among those shown were the icones originales of *Meconopsis lepidia*, *M. psilonomma*, *M. quintuplinervia*, *Lloydia alpina*, *Gentiana Farreri*, *Primula Reginella*, *P. gemmifera*, *P. utricifolia*, *P. Farreri* and *P. citrina*, and various others.

MANCHESTER AND NORTH OF ENGLAND
ORCHID.

OCTOBER 5.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. C. Cowan, Dr. Craven Moore, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hammer, A. J. Keeling, D. McLeod, W. Shackleton, S. Swift and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Hesta Canyughum var. (*C. gigas* Frau Melanie Beyrodt × *C. Susanne Hoye de Crom*), a flower of good form, having broad sepals and petals of pure white, with a suffused colour in the lip; *Odontoglossum* × *Empress Eugénie*, a large, round flower, with light violet shades and spots on a white ground, both from Dr. CRAVEN MOORE.

Cattleya Naidia Haddon House var. (*C. iridescens* × *C. Hardyana*), a well-shaped flower of maroon colour; and *Brasso-Cattleya Queen Alexandria Haddon House var.*, the petals are pure white, and the sepals slightly tinted; the large, round lip is well fringed, both from P. SMITH, Esq.

Cattleya Venus var. Mary Gratrix magnifica, a large flower with bronzy-yellow sepals and petals and a deep crimson lip, from S. GRATRIX, Esq.

Cattleya Venus var. Rosendale. The sepals and petals are dark yellow and the lip deep crimson, from R. ASHWORTH, Esq.

Cypripedium Rossettii The Knowle var. The large dorsal sepal has a broad margin of white, from J. HARTLEY, Esq.

Laelio-Cattleya Sorbia var. Lecana (St. Gothard × *Enid*), from W. R. LEE, Esq.

Cypripedium Hitchinsiae Keeling's var. The very round dorsal sepal has a porcelain white margin and a spotted base, from A. J. KEELING AND SONS.

AWARDS OF MERIT.

Cattleya Royal and *Cypripedium Success* (Earl of Tankerville × Mons. de Curté), both from R. ASHWORTH, Esq.

Odontioda Olympia (*Oda*, Charlesworthii × *Odm. Olympium*), and *Odontoglossum crinum var. Queen of Roumania*, both from Dr. CRAVEN MOORE.

Cypripedium Sentar (fulshawense × *Lady Dillon*), from W. R. LEE, Esq.

Laelio-Cattleya Houghtonii (*C. Harrisoniae* × *L. Perrinii*), from Messrs. J. C. COWAN and Co.

Brasso-Cattleya Risdene var., from Mr. ALWYN HARRISON.

CULTURAL CERTIFICATE.

To Mr. E. ROGERS, Bury, for a collection of *Epulidium stellatum autumnale*.

MEDAL AWARDS.

A *Large Silver-gilt Medal* was awarded to R. ASHWORTH, Esq., Newchurch (gr. Mr. W. Gilden), and a *Silver Medal* to the Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), for groups.

APPLE CHARLES ROSS (see p. 179).—I was very pleased to read *Southern Grower's* appreciative remarks on this splendid Apple. I was for two years a very close neighbour of Mr. Ross, who thought highly of the variety, and considered it one of his finest seedlings. Some time ago I noticed a complaint from a correspondent in the *Gard. Chron.* about the large size of the fruit, stating that it was too large for dessert purposes. The fruits of the mother tree—when I saw them—were very little larger than a good specimen of Cox's Orange Pippin, one of its parents. It may not be generally known that Mr. Ross raised the following Apples from four pips out of the one fruit, viz. Charles Ross, The Houlblon, and Rival, all of which, I believe, obtained the First-class Certificate of the Royal Horticultural Society, which, surely, is a record. The other seedling proved worthless for its fruits, and was used as a stock. Mr. Ross replanted his seedlings each autumn in order to get them into bearing as quickly as possible. Mr. Ross also raised another Apple, named Red Wing, which I have looked for in catalogues in vain. It is a culinary variety, and when gathered from the tree is the most juicy Apple I know; moreover, it is a splendid cooker. E. Young, Woodfield Gardens, Hatfield, Herts.

WASPS AND BIRDS (see pp. 150 and 186).—Several correspondents have remarked on the very small number of wasps' nests this season. Here we have had a plague of nests, and destroyed 114 within a quarter-mile radius of the kitchen garden and orchard, 30 being in the gardens. Had the weather been favourable at the latter end of August and September our fruit crops would have been ruined by wasps, but owing to damp weather the insects hung in clusters, chiefly on the Plums, in a torpid condition. Our greatest enemy amongst birds is undoubtedly the jay, which attacks and strips rows of Peas in the most brazen manner. H. Prince, Dorking.

DISEASED POTATOS AS FOOD FOR PIGS.—My friend Mr. E. R. Janes states on p. 183 that diseased Potatos should not be given to pigs but removed and burnt immediately. Potatos on the farms in this district, and, unfortunately, in many parts of Ireland, are badly diseased this season, and many tubers are still in the ground going from bad to worse, I fear. I, in common with hundreds of others, have been giving them to pigs after boiling, and at 3d. a weight, i.e., 21 lb., they form a cheap food for the pigs. At a neighbouring fair early this month young pigs sold very dear in consequence of this evil, farmers preferring to keep them to utilise what would otherwise be a loss to them. Further remarks on this would prove interesting, and it will be instructive to note the result of next year's crop, for on most farms the diseased Potatos will either be fed to pigs and other stock or find their way to the manure heaps as heretofore, for very few farmers go to the trouble of burning them even when they have the convenience. I remember once reading in an article by an eminent Potato grower, that diseased haulm could be dug into the ground and would have no effect on the succeeding year's crop. E. Beckett, Queenstown.

PEAR BELLE JULIE.—Despite the warm commendations of generations of Pomologists, this variety is not so well known as it deserves. A most prodigious cropper, it is not to be expected that the fruit should be of large size, but it has the much more important character of good flavour. In this cold and sunless season, and one which for me is nearly Pearlless also, a Pear which will develop its full flavour is valuable, and Belle Julie has this quality. The fruit is of a nut-brown russet, touched with a warmer shade on the sunny side, and attains about 3 inches long by 2 inches wide. The eye, exactly like a clove, is set in a shallow basin. The flesh is extremely melting, not gritty, sweet, and delicately flavoured, ripening about the middle to end of October. The tree forms a compact pyramid or cordon, and the only special care needed is to thin the fruit when a prolific crop is set. This is one of the many fruits we owe to Van Mons, and it was named after his granddaughter. It is often met with in French gardens under the name of Alexandre Helio, but this later name should be discarded. E. A. B.

SCOTTISH HORTICULTURAL.

OCTOBER 3.—The monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh.

A paper on Early-flowering Chrysanthemums was read by Mr. Robert Fife, in which he gave an account of some experiments he had carried out in 1914 in the propagation of these plants, one of which went to prove that plants struck from cuttings in February or March, or even April, flowered earlier than cuttings rooted in December or January.

The exhibits were a collection of Early-flowering Chrysanthemums and new Dahlias and Strawberry Laxton's Perpetual, from Messrs. DOBBIE AND CO.; seedling Peach Lord Desborough and Phytolacca decandra, from Mr. R. STAWARD, Panshanger, Hertford; Potatoes Dumnoter Castle, Gordon Castle, Great Scot and Summit, from Miss BURTON, New Saughtonhall, Polton; new Collettere Dahlia Innocence, from Mr. A. GRANT, Bo'ness; Bougainvillea glabra in flower from the open air, from Mr. H. H. COOK, Drummond Castle, Crieff. First-class Certificates were awarded to Collettere Dahlia Red Cross and Decorative Dahlia Madonna, and Awards of Merit to Collettere Dahlia Cameron and Decorative Dahlia St. Mungo, exhibited by Messrs. DOBBIE AND CO.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

OCTOBER 9.—The monthly meeting of this Society was held in the R.H.S. Hall on Monday, the 9th inst., Mr. Charles H. Curtis in the chair. The death certificates of five members were produced, four of whom had been killed in action, and the sum of £54 2s. was passed for payment to their nominees. The sick pay for the month on the ordinary side amounted to £70 16s. 7d., and to the chronic sick £10 8s., on the State section to £27 6s. 8d., and maternity benefits to £13.

BRITISH MYCOLOGICAL.

SEPTEMBER 25-30.—The twentieth annual fungus foray of the British Mycological Society was held at Lyndhurst, in the New Forest, on September 25-30. The president, Mr. E. W. Swanton, was unable to be present, and the immediate past-president, Mrs. Carleton Rea, was elected to the chair. The excursions were all in the Lyndhurst neighbourhood. The first day's foray was to be a more or less circular walk, with Lyndhurst Road as a diameter, but the latter part of the circle was not such as would satisfy any geometrical definition, and all were relieved when a distant sight of Lyndhurst church was obtained. The principal finds of the day were Amanita virosa, A. recutita, Armillaria mellea var. tabescens, Tricholoma immundum, T. acerbum, Marasmius porreus, Lactarius lilacinus, L. volemus, Russula veterosa, Inocybe trechispora, Hebeloma testaceum, Cortinarius dolabratus, C. bolaris, C. pericellis, C. militinus, C. caeruleus, Boletus calopus, Polyporus amorphus, Clavaria flaccida, Sparassis laminosa and Hydnum scrobiculatum.

In the evening the business meeting was held. Miss A. Lorrain Smith, the eminent lichenologist and mycologist, was elected president for next year, and Shrewsbury was chosen as the centre for the foray. Miss G. Lister was again elected vice-president and Mr. Carleton Rea treasurer and secretary. It is mainly due to Mr. Rea's activities that the society owes its existence, he having acted as secretary since its foundation, and as referee for most of its members. It was resolved to send condolences to Mrs. Ellis on the death of Lieut.-Col. J. W. Ellis. Professor P. A. Saccardo, of Padua, was elected as the second honorary member of the society. The first day's foray is always for a whole day; the rest of the excursions begin about noon, to enable some examination of the finds of the previous day. Wednesday's foray was spoiled by the weather; lunch under dripping trees was suggestive of Barry Pain's lines about "well rained on and," and most of the members returned to headquarters early in the afternoon. The fungi found which are worthy of record were

Collybia lancipes, Tricholoma spermaticum, Hygrophorus Reai, H. unguinosus, Nolanea proleteria, Cortinarius mucosus and Porothelium Stevenonii. In the evening the president's address on "Education in Mycology" was read in his absence. Mr. Swanton gave an account of the efforts made in various countries and in our colonies to educate the public to a proper knowledge of fungi. He had many criticisms to make, and the suggestions he ventured upon require consideration when it is remembered that Mr. Swanton is in charge of the Educational Museum at Haslemere, which probably does more work in the spreading of a knowledge of natural history than any other institution in this country. After the president's address Dr. W. T. Elliott gave an account of some observations he had made on the Myxomycete Badhamia. Thursday was a glorious day, and the following were the chief additions made to the list: Amanita porphyria, Russula punctata, R. citrina, Lactarius picinus, Inocybe petiginosa, I. fulvella, Cortinarius fulgens, C. bulbosus, C. cotoneus, C. stemmatus, Hyphodoma piluliforme, Entoloma Bloxamii, E. speculum, Polyporus radiatus, P. resinaceus, Craterellus sinuosus, Clavaria formosa, Odontia uda and Femostonia luteo-alba. In the evening Mr. J. Ramsbottom read a paper on "Education in Plant Pathology," in which he pointed out the lack of proper training in this country, and suggested that the universities might have diplomas in economic mycology, etc., and that a central laboratory and pathological station should be instituted for research and for the final training of men who were to take up pathological posts. After a discussion Dr. Somerville Hastings described some observations he had made on the eating of fungi by rodents. He exhibited a number of excellent photographs. Certain members then stated facts or traditions which had come under their notice, and no doubt Dr. Hastings will be able to add these to his interesting series. In such work any well-authenticated statement is welcomed by the investigator. Mr. J. Ramsbottom then read a further paper on "The History of the Classification of the Ustilagineles, or Smut Fungi," tracing the statements from Theophrastus to recent times.

Friday was a very wet day, and only three members left the hotel. Their collecting added Amanita excelsa, Russula aurata and Clavaria flava. After tea several members were conducted by the secretary to the place where two rings of the last-named fungus made a magnificent sight, and a second rare Clavaria, C. formosa, was an additional reward.

On Saturday morning a bright sun tempted several of the party into the woods again, and Cortinarius armillatus, C. pholideus and Clavaria botrytis were added to the list of rarer fungi. The secretary and Mrs. Rea, staying over the week-end, added Lepiota clypeolaria, Cortinarius orichleus and Pholiotia radicata.

The foray was most successful in every way. J. R.

Obituary.

WILLIAM T. BELL.—Horticulture, U.S.A., records the death of Mr. William T. Bell, founder of the Bell Floral Company, Franklin, Pa. Deceased was killed by a train on the Erie Railroad while walking on the track. Mr. Bell was 73 years of age and a native of Northumberland.

GARDENING APPOINTMENTS.

Mr. J. F. Greenlees, for the past 17 years Gardener to T. A. MURRAY-GIBSON, Esq., J.P., Elm Lodge, Ravenstonedale, Westmorland, as Gardener to Lord ROCHDALE, Lingham Keswick, Cumberland. [Thanks for donation for R.G.O.F. box.—Eds.]

Mr. William E. Young, late Foreman at Taymouth Castle Gardens, Kenmore, Perthshire, and previously Foreman at Stobo Castle Gardens, Peebleshire, as Gardener to Lady CURRIE, Garth, Aberfeldy.

Mr. F. Penwell, for the past 5 years Foreman at Flete, Ivybridge, S. Devon, as Gardener to Sir ALFRED GOODSON, Waddeton Court, near Paignton, Devon.

Mr. James M. Bush, as Gardener to Percy G. C. FOSTER, Esq., Brooklands, Cambridge.

MARKETS.

COVENT GARDEN, October 15.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.

Cut Flowers, &c.: Average Wholesale Prices.

Table with 4 columns: Flower name, s.d., s.d., s.d. Includes entries like Lily-of-the-Valley, Asters, Perennial, Carnations, Gardenias, Gladioli, Heather, Lapageria, Lillium longiflorum, etc.

Cut Foliage, &c.: Average Wholesale Prices.

Table with 4 columns: Plant name, s.d., s.d., s.d. Includes entries like Adiantum, Agrostis, Asparagus plumosus, Moss, Myrtle, Pernettya, etc.

REMARKS.—Conditions are generally similar to those of last week. Bunched spray Chrysanthemums are more plentiful, and prices are considerably lower. White specimens and medium blooms are not plentiful. The best white varieties are Mrs. Thorpe, Money Maker and Mrs. Roots. Coloured varieties are more numerous, and some very fine specimen blooms of yellow, pink and bronze are offered at somewhat easier prices. A few single varieties are beginning to arrive, notably some very fine blooms of white, yellow and bronze. Richardias (Arums) are increasing in numbers; the blooms are arriving in better condition. White Liliums are more plentiful. Little change is noticeable with regard to Carnations and Roses. There is an abundant supply of Michaelmas Daisies, Violets, yellow Marguerites and Physalis. The supply of hardy foliage is plentiful, but Asparagus plumosus, A. Sprengeri, Smilax, and Adiantum Fern are getting very scarce.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various plants in pots and their prices. Includes items like Aralia Sieboldii, Asparagus plumosus, and Begonia Gloire de Lorraine.

REMARKS.—A few Solanums are offered for sale; these are the first of the season. Ferns both large and small, are good value. Ericas are the chief attraction in flowering plants. The amount of trade in this department is only moderate.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices. Includes items like Artichokes Globe, Beetroot per bus., and Cabbages.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices. Includes items like Almonds, Apples, Bananas, and Blackberries.

REMARKS.—The market continues to be well supplied with dessert and ordinary varieties of English Apples.

Overseas varieties consist of Nova Scotian, Californian and Oregon Newtowns, packed in barrels and boxes. Supplies of Pears are good, including Doyenné du Comice from California and France. President Plums and Prunes are still available. The market is well supplied with Grapes. Walnuts, English and Continental, are plentiful, but Cobnuts are scarce. Supplies of English Tomatos are now limited, but Tenerife Tomatos are arriving this week. Green vegetables are fairly plentiful. E. H. R., Covent Garden Market, October 18, 1916.

Potatoes.

Table listing potato varieties and their prices. Includes Kent-Eclipse, May Queen, and Lincoln-Blackland.

ANSWERS TO CORRESPONDENTS.

ANTIRRHINUMS DISEASED: D. C. M. The disease is caused by a fungus—Colletotrichum antirrhini. As the spores fall to the ground from the decaying leaves, treat the soil with quicklime in the spring. Do not grow Antirrhinums in the same soil next season.

ANTS IN A GLASSHOUSE: E. If you can get access to the nests to pour boiling water over them, this will destroy the ants. Failing this, it may be possible to inject a little bisulphide of carbon or vaporite, the fumes of which will at once cause death to the ants. A poisonous preparation for destroying ants, known as Balkinrain Ant Destroyer, is sold by Messrs. Alex. Cross and Son, Hope Street, Glasgow.

CELERY DISEASED: W. and A. T. H. The plants are affected with spot disease, caused by the fungus Septoria Petroselinii var. Apii. The latest knowledge on the subject of dealing with the complaint is given on p. 196.

CORRECTION. For "spirits of wine" (p. 184 last issue) read "spirits of salts."

GRAPES INJURED: J. R. The berries are not diseased. The injury has been caused by moisture condensing on them after the temperature has fallen too low.

INTENSIVE CULTIVATION OF CUCUMBERS: P. W. Your inquiry is answered at some length on p. 199.

MUSHROOMS UNSATISFACTORY: W. K. F. The injury has been caused by Springtails. If the soil cannot be changed it should be saturated with boiling water or treated with vaporite.

NAMES OF FRUITS: V. H. W. 1, Yorkshire Beauty; 2, Winter Hawthornden; 3, Sandringham; 4, Black Worcester.—G. A. 1, Winter Greening; 2, Round Winter Nonesuch; 3, Swedish Remette; 4, Stirling Castle.—E. F. 1, Dean's Codlin; 2, Bramley's Seedling; 3, Dumelow's Seedling (Wellington); 4, Mother (American); 5, White Nonpareil; 6, Lodgemore Nonpareil.—J. Adams, Hanwell Sourcing.—G. S. Nouveau Poiteau.—W. D. and Sons, 1, Beurré Fouquieray; 2, Beurré Hardy; 3, Vicar of Winkfield.—H. E. K. 1, Louise Bonne de Jersey; 7, Hacon's Incomparable; 3, Doyenné d'Alençon; 4, General Todleben; 5, Brown Beurré; 6, Seckle; 7, Stirling Castle; 8, Flower of Kent; 9, New Hawthornden; 10, Court Pendù Plat.

NAMES OF PLANTS: C. W. 1, Fittonia argyrodneura; 2, Tradescantia zebrina; 3, Acacia armata; 4, Nerium Oleander; 5, Asparagus Sprengeri; 6, Echeveria glauca.—W. M. Coelogyne Massangana. The plant grows best in a basket or pan suspended from the roof-rafters. The flowers are produced on long, pendulous racemes, and display themselves to better advantage when the plant is suspended. If more convenient the pot may be placed on the staging, and suspended when the flower-spikes appear or elevated on a flower pot. A warm intermediate house is the most suitable place in which to grow this Orchid. Cyripediums when in flower require a rather drier atmosphere than when making their growth.

ODD VOLUMES OF THE "GARDENERS' CHRONICLE." D. C. We cannot state what the market value of your odd volumes of Gard. Chron., 1845-69, would be. Someone might wish to

purchase them to complete a set; insert an advertisement in one of the horticultural papers.

APPLES, PEARS AND PLUMS FOR A KENT ORCHARD: G. M. P. If, as we presume, you intend to grow the varieties for market purposes, you cannot do better than follow Southern Grower's advice on p. 179. But local conditions vary, and the soil is an important factor in fruit growing, varieties that canker badly in certain soils being less prone to the disease in other ground. The following varieties are suitable for growing as standards and offer a good selection:—Apples: (dessert) Juneating, Beauty of Bath, St. Everard, Early Julyan, Worcester Pearmain, Allington Pippin, Cox's Orange Pippin, Sturmer Pippin, Adams's Pearmain, Chas. Ross, Court Pendù Plat, Belle de Boskoop, Blenheim Pippin, (culinary) Early Victoria, Newton Wonder, Bramley's Seedling, Norfolk Beauty, Lord Derby, Warner's King, King Edward VII., Dumelow's Seedling, Golden Noble, Lane's Prince Albert. Pears: (dessert) Louise Bonne de Jersey, Jargonelle, Josephine de Malines, Williams' Bon Chrétien, Durondeau, Conférence, Glon Morceau, (cooking) Catillac, Bellisimer d'Hiver, Plums: (dessert) Stint, Oullin's Golden Gage, Green Gage, Reine Claude de Bavay, Coe's Golden Drop, Kirk's, (cooking) Early Orleans, Early Rivers, Monarch, Belle de Louvain, Victoria, Czar, Pond's Seedling.

PEARS WITH IRREGULAR HARD PATCHES: J. G. G. The fruits are attacked with the disease known as Pear scab. Remove all dead shoots, which harbour the fungus. Next spring spray the tree with Bordeaux mixture just before the blossoms open.

PEAT MOSS MANURE: L. H. Manure containing peat moss is suitable for general use in the garden, but it is usually considered inferior to straw manure. You need not anticipate that it will give rise to injurious fungi in the soil. If you suspect the ground to be sour dress it with lime as recommended on p. 184.

PINUS LARICIO ATTACKED BY A BEETLE: Sylvia.

Although the insect was not present in the specimen you sent there is little doubt that the injury is caused by the pine beetle, Hylesinus pini-perda. The beetles hibernate in winter in various places. In spring they take to the wing and soon commence to breed on the bark of dead pines or those that have been felled in the previous autumn or winter. Do not allow felled trees to remain, unless to serve as traps, taking off the bark in May to expose the larvae. It is well to destroy brushwood and fallen branches, for they may serve as breeding haunts.

PRUNING PEACH TREES: L. Lee. Prune your Peach trees at once, as you suggest; removing the weaker shoots altogether and retaining the stronger ones their full length. Train the shoots 4 inches apart, but do not fasten them to the wall until the middle or end of February next. For the present tie them together and secure them to strong stakes about 1 foot from the wall. This will retard the blooming period, and there will thus be less danger from frost when the flowers open in spring. Mulch the trees with well-decayed manure, and water the roots liberally after the fruits have set.

SOIL ANALYSIS: W. L. S. and H. G. We do not undertake the analysis of soils. The Royal Horticultural Society's chemist, Dr. J. Voelcker, 1, Tudor Street, New Bridge Street, London, will make an analysis, and at a reduced fee if you are a Fellow of the Society, being a bona fide gardener or amateur.

VINE LEAVES MILDEWED: J. W. Vine mildew is present on the foliage. Spray the vines in winter, when they are resting, with a solution of 1 lb. sulphate of copper in 25 gallons water. See reply to F. W. C. on p. 166.

Communications Received.—J. Grimes—W. W.—F. E. Hawkins—Dr. D.—J. G.—P. W.—J. A. P.—W. A. C.—J. de M., Oporto—E. M.—S. W.—E. M. I.—J. J. T.—A. C. H.—B. S.—C. H.—J. M.—E. H.—J. R.—Miss M.—L. H.—J. W.—T. W. B.—H. V. O.—A. H.—D. McAl—Seed Grower, Brit. Col.—W. B. B.—W. M. W.—H. and S.—J. K. A.—E. A. B.—C. B. Mereworth.

THE
Gardeners' Chronicle

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TERATOLOGY IN IRIS FLOWERS.

IN Irises the flower is regular and the parts are in threes. The petaloid perianth is united below into a tube, and is divided into three outer parts, usually ranging down, the falls, and three inner parts, usually upright, called standards. In the centre of the flower are three united petaloid styles which bend outwards, and beneath these are concealed the three stamens. The seed-vessel, or ovary, is divided into three parts, each containing seeds.

For many years past I have made notes of the occurrence of malformed Iris flowers which have appeared in my collection, and have met with nearly fifty examples in about forty species and varieties, the irregularity being due either to some method of doubling or to the addition or reduction of parts. No doubt many more have been seen by other observers. Out of over two hundred forms in cultivation here, about one-fifth have shown themselves to be liable to produce abnormal flowers.

Double Flowers.—The best-known form is that of the Japanese Iris (*I. Kaempferi*). In the single form of this plant there are three broad hanging falls, three narrow upright standards, three arching styles, and three stamens. I find that in the usual method of doubling the perianth is converted into six broad hanging falls, there being no standards, and besides the three styles and stamens there are also three imperfect, lobed, petaloid stamens. In a double white form I have observed six styles as well as six falls.

In the double Siberian Iris (*I. sibirica flore pleno*) the doubling is extraordinarily complex, with much irregularity and malformation. From the pedicel (or flower-stalk) arises a primary ovary carrying a whorl of nine standards and falls. From this ovary three more rudimentary ovaries branch out, each bearing about seven standards and falls, within which are a few stamens and small rudimentary style-arms. The whole result, as may be imagined, is a very ugly, misshapen tuft of blue-and-white flowers, several on each stem; their complexity, perhaps, accounting for their lateness in flowering. A

tall variety of *I. ochroleuca*, var. *sulphurea*, has produced double flowers with six falls, standards, five styles, and no stamens, some of the inner styles and standards being misshapen.

Another kind of doubling is seen in the occasional fusion of two flowers. Thus in *I. variegata* Maori King two flowers were fused together, the pedicels, ovaries, and perianth-tubes being connected longitudinally. On dissection, flower No. 1 was found to be normal, with parts in threes; flower No. 2 had four standards, falls, stamens, and styles, and one other central style with no accompanying stamen, the ovary being quinquelocular, with four normal loculi, and one tiny one, containing ovules, between. In *I. pallida* var. *variabilis* (a form very liable to flower variation) there was complete fusion of pedicel, ovary and tube, the latter being united along two free edges. When divided along the line of junction each half was found to be alike, containing three normal falls, two normal standards and one half-bladed; three normal stamens, and three styles, with the edges of the two stylar columns just united. A transverse section of the ovaries showed that the one was trilocular as usual, but in the other the third (outer) loculus was abortive.

In *I. aphylla nudicaulis*, a curious case of fusion occurred. The flower contained seven falls, five standards, seven styles and stamens. The ovary was oblong in shape, open in the middle, with seven parietal placentae, each equally provided with ovules, each complete and free, projecting into the cavity. Another double flower occurred in this variety, the parts being all in sixes. It is rather strange that more cases of double flowers should not occur in Irises, where multiplication of parts is so frequent. It is fortunate that it is not so, as we cannot wish for anything to detract from the grace and elegance of the single Iris flowers.

FLOWERS WITH EXTRA PARTS.

1. Flowers in Fours.—This is the commonest variation, in which four falls, standards, styles and stamens occur, with no malformations. It has been noted in *I. pallida* and var. *variabilis*, germanica type, *neglecta* Harlequin, *amoena* Comte de St. Clair, *variegata* Rigoletto and Chelles; *I. aphylla*, *I. sibirica*, *I. vaga*, *I. reticulata* and *I. Bakeriana*.

2. Flowers Irregular.—*Iris pallida*, parts in fours, with five stamens, one in the centre of the flower, one of the standards being bearded as well as the falls (this has also been noticed in *pallida dalmatica*). *Pallida variabilis*, flower in fives; *pallida* Queen of May, several flowers with four falls and styles, otherwise normal, or four falls and standards and five styles. Willie Barr, five falls and standards, four styles and stamens, and a quadrilocular ovary; *variegata* Gracchus, flowers in fives and quinquelocular ovary; *amoena*, four falls, otherwise normal. *I. Pseudacorus*, five falls, three standards, four styles, three stamens, quadrilocular ovary. *I. vaga*, flowers with four falls, three styles and two or three standards. *I. unguicularis* (*I. stylosa*), flowers with four falls, three styles, and two or three standards. *I. reticulata*, four standards, two falls, three styles and stamens. *I. Tauri*, three standards and falls, three styles, one branched, four stamens.

3. Flowers Malformed.—*I. pallida*, a flower with one standard fused all its length with the pedicel, ovary and perianth-tube, the flower assuming a right-angled position to the axis. It had four falls, styles and stamens, and a very small fifth style and stamen, the ovary being quadrilocular; *pallida dalmatica*, a flower with bearded standard and an additional

rudimentary stamen growing out of the ovary-wall; *neglecta* Harlequin, six bearded falls and no standards. *I. foliosa* (*I. hexagona* var. *Lamancei*), four falls and stamens, the extra stamen being attached to the extra fall. *I. laevigata* var. *albo-purpurea*, three falls and standards, and bunches of abortive stamens on long stylar expansions, with three normal styles in the centre and the usual trilocular ovary. *I. Tauri*, three falls and styles, four stamens, two standards, and one combined fall and standard. In another flower one of the falls had two crests. *I. Vartani alba*, four falls and standards, five styles and stamens, three of the latter perfect, with pollen, the two others abortive and petaloid.

In the bracts which subtend the Iris flowers I have sometimes noticed some strands of green tissue appearing on the otherwise scarious bracts of the *pallida* group; but the most marked case of bract-metamorphosis I have studied was in a dark purple specimen of *I. xiphoides* (the so-called English Iris). The scape bore two flowers. The first one was normal, with normal bracts; the second flower was also normal, but grew out of a ring of petaloid bracts, which may be described thus: 1st bract, green, sheathing, with a purple petaloid projection on one side two and three-quarter inches long; 2nd, like a small fall, wholly coloured purple, veined, two inches long; 3rd, similar to the last, but narrower and shorter, one and three-quarters inch long; 4th, clasping the floral tube, long, narrow, membranous, with slight colour, two and a half inches long.

Reduction of Parts.—This economy of production I have noticed on several occasions. *I. pallida* Princess Beatrice, three standards and stamens, two falls and styles, and a bilocular ovary. In another flower all the parts in twos except for three standards; *pallida variabilis*, four bearded falls, two standards, two styles and three stamens, one of the latter exposed, having no style to conceal it. In another flower all the parts were in twos. *I. Leichtlinii*, two standards, otherwise normal. *I. Delavayi*, parts in twos and bilocular ovary. *I. Xiphium* (Spanish Iris), flowers in twos, in blue, orange and yellow; in the last, one of the two standards was bifurcated. Dutch Iris Gerard Dou, flowers in twos. *I. xiphoides*, flowers in twos, purple and grey.

As a last example in teratology I may instance a flower shown me in a friend's garden, where there was an unusual mixture of colour. The species was the ordinary white *I. florentina*, and amongst the clumps was one plant which exhibited blotched flowers, white and bluish-purple mixed. One standard was quite blue, two white, and the falls streaked white and blue.

It will be seen from the Iris forms already enumerated that the abnormalities are distributed among the different groups, the bearded (*Pogoniris*), beardless (*Apogon*), *Juno*, *Regelia*, and so on; not only among garden forms, but true species as well. Neither does the question of excessive or reduced nutrition seem to influence the occurrence, as it may happen or not in species growing side by side, and in either dry or moist habitats. I have not yet observed abnormalities in the numerous forms I grow of *Oncocyclus*, *Korolkowii*, and *Onco-Regelia*. Hybridity cannot encourage it, or it would surely appear among the hybrids of *Juno* and *Onco-Regelia*. I suppose, therefore, that it must be a sporting tendency, finding expression in particular individuals. I hope these notes may induce other Iris growers to record their observations on the subject. *Elconora* *Armitage*.

NEW OR NOTEWORTHY PLANTS.

MESEMBRYANTHEMUM CONCINNUM, N. E. BROWN (n. sp.).*

STEMLESS, forming a compact tuft about 1½ inch high, glabrous in all parts. Leaves numerous, but about 12 to each growth, the inner erect, the outer more or less spreading, ½-1 inch long, ¼-½ inch broad across the dilated tips, spatulate, slightly concave or flat above, convex beneath, with the stalk-like part 4½-9 lines long and quite smooth, and the transversely dilated obtusely rounded or bluntly pointed tips 1½-3 lines long, and covered with very numerous, crowded, small, angular, rather hard tubercles, whitish- or glaucous-green (but not glaucous), faintly dotted, with the tubercles whiter than the other part, sometimes tinted with pale purple. Flowers solitary, terminating the growths, shorter than the leaves. Peduncle 3 lines long, smooth, sepals 6, free to the base, unequal, one

species. Whether in flower or without flowers it always looks bright and attractive. It is a near ally of *M. calcareum*, which has the same habit and for beauty of foliage is nearly equal to it.

M. calcareum shows a peculiarity under cultivation with me that is worth recording. When it was first sent to me by its discoverer, Dr. R. Marloth, he sent with it pieces of the limestone rock among which it grows. It so happened that there were notches in the bits of rock into which the tips of the leaves of the living plant of *M. calcareum* fitted fairly close. When the plant with its leaves so fitted in the bits of rock was placed on the ground at a distance of only 6 feet from me, I found it quite impossible to say where the leaf ended and the rock began, so closely did the leaf-tips resemble the rock in both colour and surface appearance. So that in its native habitat the plant is probably difficult to detect. At the present moment, however, my plant has lost that resemblance to the rock. The rock still retains its yellowish-stone colour, but the colour of the tips of the leaves of the plant of *M. calcareum* has changed to a very charming

tube and a much smaller perianth, not nearly so ornamental, and *C. Haussknechtii*, which I believe is not in cultivation. *C. Decaisnei* has a punctiform stigma—just as in the tessellated *C. Parkinsonii*, if my present flowers are a guide, but not the allied *C. variegatum**—while the stigmas of *C. laetum*, as now in flower, received from the late Dr. Regel, are not strictly punctiform; Baker describes them as sulcate. The styles are straight to near the tip, where they turn sharply at a right angle and the stigmatic surface occupies the whole of the turned part. The perianth of the present plant measures nearly 4½ inches in diameter, the segments are obovate, 2½ inches long and about ¾ inches wide. The tube is about 7 or 7½ inches long. In comparison with this, the tube of *C. laetum* is 11 inches long (in each case a portion being below ground), while the perianth is 2½ inches across, the segments 1½ inch long and ½ inch wide. The foliage of *C. Decaisnei* is finer than that of any other species in cultivation. The taller leaves reach 2 feet in height, the free blades are 1 foot to 16 inches long, and up to 5 inches broad. Some of the inner leaves are 10 inches long and 1 inch broad. The leaves are longitudinally corrugated, and this is a noticeable feature. Comparison in foliage may best be made with that of *C. speciosum*, the height of which is 18 inches, the free blades are up to 15 inches long and 2.5 inches in width. The leaves of *C. Decaisnei* remain quite green while those of *C. speciosum* have become dry, but this may possibly have something to do with the position of the plants, *C. speciosum* being the more exposed.

Colchicum Decaisnei, according to Nicholson's *Dictionary of Gardening*, was introduced in 1902, but it is still, I believe, rare. For some years it has been conspicuous on a narrow border on the east side of the Palm House in the Botanic Garden, Cambridge, flowering in the first half of October. The plant illustrated in fig. 79 was photographed by my foreman, Mr. F. G. Preston. It is much more floriferous than *C. speciosum*, but the flowers are not so large nor individually so fine in appearance. The bright pink colour, however, is very pleasing. *R. Irwin Lynch, Botanic Garden, Cambridge.*

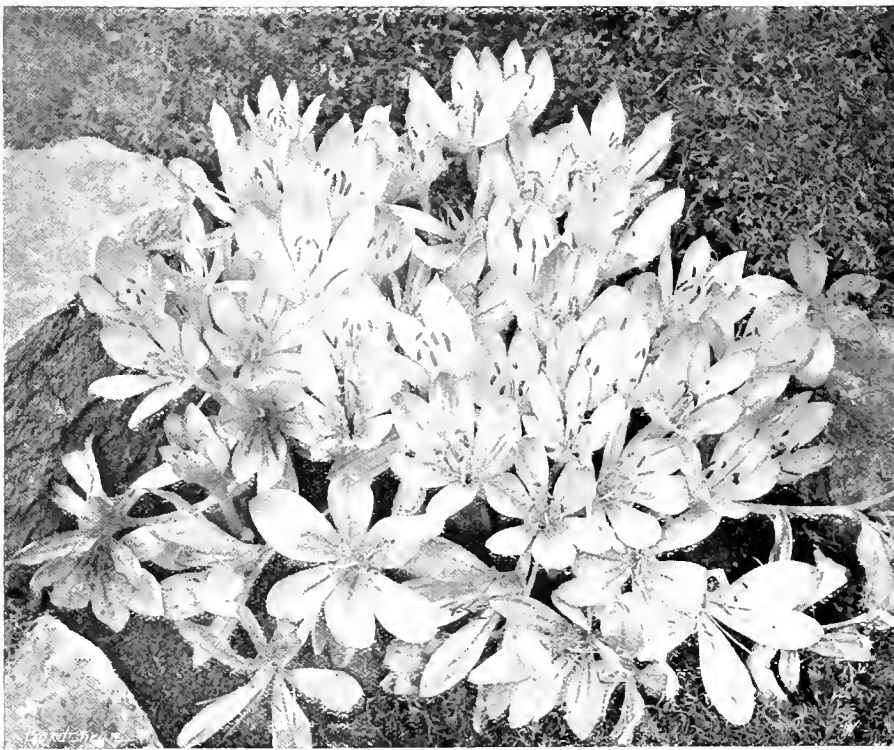


FIG. 79.—COLCHICUM DECAISNEI: COLOUR OF FLOWERS BRIGHT PINK.

much longer than the rest and about 4 lines long and 3 lines broad at the base, all ovate-lanceolate, obtuse, some of them tuberculate at the top and of the same colour as the leaves. Petals about 36, rather lax, 2.5 seriate, about 4 lines long and ½-¾ line broad, linear, obtuse, bright yellow, shining. Stamens numerous, much shorter than the petals, white. Ovary broad and nearly superior, convex on the top; stigmas 6, about 2 lines long, subulate, radiating over the top of the ovary, greenish.

A native of Damaraland. Described from a plant in the collection of Mr. G. Elisha. This is one of the few species of *Mesembryanthemum* that is well worth growing for the beauty of its foliage by every plant-lover. I do not know another that presents such a neat, clean, compact, and charmingly pretty appearance as this

* *Mesembryanthemum concinnum*, N. E. Brown. *Planta acaulis succulenta pulcherrima. Folia rosulata, spatulata, supra canaliculata vel plana, apice tuberculata, albidovirescentia, tuberculis albis. Flores solitariae, folia breviores, breviter pedunculatae; sepalis 6, inaequalia, ovato-lanceolata, obtusa, apicibus interdum tuberculatis; petalis circa 36, linearis, obtusa, lutea. Ovarium semisuperum, latum, stigmatibus 6.*

purple hue, which would make it a most conspicuous plant if placed among its native limestone rocks. The leaves are also about three times as large as those on the imported plant. These changes are probably due to a change of soil and more moisture, for as it is impossible to supply it with the soil of its native habitat it has to subsist in what I can give it, and it seems to thrive thereon remarkably well. *N. E. Brown.*

COLCHICUM DECAISNEI.

COLCHICUM DECAISNEI (see fig. 79) is one of the most beautiful of the genus, and I consider one of the two best species, the other being *C. speciosum*. *C. Decaisnei* appears also to be interesting from a botanical point of view, for Boissier, in his *Flora Orientalis*, places it in a set of three only. These are described as having straight styles with punctiform stigmas, and the flowers are not tessellated. The two others are *C. laetum*, which has a much longer, slender

ORCHID NOTES AND CLEANINGS.

MORMODES LUXATUM EBURNEUM.

A FINE inflorescence of this rare and very singular Mexican Orchid, with nine wax-like fragrant ivory-white blooms, is sent by Mr. C. Kench, gardener to Sir Mervyn Buller, Bart., Broomhill, Spratton, Northants. He gives the following cultural information, which will be useful to those who have failed to grow this reputedly difficult plant. "It thrives well with us in the cooler end of the intermediate house, potted in a compost of equal parts of *Osmunda*-fibre, Oak leaves, and *Sphagnum*-moss, with good drainage in the pot. After resting, and when new growth starts, but little water is given until roots are freely produced." The latter remark is specially noteworthy, for *Mormodes*, *Catasetum*, and *Cycnocheilus*, if watered too early in the first stage of their new growth, fail to produce a sufficient supply of roots to nourish a strong growth, and lose their vigour. If kept short of water until the new roots are well advanced, many Orchids send out roots profusely in search of moisture, but if over-watered they produce but few and often imperfect roots.

Mormodes luxatum, the type with yellowish flowers, was first flowered by Mr. Geo. Barker of Birmingham, in 1842, and the variety *eburneum* has since bloomed on many occasions.

* Baker, in the *Journal of the Linnean Society*, Vol. XVII, unites these two species; Boissier makes them distinct.

and was illustrated in *Gard. Chron.*, July 29, 1882, p. 144.

The structure of the flower is remarkably interesting. Torsion of the ovary and segments is a common thing in Orchids, but in this species it is developed in a remarkable degree, for all the segments are twisted in such a manner as to render it difficult to decide without careful examination to which whorl any of them belong. The column is sharply curved, and from its base a band of dark purple runs up the broad shell-shaped labellum, which in itself is curved until its centre rests on the back of the column and seems to be exquisitely designed to ensure fertilisation by insects. Another remarkable feature is that the labellums on the right-hand side of the inflorescence curve to the right, while those on the other side always turn to the left. The chief points in the cultivation of this plant and other *Mormodes*, *Cycnoches* and *Catasetums*, are to allow them a period of rest by keeping the roots dry, and the atmosphere cooler than when growing, and after growth commences, to treat them as described by Mr. Kench. Generally speaking, these plants do better in suspended pots or baskets than when grown with other plants on the stage.

HARDY FLOWER BORDER.

SENECIO PULCHER.

THE fact that I have been repeatedly asked of late to explain the special requirements of *Senecio pulcher* shows that its cultivation is not generally well understood. The plant is in some respects unique among perennials. It is most difficult to propagate by means of division, as ordinarily understood, and only rarely produces fertile seeds in this country. It may be increased by means of root cuttings, but the rootlings need special treatment, hence the bald statement does not go far enough. Curiously enough, the sleek, clean, often fibreless roots give no external sign of their readiness to increase in this way, and instances of their springing into new growth by themselves are, in my experience, rare. They need a little warmth in a greenhouse. The best time for inserting the root cuttings is from November to February. I avoid the dead period of winter, preferring November to mid-December and the month of February. Root pieces 1½ inch in length are ample, and anything down to the size of Barley-straw may be used, if necessary. Well-drained pots 5 inches in diameter should be filled with very sandy soil, and the apex of the cutting, when the latter is stood erect around the interior of the pot, should just rise above the pot's rim. The pots will easily accommodate three or four dozen cuttings each. In filling the pots with soil, care must be taken not to displace the cuttings. This done, a finish is given to the work by cutting the roots level with the rim of the pot, the clean, uninjured surface thus left favouring a good break. A close frame in a greenhouse, where the temperature does not exceed 50°, is the best place for rooting the cuttings; more warmth than this is harmful, the object being to induce the formation of root-fibres in advance of or contemporaneous with the top growth. Usually the buds appear in about six weeks, and a fortnight later the pots may be transferred from the frame to a greenhouse, to ensure a steady, continuous growth. A few weeks later the plants may be potted singly in small pots, and when established therein may be shifted to 4 inch or 5 inch pots and grown in a cold frame. They may be planted out in May or June, according to the soil and district, or grown in pots for the first year and planted out the following March. The latter method usually gives the best results, though the earliest and strongest examples planted in May flower in the following August and September. The species is rarely a success in heavy, retentive soils, but requires a light, sandy, well-drained loam. *E. H. Jenkins.*

FLORISTS' FLOWERS.

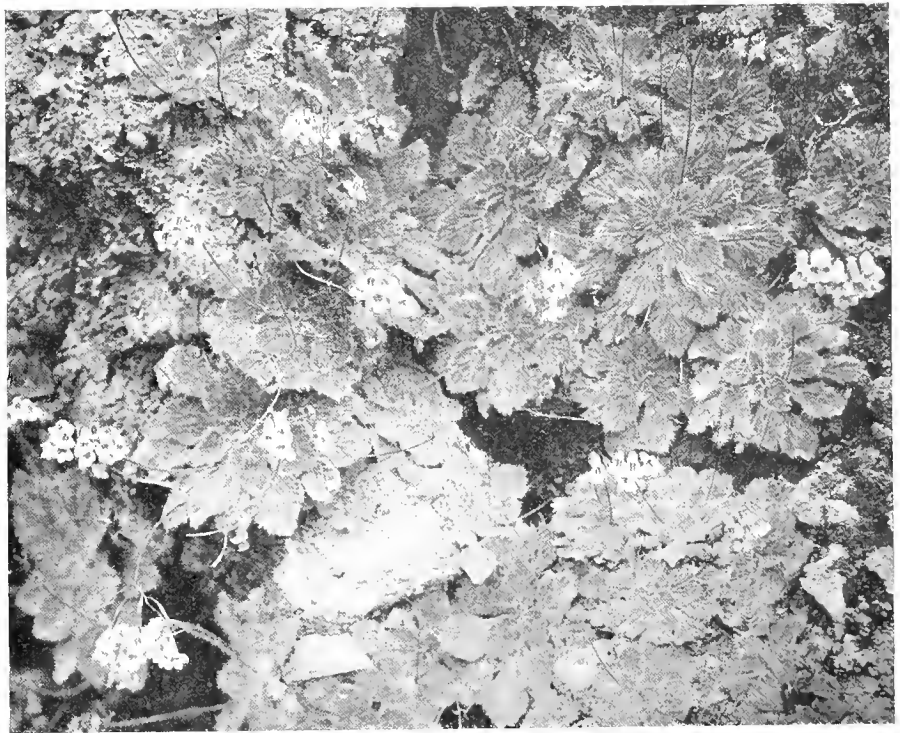
FANCY PELARGONIUMS.

THE members of this section, at one time so popular, seem almost to have dropped out of cultivation. In bygone days they were extensively grown as specimen plants, when large examples of different subjects were so much in vogue. Although these overgrown specimens do not conform to the present-day ideal, they stood out as examples of the skill and perseverance of the cultivator. The Fancy Pelargoniums are—or shall I say were?—characterised by a weakness of growth compared with the other sections, leaves much less in size, and a profusion of small blossoms among which light colours greatly predominated. One of the darkest was *The Shah*, of a deep crimson-purple tint, with a light centre. From its free growth and deep tone of colour this was very popular as a specimen, being usually arranged as a foil to the light tinted *Princess Teck*—a general favourite. In

the highest was a guinea. The new Fancies had then fallen to 5s. each. Much the same remarks as to the decline in popularity of the members of the Fancy section will also apply to the Show varieties, for though we often hear of Show Pelargoniums, very few of the present day conform in the markings of the flower with those admired by the old-time florists. It was the in-and-in-breeding in order to maintain this standard that led to a weakened constitution and accompanying decline in popularity. *W. T.*

DIDISSANDRA LANUGINOSA, CLARKE.

IN the genus *Didissandra* is found one of the most interesting groups of rock plants. Many members of it are indigenous to the higher mountain areas of the Himalayas and Western China, and are therefore perfectly hardy, and for that and the beauty of their flowers certainly deserve more attention than has been given them by horti-



(Photograph by George Forrest.)

FIG. 80.—DIDISSANDRA LANUGINOSA: FLOWERS BLUE.

colour this is white, marked lightly with carmine in the centre. Both these varieties were raised and distributed by Charles Turner, of Slough; indeed, of the twenty-eight varieties which were awarded certificates between 1859 and 1903 nearly all were from that celebrated raiser. Most of them were awarded First-class Certificates, when that honour was more easily obtained than it is to-day. In the seventies of the last century Fancy Pelargoniums were grown for market, but they were gradually superseded by the stronger-growing decorative class. The prices asked in olden days for new varieties of this class appear from the present-day standpoint to be excessive. For instance, in a catalogue which is before me of the novelties offered by the at that time prominent firm of William Rollison and Sons, of Tooting, the new Fancy Pelargoniums, nearly all of which were raised by Mr. Turner, are quoted at from seven shillings and sixpence to a guinea each. The new show varieties were even dearer, the highest price being a guinea and a half and the lowest fifteen shillings. In Mr. Turner's catalogue, twenty-three years later, namely, in 1881, the lowest price remained the same, but

culturists. For the beautifying of bare rock-work in sunny and dry situations where most other plants would fail, they are difficult to beat, whilst in foliage or flower they are equally decorative.

The prevailing colour of flower throughout the genus is blue, but recently, in the forests and on the mountains of Yunnan, many fine new species have been discovered in which the flowers are brilliant yellow or deep rich orange, as *Didissandra amabilis*, Diels; and *D. musciola*, Diels.

Still more recently a superb species, probably the finest known, has been added to the list from the same region, i.e., *Didissandra Agnesiae*, Forrest, described in the *Notes R.B.G.*, *Edn.*, No. XL., March, 1915. In it the flowers are a deep rich crimson, of unusually large size for the genus, 1½ to 2 inches in length by 1 inch in depth, and are borne singly on most delicate scapes—2 to 5 inches in height. It is a glorious rock-plant. Seed was secured in 1914.

The species illustrated in fig 80 is *D. lanuginosa*, Clarke, the most widely distributed of the genus. From the Central Himalayas its habitat runs eastwards through Bhutan well into

Central China. In the alps of N.W. Yunnan, from 7-10,000 feet, it is one of the most dominant of rock-plants, matting the faces of perpendicular cliffs and rugged boulders, with its silvery-green bullate foliage, and pendulous bright-coloured blossoms. The formation which seems to supply best the requirements of the species is a very rough lacustrine limestone, in the crannies and cups of which the roots obtain a firm hold.

The leaves form a crowded rosette of 4 to 8 inches in diameter, are ovate, about $1\frac{1}{2}$ inch broad, somewhat deeply bullate, and more or less hirsute, with fine silky glistening hairs, especially on the margins and towards the bases. Two to five, or even six, scapes are produced, 3 to 6 inches in length, each bearing a graceful cluster of 6 to 10 blooms. The corollas are half to fully three-quarters of an inch in length, by a quarter of an inch in breadth, and of a deep blue or purple-blue colour, the limb being lightest, the base of the tube white. The seeds are most minute. During the long dry winter of Yunnan, from the beginning of October until the end of April, the foliage dries up and is curled in over the axis of the plant, no doubt a protective measure, much in the manner of some of the Selaginellas, one species of which, *S. involvens*, is, indeed, commonly found growing in company with the *Didissandras*. *G. Forrest.*

TREES AND SHRUBS.

THE DOUBLE-FLOWERED LING OR HEATHER.

OF the innumerable varieties of Heather, the double-flowered Ling, though not one of the showiest, is very distinct and particularly interesting, as, with the exception of the Azaleas, both hardy and tender, double flowers seldom occur in the order Ericaceae. The plant has a rather dwarf, compact growth, and pink blossoms. It is by no means a novelty, for it is mentioned by Loudon. It is grown by dealers who make a speciality of hardy Heaths. With regard to double-flowered Rhododendrons there are at least two which are hardy, namely, *fastuosum flore pleno*, with lilac-coloured blossoms, and *Madame Moser*, which was awarded the R.H.S. Award of Merit at the Temple Show, 1907. *W. T.*

BERBERIS SARGENTIANA.

BERBERIS SARGENTIANA ranks amongst the finest of the plants introduced by Mr. E. H. Wilson from China, and is well worthy of the name which has been given it. The bold leafage and conspicuous white spines render it a most effective plant for the shrubbery. At this season of the year the foliage assumes gorgeous tints. *B.*

OAK TREES IN ENGLAND AND SCOTLAND.

I HAVE been puzzled to account for the great preponderance of hollow and diseased Oak trees in England when compared with those in either Scotland or Ireland. A very small percentage of Scotch Oaks are hollow or have been pollarded, but quite 90 per cent. of those in England and Wales are diseased. It is reasonable to suppose that pollarding will account for the larger size of the majority of English Oaks as well as for their being hollow-stemmed. *A. D. Webster.*

SPIRAEA MONGOLICA.

SPIRAEA MONGOLICA is a native of Mongolia and China; it normally flowers in spring from the buds of shoots made the previous year, but at Kew Gardens the plant bloomed, for the second time this year, during late September. The second flowering was quite equal to that in spring, the thin, arching twigs being wreathed with small, white blossoms. It is not unusual—in fact, it is a fairly common occurrence—for several of the shrubby *Spiraeas* to produce a few second flowers in autumn, but for

the bushes to blossom as freely as in spring is unusual. This abnormal development is doubtless due to weather conditions, presumably caused by the rapid ripening of the buds during the three to four weeks hot, dry weather about the end of July, followed by rains from August 12 onwards. *A. O.*

CRATAEGUS PYRACANTHA IN BUSH FORM.

WHILST none will deny the beauty and utility of this *Crataegus* for planting against buildings, its bright fruits, produced in abundance, beautifying the walls and their surroundings in winter, gardens are assuredly the poorer because of the conservativeness of planters in largely restricting so decorative a subject to a single purpose. The shrub is equally well suited to other positions—capable, indeed, of forming an effective group upon the lawn or in the shrubbery. I can recall only one instance at the moment of the Fire-thorn being planted in the shrubbery of a public garden, where, owing to the shortsightedness of the planter, it was put too near the walk, and hence was made ugly by shear-pruning, which also ruined its chances of fruiting. The plants were fully 8 feet high, and but for the pruning would have exceeded that measurement in diameter. The sides unpruned were teeming with brilliant fruit clusters when I saw them. The plant might be made to do an even greater service on the lawn in large, informal beds. In autumn and winter the effect of these bushes in the open would be fine indeed. If planted thinly, the *Thornus* could be associated with *Eremuri* and *Lilium Henryi*, each subject in its season contributing to the beauty of the garden. Occasionally the *Crataegus* is seen overtopping the limit of the wall against which it has been placed, these top branches fruiting in greater profusion than the lower shoots, and giving a rich effect when caught by the winter's sun. *E. H. Jenkins.*

CULTURAL MEMORANDUM.

PROPAGATING HYDRANGEA HORTENSIS.

AFTER more than sixty years' gardening experience I discovered last year for the first time that *Hydrangeas* can be rooted in the same manner as *Pinks*. That year cuttings were brought to me from a part of Wales where the plant flourishes and flowers in the open. The donor thought that I, being a gardener, could make them grow. Having no glass accommodation, I said I had no means of rooting them. However, I had a bottomless box, about 18 inches square, with a glass lid, containing some *Pink* cuttings, shaded by a hedge. To please the donor I inserted the *Hydrangeas* in the box, and they were rooted before the *Pinks*. Last July I inserted more cuttings, and they soon made roots. *W. P. R.*

FRUIT REGISTER.

PEAR DOYENNE DU COMICE.

TREES of this choice variety of Pear planted on a wall with a north-west aspect are giving a good crop this season, whilst others of the same variety planted on walls with a south and south-east aspect are barren of fruit. The soil here is naturally heavy and wet, and the situation is shaded, for the sun does not reach the trees until noon or after. We have had a few fruits from these particular trees every season. The roots do not become dry; probably drought at the roots is the cause of many failures with fruit crops, and especially Pears on wall trees. *A. B. Wadds, Englefield Gardens, Reading.*



THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

VANDA.—Plants of *Vanda* and its allies are usually repotted in the spring, but it is advisable to examine those of the *V. suavis* section at this period of the year, to ascertain if fresh rooting material is needed. The plants are rooting freely, and are less likely to lose their foliage if disturbed when the sun is not strong. Plants that are furnished with leaves down to the pot only require top-dressing, and even this work may be deferred if the soil is sweet. Others that are leafless for several inches up the stem may be repotted directly new roots develop immediately below the foliage. Sever the stem just below the roots, or in such a way that the lower leaves will be near to the rim of the receptacle when the plants are potted. Place a few broken potsherds in the bottom of an ordinary flower-pot, and arrange the stem of the plant in the centre. Add a few more potsherds, and then a layer of Sphagnum-moss, spreading the roots over the moss. Fill the remaining space with Sphagnum-moss and finely-crushed crocks, finishing with a layer of clean, living Sphagnum-moss, and a little *Osmunda-fibre*. Make each stem secure to a neat stake. Grow the plants at the shadier end of the *Cattleya* house, or in a similar place in another house, having a temperature of 60°. When the Sphagnum-moss dries sprinkle it with tepid rain-water, using a fine-rosed watering-pot. Keep the plants' surroundings moist by syringing between the pots on two or three occasions daily. All *Vandas* should be examined for insect pests: the small, brown scale that occasionally infests the leaves and stem may be destroyed by sponging the plants with weak insecticide.

LYCASTE SKINNERI.—Most of the plants of *Lycaste Skinneri* have completed their growth, and will not require water so frequently as hitherto. Those that are backward may be placed in a warmer house until the pseudobulbs are fully developed. *L. Skinneri* is an excellent Orchid for the intermediate house, and it also thrives in the cool division. *L. cruenta* and *L. aromatica* require a similar treatment.

SEEDLINGS.—Houses containing seedling Orchids should be kept warm and moist to keep the plants growing continually. Vaporise the house at intervals, and lightly on two nights in succession if thrips are troublesome. Some of the seedling *Cattleyas* and *Cypripediums* may require re-potting. The progress the plants make during the winter will depend very largely upon the amount of light they receive. Seeds may still be sown, but from now onwards a portion of them should be stored in a dry place until the spring.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

FRESIA.—A few of the plants that are sufficiently rooted may now be introduced into a warm house to supply early flowers. Grow them near to the roof-glass, for the shoots must not become drawn at this stage. In a week or two the roots should be given a little stimulant, but this must be used sparingly until the flower-buds appear; weak soot-water will meet the plants' requirements in this respect for the first two or three weeks. Support the shoots to neat stakes before there is a danger of them breaking.

ACHIMENES.—As soon as the foliage of *Achimenes* has died down the plants should be placed in their winter quarters. Arrange the pots beneath the stage in a cool house, but guard against water from the plants above wetting the soil.

ROSES IN POTS.—The present is the most suitable time to procure *Roses* for growing in pots under glass. If the plants are intended to

furnish blooms for indoor decorations, choose only three or four varieties that may be relied upon for the purpose. Madame Abel Chatenay, Mrs. J. Laing, Sunburst, Lady Hillingdon, Richmond and Liberty offer a suitable selection. Before potting the plants shorten the stronger roots. A mixture of loam, cow manure, and crushed mortar or brick rubble forms a suitable compost. If the loam is of poor quality, add a little bone meal and soot. Certain of the climbing varieties are excellent plants for furnishing the conservatory during late spring, and of these Dorothy Perkins, Mimihaha, Blush Rambler, Paul's Scarlet Rambler, Gold Finch, and Electra are all reliable sorts for pot cultivation.

ROSES IN BORDERS.—Roses growing under the roof of greenhouses and conservatories should be thinned freely of their shoots, as it is essential for the flowering wood to be well ripened. The variety Fortune's Yellow usually develops much lateral growth, and this should be cut back to within one or two buds. Climbing Roses which are planted in well-drained borders need to be kept supplied with water and afforded a little stimulant. As a safeguard against mildew syringe the foliage with a mixture of soft soap and sulphur.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

SPRING BEDDING PLANTS.—As soon as the beds have been prepared, plant the spring flowers, which include Wallflowers, Myosotis, Polyanthus, Arabis, Aubrietias, Alyssum, Daisies, Tulips, Narcissi and Jonquils. The soil should be in a friable condition at the time of planting; if it is wet or sticky the work should be delayed for a few days. Firm planting in the case of these flowers is essential. Many effective schemes may be devised by the use of the various plants and bulbs enumerated. In formal beds Wallflowers should be planted in distinct colours, using such varieties as Fire King, Vulcan, Golden Beauty, Purple Queen, Eastern Queen and Primrose Monarch, with Myosotis as an edging. Scarlet Tulips over a carpet of giant white Daisies or Arabis are very effective, as are Emperor Narcissi interspersed amongst white and cream shades of Munstead Polyanthus. Royal Blue and other varieties of Myosotis may be used for carpeting in beds of Tulips and Narcissi, which may also be associated with Arabis and Aubrietias. Reserve some of the stock of most varieties, to replace failures. Other beds may be furnished with dwarf shrubs, including Euonymus, Aucuba, Rhododendron, Box, Holly, Currensus, and Retinospora. Late-flowering Tulips should play an important part in the various schemes of spring bedding.

LOBELIA CARDINALIS.—The plants of Lobelia cardinalis should be lifted for storing before there is danger from frost. The roots should be placed in boxes containing old potting soil or leaf-mould. They may be stored in cold frames, protected during frosty weather by mats or tiffany. Admit air to the frames on all favourable occasions.

SALVIA PATENS.—Plants of Salvia patens should also be lifted and stored in boxes containing light, sandy soil. Place the roots under the stages in cool houses, where they will be quite dry.

GLADIOLUS, TIGRIDIA, AND GALTONIA.—Directly the growth of Gladioli, Tigridias, and Galtonias has matured lift the corms and place them in a cool house or frame, to dry before storing them for the winter. In light, sandy soils it may not be necessary to lift these plants, but they must be protected from severe cold by placing leaf-mould or Coconut-fibre over them.

ERICACEOUS SHRUBS.—October and November are suitable months for planting Rhododendrons, including the section Rhodora; Azaleas, Kalmias, Menziesias, Gaultherias, and Ledum. A liberal quantity of peat, leaf-mould, and sand should be incorporated with the soil, working some of this mixture around the roots. Care must be taken not to plant the roots deeper than they were previous to lifting, and firm planting is of the greatest importance. If it is necessary

to stake the plants this should be done directly after planting. A mulch of leaf-mould should be applied as a protection against frost and to promote root growth.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBERNOLME, Warton Priory, Yorkshire.

EARLY PEACH HOUSE.—The work of pruning and root-lifting the trees and renovating the borders in early Peach houses should be brought to a close. The autumn has not been very favourable for ripening the shoots of Peaches, but the earliest trees have a long season in this respect. First give the borders one or two good waterings, and do the work of lifting the trees quickly but carefully. Trees that are removed from one position to another should be secured loosely to the trellis to allow for the soil settling. For a few days keep the house rather close and use the syringe to promote atmospheric moisture. Treated in this way large trees will become re-established in a month, when, with ordinary treatment, they will be ready for starting with the others. A neatly trained tree is a pleasing object, but care should be taken not to make the ties so tight as to prevent a free circulation of the sap. If the shoots have been attended to as I have advised, but very little pruning is necessary now; the removal of a shoot here and there to form an evenly balanced tree will be all that is required. The trees should be detached from the trellis and carefully washed with a strong solution of Gishurst compound, using the same specific for cleansing the wires and woodwork. One washing will suffice for trees which are clean and free from insects, but where scale or other pests are troublesome give two washings.

SUCCESSION HOUSES.—If the buds on Peach trees in succession houses are well advanced—the best proof of well-ripened wood—the trees may be washed with the hose once or twice a week to keep them clear of insects. Keep the roots thoroughly moist until the leaves fall, and then cleanse the trees and train the shoots. Let the house be ventilated freely until the time for forcing arrives. In many establishments it is a matter of necessity to winter plants in these houses, but the slightest confinement of the atmosphere will keep the buds of the Peach trees in a state of excitement, and at a time when they should be resting. This is one of the causes of weak flowers developing and a frequent cause of bud-dropping. Top-dress the roots as formerly advised and keep the soil always moist.

LATE PEACH HOUSES.—Trees in late houses should be kept clean by frequent syringings, fumigating whenever there is a trace of green or black aphid on the points of half-ripened shoots. If the wood is not well ripened a little steady fire-heat will do no harm, always provided that the house is ventilated freely. If the soil is in a bad condition lift the roots and replant them in fresh compost at once. See that the drainage is perfect when the border is disturbed. Do not use animal manure when planting, but add bone meal, a liberal amount of charred soil and plenty of old mortar rubble. If the trees have plenty of young roots and are inclined to make gross growth, use a little fire-heat, with a free current of air to assist in ripening the wood. Use the knife for pruning as little as possible, as the harder a tree is pruned the more does it extend; the best plan is to divert the sap into as many channels as possible.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOLE, Eastwell Park, Kent.

BUSH FRUITS.—Bush fruits include Gooseberries, Red, White and Black Currants, and Raspberries. They are all easily propagated, the Gooseberries and Currants from cuttings and the Raspberries from suckers; if plants of good

varieties are raised each season they will provide material to take the place of those that have failed. These home-raised bushes should be transplanted yearly, and carefully pruned each season. Those two or three years old are suitable for forming permanent plantations. Birds are troublesome to the fruits and buds, and this fact should be borne in mind when choosing the site, so that protection may be afforded the bushes as conveniently as possible. Protection is especially essential in the case of Gooseberries, for tits and bullfinches destroy the buds in spring, not only spoiling the prospect of a crop, but ruining the bushes. In addition to growing them as bushes, Gooseberries and Red and White Currants may be trained as cordons against walls facing north or north-east. By careful attention to watering and mulching the roots, the fruit of these cordon plants will be available late in the season. Select late varieties of Gooseberries, such as Warrington, for the purpose. But the finest flavoured fruits are grown in the open, and for private establishments early, mid-season, and late varieties should be grown in this way.

VARIETIES TO PLANT.—In gardens where Boskoop Giant succeeds, this Black Currant is the best all-round variety; the berries are large, of good flavour, and ripen early, whilst the growth is usually strong and healthy. Lee's Prolific and Black Naples are two other excellent sorts. Red Currants should include La Versailles, Red Dutch, The Comet, Raby Castle and La Constante, the two last for supplying bunches late in the season. Transparent and White Versailles are two good varieties of White Currants.

PREPARATION OF THE GROUND FOR PLANTING.—In preparing the ground for planting small fruits use a liberal amount of manure—much more than when planting Apples, Pears, Plums, Peaches or Cherries. Bush fruits should make healthy, vigorous growth; in the case of Gooseberries and Black Currants the finest fruits are borne on strong shoots of the previous year. If the ground has been used for growing vegetables it will only need trenching, manuring, and leveling, which should be done at once. If lime has not been recently applied, a quantity should be scattered evenly on the surface, and afterwards forked in. Bush fruits will thrive in almost all situations and soils, but the ground must be well drained.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

SEA KALE.—In establishments where early supplies of Sea Kale are required preparations for forcing should be made forthwith. Lift the crowns and expose them to the weather; if they become frosted so much the better. Roots that are not treated in this way grow irregularly and produce shoots of poor quality.

RHUBARB.—Rhubarb for forcing should be treated in the same way as recommended for Sea Kale. The extra trouble involved is well repaid by the increased quality and quantity of the stems.

CELERIAC.—Lift the roots of Celeriac carefully; remove the tops, but not the side roots. Many gardeners experience a difficulty in keeping Celeriac during the winter, which may sometimes be traced to storing them in a slightly warm shed. As a rule they keep well in a clamp protected by a good layer of straw, for severe frost will entirely destroy them. The protecting material should be removed when frost is over, or decay will inevitably occur.

TOMATOS.—Make a sowing of Tomatos to raise plants for fruiting in April. Sow several seeds about half an inch deep in the centre of a 3-inch pot filled with a lighter and more porous compost than that used for January sowings. Germinate the seeds in a temperature ranging from 60° to 65°, and grow the seedlings in a dry house, having a similar temperature, which may be advantageously lowered during times of severe frosts.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C. Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

APPOINTMENTS FOR NOVEMBER.

TUESDAY, NOVEMBER 7—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)
Scot. Hort. Assoc. annual meet.
THURSDAY, NOVEMBER 9—
Nat. Chrys. Soc. Show, R.H.S. Hall (2 days)
THURSDAY, NOVEMBER 16—
Luncheon Soc. meet.
MONDAY, NOVEMBER 20—
Nat. Chrys. Soc. Ex. and Floral Coms. meet.
TUESDAY, NOVEMBER 21—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.9°.

ACTUAL TEMPERATURE:—
Gardener's Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, October 26 (10.0 a.m.): Bar, 29.5°; temp, 46°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
English and French Bulbs, at Protheroe and Morris' Rooms, 67 and 68 Cheapside, at 1 p.m.
MONDAY AND TUESDAY—
Nursery Stock, at Mr. L. R. Russell's Nursery, Isleworth, by Protheroe and Morris, at 12 noon.
WEDNESDAY—
English and French Bulbs, at Protheroe and Morris' Rooms, at 12 and 2 o'clock.
Nursery Stock at Shortlands Nurseries, Kent, by Protheroe and Morris, at 11 a.m.
Rose Trees, Perennials, Bulbs, etc., at Stevens' Rooms, King Street, Covent Garden.
THURSDAY—
Roses, at Protheroe and Morris' Rooms, at 1 p.m.
THURSDAY AND FRIDAY—
Fruit Trees and general Nursery Stock, by Protheroe and Morris, at Burnt Ash Hill Nurseries, Lee, at 11 a.m.

Leaf Spot of Tomatos.

The great and increasing importance of the Tomato requires that growers should keep abreast of discovery with respect to the diseases which affect that plant. How great is the importance of the Tomato crop in this country we have no means of knowing, but we learn that in America the Tomato stands first among "vegetables" in commercial value, and so long ago as 1909 produced a crop worth 2½ million pounds sterling. Of the diseases which affect the Tomato, leaf spot—caused by the fungus *Septoria lycopersici* (see *Gard. Chron.*, Dec. 13, 1913, 418, fig. 145)—although not the worst, is among the most serious. This disease, first described in 1882 in Argentina, is now widespread throughout Europe and America, and its progress has been rapid during the past few years. The damage which it does is variable; sometimes slight, sometimes so complete that the crop is lost.

The first symptom of the disease is a blighted or generally unthrifty condition of the plants; the leaves die, from below towards the apex of the plant, the fruits fail to ripen evenly or rapidly, and such fruit as is produced is watery. At an

early stage minute water-soaked spots appear on the underside of the leaves. The spots increase, and become fairly circular in outline, with a definite margin. Within the area the tissue darkens, shrinks, dries, and becomes of a colour varying from black to greyish white. These spots may be minute or may reach the size of a sixpenny-piece. On them the fruiting bodies, minute glistening black pycnidia, appear, and when they are ripe, yellowish gummy masses containing spores are exuded from the fruiting bodies. At the time of the bursting of the spores the tissue of the leaf bordering on the spots turns yellow, and the yellowness spreads over the whole leaflet, which droops, shrivels, and dries, becoming so brittle that a slight jar detaches it from the stem. The fruiting bodies also occur on the stem, although damage there is less than in the leaves.

The most recent investigations of this disease are those carried out by Mr. Ezra Levin,* who finds that as a result of inoculation the symptoms of the disease are produced five days after inoculation, and that pycnidia appear on the inoculated Tomato leaf one day later. Mr. Levin establishes the interesting point that if the disease is present watering from above leads to its dissemination. Of upwards of 80 varieties, including several of those largely grown in this country, every market sort proved susceptible, and only one fancy Tomato, the Currant Tomato, said to be a distinct species (*Lycopersicon pimpinellifolium*, Duval), was immune.

Some sorts are commonly held to be more resistant than others, but Mr. Levin's experiments do not confirm this view.

As to prevention, it is important to have clean seedlings in clean soil, and to isolate them from chance infection. Spraying the seedlings and the established plants with Bordeaux mixture (4—4—50) is also recommended. It is to be remembered that inoculation takes place most readily through the lower surface of the leaf.

CANONS PARK, EDGWARE.—We reproduce in figs. 81 and 83 views in the gardens at Canons Park, Edgware, the residence of Mr. ARTHUR DE CROS, M.P. The herbaceous borders, shown in fig. 81, were completed in May, and the photograph was taken in August of the same year. Annual flowers were made use of to supplement the herbaceous perennials, to which the paved edging contributed a pleasing setting. The view down the grass pathway lined with flowers is extremely effective, and well illustrates the value of large trees in association with hardy flowers. The South Terrace, shown in fig. 83, is mainly architectural in treatment. Much of its restful character is due to the large trees, which make a background to the pergola and help to link up the terrace with the pleasure grounds. The terrace faces the remains of a former avenue originally intended to extend to Buckingham Palace.

SMALL HOLDINGS IN NORFOLK.—The total acreage of small holdings under the Norfolk County Council is 13,875, distributed amongst 1,383 tenants. The Council has purchased 8,694 acres, the remainder—4,180 acres—being hired for the purpose. It is stated that the holders are

producing as much on their land as was obtained before it was leased to them, and that one tenant had made a profit of £100 from a single acre planted with Black Currants.

WAR ITEMS.—Flowers and fruit were sent to Mrs. MCKENNA on "Our Day" by many Fellows of the Royal Horticultural Society, including those to whom a private communication on the subject was sent from Vincent Square. The sale realised the sum of £2,200, and Mrs. MCKENNA is most grateful to all who helped her to obtain this high figure.

WAR HORTICULTURAL RELIEF FUND.—Several letters have recently reached the Honorary Secretaries of the R.H.S. War Horticultural Relief Fund offering Apples and Pears for sale for its augmentation. Mr. GEORGE MONRO, of Covent Garden Market, has kindly consented to receive parcels of fruit and to sell them for this purpose. This suggests a way by which many friends of the Society, and all horticulturists and gardeners, professional and amateur, can help to swell the fund, which has now reached £13,000. Mr. MONRO asks that all who are disposed to do so should send, in the first instance, particulars to him of what they wish sold, including the measure or weight, when he will reply saying whether the quantity to be sent, and the price it would fetch, would justify the cost of carriage to London, and that he may be made aware beforehand of the object for which the fruit is being sent. He suggests that anyone who has only a small quantity to sell should sell it locally so as to save railway carriage and secure better profit than by sending to Covent Garden. Acknowledgment of the proceeds from all such sales will appear in the published lists of donations.

LAND SETTLEMENT OF EX-SERVICE MEN.—The Board of Agriculture and Fisheries has acquired under the provisions of the Small Holding Colonies Act, 1916, for the purpose of a land-settlement colony of ex-Service men, an estate of 2,363 acres near Patrington in the East Riding of Yorkshire, about fifteen miles distant from Hull. Vacant possession will be obtained at April 6, 1917. The soil is a rich alluvium, capable of producing very heavy crops. This colony, when fully developed, will consist of a central farm of about 200 acres and 60 small holdings of "mixed farming" type, averaging about 35 acres in extent. The equipment of each of the latter will include a comfortable cottage and the necessary farm buildings for carrying on the holding. The central farm will be under the management of a director, and will be equipped with machinery, implements, horses, etc., which will be let out on hire to settlers requiring them. It will in the first instance embrace the greater part, if not the whole, of the estate, portions of which will be taken away from time to time for the formation or extension of the settlers' holdings. Selected applicants will receive preliminary training by working on the central farm under the supervision of the director, receiving wages until such time as they are considered capable of working a holding independently. They will then be allotted, at a reasonable rental, land near their cottages, which, if of less extent than the average-sized holding above indicated, may be subsequently increased by taking further land from the central farm. Applicants who are able to satisfy the Board that they have the necessary capital and experience may be allowed to take up holdings without preliminary training. Settlers, even when farming on their own account, will still have the benefit of the assistance and advice of the director of the colony. Co-operative methods will be adopted for the purchase of requirements and the consignment and disposal of produce. The Government does not propose to make direct advances of capital to ex-Service men desirous of taking up holdings, but it is hoped that industrious men, even if possessed of but little capital of their own, by

* "The Leaf Spot Disease of Tomato," *Michigan Agric. College Technical Bulletin*, No. 25.

starting as workers on the central farm and at the same time cultivating a small plot on their own account, may gradually be able to increase the area under their own control until they are able to support themselves entirely from this source. Endeavours will be made to establish a system of co-operative credit to assist men of this class. It is hoped to provide, by means of voluntary donations, a club-room and other social amenities. In the selection of settlers preference will be given as between men of equal merit and qualifications to those whose wives or sisters or daughters have, as the result of their employment on the land either before or during the war, acquired proficiency in milking or other farming operations. Those desirous of becoming applicants for holdings on this colony should send in their applications without delay to the Secretary, Board of Agriculture and Fisheries, from whom forms for this purpose can be obtained. Letters or postcards asking that forms may be sent need not be stamped.

POTASH DEPOSITS IN MEXICO.—According to the *Louisiana Planter* permian red beds have been discovered in Mexico containing large supplies of potash. At Lesbia, New Mexico, large salt beds were penetrated to a depth of several hundred feet, when a layer of red shale and sandstone with a potash-bearing deposit was encountered.

NITROGEN FIXING IN AMERICA.—According to the *Electrical Review and Western Electrician*, Congress has passed a Bill authorising the development of hydro-electrical power for the fixing of atmospheric nitrogen. The combined nitrogen will be used in the manufacture of munitions of war, and thus will render the U.S. Government independent of imported nitrates. Any surplus nitrate produced will be sold for fertilising purposes.

THE BIRCH GALL.—In and around London many of the Birch trees are suffering from the attacks of a mite (*Eriophyes rindis*) which belongs to the same family as that which has caused such widespread injury to the Willows in the Metropolis. The buds that are attacked never expand into leaf, but present a swollen, brownish-grey appearance and die off during the second or third year. Where, as is often the case, a number of attacked buds are present on the same shoot, the whole branch frequently dies off. Hundreds of the injured buds are present on some of the Birch trees in the London parks, and where the attacks are persistent and long continued, the trees wear a rather meagre appearance. There appears to be no known cure for the attacks of this mite, but as the removal of affected shoots has been attended with good results in the case of the nearly related Willow mite, a similar course of treatment might be adopted in the case of the Birch.

FLOWERS IN AMERICA.—According to a Swiss horticultural paper, since the war growers in the Southern States of America are producing most of the flowers formerly imported from France and Italy. It is said that the trials have been very satisfactory.

CHINESE GREENHOUSES.—A correspondent in *Transactions of the Massachusetts Horticultural Society* gives an interesting account of the greenhouses used by the natives in Northern China. He states that instead of glass the roofs are of mud, with only a slight slope, and to admit light they have a vertical front, always on the south, composed of stems of the great Sorghum plant, *Andropogon* sp., which are covered over with strong transparent paper. The only heating is by means of flues, and yet with these primitive arrangements the natives are able to force various plants into bloom, such as *Magnolia conspicua*, Lilies, *Syringa Meyeri*, *Paeonia suffruticosa*, *Viburnum fragrans*, *Prunus triloba*; flowering Peaches and others, and they even grow Cucumbers in these greenhouses, the young

fruits being sold at high prices in winter and early spring.

THUNBERGIA GIBSONII FLOWERING AT VERRIÈRES.—According to the *Revue Horticole*, this remarkable new species flowered during August and September at Verrières-le-Buisson, the nursery of Messrs. VILMORIN, ANDRÉLUX AND Co. The plant originally came from British East Africa, and was, we believe, first exhibited in Europe, in London, in 1915. It is not hardy in our climate. Monsieur Bois (the editor of the *Revue Horticole*) recently received some flowering specimens from Monsieur DAVEAU, the Cura-

efficient training in horticulture to the boys in the Reformatory of the Société de Sauvetage de l'Enfance, near Lyons. The school possesses a large amount of ground, and already has a kitchen garden, which, however, is now used only for the supply of the fruit and vegetables needed in the school itself. The children are taught various trades, but gardening is not among them. Monsieur RIVOIRE, recognising that here was much material out of which could be made, in time, good and efficient gardeners, approached the President of the Society, who readily agreed to introduce the study of garden-



FIG. 81.—BORDERS OF HARDY HERBACEOUS FLOWERS, WITH PAVED EDGINGS, AT CANONS PARK, EDGWARE, THE RESIDENCE OF MR. ARTHUR DU CROS, M.P.

(See p. 208.)

tor of the Botanic Garden of the University of Montpellier, who informed him that the plants were raised from seeds obtained by Monsieur FERNAND DENIS at Balnearies-Bains. The plant is a climber, with opposite leaves of triangular shape, the foliage being very shiny on the upper surface. The flowers, noticeably larger than those of *T. alata*, are of a warm orange tint, of an extraordinary intensity, and absolutely matt. Monsieur FERNAND DENIS has obtained a variety with flowers of nankeen yellow.

FRENCH REFORMATORY BOYS AS GARDENERS.—The *Revue Horticole* gives particulars of an interesting scheme formulated by Monsieur ANTOINE RIVOIRE for giving comprehensive and

ing into the régime. It is proposed to obtain for the purpose of instruction one of the many gardeners who have fought in the army and been discharged owing to wounds. The cultivation of flowers, fruit and vegetables, including intensive cultivation, will be undertaken.

METHOD OF DESTROYING MOTHS IN TEXAS.—The Tomato growers in Texas are troubled with a moth that destroys the crop. To combat the pest they fill bottles with oil in which a wick is placed, submerging the bottle in a wider vessel containing water. The wick is lighted and the moths are attracted to the flame, which singes their wings, causing the creatures to drop into the water, or rendering them incapable of flying.

SOME SEPTORIAS OF WHEAT.

(Concluded from p. 194.)

SEPTORIA GRAMINUM DESM.

Spots oblong or linear, pale ochraceous, sometimes but rarely bordered by a faint and narrow darker line, lying between the nerves. Pycnidia, amphigenous, numerous, immersed, very minute, almost invisible to the eye without a lens, seriate between the nerves, round, blackish, each with an opening which lies (apparently) always just beneath a stoma (this stomatal pore remains open when the others are closed); texture thin, transparent-brownish. Spores linear or sub-clavate-fusoid, straight or flexuous or curved, 32.50 by $1\frac{1}{2}$ μ , colourless in mass, but easily separating, not remaining clustered together, guttulate, at length sometimes faintly 3-septate, borne each at the apex of a short row of oval cells. (Fig. 82A.)

This species, which occurred on living leaves of Wheat at Herford and elsewhere, is distinguished from the former by the fact that the pycnidia at first occupy distinct small discoloured patches of the green leaf, and also by its very different spores. But the spores vary much in the same pycnidium, both in length and breadth; sometimes they are blunt at both ends, sometimes acute at the base and rounded at the apex, at one time 2 μ wide at the broadest part, at another not 1.5 μ wide. The septa were only at times conspicuous, at others scarcely visible without the addition of iodine solution, in many cases not yet formed.

What is apparently the same disease was sent by Dr. Stoward on a young Wheat plant from West Australia (No. 264), where it is stated to be known as "Dry Blight." In this the spores were somewhat longer, reaching to 60 μ , but otherwise identical; the septa were sometimes quite distinct, but more often the spores were only minutely guttulate. Another specimen on *Bromus arenarius* (No. 293, accompanied by *Puccinia bromina*) had some spores as much as 100 μ long, though otherwise the same, but it had larger pycnidia (150-250 μ in diameter), and therefore approached *S. ophioides* Sacc., if not identical with it.

SEPTORIA GRAMINUM VAR. CRASSIPES.

On leaves of Wheat from West Australia (No. 224) were pycnidia of a similar form and structure to those of *S. nodorum*, but without the ochraceous tinge; they contained curved sausage-shaped spores, 8-10 by $\frac{3}{2}$ μ , exactly like those of a *Cytospora*, and corresponding to those assigned to *S. Briosiana* Mor., but on different sporophores. The pycnidia were not confined to distinct spots.

In other similar and larger pycnidia on the same leaf were long filiform, or even subclavate, curved or bent spores, 50-65 by $1\frac{1}{2}$ μ ; these were usually somewhat pointed below, obtuse and wider above. They had a minute guttule in the middle, and sometimes two others, one at each quarter length; occasionally they presented the (? false) appearance of being faintly 3-septulate, but were never in the least constricted. They resembled, it will be seen, those of *S. graminum*, but with them were mixed, in some of the same pycnidia, the *Cytospora*-like spores above mentioned, and the sporophores were very different from those of *S. graminum*. Both the kinds of spores were borne on pointed ampulliform cells (10-13 by 2-3 μ), which were really the inner ends of the hyphae of the proliferous stratum. (Fig. 82B.) It could be seen that the *Cytospora* spores were the first produced (when the pycnidium was young), and were followed by the *Septoria* spores. In both cases the pycnidia were thickly scattered or aggregated in groups or lines, amphigenous, immersed, blackish, 80-100 μ in diameter, often compressed laterally (in which case the pore was oblong, not round); texture of more or less sinuous prosenchymatous cells, pale smoky-

brown. Each ostiole was situated exactly beneath a stomatal pore, which remained unclosed.

In considering the question of the identification of these three parasites, there can be no hesitation about the first one. Berkeley's description is perfectly accurate and characteristic so far as it goes, like all those written by such a consummate master of the art; Passerini's is also good, but until the exact size and nature of the spores of *S. nodorum* were ascertained no one could have anticipated that they referred to the same species. About Desmazières' species there can also be no doubt, since his description is quite characteristic; but the spores are evidently not always of the size he gives (50 μ long.) Further, one can now easily perceive that *S. Bromi* Sacc. and its variety *brachypodii* (to say nothing of others) belong to the same species, which is widespread and common; and though it has much wider spores (3.5 septate) probably *S. Tritici* Desm. is also closely allied.

About the third form there is more doubt; the spores are so closely similar to those of *S. graminum* that it seems absurd to consider it as anything but a variety*; but the peculiar flask-shaped sporophores imply a difference, as well as the presence of the *Cytospora* spores. Similar sporophores are described in *S. macropoda* Pass. and *S. littoralis* Speg., but the other particulars do not agree. *S. Briosiana* Mor. seems to have exactly the *Cytospora* spores above men-

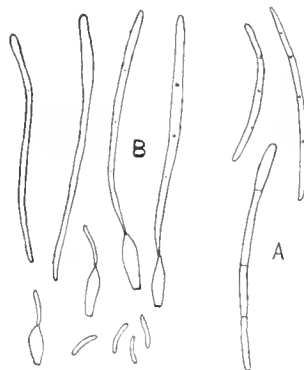


FIG. 82.—(A) SPORES OF SEPTORIA GRAMINUM ON LEAVES OF WHEAT; (B) SPORES OF *S. GRAMINUM* VAR. *CRASSIPES* ON LEAVES OF WHEAT.

(Magn.)

tioned, but its sporophores are different. Moreover, it is quite certain that these peculiar spores belong, in the variety just described, to the same fungus which has the longer spores. This occurrence of *Cytospora* spores in the same pycnidium or pustule as other spores is by no means uncommon. I have met with numerous instances, in both the Sphaeropsidales and the Melanconiales. The conclusion which seems most probable is that the form mentioned here is a remarkable variety of *S. graminum* Desm. *W. B. Grove.*

GRAPES AT THE R.H.S. FRUIT SHOW.

The exhibits of Grapes at the Royal Horticultural Society's special fruit show on the 3rd and 4th inst. were not only more numerous than at any previous exhibition in the Vincent Square Hall, but the quality of nearly all the bunches was extraordinarily good. In all, 234 bunches were staged in nineteen varieties, compared with 122 bunches in 1915. Muscat of Alexandria headed the list, as was to be expected, for no other Grape is so popular with exhibitors, notwithstanding that it requires great skill to bring it to perfec-

* *Septoria graminum*, Desm., var. *crassipes* var. nov. Pycnidia sporulifera ut *S. graminum* similibus, sed sporophoris ampulliformibus amplioribus.

tion. Bunches of larger size and with bigger berries have been exhibited on many previous occasions at shows, but rarely has the colour of berries been so good or the general quality so high. It was pleasing to see Black Hamburg shown so numerously and so well. There were forty bunches of this variety, and those in the 1st prize exhibit were of excellent quality and shape, with large, even-sized berries, that needed only a little more colour to bring them to perfection. Seldom have I seen such an even display of good bunches of Madresfield Court; those that won the 1st prize were on the small side, but the berries were exceptionally large, even in shape, and well finished.

Mrs. Pince variety was represented by twenty-three bunches; those that received the premier award were about 4 lb. in weight and, for the variety, the berries were well coloured. A fine display of Black Alicante was seen; the premier bunches consisted of shapely specimens with large berries of splendid colour and finish.

There were also many fine bunches of Muscat Hamburg, which variety can safely be claimed as the finest flavoured of all Grapes. Some of the bunches consisted of very large berries. It is seldom that such fine specimens of Gros Colman are exhibited as those shown by Mr. Barker in his 1st prize collection of six varieties, and the same remark applies to Buckland Sweetwater, considering that it was late in the season for this Grape. Prince of Wales was represented by six bunches. This variety is difficult to grow well, and will, I fear, never be popular with gardeners.

Chasselas Napoleon, as staged by Mr. Barker, was of attractive appearance. It would be interesting to know what is the correct name of this Grape.

The following is a complete list of the varieties and the number of bunches shown: Muscat of Alexandria (47), Black Hamburg (40), Madresfield Court (30), Mrs. Pince (23), Black Alicante (18), Appley Towers (14), Muscat Hamburg (10), Gros Maroc (10), Mrs. Pearson (8), Lady Hutt (6), Prince of Wales (6), Cooper's Black (4), Alnwick Seedling (4), Raisin de Calabre (4), Gros Colman (2), Chasselas Napoleon (2), Canon Hall Muscat (2), Lady Downe's (2), Buckland Sweetwater (2). *A. Yorkshireman.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FRUIT ON A STANDARD PEACH TREE.—It is not often that one gathers Peaches from an outdoor standard tree in this country [excepting in Kent and other warm counties.—Eds.], but last year I had one fruit, and this year two, from the double-flowered variety Clara Meyer. On both occasions the fruit was gathered in the second week in October, was of medium size, dead ripe, fragrant, and of good flavour. *Harold Evans, Llanishen, Cardiff.*

THE QUESTS OF "NOVICE."—In regard to soot, the constituents vary according to the fuel and the conditions of combustion, the product from the domestic hearth being probably of the best value. Roberts, in *Fertility of the Land*, gives "hard coal soot" nitrogen 2.4 per cent. (= ammonia 2.9 per cent.), potash 0.1 per cent., phosphoric acid 0.4 per cent., and "wood soot" 1.3 per cent., 2.3 per cent., and 0.4 per cent., respectively. Another author states that all the nitrogen is present in the form of sulphate of ammonia, which, speculatively, I venture to doubt. There must also be present a number of "tar products," perhaps xylene, toluene, naphthalene, creosote, and others, some of which may be of antiseptic value (*R.H.S. J.*, XLI., p. 127, effect of charcoal as manure may be due to creosote-like bodies). The value of antiseptics in the soil has been shown by many, including Dr. Russel and his co-workers at Rothamsted. I conceive the beneficial effect of soot is the result of at any rate all the ingredients named: possibly the carbon may act as an

absorber of oxygen. With regard to choice of stocks, look round your neighbours' gardens. Have they small trees on the Crab or free stock, and how do they succeed? The axiom in gardening I follow is to "believe everything and nothing that I read or hear" until I have tried; in other words, try both Crab and Paradise, fewest of those that you favour least. I believe, but do not know, that russets may be better on the Crab. I think that you are not growing for the market, and so need not leave the supply of late Apples cravenly to the importers; hence you may follow the rule that of a dozen trees one may be an early, three should be mid-season, and eight late. For me there is but one Apple really worth eating raw—D'Arcy Spice; for cooking, Ribston Pippin, Cox's Orange Pippin, and Claygate Pearmain may be mentioned. Write to two or more of the big nurserymen for half a dozen fruits of each of the sorts that you think are likely to taste them yourself and see how they keep. Plant those that you know you like now, and get others you find you like later in the season. Lord Burghley, Ashmead's Kernel, Lodgemore Nonpareil, Reinette d'Orléans, Syke House Russet, Margil, and perhaps Wyken Pippin are worth trying, and those mentioned above. Claygate Pearmain, when well stewed, recalls the flavour of the old "Normandy" dried Pippin. When you have found those that you like, ask the nurserymen how they think the sorts will do on your soil, unless you like to risk it. Fancy flavours will not be good this season, but they cannot be much worse than last season. Do not plant bushes; obtain either dwarf standards and make them vase like, or upright cordons, or the "cordon with emboupoint," the dwarf distaff. If with the latter you can outlive Lorette, and get more than one hundred Apples from a distaff about 5 feet high, you should not be displeased. If a counterspacer can be installed make a row of double U's. These you would have to train. Anyhow, get some maidens and try a bit of training. Fear not the wasp or the bird by bagging the fruit betimes: a tedious job, but worth the trouble. *H. E. D.*

I give my selection of dessert Apples, increasing the number to seven, instead of six. The question of the shape of the trees is mainly one of convenience as to site. If he employs cordons he will require many more trees, but they will not occupy quite so much space as those of bush and other shapes. Cordons can be grown in the open without the support of a wall or fence. Bushes on the Paradise stock would give much more fruit, and can be kept within a limited area. When once established, with reasonable attention these trees produce a quantity of good fruit. Espalier-trained trees probably give more fruit than any others if they are properly established. With espalier trees there is not the same risk of loss of fruit from wind, as the branches are more rigid in their supports. It matters not in which way the trees are trained. A. V. must not expect great results without attention, which includes winter pruning, summer pruning, watering, stimulating the growth, and, above all, judiciously thinning the fruit when the crop is too heavy to do justice to the individual fruits in shape, size, and colour. It will be seen that I do not name a variety that will keep after February, for the simple reason that I do not think the quality after that date is good enough. I have long been of opinion that more trees of Cox's Orange Pippin should be planted, as the fruit will keep in good condition until March, and where this variety succeeds what can be better? If the soil is sandy A. V. should add clay and freshly cut turves when planting Cox's Orange Pippin. Frequent mulchings of half-decayed stable manure are of much value in stimulating growth and fertility in sandy soils, especially during hot, dry weather. Copious syringings of the trees after a hot day would prove a distinct advantage in such soils. I regard Beauty of Bath as the best early Apple ripening in August. Without severe root-pruning this variety is liable to make excessive growth in its early years, but when the disposition to make gross shoots is corrected, and the tree well established, it is a regular cropper.

Bononi is a September Apple not so well known as its merits deserve. In appearance it is much like King of the Pippins, but superior in flavour. James Grieve is an October Apple that crops freely on small trees. The fruit is of good appearance and high flavour. American Mother pions at the end of October and keeps well into November. The flavour is appreciated by many Blenheim Pippin cannot be omitted from the list; many growers think it is a shy bearer on young trees, but double grafted it should crop the fourth year freely. Cox's Orange Pippin for November and the following three months cannot be surpassed in point of quality. William Crump is the result of a cross between Cox's Orange Pippin and Worcester Pearmain, and is a promising January Apple of really good flavour and of medium growth. *E. M.*

THE HAILSHAM BERRY.—In reply to *Southern Grower*: If the Hailsham Berry is treated as a Raspberry it will behave as one. Last year was a favourable one for the plant, and we gathered an abundance of delicious dessert fruit up to November 15. The next day we had severe frost. This damp and sunless year it has, like most fruit trees, made too much wood; the crop is not large, and the fruit hardly sweet enough for dessert. Also this year the

expended in applying it would be against its use to any extent. Can we be sure that the maggot finds its way to the Onion through the soil, and that the eggs are not deposited in the growth or the sheath of the Onion? *W. P. R., Holywell, N. Wales.*

A FINE CROP OF ONIONS (see p. 193).—Mr. W. Cuthbertson's remarks on the Onions grown at Duns by Mr. Malcolm are both interesting and instructive, and go far to prove that this important vegetable can be satisfactorily and profitably grown in this country. I have long advocated a more extended cultivation of this root vegetable, and it has always been a mystery to me why this has not been done, as, with proper methods of cultivation and suitable varieties, there is no reason whatever why Onions cannot be produced in this country as good as or even superior to those imported. The plan we have adopted here most successfully has been to sow the seed fairly thinly in boxes at the end of January or the beginning of February, raise the plants in a cold frame, and plant them out in well-prepared ground, direct from the seed-boxes, as soon as the soil and weather are favourable. When properly hardened the seedlings are proof against cold weather, and if planted 1 foot from row to row, and 4 to 5 inches apart in



FIG. 83.—THE SOUTH TERRACE, CANONS PARK, EDGWARE.
(See p. 208.)

fruit is attacked by mould. I lift all the canes towards the end of November and replant the stronger ones at once in a sunny position. Those selected for planting are shortened to 2 feet, and all the leaves are removed. In March the shoots are cut down to the ground (not 3 inches above it). The young shoots are thinned to three or four, and trained to Bamboos. I find the annual lifting and open planting essential, but if the old canes are allowed to throw out laterals we then get the Raspberry habit—fruit much earlier and less of it. Given equally favourable conditions I do not consider the fruit of the Hailsham Berry quite so fine in flavour as that of the best autumn Raspberries, but it is a much more certain crop, the yield per square yard of ground infinitely greater, and the fruit bolder. *T. of Kent.*

THE ONION MAGGOT (p. 185).—In your issue of October 14 it is stated that kerosene and sand placed around Onions will kill the maggot in its attempts to pass through it to reach the bulb. Some years ago I placed a ring of paraffin a few inches wide on a Welsh slate (this in order that the oil might not be readily absorbed), and in the centre I dropped a few of the maggots. They readily crawled out, and more oil was dropped in their track; but it proved no barrier to their progress. Even assuming that the mixture were effective, the labour

of the rows, a heavy crop of serviceable bulbs will be assured. Onions may be grown on the same ground, if suitable manure is used, for an indefinite number of years. No doubt the crop Mr. Cuthbertson refers to is the same as the one quoted in a daily contemporary during the past week. The results were astounding, it being stated that the prospective profit on just over 300 acres would be £18,000. Surely this fine return should stimulate our market gardeners and farmers in the required direction. *Edwin Beckett.*

IMMATURE SEED POTATOS (see pp. 160, 186).—From 1883 to 1898 inclusive I grew Magnum Bonum. From 1899 to 1910 inclusive Up-to-Date, from own saved seed: sixteen and twelve summers respectively. The tubers were never lifted until they were mature. The crops were fair throughout. *Will Taylor, Hampton, Middlesex.*

THE PLANTING OF HERBACEOUS PAEONIES (see pp. 187 and 199).—I am in agreement with Mr. E. H. Jenkins in the planting of herbaceous Paeonies in advance of the formation of the new system of roots, and would extend the practice to Christmas Roses and Flag Iris. The latter may be divided and transplanted any time after the flowers are over, but not later than September, and the earlier the better. The plan of pulling the crowns of Christmas Roses

apart, with roots attached, is also the best method. I remember fine plants of Christmas Roses being chopped up into small pieces with a spade. They were then given me to plant. This was in March. Very few of the pieces made any growth at all, and the remainder dwindled away during the course of summer. The view expressed by Mr. W. R. Dykes of moving Paeonies after they have done flowering is not adopted by gardeners generally, but some of the more expert of them practise this method. It is not essential that the transplanting be done immediately after the flowers drop. The operation can be carried out quite successfully even in July. The ground may be prepared ready for their reception before lifting the plants, or the latter may be lifted, laid aside, moistened and covered with mats till the piece of ground in which they were growing is prepared for replanting. The next point is to get the Paeonies planted as quickly as possible, and well watered, the object being to prevent any serious flagging of the foliage during the operation. The plants make only one growth a year, and the foliage is of importance in storing the tubers with reserve food. *J. F.*

I did not, as Mr. Dykes points out (see p. 199), refer to the possibility of planting herbaceous Paeonies in summer, because the purport of my note (see p. 187) was to encourage autumn (September) planting, which is rational and sound, and to discourage spring planting, which, as I endeavoured to show, was wrong from every point of view. I urged the month named as the result of a practical experience extending over forty years or so, which also embodied the knowledge that some large market cultivators of the Paeony prefer August to September, partly for convenience, coupled with the desire to get this important work completed early. But whether August or September matters little. The earlier month but emphasises the latter, and should prove to all that spring planting—still recommended—is wrong. I prefer September because not only is the leafage more fully mature then, and the plants' crowns receive the maximum of benefit therefrom, but because also, up to the middle of that month at any rate, one can be fairly sure that the development of new basal roots—which I regard as of great importance—has not then begun. Naturally this basal root activity varies with the season—in times of prolonged drought it is late—and I have known the end of September at hand before new roots were produced. Mr. Dykes writes, I notice, only of *Paeonia officinalis*, an early-flowering species. I had in mind that greater wealth which has been evolved from *P. albiflora*, *P. scusensis*, and others, though all come under the one term herbaceous. In all probability if Mr. Dykes tried some of these latter he would have a different experience to record. Planting the Paeony directly after flowering, however, cannot be urged as a gain; it serves rather to demonstrate its powers of endurance. Moreover, it appears to discount the value of the maturing leaf, which, in the case of a deciduous herbaceous subject, forming crown buds as in the group under notice, should be of considerable importance. In the garden the foliage of such plants is retained in the belief that it possesses a value returnable to the plants. Transplanted in the height of summer, not only would the foliage be withered up with a few days' heat, but it is extremely doubtful whether the crown buds would then have attained their maximum development. If not, the future plant would be enfeebled. Doubtless, too, even in the case of the early-flowering official Paeony, Mr. Dykes would have obtained flowers of normal size had the planting been done some weeks later than it was. Besides the smaller flowers referred to, one also wonders whether the stature of those June-planted Paeonies is equal to that of those which remained undisturbed. *E. H. Jenkins.*

PUBLICATIONS RECEIVED.—*The R.H.S. Gardener's Pocket Diary and Note-Book for 1917.* (London: Royal Horticultural Society.) Price 1s. *Annals of the Missouri Botanical Garden*, Vol. III., No. 1. St. Louis, Mo., Board of Trustees of the Botanical Garden. Price \$1.00.

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 24. — The exhibition at the fortnightly meeting in the Vincent Square Hall on Tuesday last was less than usual, and the attendance small.

Orchids were the chief feature, and included the best exhibit in the show—a magnificent group from Messrs. CHARLESWORTH AND CO., for which a Gold Medal was awarded.

The Orchid Committee recommended two First-class Certificates and four Awards of Merit to novelties.

The Floral Committee recommended Awards of Merit to two new Chrysanthemums, and awarded eleven Medals to collections.

The Fruit and Vegetable Committee recommended an Award of Merit to a late Gage Plum.

Floral Committee.

Present: Messrs. H. B. May (chairman), John Green, G. Reuthe, C. R. Fielder, John Heal, John Jennings, C. Dixon, J. Dickson, H. J. Jones, F. Page Roberts, C. E. Shea, C. E. Pearson, W. P. Thomson, E. H. Jenkins, G. Paul, R. C. Notcutt, J. F. McLeod, W. Howe, A. Turner, H. Cowley, T. Stevenson, J. Hudson, E. A. Bowles, W. Cuthbertson, J. W. Moorman and R. W. Wallace.

AWARDS OF MERIT.

Chrysanthemum Dawn of Day. A Japanese variety of exhibition size, with deep yellow florets that are marked with carmine, giving the appearance of a golden-bronze flower. The large, shapely bloom is a notable addition to early exhibition varieties.

C. Mrs. Algeron Davis. This also is a large Japanese variety, with good depth of floret. The soft pink colour is very attractive, especially in the younger flowers; in the older blooms the colour in the centre fades to old ivory-white. It is one of the best pink early Chrysanthemums of recent times. Both varieties were shown by Mr. NORMAN DAVIS, Framfield.

GROUPS.

The following Medals were awarded to collections:—

Silver Flora Medals to Mr. J. J. KITTLE, Corfe Mullen, Wimborne, for Violets in variety; Messrs. H. B. MAY AND SONS, Edmonton, for Ferns, *Primula obconica* and Hydrangeas. The Ferns included grand specimens of the elegant *Asplenium Veitchii*.

Silver Banksian Medals to Messrs. ALLWOOD BROS., Wivelsfield, Haywards Heath, for Perpetual-flowering Carnations, of such beautiful sorts as *Mary Allwood*, *White May Day*, *Triumph*, *Salmon Enchantress* and *Destiny*, a new variety of cerise colour; Mr. F. LILLEY, Guernsey, for Nerines. This bright exhibit included a batch of the large pink *N. Bowdenii*, fine forms of *N. Fothergilli major*, and *N. corsucensis*, also the narrow-petalled *N. crispata*; Rev. J. PEMBERTON, Havering-atte-Bower, Romford, for Roses; Messrs. R. WALLACE AND CO., Colchester, for berried shrubs, principally of *Berberis* species, the best being *B. Wilsonae*, the shoots of which were crowded with coral-red berries, and an unnamed Chinese species with attractive bluish foliage; and Messrs. W. WELLS AND CO., Merstham, for Chrysanthemums.

Bronze Flora Medal to Mr. G. REUTHE, Keston, for Nerines and hardy flowers; the latter included a fine spike of *Satyrion carnosum*.

Bronze Banksian Medals to Messrs. J. CHEAL AND SONS, Crawley, for autumn-tinted foliage and berries. Forms of *Quercus coccinea* were magnificently coloured and Acers were equally good, a batch of *Acer tartaricum Ginnala* in the centre being conspicuously beautiful; Messrs. J. GODFREY AND SON, Exmouth, for new Single Chrysanthemums, the best being *Betty* (deep yellow), Mrs. Harold Phillips (pink) and *Bonnie Brooks* (crimson); and Mr. L. R. RUSSELL, Richmond, Surrey, for small specimen Conifers in pots.

Orchid Committee.

Present: Sir Henry J. Veitch (in the chair), Sir Jeremiah Colman, Bart., Messrs. Jas. O'Brien (hon. secretary), W. Bolton, S. W. Flory, W. H. White, A. Dye, C. H. Curtis,

H. G. Alexander, W. H. Hatcher, J. Charlesworth, Walter Cobb, T. Armstrong, E. R. Ashton, Pantia Ralli, F. J. Hanbury, C. J. Lucas, R. Brooman White and R. A. Rolfe.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Menier (gundarvense × amabile), from ERNEST G. MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson). A grand plant, and one of the best hybrid *Odontoglossums*. It was formerly shown by Mr. Mocatta in its early stage, when the Committee desired to see it again. On June 8, 1915, the late Mr. J. Gurney Fowler showed the variety *St. Vincent*, which was awarded a First-class Certificate, the flower being of the spotted class. The present original form has large, broad-petalled flowers of a bright chocolate-claret colour with light tips to the segments and white front to the lip.

Cattleya Thebes var. Britannia (Adula × Dowiana aurea), from Messrs. SANDERS AND SONS, St. Albans. One of the best yellow-petalled hybrid *Cattleyas*, the flower being of remarkable beauty, with charming contrasts of colour. The sepals and petals are broad and well displayed; they are coloured Cowslip yellow with a gold shade. The large, well-formed lip is ruby-red in front with a purple shade towards the margin, the short side lobes being veined with yellow and covering the fleshy, bluish-white column.

AWARDS OF MERIT.

Cattleya Fabia Memoria Lord Roberts (labiata × Dowiana aurea), from Messrs. SANDER AND SONS. A fine *Cattleya* with a flower of great size, graceful form, and intensely rich colouring. The sepals and petals are deep purplish-rose. The lip is broad, well rounded, and of an intense claret-red colour, with gold-coloured lines running from the base to the yellow disc in the centre.

Cattleya Prince John Orchidhurst variety (Hardyana alba × Dowiana aurea), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Thimbridge Wells. The flowers resemble those of *C. Hardyana alba*, but they are of better form, and the lip is finely coloured. The sepals and petals are pure white; the lip is purplish-crimson with a yellow disc and gold veining at the base.

Cattleya Alexandra (Carmen × Hardyana), from Messrs. FLORY AND BLACK, Orchid Nurseries, Slough. A richly coloured hybrid of great promise; *C. Luddemaniana*, *C. Dowiana aurea* and *C. Warszewiczii* (twice) are in its ancestry. The basal form is *C. Hardyana*. The sepals and petals are coloured bright rose-mauve; the lip is glowing ruby-red with a purple tinge towards the crimped margin. There are two orange-coloured blotches, one on each side of the centre of the lip, and gold-coloured lines from the base.

Brasso-Cattleya Mars var. xantholeuca (B.-C. Mrs. J. Leemann × C. Maggie Raphael alba), from Messrs. FLORY AND BLACK. A beautiful and distinct *Brasso-Cattleya* with finely formed white flowers. The broad fringed lip has a delicate veining of rose colour at the margin and a golden-orange coloured disc.

GROUPS.

SIR JEREMIAH COLMAN, Bart., Gatton Park, Surrey (gr. Mr. Collier), staged a selection of varieties of his strain of *Cattleya Alcimeda* (*labiata coerulesa × Gaskelliana coerulescens*), together with a good specimen of *C. labiata coerulesa*, a fine sky-blue tinted flower with violet front to the lip. The latter was superior to seedlings shown, all of which, however, were tinted with blue, especially on the lip. This exhibitor also showed a collection of cut flowers of varieties of *Cattleya Bowringiana* and its hybrids. The blooms were of great interest. A singular *Bulbophyllum* from New Guinea was included in the exhibit.

OTHER EXHIBITS.

MESSRS. CHARLESWORTH AND CO., Hayward's Heath, were awarded a Gold Medal for an extensive group. In the centre were grouped more than 100 fine specimens of the rich orange-scarlet *Epidendrum vitellinum autumnale*, each plant having two to three branched spikes. Arranged

Vegetables: Average Wholesale Prices.

Artichokes, Globe, per doz. ..	4 6-6 0	Lettuce, Cabbage and Cos, per doz. ..	1 0 2 0
- Jerusalem, per 1 bus. ..	3 0 -	Mushrooms, per lb. ..	1 6 2 2
Aubergines, per doz. ..	3 0-3 6	- Outdoor, per 1/2 sieve ..	5 0-7 0
Beetroot, per bus. ..	6 0 -	Mustard and Cress, per doz. punnets ..	1 0 -
Beans, French, per bus. ..	2 6 -	Onions, per bag ..	14 0 -
- Scarlet Runners, per bus. ..	3 6 -	spring, per doz bun. ..	8 0 -
Brussel Sprouts, per 1/2 bus. ..	2 6 -	Parsnips, per bus. ..	5 0 -
Cabbage, per tally ..	6 0 -	Radishes, per doz. bun. ..	1 0 -
- Red, per doz. ..	3 0 -	Savoys per tally ..	7 6 -
Carrots, per cwt. ..	7 0 -	Shallots, per lb. ..	0 3-0 3 1/2
Cauliflowers, per tally ..	10 0 -	Spinach, per bus. ..	1 6 -
Celery, per doz. ..	4 0-5 0	Tomatoes, Eng. per doz. lbs. ..	7 6 -
Cicely, per doz. ..	8 0-18 0	- "Pink" ..	5 0-6 0
Cucumbers, per flat ..	9 0 11 0	- "Blue" ..	4 0-4 6
Endive, per doz. ..	1 6 -	- Tenerife, per bundle ..	12 0-16 0
Greens, per bus. ..	1 0 -	Turnips, new, per bag ..	4 0 -
Garlic, per cwt ..	38 0 42 0	- Tons, per bus. ..	2 0 -
Herbs, per doz bun. ..	2 0-6 0	Vegetable Marrows, per tally ..	6 0-15 0
Horseradish, per bundle ..	2 6-3 0	Watercress, per doz. ..	0 6 -
Leeks, per doz. ..	3 0 -		

Fruit: Average Wholesale Prices.

Almonds, per cwt. ..	70 0 75 0	Grapes - Con. - Black Alicante ..	0 6-1 6
Apples - Californian Newtowns, per case ..	12 6-13 6	- Gros Maroc, per lb. ..	0 10-1 0
- English Cooking, per bus. ..	5 0-10 0	- Gros Colman, per lb. ..	0 10-2 0
- Dessert, per 1/2 bus. ..	6 0-11 0	- Canon Hall, per lb. ..	1 6-5 0
- Nova Scotian barrels ..	28 0-35 0	- Muscats, per lb. ..	1 0-3 0
- Oregon, per case ..	15 0-17 0	Grape Fruit, per case ..	22 0-24 0
Asparagus, Paris Green, per bun. ..	6 6-7 6	Kent Filberts and Cobs, per lb. ..	1 4-1 6
Bananas, bunch - Medium ..	8 6 11 0	Lemons, per case ..	25 0-38 0
- X-medium ..	10 0 13 0	Melons Guernsey and English, each ..	1 6 3 0
- Extra ..	12 0-15 0	- Valencia, per case ..	12 6-15 0
- Double X ..	14 0-17 0	Nuts Brazils, new, per cwt. ..	80 0-100 0
- Red, per ton ..	£25 0 -	Cocanuts per 100 ..	25 0-28 0
- Jamaica, per ton ..	£18 -	Oranges, South African, per case ..	18 0-20 0
Blackberries, per peck ..	2 6 3 0	Pears, English, per 1/2 sieve ..	7 0-12 0
Chestnuts, per bag ..	25 0-30 0	- Californian (Blocks) ..	16 0-28 0
Corn Cobs, per doz. ..	2 0-2 6	- Keiffer, per barrel ..	33 0 35 0
Cranberries, per case ..	17 0-18 0	Plums, English, per 1/2 sieve ..	6 0-6 6
Damsons, per 1/2 sieve ..	4 6-5 6	Quinces, per half ..	4 6-5 6
Dates, per doz. boxes ..	6 6-8 6	Walnuts, English, per doz. lbs. ..	6 0-8 0
Figs, Green per doz. ..	1 0-3 0	- Doubles, per lb. ..	6 10-1 3
Grapes: English, Hamburg, per lb. ..	0 6-1 0	- French, per bag ..	12 0-14 0
- Almeria, per brl. ..	16 6-25 6		

REMARKS.—Supplies of English Apples are decreasing. They chiefly consist of the following varieties: Blenheim Pippin, Newton Wonder, Warner's King and Lord Derby. Dessert varieties comprise Worcester, Pearmain, King of the Pippins, Cox's Orange Pippin and Allington Pippin, of which fair quantities are available. Imported Apples consist of the following: York Imperial, Newtown, Oregon, Nova Scotian, Pearmain, Gravenstein and Jonathan. Supplies of English Pears are decreasing, only three or four well-known market varieties being available. Imported Pears include Doyenné du Comice, Winter Nelis, Clon Moreau and Keiffer's, the latter packed in cases and barrels. Grapes continue to be very plentiful. English Tomatoes have decreased in quantity during the past week, but Tenerife Tomatoes are now arriving. Supplies of Mushrooms are limited. Special lines in forced vegetables consist of French Beans, Asparagus and Spinach (plentiful and cheap). Other vegetables show a slight increase in price. Walnuts are more plentiful, but Cobs scarce. Chestnuts (Redon), Barcelona Nuts and Faro Almonds are now coming in. Persimmon are on offer. *E. H. R., Covent Garden Market, October 25, 1916.*

Potatoes.

Kent - Eclipse ..	11 0-11 6	Lincoln - Blackland ..	10 0-10 6
May Queen ..	11 6-12 0	Eclipse ..	11 0-11 6
Sharpe's ..	11 0-11 6	May Queen ..	11 6-12 0
Bedford - Eclipse ..	11 0-11 6	King Edward ..	11 6-12 0
Epicure ..	10 6-11 0		

REMARKS.—There is a fair amount of trade, but growers are sending small consignments. *Edward J. Newborn, Covent Garden and St. Pancras, October 25, 1916.*

ANSWERS TO CORRESPONDENTS.

AMPELOPSIS JAPONICA VON HOGGII: *J. G.* The plant that passes under this name is often quite a different plant, viz., *Rhus Toxicodendron* with its var. *radicans*, which possesses an acid juice, causing the symptoms resembling erysipelas, of which you complain. This plant when bruised exudes a resinous juice which becomes black on exposure to the air and forms black spots where it has exuded. The juice of the *Ampelopsis* does not blacken in this way. There is considerable resemblance between the leaves of the two plants. One striking difference is the fact that the central leaflet of *Rhus Toxicodendron* (there are three leaflets present) is furnished with a distinct stalk. *Ampelopsis Hoggii* is referred to in *Bailey's Standard Cyclopaedia of Horticulture*, Vol. I., p. 273, as a garden name.

DUST FROM BATTLEFIELD: *W. G.* The material you sent us has been submitted to a firm of Paris horticultural experts, and their report informs us that the material is calcium carbonate (chalk) containing only infinitesimal quantities of phosphoric acid, and therefore without manurial value. The filaments which appear among the chalk are roots of moss.

(syn. *Greenups*).—*H. H.* Nonesuch.—*C. H.* Apple Winter Majetin.

NAMES OF PLANTS: *Constant Reader*, 1, *Amelanchier canadensis* (June Berry); 2, *Mercurialis perennis* (Dog's Mercury).—*E. C.*, *Shrewsbury*. *Saxifraga Fortunei* (see fig. 83). The members of the small group to which this species belongs do not flower until the autumn. The unequal serrations on the petals of *S. Fortunei* form a good specific character, and you will notice that the petals are very unequal, the serrations being most marked on the longest segment. The species was introduced from Japan by Robert Fortune, and has been in cultivation in this country for some fifty years. The plant is generally hardy, and in favoured districts will flower well in the open, but it succeeds best as a pot plant in a cold frame.—*M. H.* 1, *Nerium undulata*; 2, *Saintpaulia ionantha*.—*Herbert W.*, *Berks*. *Osmanthus Aquifolium*.—*J. W.* The berried plant is *Phytolacca decandra*; we do not recognise the varieties of *Michaëmas Daisies*.—*A. B. H.* *Helianthus decapetalus*.—*T. D.* *Acanthus spinosus*.

TOMATOS UNDER GLASS: *C. G.* As a general rule 1 feet 6 inches apart is a good distance to plant Tomatos, though in large houses they are often planted at this distance in rows



FIG. 84.—SAXIFRAGA FORTUNEI FLOWERING ON A ROCKERY. (See "Names of Plants")

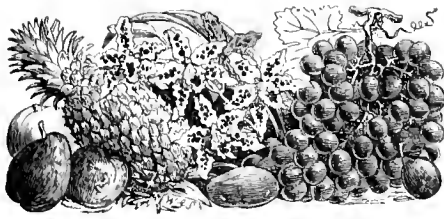
LEAF-MOULD: *J. G.* Seeing that you can obtain a supply of leaves from an Oak plantation, you should rely on these for your leaf-mould and burn those containing Pine needles and leaves of evergreens. The ash from the latter would provide you with a valuable supply of potash for the garden.

LILAC SHOOT SPROUTING: *S. W.* There is nothing remarkable in the Lilac shoot that was inserted as a stake to your Rose tree developing leaves. It does not follow that roots have developed. The growth has probably resulted from food material contained in the shoot which has kept fresh from the moisture in the soil.

NAMES OF FRUITS: *J. J. T.* 1, the variety is, as you suggest, Broom Park. It is a very old Pear, but it is seldom seen in these days, when superior varieties are numerous; 2, *Beurré Capiaumont*; 3, Apple not recognised; probably a local variety.—*B. Sutton*. 2, *Doyenné du Comice*; 3, *Brown Beurré* (syn. *Beurré Gris*); 6, *Beurré Hardy*; 11, *Josephine de Malines*; 12, *Lord Derby*; 13, *Small's Admirable*; 14, *Flower of Kent*; 15, *Marechal de la Cour*.—*Hambledon*. 1, *Northern Greening*; 2, *Curl Tail*; 3, *Ross Nonpareil*; 4, *Decayed*; 5, *Sturmer Pippin*; 6, *Reinette Van Mons*.—*A. E. H.* 1, *Newton Wonder*; 2, *Lady Lennox*; 3, *Melon*; 4, *Mabbott's Pearmain*; 5, *Manks Codlin*; 6, *Yorkshire Beauty*

across the house, allowing 2 feet or 3 inches more between each row. In such cases there is usually a moderately wide pathway down the middle of the house. But it appears from your letter that your house is divided into beds 5 feet wide, with pathways a trifle over 1 foot in width, so we recommend you to plant three rows in each bed lengthways; one row in the middle and the other two 1 foot from each side. In this way the house would require 3,072 plants. The weight of fruit which you may expect would depend on such conditions as the soil and variety, and, of course, the cultivation. But, in our opinion, 6 to 7 lbs. per plant would be a good average yield. With good soil and expert cultivation it should be possible to gather fully 10 lbs. per plant during the season, but the weight would probably fall off after the second year. Such sorts as *Balch's Fillbasket* and *Ailsa Craig* would be likely to give a heavier crop than *Carter's Sunrise* and its type, but the last-named frequently realises a higher price, so that what is lost in total weight is more than compensated in returns.

Communications Received.—*J. H. P.*—*A. H. C.*—*A. D.*—*W. F.* and *Co.*—*J. T.*—*J. P.*—*T. C.*—*D. W.*—*E. C.*—*J. T.*—*M. T.*—*L.*—*Peach Lover*—*W. P.*—*R. F.*—*B. W.*—*L.*—*W. Warden*—*T. W. B.*—*F. D.* and *Co.*—*J. White*—*W. C.*—*W. J. C.*—*W. H. M.*—*A. O.*—*Sir H. J. V.*—*F. J. C.*



THE

Gardeners' Chronicle

No. 1558.—SATURDAY, NOVEMBER 4, 1916.

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THE NORTH AMERICAN HAWTHORNS.

UNDER the title, "What is Happening to the Hawthorns?" we find a long article in the *Journal of Heredity* (1916, pp. 265-279), by Mr. L. M. Standish, of the Botanical Laboratories, Harvard University. It is remarked that those interested in the origin of species cannot afford to overlook Crataegus, the Hawthorn genus, on account of the extraordinary multiplication of species in North America during the last fifty years. Statistics are given showing that over seven hundred so-called species have been described during the last quarter of a century. A few years ago attention was called to the question by Mr. Harry B. Brown, of Cornell University, who submitted a few questions to the leading students of the genus, and among them the significant one, Will the different species hybridise? To this Prof. Sargent, of the Arnold Arboretum, who has described over five hundred of these novelties, replied: "We have never found any evidence that the different species hybridise." Mr. W. W. Ashe, of the U.S. Forest Service, however, who has described over a hundred novelties, remarked: "Many species hybridise, and some of those which have been proposed are undoubtedly hybrids."

In summarising the various replies, Mr. Brown observed: "I am inclined to think that a great many of the Crataegus forms we have are hybrids. European species are known to hybridise. During the spring of 1908 I pollinated a few Crataegus monogyna (English Hawthorn) flowers with pollen from C. Brainerdii, a native species. They set fruit, which matured. During the

spring of 1909, Dr. William Moore and the writer made cross pollinations between the majority of the native species of the local flora. Most of these cross-pollinations were effective—fruit set and matured, being entirely normal apparently." These experiments are still in progress, and details are promised later.

As to the causes which may have operated in such an apparent increase among the Crataegi, Mr. Brown remarked: "Within the past few decades, since the primitive forests have been cleared away, there has been an immense increase in the number of Crataegus plants growing. Being low trees or shrubs, they cannot thrive in dense forests, but spread freely over open pastures and along fence rows. The pasture south-east of the campus of Cornell University, a field of some twenty or twenty-five acres, has at least a thousand plants. This field has been allowed to run to pasture for the last twenty-five years or more, and Crataegi have thriven well. The original forest was cleared away years ago. The increase in number of plants makes cross-pollination easier and much more probable. Bees and other insects swarm about the trees when they are in blossom, going from flower to flower and from tree to tree." He also adds that irregularity in the number of stamens and pistils, variation in the shape of the leaves on the plant, variation in the colour of the anthers, from nearly white to dark purple, and the occurrence of plants possessing characters found in two distinct species growing near by, may all be taken as evidence of hybridity or progressive species. Numerous local species afford another indication, and there is scarcely a State that has not some species not found elsewhere. Such considerations may partly explain why these forms were not observed before, and why they are apparently absent from the older herbaria.

A point on which all the authorities seem to agree is the extreme variability of the genus, and Standish well remarks that unusual variability in plants is generally considered good evidence of hybridism. Further evidence is derived from sterility in the genus, partial or complete sterility having long been recognised as an important basis of distinction between crosses and genetically pure species. It is, of course, recognised that some hybrids are fully fertile, and that sterility may be largely eliminated by selection, but the sum of the evidence seems to point to the conclusion that pollen sterility affords clear evidence of a mixed ancestry, and this furnishes a simple means of determining the purity of a species, which is otherwise often a difficult matter in the diagnosis of constant or relatively constant hybrids.

The author then proceeds to apply this test to the numerous forms of Crataegus that have been described, and remarks that on examining 171 different forms he found all degrees of pollen sterility, and that, roughly speaking, not quite one-fifth had normally developed pollen, while nearly half of them had from 50 to 75 per cent. of sterile pollen. One of them contained no normal pollen grains, though the anthers, to all external appearance, were robust and healthy. Such a plant as the latter must be cross-pollinated before it can produce seeds, and these, it may be added, must inevitably produce hybrids. A series of photographs showing perfect development of pollen and of various degrees of sterility are shown. There is also a diagram showing where two groups of Hawthorns overlap, thus affording an opportunity for natural hybridisation to occur.

In this connection the author mentions a new group, called Intricatae, by Prof. Sargent, the forms of which were formerly included in the section Coccineae. An examination of the pollen conditions of the Intricatae proved them to be surprisingly sterile, while such of the widely diffused species of the Coccineae as he was able to examine were as markedly fertile. He was

not able to examine the strictly local forms of the latter group, though he suspects they would show a high degree of sterility, for such forms only occur in localities already covered by other members of the group. Of the Intricatae it is remarked: "If crosses could be worked out with different species of the Coccineae for one or both of the parents, it would not surprise me if most of the Intricatae could be raised artificially."

Two points stand out very prominently in this study of the Crataegi, namely, the extraordinary amount of comparatively recent multiplication of forms, and the unusual amount of sterility among those of local distribution; and the author concludes by remarking: "The study of this genus has brought out evidence of both systematic and morphological character to indicate the wide-spread occurrence of hybridism, and I think we must face the fact that among the Crataegi at least extreme variability is linked with extensive hybridisation and the consequent multiplication of species, rather than with mutation and the problem of the saltatory origin of species."

This conclusion accords with an opinion independently formed by the writer, partly on different grounds. In arranging and incorporating in the Herbarium a fine set of these novelties that was acquired by Kew a few years ago, the difficulty was specially noticed of distinguishing some of these forms in a dried state, and of separating them from some of the older forms, and the remark was made that they had all the features of a series of natural hybrids, and that the species must grow more or less together and intercross. The question was too big to investigate, but some evidence as to species growing together was found. The essay under review carries the matter considerably further.

What is now wanted is evidence as to which of the original species grow together, what are the primary hybrids that arise from their intercrossing, and how far these recombine with the original parents. This could partly be carried out by observations in the field and partly by experiment. It is clear that these multitudinous forms should not have been described as species, and Mr. Bean has remarked that "a great many can differ from each other scarcely more than garden varieties of Apples do." So far as their characters are concerned, they may perhaps be compared with the innumerable hybrid forms of Odontoglossum and Cypripedium now in our collections, and were the history of these not known they might perhaps form the materials for similar studies. There is a fertile field for observation where allied species grow intermixed. R. A. Rolfe.

THE ROSARY.

RED LETTER DAY.

RED LETTER DAY is a splendid Rose for garden decoration and supplying cut blooms; the buds open perfectly in water. This season I have had three full crops of flower. From one plant I cut on October 15 one dozen perfect flowers. I do not know of an attribute of a good Rose that this variety does not possess except perfume. The habit of growth is all that could be desired. The flowers are produced on stiff stems that are amply clothed with deep green foliage. My plants show not the slightest sign of mildew. The colour of the petals is remarkable—velvety scarlet crimson buds, flushed on the surface with scarlet, with not the slightest trace of blue or magenta even in the hottest weather.

WILLIAM COOPER.

ON October 15 I also cut blooms of the variety William Cooper, which is remarkable for its fragrance and large petals in summer. Buds cut for decoration develop in water perfectly and last a long time fresh. The colour is deep lake red. E. M.

NEW OR NOTEWORTHY PLANTS.

IRIS HOOGIANA (SP. NOVA*).

In the autumn of 1915 I received from the firm of Van Tubergen a number of shrivelled rhizomes of an Iris which had been collected in Turkestan. The growth made in 1914 and 1915 confirmed my first impression that the Iris belonged to the *Regelia* section, but it was not until this summer that the first flowers appeared, and showed at once that another magnificent Iris has been added to the already long list of good garden plants that have been introduced from Turkestan. It is with considerable pleasure that I dedicate this

blade. A beard also grows strongly up the inner side of the haft of the standards, a feature which is characteristic of the section. The exact shade of the lavender colour varies a little, I think, in individual plants, and Mr. Hoog tells me that a few of his produced pure white flowers. I noticed among my plants that the vast majority have their leaves strongly tinged with purple at the base, and this was certainly the case with all these that flowered. In some few the base of the leaves was green, and it will be no surprise if these produce white flowers.

During this recent summer I became convinced that it has been my own fault that I have had comparatively few flowers on my *Regelia* Irises, though the plants have increased consider-

that the main root-fibres were much stouter and more mature than usual, and that the lateral rootlets had only developed in a very few cases.

The foliage of *I. Hoogiana* is very similar to that of *I. Korolkowii* and *I. stolonifera*. The leaves grow about 15 or 18 inches long by about $\frac{3}{4}$ inch in breadth and are of a slightly glaucous green. The stem is about 20 inches in height, and bears a single head of two or three flowers. The sharply keeled green spathes are from 3 to $3\frac{1}{2}$ inches long by nearly $\frac{3}{4}$ inch broad, and are slightly flushed with purple and membranous in the upper third. The pedicel is short, the ovary nearly an inch long, and the perianth tube slightly over an inch in length and striped with dark purple. The falls are 3 inches long by nearly $1\frac{1}{4}$ broad, the blade not being separated by any constriction from the broad, strap-shaped haft. The bright orange-yellow beard is not confined to the haft as in *I. Korolkowii*, but comes well on to the blade, where it ends in a sharp point. The standards are of the same uniform colour as the falls and grow gradually broader from the haft to a point near the apex. The haft is strongly bearded on the inner side. The style branches are of the same colour as the rest of the flower, the crests triangular and erect. The stigma is entire, the anthers are long, of the same colour as the filaments and the rest of the flower. The pollen is cream-coloured, and the seeds are of the usual *Regelia* and *Oncocyclus* type, namely, brown, wrinkled and pyriform with a conspicuous, large, cream-coloured aril. The capsule is long and narrow, with a tapering apex, and it dehisces below the apex as do those of the other *Regelia* Irises. The rhizomatous root-stock spreads rapidly by stolons which run freely in all directions, the new shoots often appearing at a distance of several inches from the parent growth. This feature is more marked in *I. Hoogiana* than in *I. Korolkowii*, but it is, I think, impossible to separate its rhizomes from those of *I. stolonifera*, when in a dormant condition.

My experience of three years' cultivation of this fine new species shows that it is exceptionally vigorous, even for a *Regelia* Iris, and it is not improbable that the comparatively pale uniform colour of its flowers will combine in hybrids to give us results more pleasing than those which have so far resulted from crosses of the *Regelia* species. I am alluding, of course, not to the *Regelia-cyclus* hybrids, which stand apart by themselves, but to the few crosses which appear to have been successful between *Regelia* Irises and various *Pogoniris*. In these the colour is always either lurid or dingy, a result which is doubtless due to the presence of the numerous colour factors which make up the beauty of such species as *Korolkowii* and *stolonifera*.

I. Hoogiana seems to be one of the very few species of Iris which can only be distinguished from its relatives by the colour of its flowers. As a general rule, colour has little value as a guide to specific rank among Irises, but in this case the absence of conspicuous veining and the uniform tone of the whole flower seem amply sufficient to separate this Iris from its nearest relatives, *I. Korolkowii* and *I. stolonifera*. W. R. Dykes, *Charterhouse, Godalming*.



FIG. 84.—IRIS HOOGIANA, A NEW SPECIES FROM TURKESTAN: COLOUR OF FLOWERS PALE LAVENDER.

new species to the brothers Hoog, who now, I believe, since the retirement of their uncle, Mr. C. G. Van Tubergen, junr., constitute the well-known Haarlem firm, and who, the one by his enterprise in introducing plants from foreign countries and the other by his skill as a hybridiser, have made so many valuable additions to the contents of our gardens.

Iris Hoogiana is remarkable for the fact that the flowers, unlike those of the other known members of the *Regelia* section, are of a uniform pale lavender set off by the brilliant orange beard of closely set hairs, which is broad along the haft but narrows to a sharp point on the

* *Iris Hoogiana* e sectione *Regelia* Iridibus *Korolkowii* et *stoloniferae* valde affinis sed floribus concoloribus aut lilacinis aut albis nec venosis facile distinguitur.

ably. For some years I have been in the habit of lifting the plants in June almost immediately after the flowers had faded. I did this owing to my anxiety to get the rhizomes out of the ground before the long root fibres had thrown out those lateral growths which anchor them into the ground and which, when once disturbed, never take hold of the soil again. I had more than once been disappointed to find, when the time to re-plant arrived early in October, that the roots of my plants had withered to a large extent instead of remaining plump and firm, as were those on rhizomes that I received from Haarlem. This year I determined to wait longer before uprooting the plants, and was rewarded when I finally took them up in the middle of July by finding

ORCHID NOTES AND CLEANINGS.

NEW HYBRIDS.

MESSRS. FLORY AND BLACK, Slough, send flowers of the following six new hybrids:—

LAELIO-CATTLEYA FLORENCE.—A showy flower, with the features of a dark *Cattleya Hardyana*. It was obtained by crossing *Laelio-Cattleya Dominiana langleyensis* with *Cattleya Carmen* (*Luddemauniana* × *Warszewiczii*). The sepals and petals are light rose colour, darker on the petals, which has also a silvery veining. The lip is deep crimson, with yellow blotches on each side, as in *Cattleya Warszewiczii*, and thin, gold-

TREES AND SHRUBS.

STUARTIA PSEUDO-CAMELLIA.

THE foliage of this Japanese shrub turns to a beautiful shade of pink before it falls in the autumn, and the plant is worth growing for that reason alone, even if it gives no flowers. It colours in partial shade as well as in full

coloured, branched lines running from the base to the centre.

LAELIO-CATTLEYA VERA (L.-C. Black Prince × C. labiata).—A fine, bold flower, with broad petals of a rose-pink tint. The front of the broad lip is reddish purple, the centre white with a yellow disc. The base is purple with white veining.

LAELIO-CATTLEYA WINNIE (L.-C. bletchleyensis × C. Carmen).—The flower is 8 inches across, its form following L.-C. bletchleyensis, to which

LAELIO-CATTLEYA HESTER (L.-C. Rubens × C. Pittiana).—In this pretty hybrid of medium size *Laelia pumila*, *Cattleya Hardyana*, *C. Dowiana* and *C. granulosa* Schofieldiana take part, and it is interesting to note that *C. granulosa* (as usual with well-defined species) asserts itself in the firm substance of the flower and in the constriction in the middle of the lip, in which, however, it is not capable of producing the separation of the middle and side lobes peculiar to



FIG. 85.—FLOWERING SHOOT OF STUARTIA PSEUDO-CAMELLIA.

the *C. Lueddemanniana* in *C. Carmen* adds increased size. The sepals and petals are pale lilac colour; the lip is purple with a white patch on each side of the central part.

LAELIO-CATTLEYA PALETTA (L.-C. Pallas × C. G. Roebling var. *Violetta*).—A large and finely-formed flower, with white sepals and petals tinged with lavender colour. The lip is rose-purple with darker veining, the disc being white shading to sulphur yellow. The base of the lip is purplish with pale yellow lines extending to the centre.

C. granulosa. The sepals and petals are cream-white tinged and veined with rose colour. The lip is claret red with gold lines.

BRASSO-LAELIO-CATTLEYA JEAN (B.-C. Digbyano-Mossiae × L.-C. Gottoiana).—In its main features this hybrid is nearest to a good form of L.-C. Gottoiana (*C. Warneri* × *L. tenebrosa*), but has a lip of more ample size and slightly fringed. The sepals and petals are of a light rose shade. The lip is mauve colour, changing to lilac towards the margin.

exposure, differing in this respect from *Parrotia* and other autumn colouring trees. The creamy-white flowers are very attractive; their resemblance to those of the single-flowered *Camellia* may be seen from the illustration (fig. 85). There is some doubt as to the hardiness of *Stuartia*, and I am not sure that it will prove perfectly hardy here. We have not experienced a very severe frost since our plants were put out in the spring of 1914. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

PACHYSANDRA TERMINALIS FOR PLANTING IN SHADE.

A WRITER in *The Florists' Exchange* (October 7, 1916) strongly recommends *Pachysandra terminalis* for planting in shade, for example, under trees, and claims that it proves successful in America under Beech and other trees where Periwinkle and Ivy fail. He recommends root cuttings for planting after a thorough preparation of the ground, and advises the pinching out of the tips in the year following planting. As a result four to six shoots break from the crown and assist in covering the ground. The rooted cuttings should be planted 6 inches apart in well-dug ground, and the cuttings should be watered in and receive, if possible, a mulch of leaf-mould. The plant serves as a good foil for permanently planted bulbs.

CRATAEGUS PYRACANTHA IN BUSH FORM.

THERE is still much room for a more extended cultivation of this *Crataegus*, in bush form, as stated by Mr. E. H. Jenkins (see p. 206), but I think he will find it more frequently planted as a bush in the public parks than he implies. It has been fruiting freely in the gardens along the river front at Kingston for some years past. There are many bushes in Kew Gardens, some of them 15 feet high, and they fruit profusely. I have seen it labelled *Buisson Ardent* (Burning Bush), and in most seasons it does not belie its name. At Kew the bushes are often netted to keep the blackbirds from devouring the fruit. This is seldom, if ever, necessary on the walls of private houses, and the berries hang till they get discoloured in spring. There is a fine variety named *C. P. Lalandei*, raised by M. Lalande, of Angers, about 1874. In 1895 I found quite a colony of this variety on the grass in Finsbury Park, planted by the late John Melville, who considered that it fruited more freely in the young state than the type. The bushes were only 2 feet high, and as much through, yet they were fruiting freely. The berries are larger and lighter in colour than the type, being of a yellow-red or shade of orange, whereas the typical form has coral-red berries. *C. Pyracantha* is the best evergreen flowering and berried shrub for a wall with a north aspect, while it fruits freely in any aspect. This is doubtless the reason why it is so universally grown as a wall shrub, because it supplies colour to the walls of suburban houses that otherwise would be dull in winter. The old genus, *Pyracantha*, has been revived by many botanists, and under this we find *P. coccinea* (the common species), *P. crenulata* from the Himalayas, and *P. angustifolia* (*Cotoneaster angustifolia*) from China. The two last are not very hardy, but two others from China promise to be hardy and free fruiting, and when they have been described and brought more fully into notice we shall see probably their cultivation as bushes widely extended. *J. F.*

PILOSTIGIA VIBURNOIDES.

LATE summer-flowering shrubs are scarce, and the introduction of this new plant, *Pilostigia viburnoides*,* has proved a great gain to gardeners, especially as the flowers remain in full beauty for many weeks. The creamy-white blooms are produced in profusion. The plant promises to prove hardy, and should soon become popular. *Edwin Beckett.*

VEGETABLES.

ONION SETS.

AN interesting article† in *The Seed World* records the fact that 1½ million bushels of Onion sets are raised in the Chicago territory, and

* Hook. f. and Thoms, *Journ. Linn. Soc.*, II., 76, t. 2 (1858), and A. Reider in *Plantae Wilsonianae*, Part II., p. 151.

† "The Onion Set Crop," *The Seed World*, Chicago, October 5, 1916.

that all of this immense quantity is grown within a radius of 30 miles from the city of Chicago. This industry is one of recent growth, and fifteen or twenty years ago not more than 20,000 bushels of sets were raised in this region. The raising of Onion sets is carried out largely by specialist growers, who cultivate for this purpose from 15 to 25 acres.

The seed used is Californian for the most part, but some is obtained from the Canaries and from Bermuda. The Chicago territory requires over 200,000 lbs. of seed per annum. From 60 to 70 lbs. of seed is sown to the acre. Sowing is done by a seeding machine driven either by hand or by horse, but the horse-propelled machine has not proved very satisfactory.

ONIONS.

IT is exactly twenty-two years since I first grew the whole crop of Onions from seeds sown under glass in early February, not in order to procure a heavier crop of bulbs, but to circumvent the Onion maggot, the practice of raising seedlings under glass dating long before that time, but only to produce a limited number of large bulbs. It is a fact, however, that quite seventy to eighty years ago Onions were raised in ordinary manure hotbeds and transplanted, as is customary at the present time in so many gardens. It is rare that Onions raised early and afterwards transplanted are attacked by maggot, and the crop, apart from the preservation of the plants, is so much increased in bulk that it is a wonder the practice has not become general. There is probably less labour involved in transplanting than in sowing in the open and the subsequent thinning; though I am aware that thinning sometimes forms no part of the culture. At first I allowed 6 inches between the plants, but 4 or 5 inches is quite wide enough for ordinary bulbs, and no doubt the weight per acre, if there were no casualties and the crop were even, would be enormous, and the net amount at present prices very gratifying to the cultivator. For ordinary purposes I may add that the old James' Keeping is as suitable as any for ordinary kitchen use, and by adopting this method of culture the Onion maggot is no longer a terror, while the crop is increased to a very great extent, with the expenditure of, at least, no more labour. *R. P. Brotherston.*

— The two short notes on a fine crop of Onions (pp. 193, 211) have interested me very much. I have always seen great possibilities of large returns from Onions grown as a field crop, and in these times, when large supplies of good, wholesome vegetables are very necessary, all should strive to get the best returns at the least possible cost of labour. In this garden, which is not a hundred yards from the seashore on the East Coast, with a sandy soil, the cultivation of all crops this season has been very difficult. Yet the Onion crop has been remarkable, and it may interest your readers to know that from a piece of ground, 28 yards by 15 yards, we harvested 1 ton 17 cwt. of splendid bulbs, all above the average. Considering that the seed was sown on April 3, the seedlings not thinned, and only hoed twice, through circumstances over which I had no control, I am naturally very gratified by such splendid returns. Large bulbs do not appeal to me, as experience has shown them to cause much waste in the kitchens of large houses, which is not the case when good, sound bulbs of average size are produced. For quantity, Sutton's Main-crop was the best, and for weight and quality Sutton's Brown Globe. Celery was the previous crop, and no manure was used since the Celery was planted. Nature is always very generous, and gives wonderful returns for real trustful toil, for, considering the present shortage of labour, returns, generally, in the gardens are excellent. *T. J. Powell, Bowdsey Manor Gardens, Woodbridge.*



THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

BULBS.—The planting of most kinds of bulbs should be concluded without delay. Daffodils may be planted in grass where it is convenient to do so, choosing varieties that will furnish a succession of bloom over a long period. Snowdrops, Scillas and *Chionodoxas* may also be planted in grass. Spanish Irises may be either set in groups or massed in beds and borders, in well-cultivated, sandy soil; plant the bulbs 4 inches apart. The colours of Spanish Irises are exceedingly beautiful, and include shades of yellow, blue, citron, orange-yellow and purple. English Irises will form a succession to the Spanish type, commencing to bloom two or three weeks later. The flowers are larger and no less beautiful. The plants require similar treatment, but the English Irises should be given a little more space between the bulbs. Directly the flower-buds are formed the development of the blooms may be hastened by placing spare lights over the plants. May-flowering, Darwin and late-flowering Tulips should be planted liberally, either in groups or singly in beds. The Snowflake (*Leucojum*) is suitable for naturalising in grass, mixed borders, shrubberies and wild gardens. It needs a well-drained, sandy soil. Plant the bulbs 2 inches deep and 4 inches apart.

CLIMBING ROSES.—Early planting is very important in the case of Climbing Roses, and the work should be completed in November. Follow the directions given on p. 194. Poles of Larch, Scotch Fir and Yew are suitable for making pergolas and arches to be covered with Roses and other climbers. Varieties of Roses suitable for training on walls, pergolas, trellis, trunks of trees and banks include Blush Rambler, which should find a place in every Rose garden; Dorothy Perkins and its sport, Dorothy Dennison; Excelsa, Flower of Fairfield, American Pillar, Gardenia, Hiawatha, Mrs. F. W. Flight and Waltham Rambler. Weeping standards of the Wichuraiana type may be planted in the background of herbaceous and mixed borders. Precautions should be taken to have a plentiful supply of dry Bracken Fern for protecting Tea and other tender Roses.

DAHLIAS.—Lift the roots of Dahlias for storing with great care, as the tubers are easily broken. Label each variety securely, and place the roots in cold frames or other convenient places to dry thoroughly before storing them in a cool, dry shed where frost cannot reach them.

MONTBRETIA.—The soil for Montbretias should drain freely, and this is especially necessary in gardens in cold, wet districts. The corms should now be lifted, divided, and re-planted. Mix decayed manure, leaf-mould, and sharp sand freely with the soil. Select the best corms for the flower garden, and plant the others in reserve quarters to increase the stock.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

EUPHORBIA JACQUINIAEFLORA.—The flowers of *Euphorbia jacquiniæflora* are developing. Grow the plants near to the roof-glass in a house having a night temperature of 55°, and a dry atmosphere. Admit a little air through the top ventilators on all favourable occasions, including warm nights. Water the plants with great care, as they are liable to go off at this time of year if watered carelessly.

PRIMULA OBCONICA.—Because of the poisonous properties of the leaves, *Primula obconica* should be grown in positions where it is not easily touched by those walking past it. A situation near to the roof-glass in a light house should be chosen, and the atmosphere should be kept dry and the temperature range from 45° to 50°. It is a most useful plant, for it flowers during the whole of the winter.

BEGONIA CORALLINA.—This beautiful Begonia is about to flower, therefore the plants should be placed in a position where the blooms may be seen to advantage. No position is more suitable than in a permanent border or hanging from the rafters of a greenhouse. The flowers of Begonia corallina are suitable for table decorations, and plants should be grown specially for supplying cut blooms. Cuttings root readily at almost any time of year in a propagating case with a little bottom heat. Whether the plants be grown in pots or planted out, the soil should be well drained. A light compost consisting of a mixture of loam, peat, leaf-mould and old mortar rubble is suitable.

FUCHSIA.—Old plants of Fuchsia which have finished flowering should be induced to rest. Reduce the supply of water to the roots gradually, and when the foliage begins to fall place the pots on their sides beneath a stage in a cool house. Young plants which were rooted in August are ready for shifting into larger pots. Keep them growing slowly in a light house or pit having a mean temperature of 50° or 55°.

VIOLETS.—Let the lights be drawn off the frames in which Violets are planted whenever the weather is favourable, and at all times (except when sharp frost is imminent) let the plants have an abundance of fresh air. Do not allow the roots to suffer for want of moisture; watering should be done on fine, bright mornings in order that the foliage may become dry before evening. Remove decayed foliage constantly, and keep a sharp watch for slugs.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq. Castleford, Gloucestershire.

WINTER TREATMENT OF ORCHIDS.—With the arrival of November the plants will need a modified treatment. No shade of any description is now needed, for the plants will require all the light available. In times of fog close all the ventilators and keep the houses at the normal temperatures. This will enable damping down to be done as usual, and the moisture thus created will help to keep out the fog. The temperatures of the various houses may be as follows:—

East Indian or warm house ...	60° to 70°
Cattleya house ...	58° to 65°
Intermediate house ...	55° to 60°
Odontoglossum or cool house...	50° to 55°
Cypripedium house ...	55° to 60°
Resting house ...	50° to 55°

The maximum temperature should be reached at mid-day, and the minimum temperature during the night. In very cold weather the temperature may be allowed to drop a few degrees all round, which is less likely to cause the plants harm than a large amount of fire-heat, which not only dries the atmosphere but favours the spread of insect pests, and especially thrips, red spider and cockroaches. Cockroaches do irreparable damage to the young roots and flowers, and must be destroyed by placing a suitable poison around their haunts; the bait should be varied, as the insects soon become accustomed to avoiding one kind. It is not necessary to examine the collection daily for watering; water should only be given to plants absolutely in need of it. Plants that have completed their season's growth require only sufficient water to maintain the pseudo-bulbs in a plump and rigid condition; but those that are producing their flower scapes may be treated more liberally in this respect. Plants in active growth should be arranged at the warmer end of their respective houses, and the compost kept just moist. Those Cattleyas—Laelio-Cattleyas, Brasso Cattleyas and others—that possess thick, fleshy flower-sheaths should be examined when the spikes are developing, and immediately after the blooms are cut, for moisture often accumulates at the base of the sheath, and occasionally sets up decay. If rotting is detected the decayed portion should be removed and the wound dusted with powdered charcoal, lime or sulphur, repeating the application until danger from disease has passed. All the houses should be thoroughly cleansed, washing the glass and woodwork and coating the walls with lime or cement. When the

plants are re-arranged on the stages examine them for insect pests, and sponge the leaves with soft water containing a little insecticide. Wash the pots and tie any growths that need a support to a thin, green stake.

CATTELEYA LABIATA.—As plants of Cattleya labiata and its numerous hybrids pass out of flower they may be re-potted or top-dressed, provided the roots are not far advanced, in which case the re-potting should be deferred until new growth begins. Plants that do not need attention at the root may be placed at the cooler end of the Cattleya house. Keep their surroundings fairly dry and guard against over-watering.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

GLOBE ARTICHOKE.—In cold districts and on heavy, wet soils it is a wise precaution to lift some of the old crowns of Globe Artichokes to ensure good stocks for spring planting. Pack the crowns closely together in boxes, with sufficient soil to cover the roots. Place the boxes containing the crowns in a cold frame, which should be protected during times of very inclement weather. If litter or dried Bracken Fern is used to cover the crowns in very cold weather this material should be removed during mild weather, for it might cause the crowns to decay through keeping them too close and moist. In warm districts Globe Artichokes survive the winter unprotected.

CLEARING THE GROUND.—By this time there is much vacant ground which may be prepared for planting next season. In view of the present shortage of labour and manure, do not burn refuse which will quickly decay, such as Brassica leaves and stems, Beet and Carrot tops, and weeds, with the exception of Couch, Bindweed and other perennials, but use it for manure. If dug deeply into the ground it will decay and form a valuable source of humus. But all kinds of garden prunings and anything of a woody nature should be burned and the ash stored in a dry place to supply potash.

CROPS IN FRAMES.—The atmosphere is very humid in November, and seedling Cauliflowers, Lettices, Parsley and other crops in cold frames need constant attention. Keep the atmosphere of the frames as dry as possible, removing the lights as often as is practicable. Weed and stir the surface soil between the plants on frequent occasions.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

PINEAPPLES.—Pine plants generally have matured their growth, and should receive rather more air and less water to encourage them to rest. As the days become shorter and colder lower the temperature gradually. All the plants, with the exception of young stock, should be in their winter quarters, the pots plunged close to the roof-glass in material that will supply a steady bottom-heat, but extra fire-heat is not necessary. Reduce the amount of spraying and watering gradually, as a check caused by withholding moisture suddenly might result in plants of the Early Queen variety sending up their inflorescences prematurely, which would be useless. If the hot-bed does not throw off sufficient moisture to charge the atmosphere, damp the floor and other available places, and keep the evaporating pans filled with water. The plants will require very little root waterings at this season, but each plant should be examined for watering at least once a week, and when it is seen that water is required soak the roots copiously. Those of the batch for successful fruiting require rather more moisture than the others. Plants comprising the younger stock should not be encouraged to grow much after this date, as late growth lacks substance. Give the roots of these younger plants only sufficient water to keep the plants healthy. Pines with the soil in a partial condition of dryness withstand a much lower temperature without injury than those kept moister. Suckers

potted late in the summer have filled their pots with roots, and if any need re-potting let them be attended to before the winter. The fires should be started early in the afternoons to prevent the temperature from falling too rapidly. In the early house the temperature may be 58° to 60° at night, and a bottom heat of 70° to 75° will be ample. Those for successional fruiting may be grown in a temperature of 55° to 60°, with a bottom heat of 70°. Take advantage of favourable weather to admit a little air at the top of the house, but close the ventilators early in the day.

STRAWBERRIES.—Let Strawberries in pots have every necessary attention, but nothing will be gained by coddling them through the winter. They may be fully exposed in the open, provided they are protected from cold winds and severe frosts, for if the least excited into growth when they should be resting the bloom will be less vigorous and not set perfectly. Water the plants with great care; the pots are filled with roots, and no extra attention afterwards will make good the injury done by neglect of watering at this stage. Keep the pots free of weeds and prevent the roots growing through the drainage hole into the material the pots are placed upon.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOLE, Eastwell Park, Kent.

PEACHES AND NECTARINES.—Outdoor Peaches and Nectarines have given very poor returns this season, but the trees must not be neglected on that account. During the past two or three decades the growing of Peaches out-of-doors has declined in favour of their cultivation under glass. But there is no reason why good Peaches and Nectarines should not be grown on walls outside. In many gardens there are warm corners with walls that are very suitable for the purpose, and they should be utilised to the best advantage. Failure with outdoor Peaches and Nectarines is more often due to errors of cultivation than unsuitability of soil or climate. Unsuited soils may be removed and a specially prepared compost employed for making the border. But even when the soil is suitable, and the trees grow well, neglect to thin the shoots sufficiently may account for failure. Those who intend to plant Peach trees this autumn should make the borders ready, and plant at the first favourable opportunity afterwards. It is an excellent plan to have a few maiden Peach trees in reserve for replacing failures in the houses or out-of-doors. When preparing the site for Peach trees, see that the drainage is perfect. The compost for the border should consist mainly of rich, sweet loam, with a liberal addition of lime or mortar-rubble, and charcoal or wood ash. No animal manure should be used. Trees for permanent positions on walls should be planted 20 feet apart, but maidens and very young trees may have less space, as they require to be transplanted every two or three years. Vacant spaces between these young trees may be utilised for growing either Cordou Pears, Apples Plums or Tomatos. Before planting examine the roots, remove all that are damaged, and shorten the strong, thong-like roots. Main roots that grow downwards into the subsoil cause the tree to make gross, unfruitful growth. Arrange the roots near to the surface, for this will help to keep them warmer and drier in winter. Make the ground fairly solid under the tree, which should stand quite firm on its roots. Work some of the finer soil amongst the latter, and spread them out evenly. When sufficient soil has been replaced to cover the roots, tread or ram the soil firmly. Do not attempt to plant when the soil is in a wet, pasty condition.

VARIETIES TO PLANT.—Dividing the trees into early, mid-season, and late varieties, the following sterling sorts may be recommended for planting:—Peaches: Hales' Early, Early Alfred, Duke of York, Rivers' Early York, Dymond, Barrington, Grosse Mignonne, Violette Hative, Sea Eagle, Thomas Rivers, Nectarine Peach and Late Devonian. Nectarines: Early Rivers, Goldoni, Lord Napier, Darwin, Erluge, Pine-apple, Chaucer, Milton, Newton, Spencer and Humboldt.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

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

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, NOVEMBER 7—

Roy. Hort. Soc. Com. meet. (Lecture at 3 p.m.)
Soc. Hort. Assoc. annual meet.

THURSDAY, NOVEMBER 9—

Nat. Chrys. Soc.'s Show, R.H.S. Hall (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 45.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, November 2 (10.0 a.m.): Bar. 29.4°; temp. 52.5°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Bulbs, at 67-68, Cheapside, by Protheroe and Morris, at 1 o'clock.

TUESDAY AND WEDNESDAY—

Fruit Trees, etc., at Creek Farm, Woodbridge, Suffolk, by Protheroe and Morris, at 12.30.

WEDNESDAY—

Bulbs, at 67-68, Cheapside, by Protheroe and Morris, at 12 and 2 o'clock.

Rose Trees, Perennials, Shrubs, Bulbs, etc., at Stevens's Rooms, King Street, Covent Garden, at 12.30.

THURSDAY—

Roses, in variety, at 67-68, Cheapside, by Protheroe and Morris, at 1 o'clock.

THURSDAY AND FRIDAY—

Nursery Stock at the Cranleigh Nurseries, Cranleigh, Surrey, by Protheroe and Morris, at 12.15 o'clock.

The Origin and Dissemination of Disease in Cultivated Plants.

Few subjects are so fascinating or so obscure as those which serve as the title for this article. Cultivated plants, like congeries of civilised human beings, appear to attract to themselves all the ills that flesh is heir to. In spite of, or because of, the attentions of the sanitary authorities, diseases continue to take their toll of cultivated plants and civilised communities, and all the measures of prevention which are devised serve for the most part only to stay the ravages of disease, and not to abolish them. It has been argued with some measure of cogency that this susceptibility to disease is the penalty which civilisation in the human community and its counterpart, cultivation, in the case of economic plants, pay for setting at naught the harsh decree of Nature, summed up in the formula of the struggle for existence: that

things no longer left to take their gruel-ling from Nature become soft and susceptible, so that they fall ready victims to epidemics of disease. Whether this be so or not the fact remains that the longer a plant is cultivated the larger appears to be the number of diseases to which it is apt to fall a prey. As time goes on new diseases, unknown to earlier authorities, make their appearance, and these new diseases not infrequently prove to be the worst. In certain cases it looks as though the agent of disease had trained itself for its new and fell work by a patient apprenticeship. Originally a harmless saprophyte living in decaying organic matter in the soil, the potentially pathogenic organism learns to attack the quick as well as the dead, and so bridges the somewhat narrow gap which separates saprophytism from parasitism. But in other cases this mode of origin of disease cannot be invoked, and the origin of such diseases, in so far as it relates to cultivated plants, remains a mystery. Now and again, however, a fact comes to light which is strongly suggestive that a new disease may be traced to its source of origin. Such, for example, is the striking fact discovered by Mr. Cotton that wart disease (black scab) of Potatoes may affect not only the cultivated Potato, but also wild species of Solanum, such as *S. nigrum* and *S. Dulcamara*. It may well be that this discovery is not of importance from the narrower practical point of view: that these wild Solanums are not serious accessories to the spread of wart disease. But from the point of view of the original source of infection of Potatoes, we are inclined to think that these observations are likely to prove of great significance. If the wild European species of Solanum have been subject from time immemorial to this disease it is certainly in accord with the leisurely inevitableness of Nature that a century or two should elapse before the long arm of coincidence stretched itself out and transferred the infecting organism from the Nightshade of the hedgerow to the Potato in the field. Here is a fine subject for investigation, and one which, if pursued, might lead to illuminating conclusions. Unfortunately everyone is becoming so severely practical nowadays that none dares to take up a line of investigation that does not hold out promise—generally false, by the by—of immediate results of economic importance. Are the wild Solanums of this country, or of Europe generally, attacked by this disease, or is it confined to the wild plants of restricted localities? Is the disease as virulent in its effects on the wild as it is on the cultivated plants, or have the former outgrown their extreme susceptibility to attack? Which way are the facts to be read: has the disease reached the Potato from the wild plants, or vice versa? It would be a situation not without irony if the practical cultivators were to be the first to recognise that science, if it is to be of most use to them, must first of all concern itself with the working out of causes, and leave the devising of palliatives and empirical remedies to less highly trained individuals. Simultaneously with Mr. Cotton's announcement of his observations—at the

conference held in connection with the Potato Exhibition at Ormskirk on October 25 and 26—Mr. Malthouse, who has done such admirable work in connection with the discovery of varieties resistant to wart disease, described striking observations on the means of distribution of wart disease. He finds that vegetable seedlings, Brassicas, Onions, and others grown in fields affected with wart disease, and sent out for sale up and down the country, carry with them in the soil attached to their roots the sporangia which contain the spores of the disease-producing organism. By cultivating susceptible Potatoes in soil containing the washings from the roots of these boxed seedlings he has obtained tubers showing all the manifest symptoms of wart disease.

It seems very probable that the curious geographical distribution of the disease and its localisation in the great industrial centres may find in part at least an explanation in this fact. Each seedsman's shop, with its little stock of vegetables ready for planting out, would serve as a source of infection, and the gardens of those who lack facilities for raising their own stocks of Brassicas, etc., and who purchase seedlings grown on soil infected with black scab, would be secondary centres for the distribution of the disease. The country districts, relying more on their own seedlings of Cauliflower, Cabbage and Onion, would be—at all events for a longer period—free from this source of infection. A study of railway connections and the markets reached by the "bedding out" vegetables raised in infected areas might throw further light on this hitherto insufficiently apprehended mode of dissemination of this most serious disease.

ORCHIS FOLIOSA.—The illustration in fig. 86 depicts a fine plant of *Orchis foliosa*, flowering in Miss WILLMOTT'S garden at Great Warley, Essex. The species is a native of Madeira, where it grows wild in woods and copses. It resembles *O. latifolia*, but is larger in all its parts, and has a distinctly three-lobed, flat lip, a shorter and more slender spur, and a taller stem. In some plants the leaves are maculated, but those in Miss WILLMOTT'S plant are unspotted. The flowers are produced in May, and they are usually purple; but the colour varies. They are disposed on a curved inflorescence that reaches a height of 1½ feet to 2½ feet.

R.H.S. FIXTURES FOR 1917.—The Council of the Royal Horticultural Society has fixed the following dates for the fortnightly and other meetings during 1917:—January 16, 30; February 13 (annual meeting), 27; March 6 and 7 (Bulb Show), 13, 27; April 11, 17, and 18 (Daffodil Show), 24; May 8, 22, 25, and 24 (Chelsea); June 5, 19; July 3, 4, and 5 (Summer Show), 17, 31 (Dry Bulbs); August 14, 28; September 11 (Dahlia), 25 (Vegetables); October 2 and 3 (Fruit Show), 9, 25; November 6, 20; December 4.

SALIX VIMINALIS AS A SNOW FENCE.—An interesting photograph in *Plant Immigrants* shows the use to which *Salix viminalis*, the Madeira Willow, is being put in the United States. Cuttings are planted to serve as snow fences along the line of the Long Island Railway. For this purpose the height of this Willow and its dense mat of branches make it an ideal subject.

LONDON CHILDREN'S GARDENS.—We learn from a report issued by the secretary that the R.I.S. is lending its encouragement to the excellent work which is done by the Society for the Organisation of Children's Gardens in London. This year Mr. ARTHUR W. STETTON, V.M.H., and Mr. JAMES HUDSON, V.M.H., were appointed to inspect the gardens, and these gentlemen have written a very sympathetic and interesting report of their visit to four of the plots cultivated by children. The plots visited are situated in Sutherland Avenue, Euston Crescent, Equity Buildings (Somers Town), and in Vauxhall Bridge Road. Everywhere the gardens showed evidence of the keenness and industry of the little gardeners: so keen, indeed, are they that their aspirations have to be settled by the drawing of lots. In illustration of the contagiousness of gardening the report mentions the fact that the tenants of houses neighbouring Euston Crescent take the greatest interest in the children's garden work, and have now, in a spirit of happy rivalry, started themselves to grow plants in window-boxes. The report mentions also the fact that a prospective site was inspected in Clerkenwell, and that although it is an excellent one, nothing can be attempted for lack of funds. We are sure that the admirable work being done by the society has only to be known by gardeners generally for them to lend support to the Children's Gardens' Fund, which is being put to such excellent service.

THE CORN CROPS.—The total production of Wheat in Canada, United States, India, European Russia (48 Governments), United Kingdom, Roumania, Italy, Switzerland, Spain, Japan, Egypt, Norway, Netherlands, and Tunis is given at 1,192,254,000 cwts., and of Barley, for the same countries with the exception of India, at 415,241,000 cwts.; while in the countries mentioned for Wheat the total production of Rye, with the omission of Roumania, Egypt, India, Japan and Tunis, is estimated at 468,476,000 cwts., and of Oats, with the exception of Egypt, India, Japan and Canada, at 784,258,000 cwts. These estimates represent increases of 14.8 per cent., 3.2 per cent. and 5.3 per cent. for Rye, Barley and Oats respectively, and a decrease of 7.3 per cent. in the case of Wheat, as compared with the corresponding average production in the years 1909-13.

PRUNUS PSEUDOCERASUS.—*Prunus pseudocerasus* of LINDLEY, a name sometimes, and wrongly, applied to the Japanese Flowering Cherry, is being cultivated in Northern California, whither it was introduced from Tangsi, in the Chekiang province of China. A report in the American Press states that in California it ripens its fruit a week or ten days earlier than the commercial varieties commonly grown here. The fruit is thin-skinned, of medium size, and of excellent flavour. The plant is a vigorous grower, and may prove of value not only for its own sake, but as a stock for other varieties.

FAST-SETTING CONCRETE.—Trials undertaken by the United States Bureau of Standards show that calcium chloride is a good accelerator for hardening concrete. By its use the increase in strength at forty-eight hours varies from 14 to 275 per cent. for the 1-2-4 mix and from 11 to 110 per cent. for the 1-1½-3 mix. In all but one case the concretes mixed with 4 per cent. of calcium chloride show greater strength for both mixes than for plain concrete, these results being consistent for all the ages tested, up to thirty days. This acceleration in strength is believed to be due to the more complete hydration of the silicates and aluminates in the setting of the cement. The use of calcium chloride increases the cost of concrete by 2s. to 2s. 6d. per cubic yard. For best results it is important that the concrete be mixed to a quaking, but not fluid, consistency.

COTTAGE GARDENING AT BIRMINGHAM.—Last year the Bishop of BIRMINGHAM started a scheme to encourage the cottagers and others in the Birmingham district to cultivate their gardens and grow flowers in window boxes. The scheme was so successful that a special society was formed to carry on the work with the title St. Mark's Amateur Gardening Society. In addition to money prizes and special prizes offered by nursery firms, the Royal Horticultural Society offered certificates to those whose efforts were worthy. Mr. S. S. SAUNDERS, headmaster of a local school, had the management of the scheme, and he is to be congratulated.

ton). The seed is of high food value, and the plant worthy of investigation as a garden vegetable.

COLOUR CHARTS AND STANDARDS.—A useful summary of the various attempts to define colour by means of charts, etc., is given by Mr. J. RAMSBOTTOM* in a paper entitled "Colour Standards." After referring to the standard works in present use among horticulturists, the French *Chrysanthemum* book, and RIDGWAY'S work, he concludes that there is much need of a cheap colour standard not containing too many colours. Mr. RAMSBOTTOM refers to the *Chronométrés de*



FIG. 86.—ORCHIS FOLIOSA FLOWERING IN MISS WILLMOTT'S GARDEN, GREAT WARLEY, ESSEX. (See p. 220)

lated on the splendid success this year. Many homes in the unattractive streets in some of the most thickly populated parts of the town have been brightened by flowers, and the back gardens have grown useful vegetables. The prizes and certificates were distributed by the Lady Mayoress, Mrs. NEVILLE CHAMBERLAIN, on the 19th ult.

THE CHICK PEA.—*Cicer arietinum*, the Garbanzo or Chick Pea, is said* to be accounted by many Spanish farmers as a plant second only in importance to Wheat. Introduced into California, it has proved successful, and has now been grown so far north as Spokane (Washing-

la Société Sténochromatique, which, according to Prof. BONNER, admits of a ready means of measuring colouration and of recognising variations impossible to detect at sight. It would be interesting to know what chromomètre is referred to. LOVIBOND'S tintometer, in common use in this country, is certainly not adapted for employment by anyone but an expert who makes constant use of it.

WAR ITEMS.—WILLIAM TEMPLE, formerly an employee of Messrs. ROBERT VEITCH AND SON, Exeter, has died from wounds in a military hospital. In the second month of the war he enlisted in the Coldstream Guards, and shortly

* *Plant Immigrants*, No. 115, February, 1916.

* *British Mycological Society Transactions*, 1915.

afterwards went to the Front, but was invalided home with shrapnel wounds. On recovering, he was sent again on active service, and was again invalided, dying in hospital, as stated, last month. He was 29 years of age, and leaves a young widow (to whom he was married at Reading early last summer) and daughter. He was apprenticed to Messrs. TILLIE AND TURNER, of Edinburgh, and before going to Exeter was shopman with Messrs. FIDLER AND SONS, of Reading.

— We regret to learn that CHARLES CRAIG, of the Sherwood Foresters (Chatsworth Rifles), has been badly wounded by shrapnel, and is at present in a military hospital in Manchester. He is the eldest son of Mr. DAVID CRAIG, gardener at Croston Hall, near Preston. Before enlisting he was employed in the gardens at Park Hall, Derbyshire, the residence of Mr. HILL-WOOD, M.P.

GERMANY AND DUTCH VEGETABLES.—Dutch market gardeners complain of the measures taken by the Germans in order to bring down prices of vegetables bought by them in Germany. Only a few buyers are allowed to get the produce, and this suppresses competition. The Dutch exporters, in agreement with the growers, have informed the Berlin Einkaufszentrale that in future they will refuse to send any produce except under the old conditions. The growers fear that otherwise one buyer will be sent to each market and practically rule the prices. If the Germans do not agree, all Dutch sales by auction will be stopped.

NOTICES OF BOOKS.

"THE GARDEN BLUE BOOK."*

This book affords yet another instance of the serious and methodical way in which Americans are treating outdoor gardening.

It may seem to some of us that there is a tendency to treat it over-seriously, that too much attention is being given to the shades of colour, height, and time of flowering of the more ordinary and showy plants, and that this may end in their being used in such stereotyped combinations in colour schemes for different periods as to rob many of them of their individual charms. We get the idea that plants are largely studied and experimented with across the Atlantic that they may be used as paints on a palette, or as coloured silks to work out schemes of decoration.

This book is cleverly planned to assist in such work, and provides ample information about 169 reliable perennials.

The charts inserted in the front of the book give the kernel of the whole work, and are wonderfully concise and full. By means of parallel columns one sees, first the number under which a full account of each plant may be found in the body of the book, and its Latin name followed by an English equivalent. Then follow seven spaces representing the months from April to October, each of which is filled with colour—green to show those months in which the plant is out of flower, and a shade representing as nearly as possible the colour of its blossoms for those months in which the flowers are borne. Next come spaces for the situation it is suited to grow in; these are sun, half shade, shade, wet, dry, and rock garden, and are filled in with black when the plant suits the particular condition described. The rest of the space is devoted to the height in feet reached by the plant.

This is the clearest and handiest method given in any book for telling a plant's qualities and requirements at a glance. The instructions for making a chart of a border for the various months, on cross-section paper, are both practical and suggestive. The main portion of the book consists of a photographic representa-

tion of each plant accompanied by a short description of its charms, uses and requirements, and much information, such as explanation of meaning and derivation of generic names, Natural Order, English names and native country. The opposite page provides a blank form, in which the owner can fill in notes and observations of his own as to the plant's behaviour from April to October during four years. Below this is another blank table, on which may be entered characteristics and uses of any allied but different plant. The business-like plan and details of the book are excellent, and the illustrations are good. It seems needless waste, though, that some are repeated on consecutive pages in cases where another colour variety of the same species is dealt with, and it is a pity that several illustrations represent different species from those described in the accompanying text. Thus *Centaurea ruthenica* is used to illustrate *C. macrocephala*, *Geranium ibericum* instead of *G. sanguineum*, *Gypsophila paniculata* has got on to the page belonging to *G. repens*, while what appears to be *G. gracilis* represents *paniculata*. The plant named *Iris sibirica* is certainly not that species, but is more likely a form of *I. longipetala*. It is strange to find the European plants *Lythrum Salicaria* and *Myosotis palustris* declared to come from Australia and E. Asia respectively. These are not very serious errors, however, and, taken as a whole, the book should prove of great use to any who wish to marshal their herbaceous plants with great nicety as regards height colour, and time of flowering. F. A. B.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CLUBBING IN BRASSICAS (see pp. 144, 174).—The soil of the kitchen garden here is of a close, retentive nature, and we were much troubled with clubbing of all Brassicas. It is a very old garden, and large quantities of stable manure have been used in the past. Some years ago I commenced using basic slag and a little artificial manure instead of animal dung, and now we seldom see a clubbed plant. The soil is much more easily worked, and we get good crops. Our Potatoes used to be inferior; now they are of the very best quality. We dig in during winter or early spring 10 lbs. of slag to each 40 square yards of ground, and at sowing or planting time work in a little of the following mixture:—5 parts superphosphate of lime, 2 parts sulphate of ammonia, 1 part muriate of potash, 2 parts bone meal. The past two seasons we have ploughed the ground with a single-horse plough, having no men for digging, and obtained good results. W. Priest, Eglington Gardens, Kilwinning.

NEW ZEALAND FLAX.—While travelling through New Zealand some years ago I noticed large areas of *Phormium tenax* (New Zealand Flax), partly natural and partly cultivated. As the fibre from this plant has become a leading article of commerce, I should like to draw attention to the great possibilities there appear to be for growing this Flax in the Southern English counties and in many parts of Ireland. I have seen plants growing in isolated clumps, not in the best situations, in Ireland, Cornwall, and Merionethshire equal to much that I saw in New Zealand. As this Flax will grow on sites practically useless for ordinary crops, it should prove a very valuable industry if it could be developed in the British Isles. P. Parker Smith.

PROPAGATING HYDRANGEA HORTENSIS (see p. 206).—In one establishment where I had very little convenience for propagating *Hydrangeas* in the usual way, I tried increasing them by layering, with good results. Short-jointed shoots on plants outside were cut slightly just under a leaf and layered in the second week of July, in the same manner as border Carnations. The shoots were pegged to the ground and covered with a little rough grit. The layers were kept moist, and rooted readily. They were severed from the old plants in four weeks, and potted into small 60-sized pots. They were transferred

to a frame that was kept closed, and afterwards hardened gradually, being finally placed in a sunny position for the buds to ripen. In the following February the plants were potted into 48's, and they flowered later satisfactorily. W. P.

FRUIT ON A STANDARD PEACH (see p. 210).—In 1914 I gathered 518 good, but rather small, ripe fruits from a spreading standard tree of Dymond. There were about the same number thinned from the tree. Even Sea Eagle ripens its fruits on this warm gravel in October on standard trees in the open. Goshawk and the Nectarine Peach have proved good bearers, but *Libra* is the best large, hardy Peach of good quality to follow *Hales' Early*. Will Taylor, Hampton, Middlesex.

— For several years past one or two Peach trees have fruited freely in our nurseries at Barnet and also at Highgate. In both cases we have been able to pick several dozen good fruits from each tree; the trees are about 8 feet to 9 feet high, with large heads. The variety which fruits freely with us at Highgate is *Clara Meyer*. We are not certain about the variety at Barnet, but it is of a very fine flavour and a good-sized fruit. We have frequently gathered fruit from this tree as late as November. W. Cutbush and Son, Highgate Nurseries.

THE PLANTING OF HERBACEOUS PAEONIES (see pp. 153, 187, 199, 211).—My advice is do not move *Paeonies* often. A deep, rich soil, on the loamy side and well drained, is essential for their culture. They should be planted at least four feet apart in each direction. An open position causes them to grow robust. Let the roots have copious waterings and manurial dressings during times of drought. Staking the stems before they are down is an important detail which must not be overlooked. James A. Paice, Aldenham Vicarage Gardens, Watford.

TERATOLOGY IN IRIS (see p. 203).—I was much interested in the valuable information given by Miss Armitage on the teratology of *Iris* flowers, but with regard to her belief that hybridity cannot encourage abnormality, I would say that, given a sufficient number of hybrids, between plants that can only cross with difficulty, it is sure to appear. The late Sir Michael Foster had once an *Oncocyclus* hybrid with flowers that might be described as a mix-up of parts. Bits of anther, I remember, were produced where they ought not to be, and, though I could hardly vouch for it after many years, I believe that even the leaves attempted to produce anthers. I have had a very similar case myself in *Nicotiana*—but with regard only to the flowers. I crossed *N. Tabacum* with, I think, *N. affinis*, and the resulting hybrid produced very much deformed flowers, and the flowers varied among themselves. They were chiefly *N. Tabacum* in appearance, but hybridity was unquestionable, I believe, and I should expect that crosses of *N. Tabacum* with another not nearly allied species might produce it again. I daresay I have to apologise to the *Gardeners' Chronicle* for not sending a note at the time. R. Irwin Lynch, Botanic Garden, Cambridge.

LEEK BULBS.—Mr. A. C. Bartlett, in *Gard. Chron.*, March 18, 1916, p. 163, drew attention to the excellence of Leek bulbs as a table vegetable. So excellent are they that I think it worth while to record their value. They are infinitely preferable to the ordinary blanched Leek, which is inclined when too large or old to be stringy, whereas the bulbs never seem—as far as I have known—to get hard, but literally "melt" in the eating, and are very mild and seductive in flavour. Some of my bulbs were larger than those illustrated in the issue for March 25, 1916—as large as a hen's egg—and if they could always be had this size it would be a decided economy to grow Leeks thus, for one usually gets two bulbs to a stem. Can any of your readers suggest a method by which to attain this result—i.e., two large bulbs to each plant? I fancy by planting retarded spring seedlings now one might have a full crop of bulbs by early summer, if not sooner, and that plot would then be available for an autumn crop. From what I have seen, I think one could take up the

* *The Garden Blue Book* By Leicester Poland Holland. (Horace Cox, Ltd., London.) 15s. net.

bulbs when large enough and store them in dry sand, to use as required. Can any reader give further advice on the culture of the *Leek* for bulbs? *Western Wight*.

COLLETTIA ARMATA, MIERS.—Of the species of *Colletia*, *C. armata* (fig. 87), is apparently the most amenable to cultivation in this country. It is a native of Southern Chili, and should be planted in sheltered situations, where it will be less exposed to injury by severe frosts than in the open, although in the districts in the south and west where the climate is more favourable the *Collettias* will thrive in the open. The illustration in fig. 87 is reproduced from a photograph of a spray of *C. armata* from a plant some 8 feet high growing on a sheltered west border at Kew. It will be seen that the shoot is freely clothed with small blossoms; these blossoms have a fragrance which is suggestive of the perfume of the Hawthorn. The small flowers are urn-shaped, and waxy-white in colour, with a slight rosy flush on the upper side, near the base. The upright branches are clothed with stiff bodkin-like spines, and comparatively few small leaves. The plants thrive best on a warm, well-drained border of light soil. They are usually propagated from cuttings. *A. O.*

PLANTING A LITTLE FRUIT GARDEN.—“What are the best 6 varieties of dessert Apples for bush trees of moderate growth on a light sandy soil in a small garden, giving fruit fairly freely of good quality of medium size, and as long a season as possible?” *A. Novice*, on page 198, asks the above elementary question, which all but the beginners know is an attempt not to disclose his knowledge, because such a question is part of the advanced examination of the most experienced fruit growers. Attempting to assist your readers and inviting criticism from *A. Novice*, but certainly not as deciding the matter, I name, for the Paradise stock:—Pyramids: Mr. Gladstone, Kerry Pippin, Allington Pippin, Cox's Orange Pippin, Pine Golden Pippin, Mannington Pearmain; Cordons: Irish Peach, Devonshire Quarrenden, James Grieve, Cox's Pomona, The Houbton, Claygate Pearmain. I should not plant cordons where there is room for pyramids. Many small gardens have room for both, therefore I give twelve varieties. American Mother is hardly good enough for its season. Where Mannington Pearmain fails to come clean, plant Lord Burghley. *Will Taylor, Hampton, Middlesex.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

OCTOBER 24. — *Present:* Mr. E. A. Bowles, M.A. (in the chair), Dr. J. A. Voelcker, Dr. A. B. Rendle, Col. Rawson, Messrs. A. Worsley, J. Fraser, W. Hales, W. Cuthbertson, and F. J. Chittenden (hon. sec.).

Sycamore leaf spot.—Mr. J. Fraser showed specimens of this common disease collected from Ockham Common, Surrey, and caused by the fungus *Rhytisma acerinum*, in which the leaves were almost entirely covered by the black spots which the fungus produces. The fungus hibernates on the dead leaves, and produces ascospores there which reinfect the tree in the succeeding year.

Variegated *Tropaeolums*.—Col. Rawson remarked that he found the plants of variegated *T. majus* which he showed at the last meeting liable to be attacked by black aphides, which congregated only on certain parts which were exposed to particular rays of light.

***Massonia jasminiflora*.**—Mr. Bowles exhibited a plant of this interesting species which had been figured in the *Bot. Mag.*, and which grows on the veldt at the Cape, whence the bulb from which this plant was derived came. The white flowers, which rise but little above the deep green foliage, are very sweetly scented. It had flowered in a garden at Waltham Cross.

***Plantago lanceolata*.**—Mr. Bowles also showed a scape of *Plantago lanceolata* measuring over a yard in length, which Mr. P. D. Williams had found on a very cold, wet clay near Lanarth, usually regarded as an infertile spot.

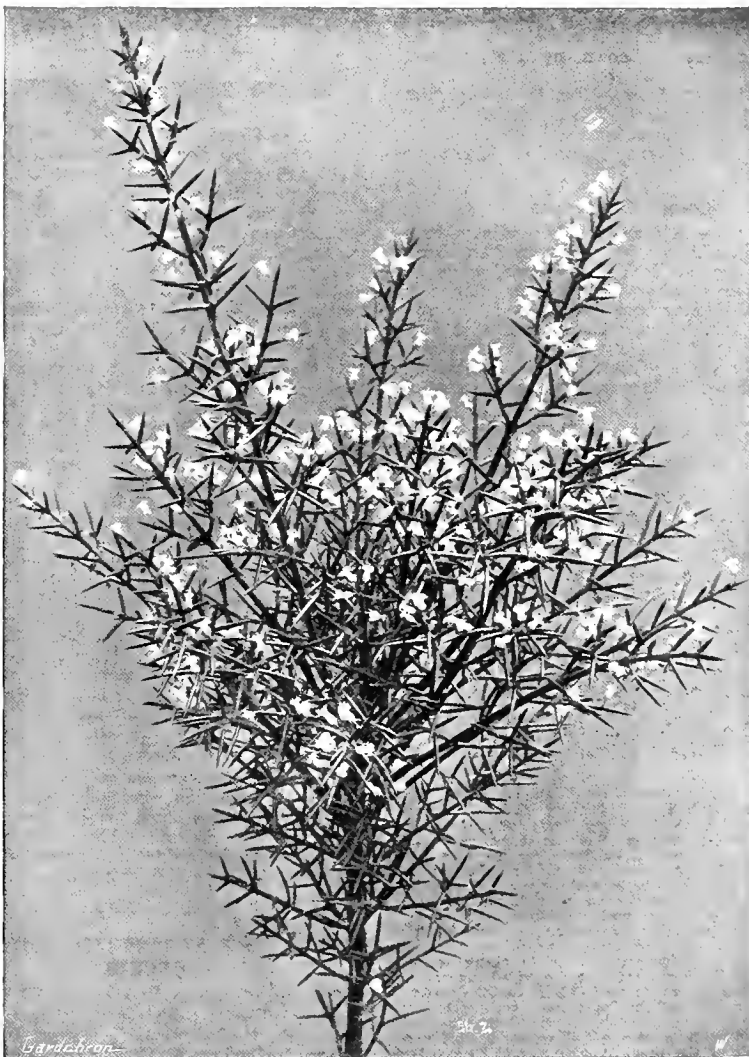
Colour Standards.—A letter from Mr. D. F. Kerr, of Kelowna, B.C., aroused a discussion concerning existing colour standards, and the criticisms to which they were open. It was thought, however, that the time was inopportune for attempting the necessary revision at present, desirable as the revision is.

Gall on Rose.—Mr. Cocks, of Winnipeg, Canada, sent a gall from a Rose measuring about 3 inches in diameter, which Dr. Rendle took for further examination.

Preservation of green colour in dried leaves.—Dr. Rendle showed a series of Fern fronds, some of which had been dried and exposed to the light for three years, to illustrate the value of the copper acetate method of preserving the colour. He gave the following account of the method:—A stock solution is made by saturating

Many plants, notably the leaves of evergreen shrubs, are more difficult and generally less satisfactory in the ultimate colour, probably owing to the presence of mucilaginous or decomposition products or tannins. These require long treatment, varying from 20 to 40 minutes; after the first immersion they turn yellowish, and then after action the yellow gradually gives place to green, generally olive green. Other plants, notably *Anacuba*, fail entirely as they pass from the yellow to a muddy brown or black colour. After treatment the plants should be washed (like photographic prints) in running water for about two hours. They are then dried under as light pressure as is compatible with keeping the plants from twisting, or after shaking off as much water as possible may be dried in sand.

In many cases the plants are rendered so flaccid



[Photograph by E. J. Wallis.]

FIG. 87.—FLOWERING BRANCH OF COLLETTIA ARMATA.

commercial strong acetic acid with powdered copper acetate. For treatment, dilute the stock solution with water in the proportion of 3 or 4 parts of water to one of stock solution. The solution is heated in a non-metallic vessel—a glass beaker being probably the most suitable—to boiling point; the specimen is placed in the boiling solution, which is kept boiling, for a time varying from 1 minute to 40 minutes, according to the action of the copper salt upon the plant. If the action is proceeding satisfactorily, a period of 1 to 5 minutes should suffice; the end of the operation is easily judged by the colour, or by treating two different specimens for different periods; a specimen that by such comparison appears to require longer treatment can always be reimmersed to get the desired effect.

by boiling that sand drying is difficult or impossible. Plants that have required long boiling not infrequently revert to a bad colour when sand dried. Young parts of plants green better than old; better results may be expected from “spring” leaves than from “autumn” leaves. Wooden (not metal) forceps should be used. An article on the subject by Professor Trail was published in the *New Bulletin*, p. 49, 1908.

NATIONAL CHRYSANTHEMUM.

OCTOBER 30.—There were 13 new varieties before the Floral Committee of the National Chrysanthemum Society at the Royal Horticultural Hall, Westminster, on the above date. The awards included two First-class Certificates, one

Colour Certificate, and two Cards of Commendation

FIRST-CLASS CERTIFICATES.

Chrysanthemum Gem.—A large, pure white single variety; the florets are numerous, and have reflexed tips. It appears to be a very free-flowering variety.

C. La Negresse.—An exceedingly fascinating Japanese bloom of market size. The colour is bright crimson, and the bronzy-golden reverse is freely shown at the tips of the outer florets, whilst those in the centre, being erect and sickle-shaped, display the bronzy-gold colour to the utmost. Both varieties were shown by Messrs. W. WELLS AND CO., LTD.

CARDS OF COMMENDATION.

C. Sweet Auburn.—A large, deep, terra-cotta-coloured single flower with a small disc. The pointed florets are of medium width, and the tips are reflexed. Shown by Mr. NORMAN DAVIS.

C. Mrs. J. A. Jones.—This is a very trim, perfectly formed flower of Mary Anderson type. It is of blush-white colour, and should become very popular. Shown by Messrs. W. WELLS AND CO., LTD.

COLOUR CERTIFICATE.

C. Supreme.—A beautiful deep velvety crimson single of large size. The "eye" measures but little over an inch in diameter, while the whole flower is fully 6 inches across. Shown by Messrs. W. WELLS AND CO., LTD.

The committee expressed a desire to see the variety Lady Ferguson again. It is a very broad, pure white exhibition Japanese variety, and was shown by Messrs. W. WELLS AND CO., LTD.

NATIONAL SWEET PEA.

OCTOBER 21.—There was a good attendance at the annual general meeting of the National Sweet Pea Society, which was held at the Royal Horticultural Hall on the 24th ult. The committee's annual report was submitted and adopted. It was decided to hold next year's show at Manchester instead of in London.

The financial statement showed that, including a withdrawal of £50 from the deposit account, the income amounted to £463 11s. 4d. The year's expenses were £438 16s. 2d., which left a balance of £24 13s. 2d.

Rules 15 and 17, relating to the working of the Floral Committee, were amended as follows:—

RULE 15—Each member of the Floral Committee shall be furnished with a card bearing his or her name and the number of the Sweet Pea trial upon which the Committee is voting. Such trial may be voted upon for a First-class Certificate or an Award of Merit upon the proposition of any member of the Committee. Voting to be by making a cross upon the card. The Trials Superintendent and Secretary will then check the voting cards, and the vote of any member who has voted for or against any variety in which he or she has any financial interest shall be struck out. A variety or trial failing to get a First-class Certificate after being voted upon may be voted upon for an Award of Merit on the proposition of any member of the Committee. On the occasion of further visits the members of the Committee shall be furnished with a new set of cards, be informed of the result of the previous voting, and be asked to confirm, modify, or alter the same. Lists of the names and sources of the novelties shall not be handed to the Floral Committee until the inspection is completed. The result of the voting having been ascertained in accordance with Rule 17, 18 and 19, a record of the same shall be entered by the Chairman or Secretary in the Trials Book.

RULE 17—The Silver Medal of the Society shall be provisionally awarded to the variety which the Committee consider the best at the trials each year, this being decided by the number of votes recorded. When two or more varieties have received the same number of votes a special vote shall be taken on them for the Medal by ballot on cards as in previous voting. The variety which at the time appears worthy of the distinction shall be reserved for the Silver Medal, and this shall be finally awarded the following season if the variety has kept true to type and colour.

The Officers and General Committee were re-appointed, and the following members were elected for the Floral Committee: Mr. A. Ireland, Mr. R. Bolton, Mr. T. Jones, Mr. E. H. Christy, Mr. G. H. Burt, Mr. W. H. Holloway, Mr. T. Stevenson, Mr. Geo. Herbert, and Mr. G. Baldwin.

Mr. E. W. King was re-elected President, and stated that as his Cup had been won outright he would be pleased to provide another.

BRITISH GARDENERS'.

OCTOBER 17.—A meeting of gardeners in the Kingston District was held on the above date, for the purpose of forming a local branch of the British Gardeners' Association. Mr. G. H. Head, Fulwell Park Gardens, presided.

Mr. Cyril Harding, general secretary of the Association, addressed the meeting, and stated that over a thousand of their members were on military service.

It was decided to form a Kingston branch of the British Gardeners' Association, and Mr. W. E. Evans, of Coombe Court Gardens, Kingston Hill, was appointed secretary pro. tem.

POTATO SHOW AND CONFERENCE AT ORMSKIRK.

OCTOBER 25 AND 26.—A Potato exhibition and conference, the second of the series, was held under the auspices of the Lancashire Farmers' Association and the Board of Agriculture at Ormskirk on the 25th and 26th ult. The competition was fairly keen, and the majority of the exhibits of very good quality, the competitive classes being filled chiefly by farmers and a few cottagers. A silver cup was offered by the Hon. A. Stanley to the exhibitor securing the highest number of points; the trophy was won by Messrs. J. and W. Birch, who also won the cup offered by the Countess of Derby to the most successful exhibitor in the show. An exhibit of varieties immune to wart disease, and others susceptible to the complaint, was staged by the Association. The immune varieties staged at last year's show again proved disease-resistant this year. Great Scot appeared to be one of the best varieties not only amongst the immune sorts, but also in the competitive classes. Gold Medals were awarded the varieties The Doctor and Kerr's Pink, as being excellent and heavy cropping sorts. Amongst those susceptible to wart disease Midlothian Early, Duke of York and Sharpe's Express were very noticeable.

At the conference scientific and practical men gave addresses, the speakers including Dr. F. Keeble, Director of the B.H.S. Gardens, Wisley, Mr. Rogers, of the Board of Agriculture, Mr. Cotton, Poyd Gardens, Kew, Mr. Cuthbertson, of Messrs. Dobbie and Co., Edinburgh, Mr. Davidson, and Mr. Ireland. In the course of discussion it was suggested that wart disease was distributed by vegetables and flowering plants sold in the open market from land infested with the disease. The question was put whether infection might not spread from wild Solanums in fields and hedgerows.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 19.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cynher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. Hanmer, Alwyn Harrison, A. J. Keeling, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Regina (*Dupreana* × *labiata*), *Odontoglossum armainvillierense* var. *Reine Blanche*, *O. eximium xanthotes* var. *Beauty*, and *Cypripedium Christopher* var. *Conyngnam* (*Actaea* × *Lecanum*), all from Dr. CRAVEN MOORE.

Laelio-Cattleya Serbia var. *Gipsy Queen* (*L.-C. St. Gothard* × *C. Enid*), from R. ASHWORTH, Esq.

L.-C. Wilks (*L.-C. Aphrodite alba* × *C. gigas Fran Melanie Beyrodt*), a fine albino, from P. SMITH, Esq.

Cattleya Oberon var. *Princess Royal* (*C. Fabia* × *C. Hardyana*), from W. R. LEE, Esq.

AWARDS OF MERIT.

Cattleya Fabia Conyngham var., *Laelio-Cattleya Zena* (*L.-C. Ophir* × *C. iridescens*), *Odontoglossum Exworth* (*eximium* × *Aircworth*), and *O. illustrissimum King Ferdinand*, all from Dr. CRAVEN MOORE.

Cattleya Adula var. *aurea*, *C. Corona alba* (*Mantini* × *Hardyana*), *C. Corona* var. *Mars*, and *C. Drapsiana* var. *Ruby* (*Mrs. Pitt* × *aurea*), all from P. SMITH, Esq.

C. Fabia var. *Grenadier*, and *Cirrhopetalum Rothschildianum Ashlands* var., both from R. ASHWORTH, Esq.

Brasso-Cattleya Marionae Carter Place var. and *Cattleya Hardyana Carter Place* var., both from TOM WORSLEY, Esq.

Odontoglossum crispum var. *Nonka*, from W. R. LEE, Esq.

Cattleya Saturn (*C. O'Brieniana alba* × *Gaskelliana alba*), from F. HOUGHTON, Esq.

Cattleya Miguclito (*Octave Doin* × *Dowiana aurea*), *C. Dragon* (*fulvescens* × *Fabia*), *C. Royal* (*aurea* × *labiata*), and *C. Oberon Risdene* var., all from Mr. ALWYN HARRISON.

C. General Smith-Dorrien Pleasington var. (*C. Maroni* × *C. Mantini*), from T. BUTLER, Esq.

Laelio-Cattleya Barbarossa var. *Colossa* (*L.-C. callistoglossa* × *Trianae*), from Mr. J. EVANS.

GROUPS.

The following Medals were awarded for groups:—

Silver-gilt Medal to R. ASHWORTH, Esq., Newchurch (gr. Mr. W. Gilden).

Large Silver Medals to Dr. CRAVEN MOORE, Victoria Park, Manchester (gr. Mr. Tom Arran), A. HANMER, Esq., Chester (gr. Mr. Palin), and MESSRS. CYPHER AND SONS, Cheltenham.

Silver Medals to Mr. ALWYN HARRISON, Sharnbrook, and MESSRS. KEELING AND SONS, Bradford.

THE SOLDIER'S GARDEN.

"SOMEWHERE IN FRANCE."

IN visiting one of the large bases of the British Expeditionary Force in France one cannot help noticing amongst the maze of huts and tents a distinct feature which has been introduced, quite voluntarily, by the soldiers themselves, namely, the soldiers' gardens.

As one wanders round this extensive city of huts, here and there can be seen attempts at horticulture of almost every description. The most striking and elaborate, perhaps, are those of the large hospitals in the district. As readers of the *Gardeners' Chronicle* are aware, plants and seeds were sent by the R.H.S. to many of the hospitals and camps in France. In the month of June, I found flower-beds of every size and shape brilliant with the commoner kinds of bedding plants. Paul Crampel Pelargoniums I noticed doing especially well. Lobelia, Calceolarias, Arabis, etc., were all flourishing. There were even a few small attempts at carpet bedding, which displayed either the name or the badge of the hospital in question. Grass lawns had been laid, and greatly added to the general beauty, notwithstanding the evident absence of the lawn mower. Small shrubberies had been planted, and isolated specimens were dotted here and there.

In the camp itself were many and various minor displays. Almost every orderly room had its small plot of garden in which Euonymus, Laurels, Brooms, Clematis, and again the commoner kinds of bedding plants thrived. The small beds and borders were in many cases adorned by an edging of chalk and large stones, and in some cases small rockeries had been constructed. Around officers' and sergeants' messes similar displays were to be seen. Here and there one came across Lettuces; the Cabbage varieties seemed to be most popular. Radishes were common, and even dwarf Kidney Beans, and, in one instance, I came across Scarlet Run-

ners trained neatly on strings and really doing remarkably well.

In another part of the camp I found a piece of spare ground which had been converted into quite a respectable kitchen garden. Potatoes, Peas, Lettuces, Celery and Radishes were all thriving, and here and there were odd plants of Thyme, Sage, and Parsley. The whole plot was surrounded by a neat fence, about 3 feet in height, evidently constructed with wood obtained from ration boxes, etc.

I was much amused at a small wooden hut, which I afterwards discovered was the camp telephone exchange, which possessed a garden certainly not more than 15 feet in width and 10 or 12 feet in length. Here I saw Sweet Peas in boxes on the small window-sill, Radishes in tiny borders on either side of the doorway, Lettuces on one side of the pathway, a "lawn" with a lilliputian flower-bed in the centre on the opposite side. Around this tiny garden was a small border, about 18 inches in width, in which various plants had been set, including Pansies, Violas, Mignonette, Pelargoniums and Stocks.

Some distance from the camp I found another fine display, a peaceful little spot which added a note of sadness to this gay city of mushroom growth—the burial ground of many fallen heroes, who had died in the hospitals of this base. Row upon row of graves, with their neat little wooden crosses, were decorated with flowering plants and shrubs of almost every description, and with which great pains had evidently been taken.

Strolling round this huge camp in the eventide one could see everywhere soldiers, with all sorts of improvised watering-cans, busy tending to their respective little gardens, in which they undoubtedly took a great pride. When one considers the disadvantages against which they worked—tools are scarce, leisure time perhaps scarcer, the difficulty of obtaining plants or seeds, and added to this the uncertainty of never knowing when the authorities may require the piece of ground selected for a garden—one must agree that the results obtained reflect great credit on their enterprise, and prove to what extent horticulture has become part and parcel of the Englishman's life. P.

LAW NOTE.

OVERHANGING TREES.

At the Kingston County Court on the 26th ult. a plaintiff sought for an injunction as to a big Elm tree in a neighbour's garden, alleged to be a danger to plaintiff.

The defendant made no appearance. Counsel for plaintiff said the gardens of the two gentlemen adjoined, and the massive Elm tree, 100 feet high, had been a cause of apprehension to his client. Branches had fallen on several occasions, and in March this year a big branch fell, crashing on to a fence, breaking tiles and windows, and narrowly injuring one of his servants. The fallen limb was estimated to weigh a ton, and 20 feet of fence was destroyed. Letters were sent to defendant, who promised to cut the tree. Nothing was done, and the next year plaintiff repeated his complaints, saying that if nothing was done he should cut off the overhanging branches himself. No notice was taken, and plaintiff engaged a man to cut off the overhanging branches.

Replying to the Judge, counsel said plaintiff wanted the tree entirely removed. He also claimed £9 for damages to the productivity of his garden through the defendant's overhanging Elm and Poplar trees. The whole—damages, repairs, etc.—came to £10.

His Honour ruled that the great danger of the tree had been plainly shown, and he ordered an injunction to lop all the branches of the Elm tree in such a manner as to do away with all danger from the said tree to the plaintiff's house and household. There would also be an injunction to lop all the branches off the other trees that hung over plaintiff's garden. Damages were awarded plaintiff to the extent of £5, together with costs.

Obituary.

HENRY BATCHELOR.—We learn with regret that Mr. Henry Batchelor died recently at Norwich in his seventy-seventh year. He was for over forty years in charge of the gardens at Catton Hall, the residence of Gurney Buxton, Esq. A generation ago Mr. Batchelor was a prominent exhibitor at the shows of the Norfolk and Norwich Horticultural Society. For a long time he served on the committee of that society, where his practical knowledge was of considerable help to the management. He was one of the few surviving founders of the East Anglian Horticultural Club, and deeply interested himself in the educational work of the club. The funeral service was attended by Mr. Edward Gurney Buxton, Mr. J. E. T. Pollard, hon. sec. Norfolk and Norwich Horticultural Society, Mr. T. Nottley, Mr. H. Perry and other members of the East Anglian Club.

SAMUEL SARPLES.—We learn with regret of the death, on the 19th ult., at Dallam Tower, Westmorland, of Samuel Sarples, aged 80. Mr. Sarples was gardener at Dallam Tower for 49 years. He was one of the most ardent and successful horticulturists in the North of England, and was always willing to give of his ripe experience for the benefit of others.

DEBATING SOCIETIES.

BATH GARDENERS.—A meeting of the Bath Gardeners' Society was held on the 23rd ult., Mr. T. Parrott occupying the chair. Mr. H. Griffin read a paper on "Potatoes." The long experience of the lecturer in the cultivation of this vegetable was fruitful in instructive advice and Mr. Griffin made a point of quoting extensively from statistics, thus adding interest to the subject.

BRISTOL AND DISTRICT GARDENERS.—At the meeting of this Association held on Thursday, the 26th ult., Mr. W. Griffin, a member of the Bath Association, read a paper on "The Cultivation of Crotons." Prizes offered by Miss Garaway for four dishes of ripe fruit were won by Mr. Jennings (1st), Mr. Thoday (2nd), and Mr. Scott (3rd).

WARGRAVE AND DISTRICT GARDENERS.—There was a record gathering of the members at the meeting on October 25, which was aptly termed "Potato night." Last March the committee decided to hold a competition in Potato growing, and Messrs. Waterer, Sons, and Crisp, of the Wargrave Plant Farm, kindly provided the seed tubers, at the same time withholding the name of the variety from the competitors. Twenty-six sets of "seed" were distributed, consisting of three Potatoes of about 2oz. each. Twenty exhibits were forthcoming at the meeting varying from 6lb. to 27½lb. in weight. The heaviest crops were staged by Mr. F. Sargeant (27½lb.), Mr. R. Munday (23½lb.), Mr. T. Haskett (20lb.), Mr. W. H. Easterling (18lb.), Mr. J. Ward (16lb.), and Mr. F. Pope (15lb.). Cutting the sets was not allowed. The judges considered weight and quality, and made their awards as follows: 1st, Mr. F. Sargeant; 2nd, Mr. T. Haskett; 3rd, Mr. R. Munday; and 4th, Mr. F. Pope. Taking the average of all the entries, 1lb. of "seed" produced just 40lb. of Potatoes, and with one exception all the tubers were free from disease. The variety was Arran Chief.

READING AND DISTRICT GARDENERS.—Mr. Alderman F. B. Parfitt presided at the fortnightly meeting of the Reading Gardeners' Association, held on Monday, the 30th ult. The subject for discussion, "The Close Cropping of the Garden During War-time," proved an exceedingly interesting one. It was introduced by Mr. Tubb, of The Gardens, Bear Wood. Vegetables have been grown in these gardens during the present time on a very large scale, and Mr. Tubb gave his experience in trying to produce a large supply by continually using every inch of ground, one crop following another as soon as the ground was cleared, also the advantage to be gained by sowing a late-maturing vegetable between the rows of an early kind. Mr. H. C. Leader, The Gardens, Erleigh Park, contributed a small but excellent collection of vegetables produced from seed sown during July and August on ground which had already produced early summer crops of vegetables. In a competition for three dishes of vegetables, distinct (Potatoes not admissible), open to single-handed gardeners only, Mr. A. W. Eggleton, The Gardens, Ashton Lodge, was placed 1st with good Autumn Giant Cauliflower, Matchless Brussels Sprouts, and Princess of Wales Tomatoes.

CATALOGUES RECEIVED.

DOBIE and Co., Edinburgh.—Seed Potatoes.
KARL THEBERGENSEN, The Rose Gardens, Kew, Southport.—Roses.

MARKETS.

COVENT GARDEN, November 1.

Cut Flowers, &c.: Average Wholesale Prices.		Wholesale Prices.	
	s.d.s.d.		s.d.s.d.
Arums, per doz.	3 0-4 0	Marguerites, yellow, per doz.	1 6-2 0
Bouvardia, white, per doz. bun.	6 0-8 0	— Cattleya Har- risonii ..	4 0-5 0
Carnations, per doz. blooms, best American varieties ..	2 0-3 0	— Cypridium ..	2 0-2 6
— Carola (crimson), ex. large	3 0-3 6	— Od on toglos- sum crispum	3 0-4 0
— Malmaison, per dozen blooms ..	8 0-12 0	Pelargonium, per doz. bunches, double scarlet	6 0 —
Chrysanthemum, white, per doz. blooms ..	2 0-4 0	Physalis, per doz. bunches ..	6 0-10 0
— pink, per doz. blooms ..	2 0-3 0	Roses; per dozen blooms—	
— yellow, per doz. blooms ..	2 0-3 0	— Frau Karl Druschki ..	2 0-2 6
— bronze, per doz. blooms ..	1 6-2 6	— Lady Hilling- don ..	1 6-2 6
— white, per doz. bunches	10 0-15 0	— Liberty ..	2 0-2 6
— coloured, per doz. bunches	9 0-12 0	— Madame A. Chateauy ..	1 6-2 6
— single bud- ded blooms, per doz. ..	2 0-4 0	— Melody ..	2 0-3 0
— sprays, per doz. bun.	18 0-24 0	— Mrs. J. Laing ..	1 6-2 0
Eucharis, per doz. blooms ..	3 0-3 6	— Niphotos ..	1 6-2 0
Gardenia, per box of 12 and 18 blooms ..	2 6-4 0	— Ophelia ..	2 6-3 0
Heather, white, per doz. bun.	12 0 —	— Prince de Bul- garie ..	1 6-2 6
Lilium longi- florum, long ..	2 9-3 0	— Richmond ..	2 0-2 6
— short ..	3 0 —	— Sunburst ..	2 6-3 0
— lanceifolium album, long ..	1 9-2 0	— White Craw- ford ..	1 6-2 6
— short ..	1 6-1 9	Stephanotis, per 72 pips ..	3 0 —
— lanceifolium rubrum, per doz., long ..	1 6-2 0	Tuberose, per pack et 24 blooms ..	1 6-2 0
— short ..	1 0-1 6	Violets, single, Princess of Wales, ..	3 0-4 0
Lily of the Val- ley, per dozen bunches:		— ordinary ..	1 6-1 9
— extra special	30 0-36 0	— double, Marie Louise ..	3 0-5 0
		— P a r m a s ..	
		— French, per bunch ..	3 0-3 6

REMARKS.

Cut flowers are a little more plentiful, but their prices show little change. White flowers are still very dear. Coloured bunched Chrysanthemums are a trifle cheaper. There is a good selection for buyers in white and coloured Chrysanthemum blooms; very fine specimens are offered from 9s. to 12s. per dozen. Medium-sized blooms are the least plentiful. Single Chrysanthemums are receiving more attention from buyers; they are being offered in various shades, both in spray and disbudded blooms. Richardias (Arums) are still a limited supply, and the stocks are soon cleared. The supplies of Carnations and Roses are scarcely sufficient for the demand, and choice blooms are soon sold. The best varieties of Roses are Mdm. Abel Chateauy, Melody, Sunburst, Ophelia, Liberty, Richmond and White Crawford. A few bunches of Lily of the Valley are arriving about two days a week; this flower is selling freely at high prices. Gardenias are becoming scarce; Stephanotis is practically over for this season. A few blooms of Eucharis and Tuberose, also bunches of White Bouvardia, sell freely. All foliage is getting scarcer.

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.s.d.	Ferns—Con.	s.d.s.d.
Aralia Sieboldii, dozen ..	5 0-6 0	— in 48's per doz.	6 0-7 0
Asparagus plu- mosus nanus, per doz. ..	10 0-12 0	— in 32's, per doz., 48's ..	12 0-18 0
— Sprengeri ..	8 0-10 0	— checker sorts, per doz., 48's ..	8 0-12 0
Aspidistra, per doz. green ..	24 0-36 0	— Geonoma gracilis, 60's, per doz. ..	6 0-8 0
— variegated ..	—	— larger, each ..	2 6-7 6
Begonia, Gloire de Lorraine, per doz., 48's	12 0-15 0	Kentia Belmore- ana, per doz. ..	4 0-8 0
Cacti, various, per tray of 15's	4 0 —	— larger, per doz. ..	18 0-36 0
— tray of 12's ..	5 0 —	— Forsteriana, 60's, per doz. ..	5 0-8 0
Chrysanthemum, per doz. ..	8 0-12 0	Latania borbon- ica, per doz. ..	12 0-30 0
Cocos Weddelli- ana, 48's, per doz. ..	18 0-30 0	Lilium longi- florum, per doz. ..	21 0-24 0
— 60's, per doz. ..	8 0-10 0	— lanceifolium rubrum ..	24 0-30 0
Croton, per doz. 18 0-30 0		— album ..	24 0-30 0
Erica gracilis ..	12 0-15 0	Marguerites, in 48's, per doz. ..	8 0-10 0
— thumb pots, per doz. ..	4 6-5 0	Pandanus Veitchii, per doz. ..	36 0-48 0
— nivalis ..	12 0-15 0	Phoenix rupi- cola, each ..	12 6-21 0
— thumb pots, per doz. ..	4 0-5 0	Solanum, 48's per doz. ..	9 0-10 0
Ferns, in thumbs, per 100 ..	10 0-15 0	— small and large 60's ..	14 0-24 0
— per 100, in small and large 60's ..	14 0-24 0	Spiraea, per doz. ..	8 0-10 0

REMARKS.—Business is more brisk in this department. There is a fair supply of Ericas, which remains the chief attraction. There is nothing new in the market. Solanums are improving in quality.

Vegetables: Average Wholesale Prices.

s.d.s.d.		s.d.s.d.	
Artichokes, Globe, per doz.	3 0-4 0	Lettuce, Cabbage and Cos, per doz.	0 4-1 3
- Jerusalem, per 1/2 bus.	3 0 -	Mushrooms, per lb.	1 3-1 9
Aubergines, per doz.	2 6-3 0	- Outdoor, per 1/2 sieve	5 0-7 0
Beetroot, per bus.	6 0 -	Mustard and Cress, per doz. punnets	1 0 -
Beans, French, per bus.	2 6 -	Onions, per bag	1 4 0 -
- Scarlet Runners, per bus.	3 6 -	- spring, per doz. bun.	8 0 -
Brussel Sprouts, per 1/2 bus.	2 6 -	Parsnips, per bus.	5 0 -
Cabbage, per tally	5 6 -	Radishes, per doz. bun.	1 0 -
- Red, per doz.	3 0 -	Savory, per tally	7 6 -
Carrots, per cwt.	7 0 -	Shallots, per lb.	0 3-0 3 1/2
Cauliflowers, per tally	10 0 -	Spinach, per bus.	1 6 -
Celeriac, per doz.	4 0-4 6	Tomatos, Eng., per doz. lbs.	6 0-6 6
Celery, per doz.	8 0-18 0	- "Pink"	6 0-6 6
Cucumbers, per flat	11 0-12 0	- "Blue"	4 6-5 6
Endive, per doz.	1 6 -	- Teneriffe, per bundle	12 0-16 0
Greens, per bus.	1 0 -	Turnips, new, per bag	4 0 -
Garlic, per cwt.	38 0-42 0	- Tops, per bus	2 0 -
Herbs, per doz. bun.	2 0-6 0	Vegetable Marrows, per tally	6 0-15 0
Horseradish, per bundle	2 6-3 0	Watercress, per doz.	0 6 -
Leeks, per doz.	3 0 -		

Fruit: Average Wholesale Prices.

s.d.s.d.		s.d.s.d.	
Almonds, per cwt.	70 0-75 0	Grapes.—Con.	
Apples—		- Black Allcante	0 6-1 6
- Californian Newtowns, per case	11 6-12 6	- Gros Colman, per lb.	0 9-2 0
- English Cooking, per bus.	7 0-10 0	- Canon Hall, per lb.	1 6-5 0
- Dessert, per 1/2 bus.	5 0-12 0	- Muscats, per lb.	1 3-5 0
- Nova Scotian barrels	28 0-32 0	Grape Fruit, per case	20 0 -
- Oregon, per case	15 0-17 0	Kent Cobs, per lb.	1 6-1 9
Asparagus, Paris Green, per bun.	5 6-6 0	Lemons, per case	24 0-44 0
Bananas, bunch—		Melons, Guernsey and English, each	1 6-3 0
- Medium	8 0-11 0	- Valencia, per case	12 6-16 0
- X-medium	10 0-13 0	Nuts, Brazils, new, per cwt	80 0-100 0
- Extra	12 0-15 0	- Coconuts per 100	25 0-28 0
- Double X	14 0-17 0	Oranges South African, per case	18 0-20 0
- Red, per ton	£25 0 -	Pears, English, per 1/2 sieve	7 0-12 0
Blackberries, per peck	3 0-4 0	- Californian (Blocks)	16 0-28 0
Chestnuts, per bag	22 0-32 0	- Keiffer, per barrel	40 0-50 0
Corn Cobs, per doz.	2 0-2 6	Plums, English, per 1/2 sieve	7 0-7 6
Cranberries, per case	16 0-17 0	Quinces, per half	5 0-6 0
Damsons, per 1/2 sieve	6 0-7 0	Walnuts, English, per doz. lbs.	6 0-8 0
Dates, per doz. boxes	8 6 -	- Doubles, per lb.	1 2-1 6
Grapes: English, Almeria, per brl.	14 0-25 0	- French, per bag	14 0-16 0

REMARKS.—The market continues to be well supplied with home-grown and imported Apples. Of Pears a good supply of English Doyenne du Comice, Californian Winter Nelis, and Glou Morceau is available. A few Plums and Damsons are still on offer, and Grapes continue plentiful, while Melons and Figs are also still obtainable. English Cobsnuts are scarce; Quinces appear to be more plentiful than usual. Imported Nuts consist of the following: Messina Cobs, Redon Chestnuts, Barcelonas, Faro Almonds and Brazils. English Tomatos are almost over, but Teneriffe varieties will soon be obtainable. The market is well supplied with all reasonable varieties of vegetables, and forced French Beans and Asparagus are available. Onions and Potatos continue scarce and expensive. E. H. R., Covent Garden Market, November 1, 1916.

Potatos.

s.d.s.d.		s.d.s.d.	
Kents	12 0-13 0	Lincoln.—Con.	
Bedfords	11 6-12 6	Eclipse	11 6-12 6
Lincoln—		Evergood	11 6-12 0
Blackland	11 0-11 6	King Edward	12 0-12 6

REMARKS.—Trade is slow at the increased prices. Consignments from growers are light, but quite equal to the demand. E. J. Newborn, Covent Garden and St. Pancras, November 1, 1916.

GARDENING APPOINTMENTS.

- Mr. Geo. Baxter, as Gardener to Mrs. L. R. Lowe, Gosfield Hall, Halstead, Essex.
- Mr. E. Griffin, discharged from military service and for six years Gardener to Col. M. O. LITTLE, C.B., Dunsmore, Rugby, as Gardener to Dr. H. WAYNEY BUCKHOLD, Pangbourne, Berkshire. [Thanks for 2s. for R.G.O.F. box.—EDS.]
- Mr. Robert Duthie, for the past six years Gardener at the Chief Secretary's Lodge, Dublin, as Gardener, under H.M. Office of Public Works (Ireland), at the Vice-regal Lodge, Phoenix Park, Dublin.

ANSWERS TO CORRESPONDENTS.

DISEASED PEACHES: J. D. T. A fungus—Gloeosporium laticolor—is the cause of injury both to the shoots and fruit. Remove all diseased wood, and spray the trees in the spring, when the leaves are unfolding, and again just before the flowering period, with lime-sulphur mixture. Bordeaux mixture must not be used.

FIG TREES DISEASED: T. S. The trees are affected with disease, caused by the fungus Cercospora Bolleana. Collect and burn all diseased leaves, including fallen foliage. Spray the trees with diluted Bordeaux mixture now and again in the spring when fresh leaves develop, continuing the treatment at intervals during the season.

INSECT ON INDOOR PLANTS: D. W. The small white fly on your plants is a species of Aleyrodes. An application of one of the vaporising compounds is usually successful, but if this has been tried and it has failed, you might use hydrocyanic acid gas, which is more powerful. This gas is exceedingly poisonous, so that the operation must be done with the greatest care, and only by a thoroughly responsible

Caen.—J. H. P., Arley. No. 1, Apple Reinette de Canada Grise; 2, Dean's Codlin.—F. C. Apple Potts' Seedling.—W. C. Y. Not recognised; probably a local variety.—E. P. White Westling.—J. J. W. Apple Cellini.—A. H. C. 1, Apple Roundway's Magnum Bonum; 2, Sanspareil.—W. D. and S. De-cayed.—W. C. 1, Apple Hanwell Souring; 2, Winter Strawberry; 3, not recognised.—H. G. 1, Apple Fearn's Pippin; 2, Scarlet Golden Pippin; 3, Lady Apple; 4, Scarlet Pearmain; 5 and 8, Worcester Pearmain; 6, Bess Pool; 7, Twenty Ounce; 9, Pear Autumn Bergamot.—J. H. and Son. Pear Durondeau.

NAMES OF PLANTS: W. A. H. Agathaea coelestis.—W. C. 1, Cotoneaster microphylla; 2, too small to identify; 3, Eucalyptus Globulus; 4, Caryopteris Mastacanthus; 5, Cedrus atlantica; 6, Cryptomeria japonica; 7, too small to identify; 8, Aucuba japonica; 9 and 11, Cupressus Lawsoniana vars.; 10, Thuja orientalis var. ericoides.—F. D. and Co. Crataegus prunifolia.—Liphook. 1, Send in flower; 2, Gesnera (Naegelia) zebrina; 3, Euphorbia splendens; 4, Impatiens Sultani; 5, Callicarpa purpurea; 6, Bougainvillea glabra; 7, Cotoneaster microphylla; 8, Cotoneaster horizontalis.—A. H. C. Begonia Corbelle de Feu.



FIG. 88.—OXALIS ENNEAPHYLLA: FLOWERS WHITE.

person. Each house to be treated should be carefully measured, as the proportions to be used depend on the size of the building. They are as follows:—Sodium cyanide, 1/2 oz.; phosphoric acid, 1/2 oz.; water, 1/2 oz.; for each 1,000 cubic feet. Be careful to obtain perfectly pure acids, and to use the exact amounts given. At the strengths given the plants will not be damaged; one application is sufficient to kill green fly, and will probably be adequate for white fly. You may, however, double the quantities of all the ingredients, in which case it is possible that the young foliage of some of the plants will be injured. The best results are obtained by fumigating the house at dusk, and leaving it closed until the following morning. The plants must be perfectly dry; the temperature must not exceed 60°. The acid must not be placed in any metal vessel, or in paper, and the cyanide must be dropped into it direct. During fumigation the house must be tightly closed, leaving no chink whereby the gas could escape; and after it is opened care must be taken to see that no one enters it until it has become thoroughly aired. For fuller particulars see Gard. Chron., July 25, 1914, p. 65.

NAMES OF FRUITS: W. J. C. Probably Beurré Bosc.—J. E. D., Glamorgan. Pear Beurré de

PROPAGATION OF OXALIS ENNEAPHYLLA AND DIANTHUS ALPINUS ALBUS: Terry Lee. Oxalis enneaphylla (see fig. 88) is most easily propagated in the autumn, when the foliage has died down. Turn the plant out of the pot or pan, or take it up if planted out, and shake all the soil off the root-stock. The latter, in the form of an elongated, scaly bulb, may then be divided into small pieces, each containing an eye or growing point. Pot the portions singly in small pots, using a mixture of very sandy or gritty soil, and grow them in a cold frame for the winter. Very careful watering is necessary until they start to grow in the spring. Dianthus alpinus may be increased by means of cuttings inserted in summer. The shoots strike readily in sandy soil in a close frame, which should be kept moist. Pot the plants singly as soon as they are sufficiently rooted in gritty loam, to which some growers add a little peat, but the soil should contain no lime. By the spring the plants should be large enough to plant out.

Communications Received.—H. F. M.—E. B. Julius, Oporto.—G. J. I.—W. H. A.—R. Farrer—Constant Reader.—Mrs. W. G. C.—F. F. M.—W. T.—H. S. N. S. & S.—A. C. G.—A. J. Gaskell—B. W.—L. M.—N. P. U.S.A.—Vaughan Bros., Chicago.—E. S.—Fech Lover—J. P.—R. E. R.—E. C.—A. H. P.



THE

Gardeners' Chronicle

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HELIANTHEMUM POLIFOLIUM × CHAMAECISTUS.

IN July, 1883, I had the good fortune to discover *Helianthemum polifolium* on Purn Hill, Bleadon, Somerset, together with a pale yellow-flowered plant, apparently intermediate between the White Rock Rose and the common yellow one. In September of that year the late David Fry, of Bristol, independently came across the former plant only, and he recorded it in *Journ. Bot.*, Oct., 1883. My own finds were briefly recorded in *The Nat. Hist. Journal and School Reporter*, York, Nov., 1883. The specimens are still in my herbarium.

At the Linnean Society meeting of February 4, 1909, the Rev. E. S. Marshall showed dried specimens of five interesting British plants, including *H. Chamaecistus* × *polifolium* from Purn Hill, which he described as "a good intermediate; apparently quite fertile." I mention these facts because it happens that they are not correctly stated either in Murray's *Flora of Somerset*, 1896, or in Mr. White's most excellent *Flora of Bristol*, 1912. In the former work Mr. Fry's record from Purn Hill, Bleadon, is correctly given, but my own finds were stated as from "Bleadon Hill," which is a more extensive hill further inland, where *H. polifolium* is not known to grow. The mistake in the name was my own. Although my friend, Mr. J. W. White, credited me with the discovery of the hybrid, he did not remember in 1912 that Mr. Fry's discovery of *H. polifolium* was antedated by a few weeks. It is, indeed, strange that so

beautiful and conspicuous a plant had apparently never before been noticed by botanists on this mass of limestone, which forms an outlier of the Mendip Hills, some three miles inland from the promontory of Breaun Down, where *H. polifolium* had been known since Dr. Plukenet found it, and Ray recorded it in 1688. Ray's error in speaking of Breaun Downs was copied by many subsequent writers, and it was a natural mistake to fall into, for Breaun is the adjoining parish to that of Breaun.

Purn Hill is grazed by sheep, and a good deal of gorse covers the more sunny and rocky slope. On July 5, 1915, I again visited Purn Hill, but owing to a very severe hailstorm the previous day not a blossom of the Rock Rose could be seen. So in May this year I made two journeys to the spot, photographed plants *in situ*, gathered a good series of specimens for distribution, and investigated the present distribution of both *polifolium* and the hybrid. I was delighted to find both plants now covering a large area of the rocky hillside facing the Bristol Channel, extending in profusion over the turf on the ridge of the hill, but no further. They had, moreover, got well established beyond two dividing walls, as far as the edge of a quarry on the southern extremity of the hill, and a little *polifolium* could be seen under some Scots Pines in a small wood adjoining.

There is more of the primrose-coloured hybrid than of the ordinary yellow species, and the intermediates are very variable, both in the shape and colour of the petals and in the leaves. Primrose, with a darker yellow eye, is the prevailing colour. A very few specimens were streaked with red. So were some orange-coloured flowers of *H. Chamaecistus* gathered later near Shipham on Mendip. This is not surprising, for we know what the genus is in cultivation, and there are gorgeous arrays of pinks, reds, and yellows in the Maritime and Ligurian Alps, all colour forms or varieties of *H. Chamaecistus*, if we take the broadest view of species. At Purn Hill most of the plants are small, and often not so woody as many on Breaun Down. On my second visit this year I walked from Bleadon on to Breaun Down, and was struck with the rather larger size of many of the flowers of *H. polifolium* there than on the mainland. I did not on Breaun Down, nor did another botanist this summer, nor Mr. E. S. Marshall, in 1905 (*Journ. Bot.*, 1906, p. 117), observe any *H. Chamaecistus*; but we understand it exists there, and on June 14 of this year a party from Sidcot School gathered on Breaun Down a pale yellow form. Unfortunately the specimen was not kept, but it is possible it was an intermediate. The same applies to pale yellow forms seen at Breaun Down years ago by Mr. A. E. Hudd, a well-known Bristol entomologist, who mentioned it at a recent meeting of the Bristol Naturalists' Society. It is curious there is no trace of the White Rock Rose on the broken limestone ground of Uphill, which hill lies between Breaun Down and Purn Hill, and is separated from the former by the tidal River Axe and a stretch of salt marshes, and from the latter only by a neck of land through which the G.W.R. passes in a cutting.

In Britain, *H. polifolium* is confined to these two localities in N. Somerset, and to the neighbourhood of Torquay. In France it is frequent on limestone hillocks, and it is fairly widely spread over central and southern Europe. Of the hybrid, Dr. Focke says it "has been found growing wild in various forms, which seem to eliminate the differences between the two species, so that they have been taken for races of one and the same species." (*Pflanzenmischlingen*, p. 45.)

A very interesting form of *H. Chamaecistus*, "with pale primrose flowers, petals smaller, narrower, not overlapping," was found near Hitchin, in 1913, by my friend, Mr. J. E. Little, as recorded in the *Thirtieth Annual Report of the Watson Bot. Exch. Club* (1915), p. 454. The specimens were commented upon, chiefly from

the Mendelian standpoint, by Mr. A. G. Willmott, of the British Museum, and he has seen both primrose and orange-coloured forms in Cambridgeshire. Mr. Little tells me there were very few in his locality, though the type plant was abundant, and that nothing further had been decided in the matter. Miss Ida Roper has shown me white-flowered specimens gathered on Mendip in 1913.

The whole district from Bleadon to Breaun Down is very interesting botanically, and it forms the centre of distribution in England of the rare grass *Koeleria valesiaca*. This was discovered new to these islands in 1904, thanks to the enterprise of Mr. G. C. Druce, who got a clue to the possible presence of the grass at Breaun Down and Uphill when preparing a memoir of Dillenius and an account of his collections. I have seen *K. valesiaca* growing with the White Rock Rose at Purn Hill. Other rare plants growing in this district are *Linosyris vulgaris*, in small quantity, *Carex humilis*, *Cerastium pumilum*, and *Erodium moschatum* var. *minor*. *H. Stuart Thompson*.

ORCHID NOTES AND CLEANINGS.

ODONTOGLOSSUMS FROM WALTON GRANGE.

Mr. J. Howes, gardener to William Thompson, Esq., Walton Grange, Stone, kindly sends flowers of some of the hybrid *Odontoglossums* raised in the famous collection under his care.

ODONTOGLOSSUM MIRANDUS ranks with the very finest hybrid *Odontoglossums* at all points. The sepals and petals, which overlap, well fill in the flower and make it florally perfect. The sepals and petals are white, with a purplish shade from the colouring on the reverse side, which is almost as bright as on the face. The inner two-thirds of the segments are showily blotched with claret-red, the lip, which has a yellow crest, having one large reddish purple blotch and some smaller ones at the side.

ODONTOGLOSSUM MEDUSA is equally showy and fine in form, the segments being blotched and tinged with brownish-claret colour. The broad white lip has a yellow crest and numerous purple markings on the basal half.

The others include a five-flowered branch of a large spike taken from an unnamed seedling which, although not so fine in shape as those already named, is desirable for the clear light violet colouring of the blotches on its white flowers; *Odontoglossum Waltoniense* (*crispum* × *polyxanthum*), with canary-yellow flowers, with two or three chestnut red spots in the sepals; a very dark hybrid of the *O. Wilsonii* class, whose chief feature is the very broad claret-coloured lip, with narrow white margin; and *Odontoglossum Arnoldianum* (from the Brackenhurst collection), a very dark-coloured flower, of the *O. percutum* class, for which an Award of Merit was given by the Royal Horticultural Society, April 19, 1910.

CATLEYA FABIA REX.

At this season the many varieties of *Catleya Fabia* (*labiata* × *Dowiana aurea*) are among the most attractive hybrids in Orchid collections—*C. Fabia Rex* is one of the best and richest in colour. A splendid bloom of it is sent by Mr. J. Howes. All the segments are broad, the petals being 4 inches in length and 3 inches in width. The sepals and petals are vivid rosy-mauve colour, with a small white base around the column. The base of the lip, which is finely crimped in front, is coloured like the petals and veined with deep Indian yellow inside. The front and margins of the side lobes is deep claret red. On each side of the middle portion of the lip is a shaded orange patch, and the column is bluish-white, tipped with pure white. The flower is very fragrant.

NEW OR NOTEWORTHY PLANTS.

SPECIES OF PIPTANTHUS IN CULTIVATION.

WHEN naming for the *Plantae Wilsonianae* the Leguminosae collected by Wilson in China I was faced—not for the first time—with the question of the occurrence of *Piptanthus nepalensis* in China, and it was with grave misgivings that Wilson's specimens were referred to that species. At this time the genus comprised two species—the original *P. nepalensis*, based on plants grown in this country from seed imported from Nepal; and *P. tomentosus*, described by Franchet, from Delavay's collection. Both of these species are in cultivation here in the Royal Botanic Gardens, Edinburgh, and a casual glance at the two plants is sufficient to dispel any doubts as to the two species being quite distinct.



FIG. 89.—SENECIO LAXIFOLIUS IN ALDENHAM HOUSE GARDENS, HERTFORDSHIRE.

In addition to these two species there are in cultivation here three other Chinese plants, two of which have been recognised for some time by the staff of the garden as distinct. The third one was introduced only last year, but it is represented by a dried specimen collected by Forrest. Of the two older plants, one* was raised from seed collected by Wilson and bears the same number as his herbarium specimens, which I had previously referred to *P. nepalensis*. The other, which is here described as *P. bicolor*, was grown from seed collected by Forrest in Yunnan, and is the plant identified by Diels as *P. nepalensis* in his enumeration of Forrest's Chinese plants.

The genus, with the present contribution, now comprises five species—one Himalayan and four Chinese—all represented under cultivation in this country. Of the Chinese species we are indebted to Forrest for the introduction of three (*P. tomentosus*, *P. bicolor*, and *P. Forrestii*), and to Wilson for one (*P. concolor*).

Excluding *P. Forrestii*, of which no fruit has been seen, we find that the Indian species can be

* Also referred to in *Gard. Chron.*, LV., p. 373, by Beckett as distinct from *P. nepalensis*.

readily distinguished from the Chinese species by the dimensions, and more especially by the breadth of the fruit—a character, however, which is not always available. In *P. nepalensis* the fruit is 16 to 19 mm., or almost 2 cm. broad, whereas in the three Chinese species the fruit is only 6 to 12 mm. broad.

Appended is a simple artificial key, which, based on the plants as grown here, and founded on easily seen characters, may prove of use in distinguishing the species.

In conclusion, I wish to express my indebtedness to the Regius Keeper for kindly placing at my disposal specimens of all the species enumerated. W. G. Craib.

ARTIFICIAL KEY TO THE SPECIES.

- Both surfaces of leaflets hairy, young leaf-bearing branchlets hairy. Both surfaces of leaflets with short adpressed scarcely conspicuous hairs *P. Forrestii*
 Both surfaces of leaflets with long adpressed hairs, those on the lower very dense *P. tomentosus*

apice bilobam, lobis deltoideis acutis 3-5 mm. longis mox recurvis, connatae, dorso pilosae, ciliatae; foliola plerumque lanceolata vel late lanceolata, lateralia inferne inaequilateralis, omnia apice acuta vel breviter acute subacuminata, basi cuneata, usque ad 8.5 cm. longa et 3.2 cm. lata, chartacea vel subcoriacea, pagina superiore glabra vel interdum costa sparse alba-pilosa, inferiore pallida, parce pilosa, pilis fere omnibus ad costam nervos nervulosque zitis, ciliata, nervis lateralibus utrinque 8-11 intra marginem anastomosantibus supra conspicuis subtus cum costa prominentibus, nervulis subtus conspicuis. Inflorescentia generis, internodiis angulatis circa 2 cm. longis parce pilosis; bracteae 12 mm. longae, 7 mm. latae, extra pilosae, intra parce pubescentes, ciliatae; pedicelli circa 2 cm. longi, pilosi. Calyx 11 mm. longus, extra pilosus, tubo intra glabro, lobis intra praesertim superne tomentellis, lateralibus cum infimo mox reflexis; lobi duo supremi in unum 5-6 mm. longum apice bilobum lobulis hand divergentibus connati, laterales et infimus 6-7 mm. longi, basi 2-2.5 mm. lati, acuti. Corolla lutea, vexillo medio inferne maculata; vexillum suborbiculare, apice emarginatum, 18-18.5 mm. longum, 20 mm. latum, ungui cuneato 5 mm. longo apice 4.5 mm. lato suffultum; alae 17 mm. longae, 8 mm. latae, ungui 5-5.5 mm. longo suffultae; carina 18 mm. longa, 7.5 mm. lata, ungui 6.5 mm. longo suffulta. Legumen ad 7 cm. longum et 1 cm. latum, pubescens, stipite 1.5 cm. longo suffultum, valvis substramineis chartaceis.

Cult. Hort. Bot. Reg. Edin., 40.11 F. (type).

Yunnan, eastern flank of the Tali range, open situations in ravines and side valleys, 9-11,000 ft., Forrest, 5086, 7179.

(To be concluded.)

SENECIO LAXIFOLIUS.

SENECIO LAXIFOLIUS forms a low, evergreen shrub (see fig. 89), from 2 to 4 feet high; it is a native of the mountainous districts around Nelson and Canterbury, New Zealand, where it attains an altitude of 5,000 feet. The plant is closely allied to *S. Greyii*, and has been grown in gardens under that name, but, as was pointed out by Sir Herbert Maxwell (*Gard. Chron.*, October 14, 1916, p. 180), they are distinct. Sir Herbert, indeed, expressed a decided preference for *S. Greyii*, which is high praise, for *S. laxifolius*, as we saw it growing in the Hon. Vicary Gibbs' garden at Aldenham this summer, is itself a most attractive plant, the flowers being of an intense golden-yellow and the foliage covered with grey down, the under surface dead white from a covering of close, white felt. The loose, terminal panicles are 6 or more inches long (see fig. 90), and the yellow flowers about 1 inch in diameter, the central disc being reddish-brown. The plant is a little tender, but it succeeds admirably in warm districts. The Aldenham plant doubtless receives a little protection in winter from the overhanging shrubs. *Senecio laxifolius* is an admirable subject for the front of a shrubbery border, the bright flowers and showy foliage appearing to the greatest advantage against the background of other plants. The plant is readily propagated from cuttings rooted in late summer.

ROSES AT BAGATELLE.—Under the title "Les Roses de la Guerre," *Le Jardin*, October 5, 1916, gives illustrations and descriptions of three Roses which received awards at the recent International Competition at Bagatelle. Constance was raised by M. PERNET-DUCHER; it is a Penetiana bearing yellow-orange buds with carmine rays; flower large, elongated, cadmium-yellow, passing to golden yellow; similar but superior to Rayon d'Or. Admiral Ward, by the same raiser, is a hybrid Tea with large, full flower, crimson-red, flowering abundantly. Gloire des Belges is a seedling of Mme. Abel Chatenay, raised by M. CHAMBERD, very floriferous and perpetual-flowering.

- Upper surface of leaflets quite glabrous or with a few hairs only on the midrib and close to the midrib, under-surface thinly adpressed pubescent, young leaf-bearing branchlets hairy or not. Leaflets almost concolorous, the lower surface but slightly paler than the upper, young leaf-bearing branchlets adpressed pubescent *P. concolor*.
 Under-surface of leaflets glaucous, young leaf-bearing branchlets glabrous or soon glabrescent. Fruit 17-19 mm. broad, glabrous, ovary with silky hairs all along one edge and only at the base on the other, otherwise glabrous *P. nepalensis*
 Fruit up to 10 mm. broad, ovary with silky hairs all over *P. bicolor*

PIPTANTHUS BICOLOR, CRAIB, SP. NOV.

Ramuli juventute glabri vel primo nodos versus ad stipularum bases parce pilosi, glauci, parum angulati, cito virides, mox teretes, cortice viridi vel olivaceo-viridi obtecti, lenticellis sparsis. Folia alterna, trifoliolata, petiolo communi circa 2.5 cm. longo tenuiter piloso supra late canaliculato suffulta; stipulae 11-15 mm. longae, in unam

SOME PROBLEMS CONNECTED WITH THE TREATMENT OF FUNGOUS DISEASES BY SPRAYING.*

It may be taken as a sign of the recent agricultural progress that spraying against fungous diseases has been adopted permanently, as being both necessary and profitable, by the English farmer, more particularly by the fruit-grower.

A close acquaintance with the practical side of the subject, however, soon convinces one that a great deal remains to be done to make the work thoroughly efficient. The farmer, protected against fraudulent artificial manures by the operations of the Fertilisers and Feeding Stuffs Act, is still unprotected by any legislation forbidding the sale of spurious fungicides, the use of which too often nullifies spraying operations involving considerable expenditure in labour and materials. The remedy for this waste lies for the most part, undoubtedly, in the dissemination of scientific information, but valuable assistance could be given by legislation—such as that now in force in the United States—requiring that a certain standard be maintained.

It is clear that there is now among farmers in the best fruit-growing districts a strong tendency to make use of that technical advice which is brought to them as the result of research. The method of using the recently introduced lime-sulphur wash is one evidence of this. The sight of the farmer and his fruit-foreman using the hydrometer in the process of diluting down the concentrated wash is now not uncommon in Kent.

While on the one hand we have the stimulating fact that in this branch of agriculture the farmer welcomes scientific guidance, we find, on the other hand, that research has proceeded—at any rate in this country—but a little way in the field of the investigation of the various problems involved in the treatment of fungous diseases by spraying.

The absence of scientific information on many points vital to efficient and economic spraying is probably due to the fact that more than one specialist is required for the necessary research work. It has become clear that, for the elucidation of the problems concerned, co-ordinated work is required of the mycologist, the botanist and the chemist. If we consider the field of work, we find that its problems must be approached from three sides, concerning, as they do, (1) the fungus, (2) the host-plant, (3) the chemical substances of the fungicide.

The problem for the mycologist is to ascertain whether different fungi, showing approximately the same structure and mode of life on or in the tissues of the host-plant, exhibit the same susceptibility to the same class of fungicide. For this purpose parasitic fungi may be divided into (i) those with a superficial mycelium which can be dealt with by the class of active (or direct) sprays; (ii) those with a deep-seated mycelium, some of which can be dealt with by the class of potential (or preventive) sprays; and a third division, of those fungi which expose the mycelium to attack by rupturing the cuticle of the leaf, and can be dealt with by the active spray, or the potential spray, according to the amount of vulnerable surface exposed.

The problem for the botanist is the investigation of the nature of the susceptibility to injury from fungicides shown by many cultivated varieties of plants. This susceptibility, which varies in degree and may be very marked, is evident when a fungicide containing copper or sulphur is used. Thus, to mention instances, the two varieties of Apple known as Cox's Orange Pippin and Duchess's Favourite are so susceptible to the effects of copper that when Bordeaux mix-

ture is used on them at the lowest concentration at which it is efficacious as a fungicide, their leaves are affected to the extent that they drop off, while on other varieties of Apples, Bordeaux mixture at double the concentration can be used without causing injury. A remarkable case of injury caused by the vapour rising from solutions of soluble sulphides is observed with the variety of Gooseberry called Yellow Rough. A

plasmic reactions of the cells, are questions which should be answered by the botanist, and will give valuable help in solving the problem of the efficient spraying of the manifold varieties of cultivated plants.

The problem presented to the chemist is obviously that of finding materials which are able to cause death to the fungus without causing injury to the host-plant: a problem which is based upon



FIG. 90.—INFLORESCENCE AND FOLIAGE OF *SENECIO LAXIFOLIUS*.

(See p. 228)

lime-sulphur wash at a concentration which causes no injury when sprayed on the leaves of other varieties of Gooseberry causes almost complete defoliation when sprayed on the leaves of Yellow Rough; even when sprayed on adjoining bushes, or on the ground under the bush, a similar effect is produced. Whether this susceptibility is correlated with any morphological characters, or is due to specific differences in proto-

knowledge of the behaviour towards plant tissue of different chemical substances. Much remains to be done in the direction of accumulating such information, and it is felt that some systematic work should be undertaken to ascertain what are the effects produced by different types of chemical substances, such as oxidising agents, colloidal substances, hormones, etc., towards living plant tissue.

* A paper read before the British Association (Newcastle) by E. S. Salmon and J. Vargas Eyre, Research Department, South-Eastern Agricultural College, Wye, Kent.

With information of this kind it may be possible to classify chemical substances which have fungicidal properties according to the degree of intensity of their action in this respect, and also with regard to their behaviour towards the host-plant.

The results which have been obtained from work of this kind in the case of copper fungicides are of sufficient importance to justify such work being largely extended. It is only by careful systematic study that the mode of action of fungicidal substances will become known. It will be necessary in this connection to study not only the behaviour of a substance itself towards the fungus and towards the host-plant, but also the behaviour of substances which are closely related to it. For example, when investigating the mode of action of soluble sulphide spray-fluids, it is necessary to carry out trials not only with different sulphides of the same element, but also with the corresponding sulphides of similar elements, because by so doing the particular action or activity may be observed to be toned down or otherwise modified so that the mode of action may become detectable.

Another aspect of the problem under discussion, and an important one, is the examination of the part played by certain attendant substances, not of themselves possessing recognisable fungicidal properties, but which cause the fungicidal property of another substance with which they are intimately mixed or in solution to become much more marked. It is thought probable that an instance of this kind is to be found in the case of paraffin, which when present in small quantities appears to increase the fungicidal intensity of a soluble sulphide spray fluid. Another case of a similar character is that where an increase in the concentration of soap renders solutions of "liver-of-sulphur" fungicidal. The importance of gaining information as to the behaviour of attendant substances towards the host-plant as well as towards the fungus will be obvious in view of the desirability of combining insecticides with fungicidal washes; the insecticide, from this point of view, being regarded as the attendant substance.

In the class of active sprays it is of paramount importance that the fungicide chosen should be brought into intimate contact with the fungus, and when this presents a surface which is difficult to wet owing to the presence of air films, some substance has to be added which will lower the surface tension of the fluid. It seems highly desirable that some reliable method should be devised for testing the wetting power of different celled, and Royal Albert, an old variety, but very suitable for the purpose.

CULTURAL MEMORANDUM.

THE FORCING OF RHUBARB.

Owing to the scarcity of Apples Rhubarb will be in great demand early in the New Year; consequently steps should be taken to force larger quantities of the stems than usual.

An important point in relation to early forcing is to lift the roots and leave them exposed for ten days or so before placing them in heat, when it will be found that the crowns will break into growth much more readily, and the produce will be finer. Care also should be observed to select varieties suitable for forcing early. For the very earliest supplies I choose Daws's Champion, a richly coloured variety of great excellence, and Royal Albert, an old variety, but splendid for the purpose.

The warmer end of the Mushroom house is an ideal place for forcing Rhubarb, but almost any fairly warm place from which light is excluded is suitable. If treated with care the roots may be planted again. They should be divided into single crowns and planted in rich, deeply-dug ground. *Edwin Beckett, Aldenham House Gardens, Elstree.*

NOTICES OF BOOKS.

WILLIAM JACK, BOTANIST.*

LIKE William Griffith, William Jack was an indefatigable botanist and collector, and, like William Griffith, he was cut off in early middle age. He had qualified for Army medical service and went to India in 1813, where he saw some active service. His strong botanical bent led him to make the acquaintance of Dr. Wallich, then superintendent of the Calcutta Botanical Garden, and this fact eventually resulted in Jack's being attached to Sir Stamford Raffles' Mission to Sumatra in 1818. In spite of an affection of the lungs, he laboured diligently and enthusiastically, and discovered numerous striking new plants, many of which were published in the *Malayan Miscellanies*, Hooker's *Companion to the Botanical Magazine*, and the *Transactions of the Linnean Society*. Mr. Burkill has rendered good service to botany in his critically annotated list of *Jack's Herbarium, as far as recorded in various places*. This includes full references to all records, and corrections in synonymy. Jack made a special study of several families, including the Melastomaceae, the Begoniaceae, and the Cyrtandraceae. The last-named family was founded by Jack, and he described about a score of species. Jack's letters to Wallich are of considerable interest, and their value is increased by Mr. Burkill's notes and explanations.

STUDIES OF SOILS.†

THIS little book consists of a description of practical exercises in the properties of soil which can be examined by the aid of the simplest apparatus. It is designed for the use of children in schools, and has the essential merit of being clear and simple. It deals with such subjects as soil formation, the respective properties of sand and clay, soil-temperatures, and the effects of drainage and mulching on plant growth. A little book such as this should prove of considerable use to a teacher who requires assistance in drafting an elementary course of experimental teaching in relation with school gardening. Such a teacher should be able to amplify, extend, and apply to local conditions the exercises which Prof. McCall provides. We think that there is a great opportunity in this country for teachers who instruct young children in gardening to make use of the interest which this subject evokes to attach to it some practical instruction in the why and wherefore of garden operations. Such instruction, however, should remain accessory to the main purpose—that of teaching children how to cultivate their gardens. Although there are many excellent books on the soil, we do not remember having seen one so well adapted to the use of the very young as this little book of Prof. McCall.

FRUIT REGISTER.

PLUM ORPINGTON PROLIFIC

THIS valuable new late Plum promises to be a distinct acquisition to the list of this important fruit. The tree appears to be an abundant cropper on its own roots. In flavour the fruit resembles a Greengage, and it has the appearance of this fruit, though somewhat smaller. But the chief merit of the new variety is its lateness. Fruits which were submitted to the R.H.S. Fruit and Vegetable Committee on the 24th ult. were of good flavour, which is the more remarkable considering the sunless season. The variety is of great promise, both for private establishments and market fruit gardens. *Edwin Beckett.*

* William Jack's Letters to Nathaniel Wallich, 1819-1821. Copied for the Straits Branch of the Royal Asiatic Society from the Records of the Royal Botanic Gardens, Calcutta, under the superintendence of Major A. L. Gage. Edited, with a list of the plants known to have been collected by Jack, with notes, by I. H. Burkill. *Journ. Straits Branch, R.A.S. Soc.*, No. 73, 1916, pp. 147-268.

† *Field and Laboratory Studies of Soils*. By A. G. McCall, Professor of Agronomy, Ohio State University. Pp. 77. (London: Chapman & Hall.) 1915. 2s. 6d. net.



THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq. Castleford, Gloucestershire.

PLEIONE.—Plants of *Pleione maculata*, *P. lagenaria*, *P. praecox* and *P. Wallichiana* may be re-potted directly the flowers are over, for the flower-scapes are produced simultaneously with the new growth, and fresh roots appear at the base of the latter soon after the former are removed. Shallow pans without side holes provide the most suitable receptacles, and they should be filled to one-third of their depth with drainage material. *Pleiones* should be grown near to the roof-glass; if a shelf is not available the pans should be suspended from the roof-rafters. The compost should consist of the best fibrous loam, mixed with Sphagnum-moss and one of the fibres that are commonly employed, or good-quality peat in equal parts. Cut the materials into fine portions and remove all the small particles and dust by sifting through a ½-inch mesh. Add a little coarse sand or finely crushed crocks to render the mixture porous. Pans of various sizes should be chosen, grading the pseudo-bulbs into suitable sizes. The largest plants should be placed 2 inches apart, and the smaller ones close. In the new year, when growth is active, keep the plants well supplied with water and give them a light position near the roof-glass of the intermediate house. *P. humilis* and *P. Hookeriana* have completed their growth, and should be suspended from the roof-rafters of a cool house. Let them have only sufficient water to prevent the pseudo-bulbs from shrivelling. Both these species bloom in February.

MASDEVALLIA TOVARENSIS.—This pure-white *Masdevallia* is developing its flower-buds, and it is advisable to remove the plants to the intermediate house, where the extra warmth will improve the quality of the flowers. After the flowers are over a small quantity of water will suffice to keep the plants in a healthy condition. Return them to the cool house, and remove some of the flower-spikes where they are numerous. The remaining spikes will furnish the best crop of flowers next year. Plants of the *Chimaera* section of *Masdevallia* in the cool house should be returned to the intermediate house for the winter.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

LUCULIA GRATISSIMA.—Those who have suitable means for growing *Luculia gratissima* should give the plant a trial, as few other indoor subjects are more attractive at this time of the year. A cool greenhouse is the most suitable place in which to grow the plant, which does best in a restricted border, although it may be grown with a measure of success in large pots or tubs. The compost should consist of a mixture of loam, peat, leaf-mould and old mortar rubble. The soil needs to be well drained, and should be made firm about the roots. During the growing season the plants require an abundance of water. Established specimens require plenty of stimulants. When the flowers are over, at about the end of November, the flowering wood of those that have filled their allotted space should be cut well back and growth rested by keeping the roots on the dry side and the house as cool as possible. The plants must not, however, be exposed to severe frost.

EARLY-FLOWERING BULBS.—Bulbs which have been taken from the ash-bed and placed in cold frames must be protected from rats and mice. If Roman Hyacinths and early Narcissi are required in bloom early some of the plants should be placed in a warm house.

BOUVARIA.—Let *Bouvardia* have all the light available; otherwise they will not flower freely. Grow them near the roof-glass, and see

that the glass is kept clean. The heat may be increased a little if the flowers are required early. Damp the house in the forenoons of bright days, as a dry atmosphere favours the spread of red spider, which is a common pest of the Bouvardia.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PLANTING APPLES.—The following remarks are intended for amateurs and other private growers, as the needs of those who grow for home use are distinct from the requirements of growers for market. More particularly I write these suggestions for those who are not well acquainted with the bewildering number of varieties available. In average gardens the principal object is to ensure a supply of fruit over the longest possible season, but there is sometimes another motive which governs the selection of varieties, and that is exhibiting, for the successful exhibitor needs an even wider range of varieties. There is no doubt that the inclusion of a large number of varieties makes the fruit garden and orchard more interesting, and in no two gardens will the same varieties behave in precisely the same way. The results this year seem to prove that it pays to grow a large selection. To plant a large number of any one variety because it has cropped well this year would not be wise, nor should a variety be condemned because it has not borne fruit. After the trees have been growing for a few seasons, it is generally found that a few varieties are not successful in the particular district. Such trees should be headed down and re-grafted with a variety that is known to succeed locally. Trees three or four years old will commence to fruit at once, and should be selected if an early return is desired. In a small garden, where a dozen varieties would be ample—six of dessert and six of culinary sorts—the following list may be recommended:—(Dessert) Beauty of Bath, Worcester Pearmain, Charles Ross, Cox's Orange Pippin, Adams's Pearmain, and Lord Hindlip. (Culinary) Early Victoria, Rev. W. Wilks, Lord Derby, Lane's Prince Albert, Bramley's Seedling, and Annie Elizabeth. For larger gardens and exhibiting purposes (dessert) Langley Beauty, Lady Sudeley, St. Everard, James Grieve, Rival, American Mother, Ribston Pippin, Wealthy, Foremont Russet, King of Tompkins County, Reineette de Canada, Allington Pippin, Blenheim Pippin, Gascoyne's Scarlet Seedling, Claygate Pearmain, Washington, Lemon Pippin, Allen's Everlasting, and the newer William Crump. (Culinary) Lord Grosvenor, Stirling Castle, Eckinville Seedling, Norfolk Beauty, Emperor Alexander, Peasgood's Nonesuch, Grenadier, Hambling's Seedling, Loddington Seedling, Warner's King, Mère de Ménage, The Queen, Sandringham, Gloria Mundi, Blenheim Pippin, Tower of Glammis, Royal Late Cooking, Durelow's Seedling, Lady Henniker, Edward VII., Bismarck, Alfriston, Norfolk Beefing, and Barnack Beauty. In many cases small or moderate sized fruits of kitchen Apples are appreciated for dessert, and especially those that ripen after Christmas.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUMBURNHOLME, Warton Priory, Yorkshire.

THE ORCHARD HOUSE.—Pot trees of Peach Plum, Pear and Apple with ripened wood will withstand any reasonable amount of frost so long as they remain dormant. With the possible exception of Cherries, they may have four months' exposure in the open to receive the full benefit of rain, frost, and, most important of all, plenty of water. Even the Cherries will be benefited by a good frost or two. It is important that the ground upon which the pots are stood should be firm and impervious to worms. Birds must be kept off the trees, if necessary, by netting. Place the plants in a position protected from north and east winds, and pack the spaces between the pots with dried Bracken Fern, litter or ashes to keep frost from the pots and roots.

POTTING.—Late trees may still be potted. This operation is best performed in October, but considering that the trees will not be forced, they will fruit well even after severe disturbance if roots are plentiful. Now is a good time to pot young trees which were root-lifted last autumn, pinched and specially prepared for potting. Select pots varying from 8 to 10 inches in diameter. All stone fruits, also Pears and Apples, require a fairly strong loam containing plenty of burnt earth, lime-rubble, bone-meal and a little soot in preference to animal manure of any kind. The soil can scarcely be made too firm, and should be well rammed. Water the roots copiously before plunging the plants in the open. If very early forcing is contemplated, and the house is not utilised for other plants, such as Chrysanthemums, let it be cleansed thoroughly now, for it will soon be time to make a start with the earliest trees. Wash each tree thoroughly and cleanse the pots. Place the trees in position with the heads well up to the glass, and if a mild bottom-heat is furnished by a bed of fermenting leaves it will be an advantage. The tree will need but very little pruning; the leading shoots and others that are very strong may be shortened to triple buds. When this work is finished keep the house very cool and airy, except in exceptionally severe weather, until forcing is commenced.

POT VINES.—It is all-important for the wood to be ripened thoroughly, for success in forcing depends as much upon the condition of the vines as upon the operations of forcing. Pot vines with hard, ripe wood and plenty of roots may be started shortly, provided they have had a good rest. Seeing that the vines were shortened to a suitable length some time since, there will be little danger of their bleeding now, nevertheless a touch of styptic on the cut surface will do no harm, for bleeding is most difficult to stop when the sap is in motion. The house having been well washed and the roots lightly top-dressed with loam and bone-meal, the vines will be ready for placing in position in the forcing house.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

TREES AND SHRUBS.—The work of planting trees and shrubs may be proceeded with during favourable weather. Those for flowering should include Weigelas, Azaleas, Lilacs, Deutzia crenata magnifica, D. Wilsonii, Olearias in variety, Hydrangeas, Philadelphuses, Viburnums, Ribes, Amelanchier, Veronicas of sorts, Arbutus Unedo, Buddleias, Escallonias, Berberises, Genista Andreana and G. hispanica, and the Spanish Gorse, which should be planted in groups in the foreground. Some good effects may be obtained in autumn by planting groups of Japanese Maples, Rhus vernicifera, R. Osbeckii purpurea, Crataegus, Berberis, Amelanchier, Euonymus alatus, L. atropurpureus, Spiraea Thunbergii, Pyrus arbutifolia, Quercus coccinea splendens, Viburnum Opulus and Gleditschia triacanthos, which thrives almost anywhere. No difficulty should be experienced in growing all these, provided the ground is prepared thoroughly and manured. Let each plant have ample space for its development, for shrubs, when established, grow surprisingly quickly. Make the soil firm about the roots, and secure each tree that needs it to a stake, or the first strong wind may cause serious damage.

EREMURI.—If not already accomplished, the work of planting Eremuri should be completed forthwith. Established plants in the borders should be very rarely disturbed, as the roots are long and brittle, and lifting exposes them to serious injury. The soil should be deep and well-drained; if a special compost is prepared use fibrous loam mixed with peat, sand, decayed manure and a small quantity of charcoal. Choose a sheltered position for planting, and a south aspect for preference. Shrubberies, herbaceous and mixed borders are suitable places for planting Eremuri. Place the crowns a little below the surface, and cover them with straw or stable litter as a protection from cold. Eremurus Bungei, E. robustus, E. himalaicus, E. Elwes-

ianus and E. Nimrod include the best species and varieties for gardens.

LILY-OF-THE-VALLEY.—When beds of Lily-of-the-Valley become crowded the plants should be lifted carefully and replanted. Prepare the ground for their reception by adding a liberal supply of decayed manure and leaf-mould; soils of a heavy, retentive nature should be lightened in texture by adding sand or old potting soil, freely. Crowns for forcing are not available from the usual sources, and some of the finest plants that are lifted should be selected for growing in pots or planting in special beds. Plant in rows made 12 inches asunder, and allow a space of 6 inches between the crowns in the rows. The small crowns may be planted in reserve beds, in partially shaded situations. Give the plants in the permanent beds a light top-dressing of leaf-mould and manure.

BORDER CHRYSANTHEMUMS.—Directly border Chrysanthemums have finished flowering tie a label securely to each variety and plant them closely together in shallow frames, to secure short, stocky growth suitable for cuttings. If frames are not available the old stools may be placed in boxes and wintered in a cold house in a position near to the roof-glass. Admit air to the frame or house on all favourable occasions.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

PREPARING GROUND FOR ONIONS.—Ground intended for the planting of Onions should be prepared at this time. In view of the fact that there is a shortage of Onions from abroad and that there will be a ready market for surplus supplies in private establishments, it is advisable to review next season's requirements to see if it is possible to devote more space to this crop. Pay great attention to the manurial requirements of the ground, as the adoption of a rigid method of manuring without relation to the kind of soil and the previous treatment may be wasteful of manure and harmful to the crop. Soils of old kitchen gardens which have been deeply worked and manured for many years are generally rich in humus and do not require a large dressing of farmyard manure. But in freshly-cultivated ground, soils of poor quality and gardens where surface digging only has been practised large supplies of organic manure should be incorporated. In every case deep trenching should be practised, and, excepting cases of sticky, clay soils, the bottom layer may be brought to the surface to benefit by the disintegrating influences of the weather. During the process of digging a dressing of 8 lb. of basic slag per square pole should be applied, and I would also advise the use of kainit but for the fact that it is unobtainable.

ASPARAGUS BEDS.—Remove the shoots from Asparagus plants as soon as they have ceased growing and are matured. Cut them closely to the soil, for no pieces of stem must be left to decay on the bed. Remove all weeds, and especially those of a perennial habit, such as Couch Grass and Bindweed. The limits of the bed should be clearly defined by pegging out the boundaries, stretching a line from peg to peg and cutting the edges trim with a spade. After the beds have been thoroughly cleansed of rubbish and weeds, apply a good dressing of farmyard manure, which should be covered with a thin layer of soil taken from the alleys between the beds. Although this is not the best method or the most suitable time to apply manure to Asparagus beds, I advise it to be done now, for it is extremely improbable that time will be available in the growing season to apply liquid manure copiously to the roots. Salt should not be applied at this season, as it would tend to reduce the temperature of the beds considerably.

NEXT SEASON'S CROPPING.—In normal times it would be rather early to draw up a plan for cropping next season, but circumstances, such as labour shortage, make it desirable that the scheme should be drawn up early in order to see which portions of the garden it is necessary to cultivate thoroughly and which may be only lightly tilled. No essential operation should be deferred if it can possibly be accomplished now.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, NOVEMBER 16—
Lincoln Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 43.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, November 9 (10.0 a.m.): Bar. 29.5°; temp. 48.5°. Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY—

Bulbs, Herbaceous Plants, etc., at 67-68, Cheapside, E.C., by Protheroe and Morris, 1 o'clock.
Nursery Stock at the American Nursery, Milford, Surrey, by Protheroe and Morris, at 12 o'clock.

WEDNESDAY—

Bulbs, Herbaceous Plants, Fruit Trees, etc., at 67-68, Cheapside, by Protheroe and Morris, at 12 o'clock.
Narcissus, etc., by Protheroe and Morris, at 3 o'clock.
Nursery Stock, Glass Erections and Utensils at the Nurseries, Bromley, Kent, by Protheroe and Morris, at 12 o'clock.
Rose Trees, Perennials, Shrubs and Bulbs, at Stevens's Auction Rooms, King-street, Covent Garden, at 12.30.

THURSDAY—

Roses at 67-68, Cheapside, by Protheroe and Morris, at 1 o'clock.

FRIDAY—

Bulbs, Herbaceous Plants, etc., at 67-68, Cheapside, by Protheroe and Morris, at 1 o'clock.

Mr. A. D. Webster, whose competence to write on the subject is well known, has produced an interesting and valuable work* on the methods of preventing loss of trees affected by wounds and diseases.

As the author points out, although more care is taken now to preserve trees of historic or other interest, there is still need for a wider understanding of what may be done to save trees threatened with premature decay. Examination of trees in Epping Forest, Sherwood Forest, Burnham Beeches and elsewhere proves that many valuable trees "are crumbling to ruin for want of timely attention in the matter of pruning, bracing, or filling the cavities of both branch and stem."

* *Tree Wounds and Diseases: Their Prevention and Treatment.* With a special chapter on fruit trees. By A. D. Webster. With 22 full-page plates and other illustrations. Pp. 215. (London: Williams & Norgate, 1916.) 7s. 6d. net.

The treatment of hollow trunks is the first subject to which the author gives attention, and his discussion of the subject is both practical and suggestive. The object aimed at may be one of several: to arrest the decay by removing the cause, to prevent wood-destroying organisms from gaining access to the tissues, to strengthen the trunk or branch, or to improve the appearance of the tree.

The filling should be preceded by an antiseptic treatment: after clearing away all decayed matter, the interior should be scraped with a rough brush, and when dry painted with one or two coats of creosote or carbolineum, and finally filled up with a concrete consisting of 1 part Portland cement and 3 of clean gravel and sand. A coat of coal tar on the top of the dry creosote helps the concrete to adhere to the wood.

For dressing wounds Mr. Webster recommends coal tar or zinc paint, thinly applied; to prevent these substances from running on the adjoining bark a little finely powdered slate or wood ash should be mixed with the tar or paint. Beneath this layer the natural regeneration by callus formation goes on quite well, and thus the tree is bandaged, as it were, whilst it slowly heals itself.

Another mixture for filling consists in sawdust (4 parts) and asphalt (1 part), and being more elastic is better than concrete for filling trunks or branches liable to be swayed by wind.

The author gives valuable hints on suitable methods of supporting heavy or diseased branches, and on the treatment of injured bark. How much may be done by timely and judicious pruning is illustrated by the rejuvenescence of the old and neglected Spanish Chestnut trees in Greenwich Park, the Oaks at Richmond and the Elms in Kensington Gardens and Regent's Park. The many fungous parasites of trees are well illustrated and described, as also are the insect pests and their remedies. The book is written in a style only too rare in scientific and technical books; it is business-like in its simplicity and directness, and passes successfully the highest tests to which such a work can be put, namely, that it is always instructive and never tedious.

SPIRAEEA DISCOLOR.—The illustration in fig. 91 shows a fine plant of *Spiraea discolor* flowering in Miss WILLMOTT's garden at Great Warley, Essex. The species was introduced from Western North America in 1827 by DOUGLAS, and has long been grown in gardens under its synonym *S. arifolia*, a name given by SMITH five years after PURSH's name of *S. discolor*. The plant forms a bush some 3-12 feet high, with tall, straight stems that branch at the top in a graceful, arching manner, and bear in July large plumes of creamy-white flowers. *S. discolor* is amongst the most graceful and floriferous of all the shrubby species of *Spiraea*.

WAR ITEM.—Mr. R. RINTOUL, Melbury Gardens, Dorchester, has received the news of the death of his youngest son, KEITH, from wounds. Deceased was engaged in Melbury Gardens from 1911 until February last, when he joined the first battalion of the London Scottish. He was only twenty years of age.

PLUM APHIDES.—Of the two species of aphids which attack the Plum, the leaf-curling aphid (*A. pruni*) and the mealy aphid (*Hyalopterus pruni*), the former is generally the more serious pest. The leaf-curling aphid attacks Plum, Damson and Blackthorn, as well as the Peach, Apricot and Apple, although, according to Mr. F. C. F. FRYER, Entomologist to the Board of Agriculture,* the damage it does to the last three plants is not considerable. Mr. FRYER summarises the life history of the leaf-curling aphid as follows: The small shining black eggs are laid in autumn on the twigs and at the base of the buds. In early spring—March or April, according to the district—the eggs produce young, which grow into large purplish or brownish "mother queen" aphides. The queens bear live young, at first green, but when full grown of dark colour. They are all female and wingless, and bear young in turn; not until late June or July do winged forms appear. They migrate from the Plum to certain other plant hosts, probably taking up their abode on such weeds as Thistles and Ragworts. In the autumn winged forms appear again on the Plum and give rise to males and females, the latter laying the winter eggs. To control this pest early spraying must be practised. Mr. FRYER states that limewashes in late February or March—preferably in the latter month—are effective. Of other spray fluids which are useful paraffin emulsion applied just before the blossoms open, and, of course, before the leaves have curled, is also useful. The mealy Plum aphid does not generally appear before midsummer, and occurs on the under side of the leaves, on the leaf-stalks and young growth. It produces honeydew, which, falling on the leaves and fruit, may do a certain amount of damage. The aphid is of a light green colour, covered by a waxy or mealy secretion. The mealy aphid attacks plants belonging to many species of Prunus, and probably lives also on reeds and grasses. Mr. FRYER recommends paraffin emulsion containing liver of sulphur as a means of control. The formula for the limewash recommended for the control of the leaf-curling aphid is quicklime (best Buxton lime), 10-12 lbs., and water, 10 gallons. The paraffin emulsion is composed of paraffin, 1 pint; soft soap, 1 lb.; liver of sulphur, 2 oz.; water, 10 gallons. The soap should be dissolved in one gallon of boiling water and the paraffin added whilst the soap solution is hot, the mixture is then churned thoroughly and the remainder of the water containing the liver of sulphur is added and the mixture churned again.

THE WILD SAGE OF THE ADRIATIC.—Along the Eastern Adriatic the Wild Sage (*Salvia officinalis*) grows profusely, and the inhabitants make a commercial practice of collecting and drying the leaves for export. The uses to which this herb is put are numerous. Thus according to a note in the *Journal of the Society of Arts* it is used for darkening the hair and as an ingredient of tooth powders, as well as in pharmacy.

THE CORN AND HAY CROPS.—Returns published by the Board of Agriculture and Fisheries show that the total production of Wheat in England and Wales amounts to 6,942,559 quarters, or about 1,500,000 quarters less than last year, but greater than in 1912 or 1913. The yield per acre, 29.05 bushels, is about two bushels below that of 1915. Barley, although about 1½ bushels per acre below average, is better than last year, and, with the acreage increased, has given a total nearly 700,000 quarters in excess of 1915. Oats are only very slightly below the average, and slightly better than last year; the total production, 10,461,164 quarters, is the largest since 1910. Beans are over average by three-tenths of a bushel per acre, and 2-2.5ths bushels per acre above last year, but as the area has been reduced the total production is rather below that of 1915. The yield of Peas is practically identical with

* "Plum Aphides," *Journ. of Biol. of Agric.*, XXIII., No. 7, October, 1916.

that of 1915, and 1 $\frac{1}{2}$ bushels below average; in this case also, owing to a reduced acreage, the total production is less than in 1915. The yield of hay from Clover, Santoin, and grasses under rotation is 32.9 cwts. per acre, nearly 4 cwts. above the ten-year mean, and the third highest recorded since the returns were first collected; the total production is more than 600,000 tons greater than in 1915, and the highest since 1907. Hay from permanent grass is 1 $\frac{1}{2}$ cwts. per acre above the average; the total production is more than 1,600,000 tons greater than the poor total of last year. Taking both categories together, the entire production of hay is estimated at 2,837,079 tons, which is 2,250,000 tons, or fully 34 per cent., more than last year.

ELECTRICITY AND PLANT GROWTH.—Evidence is accumulating that plants subjected to high tension electricity by means of overhead wires respond by increased vigour and yield. Thus in the experiments carried out by Miss E. C. DUDGEON in 1915 near Dumfries,* Oats grown on electrified and non-electrified areas each of 1 $\frac{1}{2}$ acre showed a marked response to electrification. The yield of grain in pounds from the electrified area was 1,309, as against 1,005 from the non-electrified control—an increase of grain of 30 per cent. The yield of straw was even more markedly in favour of the electrified plot: 2,476 lbs., as compared with 1,572 lbs., an increase of 53 per cent. We believe that similar and even more decisive results have been obtained at Dumfries this year, and that electrification again resulted in large increases both of grain and straw. On the contrary, as those who have visited the R.H.S. Gardens at Wisley may have observed, similar experiments which have been carried out by the R.H.S., in conjunction with the Imperial College of Science, have not so far yielded results in favour of electrification. We are informed, however, that these experiments are to be continued during the coming year. If they result in increases of yield of horticultural plants as large as those which appear to be consistently obtained with Oats, we may yet live to see the overhead electric discharge in operation as an adjunct to intensive cultivation. The cost of the current used is but small, although that of the initial installation is by no means inconsiderable. Where cheap current is available, however, the method, if it prove to have a pronounced and positive effect on the crops, should have a bright future before it.

CULTIVATION OF MEDICINAL PLANTS IN INDIA.—The Director of the Botanical Survey of India, Major A. T. GAGE, reports favourably on the experimental cultivation of several important medicinal herbs. Henbane, *Hyoscyamus niger*, grown in the Calcutta Botanic Garden, yielded normal alkaloidal constituents. Foxglove, *Digitalis purpurea*, was raised in considerable quantity on the Cinchona Plantation at Mungpoo, and was apparently of satisfactory quality. Belladonna and *Podophyllum* are also being tried at Mungpoo, but these cultures are in an early experimental stage. On the same plantation the cultivation of *Ipecacuanha*, which was introduced many years ago, was greatly extended during 1915, over 30,000 plants having been added to the stock. Experiments in the manufacture of iodine from sea-weed were unsatisfactory, as the yield of iodine did not cover the cost of collecting and conveying the sea-weed from the coast.

POISON SPRAY FOR ONION MAGGOT FLY.†—Experiments with a poisoned bait spray to attract and kill the adult flies before they deposit eggs have been made successfully in Wisconsin. For this purpose 5 grains of sodium arsenite are dissolved in one gallon of boiling water, into which one pint of molasses is well mixed. The mixture is applied as a coarse spray of large drops once a week in strips across Onion fields throughout the summer.

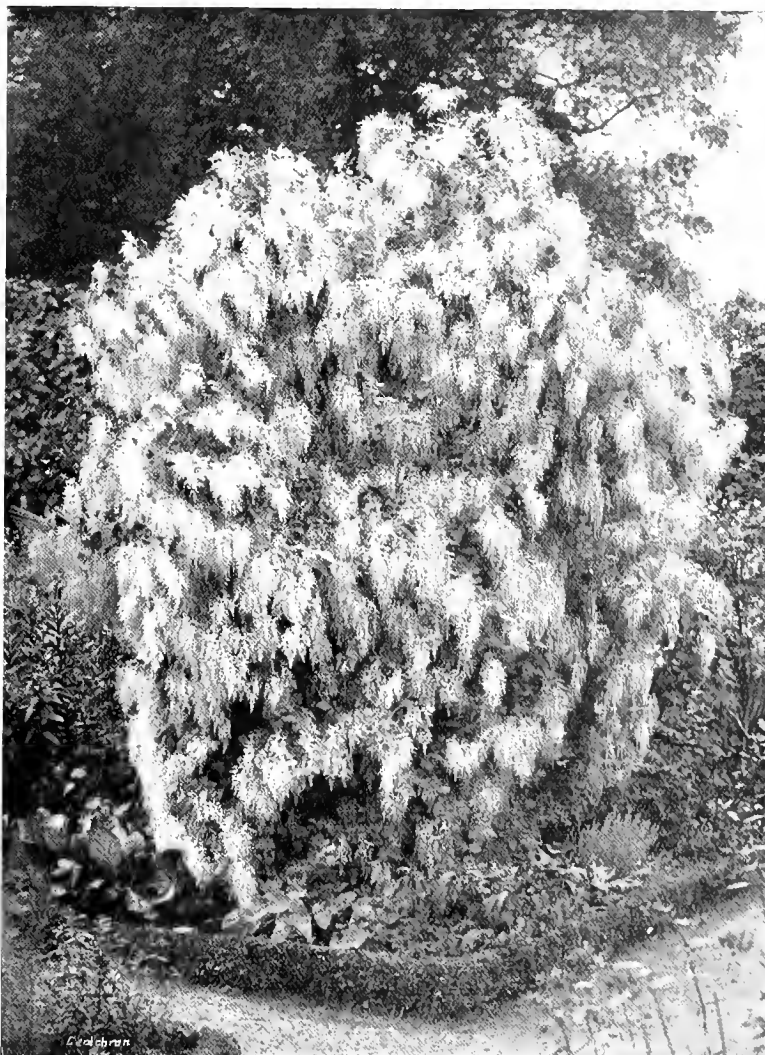
* Report by Mr. I. Jorgensen, *Journ. of Bd. of Agric.*, XXIII, No. 7, Oct., 1916.

† Eleventh Annual Report of the Ontario Vegetable Growers' Association, 1915.

AMATEUR GARDENING SEVENTY YEARS AGO.

—The present season of the year is a kind of *experimentum crucis* of the taste and foresight of the possessors of gardens, especially small ones. It is easy to make a plot of ground look well in the absence of John Frost, but when that cold-blooded man begins his operations, beauty, which is only skin-deep, will speedily disappear. Nothing can be more striking than the contrast between some gardens in September and the same in November. In the former period they literally glow with the beauty of Dahlias, Fuchsias, Calceolarias, Verbenas and Scarlet Pelargoniums. In the latter month they exhibit the most meagre desolation. Even if

by a judicious use of evergreens. As the object contemplated by works on floriculture is to combine good taste with skill, the present paper will be intended to subserve this important purpose. This is the proper time for making alterations in the general arrangement of your gardens. I hope to persuade some of my readers that winter may be made interesting and delightful by availing ourselves of Nature's varied riches. The most desolate spot can, on this side Christmas, be made to assume the features of verdure and pleasantness, without interfering with beds intended for florist's flowers, and all seasons can thus be laid under contribution for "wreaths and posies." And first, what



[Photograph by R. A. Malby.]

FIG. 91.—SPIRAEA DISCOLOR FLOWERING IN MISS WILLMOTT'S GARDENS, WARLEY PLACE, ESSEX.

(See p. 208.)

the ruins of the cold have been removed, and the broom has done its best to make the garden *simplex munditiis*, the change is still very remarkable. What are called fanciers are sad hands in this way, since they too often neglect the general appearance of their gardens. Caring for nothing but concentrated beauty, in the form of a Tulip bed or a collection of Picotees, when these favourites are withdrawn their domains are as innocent of verdure as an Arabian desert. Such is the garden of those who have not the bump of picturesqueness, or a taste for general effect. How different is the appearance presented at this season of the year by the grounds, whether large or small, of those who have an eye for natural beauties in winter as well as summer. Now all this difference is produced

garden should be without a portion of well-shaven and velvety grass, which, green all the year round, is specially green among the russet hues of winter. This is Flora's mantle, found everywhere, and always pleasing to the eye and heart. In connection with the grass plot, introduce as large a variety of evergreen shrubs as your space will permit. The *Laurustinus* is invaluable for small gardens, as its growth is slow, and it forms round, compact bushes of great elegance. Its flowers are never looked upon without great pleasure, being intrinsically beautiful, and set off by the green of the shrub and the season of the year. Varieties of *Arbor-vitae*, *Phillyrea* and *Aucuba japonica* will furnish every shade of green requisite for effect. Let all your shrubs be taken

up under your own superintendence from the nursery-ground, with the roots uninjured, and as much earth as possible adhering to them. Tread the soil well in, and tie them to stakes if large enough to be blown out of their places by the wind. You will have the benefit of these shrubs immediately, and if they are well watered in the dry season of spring they are sure to flourish. I have often wondered that the winter garden is so neglected, capable as it is of being brought to a high degree of beauty, and being, when properly managed, confessedly so attractive. Wild nature has its ornaments in the coldest seasons, and many vegetable productions are never seen to advantage till the deciduous trees are denuded of their foliage. When, therefore, art is brought to our aid, there is no reason why winter should not be highly attractive to the gardener, as indeed it is to all thorough amateurs. The almost talismanic power of variety, unknown in tropical climates, exerts its spell in these colder regions. Unbounded wealth and power once made ice tributary to luxurious greatness, and hyperborean frosts were compelled to exert their gelid sinews in the construction of a palace. Although the Russian Czarina did not probably intend her winter masonry to teach such lessons, we may look upon it as emblematical of the power, given to all of us, of making the most unfavourable circumstances tend to our convenience, and giving even the dreary months of winter an inexpressible charm.

"I saw the woods and fields at close of day
A variegated show; the meadows green,
Though faded; and the lands where lately waved
The golden harvest, of a mellow brown,
Upturned so lately by the forceful share.
I saw far off the weedy fallows smile
With verdure not unprofitable."—COWPER.

—H. B. in *Gard. Chron.*, November 14, 1846.

PRESENTATION TO A GARDENER.—Mr. ROBERT STUART, gardener for the past twenty years at Thirlstone Castle, Lauder, has relinquished the office and is leaving the district. To mark the occasion, and as an expression of their esteem, his friends have made him a presentation of a gold Albert, and also made a presentation to his wife. Mr. STUART has been a well-known exhibitor at the Edinburgh and other northern shows, and he exhibited vegetables at the International Exhibition at Chelsea in 1912.

MEDICINAL HERBS AND THEIR CULTIVATION.—This little pamphlet* contains a list of plants used in the *Pharmacopœia*, with notes of the uses of the drugs extracted therefrom and on cultivation and time of harvesting.

CHALK DRESSINGS FOR CLAYS OVERLYING CHALK.—A curious example of deterioration of land owing to the abandonment of an immemorial custom is supplied by the recent agricultural history of those districts in the home counties in which layers of clay, "clay with flints," overlie the chalk. From the earliest days of recorded time and until recent years it was the custom to dig the chalk locally and apply it to the land. When London dung and artificials became available in large quantities the practice fell in many places into disuse. As Dr. RUSSELL points out, the land suffered in consequence, becoming more retentive of winter rains, less easily worked and less fertile. The explanation is, of course, simple. Although overlying chalk, these "clays with flint" become in course of time deficient in lime, and, lacking this substance, decrease in fertility. Gardeners, as well as farmers, do well to remember that although chalk (calcium carbonate) is not soluble in pure water, it is converted by water containing carbon-dioxide—and hence by rain-water—into a soluble bicarbonate. Thus there is a constant loss of chalk from the soil. Wherefore in course of time these clays with flints, although overlying chalk, suffer from lack of calcium carbonate.

* *Medicinal Herbs and their Cultivation*. Price 6d., post free 7d. The National Herb Growing Association, 20, Queen Anne's Chambers, Broadway, Westminster, London, S.W.

† "Improvement for Clays Overlying Chalk," *Journ. of Agric. Sci.*, XXIII, No. 7, October, 1916.

THE MARKET FRUIT GARDEN.

OCTOBER was a month of persistently rainy weather. Only on one occasion were there three consecutive days of twenty-four hours free from a downfall. There were seven rainy days to start with, and of the last ten days only one was free from rainfall, which was unusually heavy. Rain was measured on 21 days, the total measurement being 5.47 inches. This is very much above the average, even for the month which in a long series of years comes out as the wettest in the year. The hindrance to work on the land caused by such a deluge has been serious, and so has the spoiling of work done before or during the month. At the end of September, in consequence of the employment of a gang of women hoers for several months, my first plantations were in cleaner condition than they had ever been before. Rain after hoeing had often set grass and other weeds afresh, but by going over the orchards again and again they had been got into a presentable appearance. Unfortunately hoeing was impracticable during nearly the whole of October, as it is worse than useless to hoe mud. Consequently the cleansing work could not be finished, and the time has come for giving up hoeing for the winter.

DIGGING UP FRUIT TREES.

No operation is more unpleasant to the fruit-grower than that of digging up fruiting trees where they are growing into each other, and must be thinned. In the United States it is a common practice to plant what are called "fillers" between the trees which are intended to remain permanently where they are planted. The "fillers" are left to grow and fruit until the permanent trees begin to overshadow them, and then are removed as a matter of course. English growers more commonly use bush fruits as fillers, but still, many of them plant trees so closely together that, after sixteen to twenty years, they find it desirable to regard every other tree of a free-growing variety as a "filler," and to dig it up. Too often growers do not harden their hearts sufficiently to do this, and then there are overcrowded orchards. They try the plan of cutting back severely the branches of each pair of trees which are intertwining. This, however, is only a temporary expedient, and one that has the disadvantage of spoiling the symmetry and checking the healthy spreading of two trees, instead of removing one and allowing full expansion to the other. Moreover, the advantage of thinning the trees is not limited to the room to expand and the free access to sunshine and air afforded to the trees left, for there is also to consider the increased feeding space for the roots allowed by the thinning. My start was with an orchard of bush Apples, mainly on the Paradise stock, and another orchard of Plums, bush fruit being grown in both. At the end of sixteen years the varieties of Apples of free-growing habit have become too thick, while upright or slow-growing varieties have still plenty of room. The thinning of the former has been begun, and, painful as it is to uproot trees just in the height of their fruiting life, there is the consoling thought that I have had the benefit of getting fruit from them for twelve years or more. As for the Plums, the only variety which has interlocked branches is Rivers's Early Prolific. Victoria and Pond's Seedling are approaching that stage, and would have reached it if the soil had been a good one for Plums. Monarchs, being of an upright habit of growth, have still plenty of room, while Czars and Gisbornes are not yet crowding each other. Czar is not a free grower in my soil, and it has been dwarfed by excessive fruiting. As to half-standard Apples on the Crab or free stock, there is no doubt that if they are planted only 12 feet apart, it must be with the recognition of the fact that every other tree, at least among spreading varieties, will have to be dug up before a great number of years have passed. If Black Currants would flourish for as many years as they lasted in good fruiting condition before the pestilent mite came

to trouble us, it would be best to use them as "fillers," planting the Apples, excepting a few of upright habit and growth, at least 20 feet apart. But as Black Currants have to come out after about ten years there is much to be said in favour of planting the trees more thickly, with the intention of thinning them when it becomes necessary. This is particularly the case on poor land, and mine, when I bought it, had been farmed exhaustively for a generation or two. It was the knowledge of this fact which disposed me to plant thickly. It is worth while to notice that when trees are planted only 12 feet apart, with the intention of removing half of them when they crowd each other, it is best to plant on the square, and not to angle the trees. Under the former method they will be more nearly uniformly distant in each direction after the thinning than under the latter plan.

THE HAILSHAM BERRY AGAIN.

I thank *T. of Kent* for his information about the Hailsham Berry in the issue for October 28, in reply to my note on the 21st of that month. He finds it necessary to lift the canes every November, replanting the strong ones, shortening them to 2 feet, and cutting them to the ground level in the following March. This necessity for annual transplanting is confirmed by a correspondent, who did the cutting-back without the transplanting, and got only a forest of green canes which did not mature. My canes were transplanted, as they came from their nursery beds only last autumn, but they were not cut down to the ground level in the following March, but only to 3 or 4 inches from the ground. Since my note was written the canes have produced a second small crop. As I grow only a small number in my private garden I shall follow *T. of Kent's* plan, but if the berry needs annual transplanting the expense of the work puts it quite "out of court" for growing on a large scale in commercial orchards. The expense would presumably render the growth of this berry less profitable than that of ordinary raspberries. *Southern Grower*.

COLONIAL NOTE.

SEED-GROWING IN BRITISH COLUMBIA.

Owing to the shortage of the European seed supply attention has been called to Vancouver Island as a field for producing many seeds which have been hitherto supplied by the Continent. The climate of Vancouver Island is ideal for the raising of a great many varieties of vegetable and flower seeds. Being in the same latitude as the South of England or North of France, the climate is similar, but with the great advantage that the seasons are much more reliable. The characteristics are mild winters with hot, dry summers—wet summers very rarely occur—thus ensuring well-ripened seed. In trials made with imported seed the second year's crop has shown a considerable improvement in many cases over that from the originally imported seed. In wet seasons where there has been a failure in England, notably with regard to the Sweet Pea seed crop, Vancouver Island might supply the shortage. The industry has not been developed to any extent, but with English methods of growing there is no reason why the seed produced would not stand comparison with the best grown. There is the additional consideration that by using seed grown in British Columbia trade would be kept within the Empire. *W. B., Victoria, B.C.*

PUBLICATIONS RECEIVED.—*Profitable Herb Growing and Collecting*. By Ada B. Teetgen. (London: Country Life Library.) 3s. 6d.—*Reclaiming the Waste*. By P. Anderson Graham. (London: Country Life Library.) 3s. 6d.—*Occasional Circular of the Herb-Growing Association*, price 3d.; *Herb-Collecting for Boys and Girls*, price 2d.; *Collection of Seeds*, price 2d.; *Hints for Young Collectors*, price 1d. (The National Herb-Growing Association, Queen Anne's Chambers, Westminster.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

APPLE SOPS-IN-WINE.—I have recently endeavoured to obtain a few fruits of this old Apple, and, judging from the trouble I have taken, so far with no success, the variety appears to have almost gone out of cultivation. So few gardeners know the Apple that I have almost given up my quest, as hopeless. I have had Kingston Black and Pine Apple Russet (the latter from three sources), two utterly dissimilar varieties, sent me for Sops-in-Wine, which shows the confusion existing as to the identity of some of our older varieties. *G. P.*

WASPS (see pp. 150, 186, 200).—From October to December, 1915, close upon 600 queen wasps were destroyed in these gardens. They were concealed in every conceivable place which offered the least protection; the pot-rack proved the best harbour, and it took a couple of lads two days to clear them out. Portions of old garden mats formed another favourite haunt. One would have thought, after this slaughter, we had destroyed the lot, but, to our surprise, the first few warm days of spring brought them out by the hundreds. This went on for probably a month or six weeks, when, to our delight, the wasps completely vanished, and from that time until the middle of October not half a dozen wasps of any sort have been seen and not a single nest found. Almost every season they are a terrible pest. *Richard Nisbet, Byrkley Gardens, Burton-on-Trent.*

THE VALUE OF SOOT (see p. 198).—The nature of the virtue of soot may be inferred from what it contains. Amongst other things it contains salts of ammonia, varying from 4.14 to 5.03 per cent. in average samples. All who have studied the value of soot as a manure are agreed that this depends upon the nitrogen it contains in the form of ammonia. Nitrogen is an essential manure, and is readily soluble and liable to be washed away in the drainage, especially in light soils like that of *A. N. Aubretias* usually rest in July and August, and wake up again with the advent of rain and cooler weather. Most likely nitrogen was scanty in the soil where the *Aubretias* are planted, and this manure is very favourable to the growth of stems and leaves; hence the reason for the rapid fresh growth. Crucifers generally respond to the application of a nitrogenous manure, just as grasses do. Soot as a manure is usually a safe one in the hands of the inexperienced, simply because it is well diluted. One of my correspondents wished to hurry on the ripening of his green Tomatos, and gave them a dressing of sulphate of ammonia, with the result that his plants died from the roots upwards in a very short time. It is one of the most concentrated forms of a nitrogenous manure, and instead of entering the roots and feeding the plants it extracted the sap from them and thus killed the living substance in the cells. Moreover, nitrogen never accelerates flowering or the maturity of the fruits, but has the opposite effect, by causing increased growth of leaves and stem. Only a very small proportion of nitrogen is necessary, and this must be balanced by all the other essential elements of plant food. The diluted nature of soot is thus one of its virtues. *J. P.*

CELERY LEAF SPOT.—With reference to your remarks on Celery leaf spot on p. 196, my experience of this disease would seem to show that clean seed is of the first importance. For several years I was unable to save my Celery from the pest, although the plants continued in robust health until the middle of July or early August, when the disease made its appearance; and although I tried spraying both with Bordeaux mixture and sulphide of potassium, both specifics failed to arrest its rapid progress, which may have been accelerated by our damp climate. Three years ago only one batch of Celery plants that I observed in this district were free from the disease, and I made inquiries as to where the seed was obtained. I have purchased my seed from this source for the past

two years, and have not been troubled with the disease since, notwithstanding that this year the Celery is growing in a situation where a very bad attack occurred a few years since. *T. E. Tomalin, Busborough Gardens, Piltown, Co. Kilkenny.*

CRATAEGUS PYRACANTHA IN BUSH FORM (see pp. 206, 218).—Mr. E. H. Jenkins may be interested to know that there were very fair specimens of *Crataegus Pyracantha* in the shrubbery and flower borders in Finsbury Park two or three years ago. They had been planted singly—here and there in association with other shrubs—to the best of my recollection. I made a note of their good effect at the time, that being the first occasion I had seen this *Crataegus* so used in a public park. There is a private garden in this district where the plant is grown in a large shrub border. *C. T., Highgate, N.*

THE ONION MAGGOT.—The use of sand and petroleum as a preventive of the Onion maggot is not new, though the particular method of placing the mixture around each plant as mentioned on p. 185 may be novel. In any case, the labour involved—as suggested by your Welsh correspondent—rules such a practice out of popular favour. I was early taught, and experience compels me to believe it is true, that the larvae or eggs of the Onion fly are deposited in the axil or base of the growth during the end of April or beginning of May, according to the season. The maggots then descend, probably under the outer skin, and begin their attacks at the base of the bulb. There are

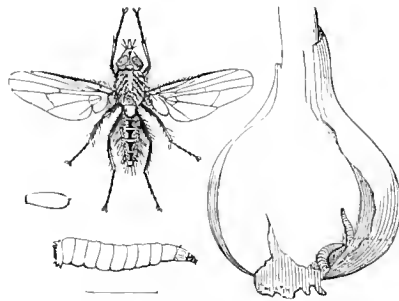


FIG. 92.—THE ONION FLY: ANTHOMYIA CEPARUM. (Maggot and Pupa magnified.)

several broods during the season, and it is possible for some of the pupae to live in the soil until the following spring, unless destroyed through deep cultivation and exposure of the grubs to birds during autumn and winter. The simplest and most effective way of dealing with this maggot is to ward off the fly from which it comes. To do this spray or syringe the foliage of the Onions with soapy water, salt water or soot water during the above mentioned months. Begin this operation early enough and do it frequently, and there will be little opportunity for the flies to deposit their eggs. Dustings with soot or lime can alternate, if desired, with the spray treatment, but I have most faith in the latter. The earlier the spring the earlier the treatment should be begun. *C. Turner, Ken Virw Gardens, Highgate.*

THE PLANTING OF HERBACEOUS PAEONIES.—My experience with herbaceous Paeonies is that it does not matter whether they are planted in October or March, provided the work is done properly. In stiff, cold, heavy soils deep trenching is the all-important point to consider, because the thick, fleshy roots are liable to injury during the winter from excess of moisture. In sandy soils the same ill-effects are not experienced. In light soils the plants need plenty of manure and moisture in dry weather. Choose an open situation, yet one sheltered from east winds, and allow the plants plenty of space to develop their foliage. Twenty-five years ago I planted three dozen varieties, and many of the plants have not been disturbed since, yet they have proved an uninterrupted success with one exception, this being due to a severe frost early in June, when many of the flower buds were injured. An annual mulching with half-decayed manure,

leaves and wood ashes in March is useful in preventing the escape of moisture from the soil in summer, thus keeping the roots cool and obviating the necessity of supplying moisture to the plants. The simplest method of supporting the flower stems is by thrusting among the plants and around them short Pea boughs. *E. M.*

DISEASED POTATOS AS FOOD FOR PIGS (see pp. 183, 200).—Based on my late father's long experience concerning this subject, I can confidently affirm that there is no danger in giving diseased Potatos to pigs, provided the tubers are first boiled. I know of several other cases where bad Potatos are always given to pigs and fowls, the tubers never being wasted. Occasionally my father gave the pigs a few of the less tainted tubers to eat raw, but the rule was to boil them in a large copper kept for cooking pig and poultry food. The very rotten tubers were put on the rubbish heap and burned with other refuse. The pigs' manure was thrown on the general manure heap, with which it got mixed, and was carted to the garden or field as required. No disease or trouble with animal or crop has ever been traced to either practice. *C.*

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 7.—The usual fortnightly meeting of the Royal Horticultural Society was held on Tuesday last in the Vincent Square Hall, Westminster. There was a small exhibition, and the weather being wet the attendance was only moderate.

Chrysanthemums were the chief feature, and these flowers, with Carnations, Begonias, Ferns, Nerines and autumn foliage constituted the principal features in the floral section. The Floral Committee recommended First-class Certificates to two Barberries.

The Orchid Committee recommended one First-class Certificate and one Award of Merit to novelties and awarded four Medals to collections.

The Fruit and Vegetable Committee's Awards consisted of two Silver Banksian Medals; one for a collection of Celeries and Leeks, and a second for fruits of *Diospyros Kaki*.

At the 3 o'clock meeting in the Lecture Room Mr. THOMAS STEVENSON gave an address on Chrysanthemums.

Floral Committee.

Present: Messrs. H. B. May (chairman), W. J. Bean, J. W. Moorman, J. Heal, G. Reuthe, John Green, C. E. Pearson, C. E. Shea, C. Dixon, John Dickson, H. Cowley, E. H. Jenkins, W. P. Thomson, W. G. Baker, A. Turner, J. F. McLeod, J. Jennings, C. R. Fielder, W. H. Page, J. W. Blakey, and R. Hooper Pearson.

AWARDS.

FIRST-CLASS CERTIFICATES.

Berberis rubrostilla Hort. (see fig. 93).—A seedling of the small-leaved section, producing handsome berries, each like a large, drop-shaped coral. The fruits are disposed along the branches, mostly in twos, each $\frac{1}{2}$ - $\frac{3}{4}$ inch long, and tapering at the base. Is one of the handsomest of fruiting Barberries. Shown from the Society's gardens at Wisley.

Berberis Sargentiana.—This Chinese species received an Award of Merit on August 31, 1915. The plant on the present occasion was showing autumn tints, some of the leaves being coloured rich, clear red, translucent in the sun. The stems also had assumed a ruddy tint, and they bore long, ivory-coloured spines which offered a sharp contrast in tone. The plant is evergreen and perfectly hardy. It is the best of the evergreen Barberries, and the colour in autumn is most brilliant. Shown by Hon. VICARY GIBBS (gr. Mr. Edwin Beckett).

OTHER NOVELTIES.

MESSRS. BLACKMORE AND LANGDON, Bath, showed a new Violet of the Princess of Wales type named Governor Herriek. The flowers are of a more purple shade than in the older variety.

The Hon. VICARY GIBBS (gr. Mr. Edwin Beckett) showed a large pot plant of the new

Berberis Juliana. The habit is denser than the companion tree of *B. Sargentiana* (see Awards), which it somewhat resembles, and the leaves are more rounded at the apex. The foliage does not assume such high tinting as the other species, whilst the stems and spines are greyish-coloured.

Mr. R. F. FELTON, Hanover Square, showed *Haakea eucalyptioides* in flower. Like all members of the *Proteaceae*, this South-Western Australian shrub is strikingly handsome, the inflorescence consisting of a ball of crimson stamens with pale sulphur-yellow styles that are hooded before they become exerted. The old fruits persist, and add further interest. The foliage is leathery, and resembles that of a *Eucalyptus*. The plant is illustrated in *Gard. Chron.*, Jan. 31, 1885, fig. 30, under its older name, *H. laurina*.

GROUPS.

The following medals were awarded to collections:—

Silver-gilt Flora Medals to Messrs. H. J. JONES, LTD., Lewisham, for Chrysanthemums. The exhibit was notable for a row of large exhibition blooms at the back, staged attractively

satiny sheen, and is especially beautiful when seen in artificial light.

Silver Banksian Medals to Messrs. ALLWOOD BROS., Wivelsfield, for Perpetual-flowering Carnations, a small but select exhibit of choice blooms. The fragrant Bishton Wonder, of a shade of heliotrope, was very fine; Triumph, crimson, Malcolm, deep salmon, and the old May Day were also uncommonly good; Messrs. J. CHEAL AND SONS, Crawley, for autumn-tinted foliage and berried shrubs, *Quercus palustris*, *Azalea mollis* and *Euonymus europaeus* had foliage of intense colouring; Messrs. GODFREY AND SON, Exmouth, for new single Chrysanthemums, including Miss Smollett Campbell, crimson; Reginald Godfrey, pale bronze; Lady Clinton, pink, and Mrs. W. J. Godfrey, pink; Messrs. H. B. MAY AND SONS, Edmonton, for Ferns, Begonias, and *Primula obconica*. The Ferns included a select collection of hardy kinds such as *Lomaria alpina*, *Polystichum angulare attenuatum cristatum*, and *P. aculeatum pulcherrimum gracillimum* Druryi; Messrs. J. PIPER AND SONS, Bayswater, for ornamental-leaved and berried shrubs and trees in pots; and Mr. C. REUTHE, Keston, Kent, for Nerines and hardy plants.

Esq., Usk Priory, Monmouthshire. A noble flower of the *C. Dreadnought* class, with large and finely formed blooms of good substance. The dorsal sepal is more than $\frac{3}{4}$ inches across, circular, and flatly arranged, the upper half being pure white and the lower portion yellowish-green, evenly spotted with purple, the markings becoming smaller and rose-purple in colour when passing to the white upper half. The petals and lip are yellow, tinged with brownish-red, the inner half of the broad petals being spotted with brownish-red.

AWARD OF MERIT.

Cypripedium A. J. H. Smith (niveum × *Hera (Eurgades)*, from Mrs. NORMAN C. COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman). A flower with the clear white ground of *C. niveum* but much larger, and approaching in form *C. Hera*. The dorsal sepal is white, the middle portion bears densely spotted lines of purple colour; the upper halves of the petals are similarly coloured, and the wax-like white labellum is tinged with rose on the face. The staminode is large and cream-coloured, tinged with rose.

PRELIMINARY COMMENDATION.

Odontoglossum General Codorna (Ossulstonii × *King Emperor*), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells. A superb *Odontoglossum*, with a single bloom of great size and fine shape. The sepals are as broad as the petals, and the spaces between the segments are fully filled in. The sepals and petals are almost covered with dark reddish-claret blotches between which is an occasional irregular white line, the broad margins being primrose-yellow. The lip has a yellow crest with small purple spotting on each side and one large claret-red blotch in front, the rest being white.

CULTURAL COMMENDATION.

To Mr. Redden, gardener to G. W. BIRD, Esq., West Wickham, Kent, for a grand plant of *Odontoglossum percutum* with a branched inflorescence over 4 feet in height and bearing 84 flowers.

GROUPS.

Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey (gr. Mr. Collier), showed a selection of hybrids which included *Laelio Cattleya Epicasta* var. *Gloriosa*, a charming form of the Gatton strain of this handsome hybrid, two of which have already secured Awards of Merit; *Laelio-Cattleya Wellesleyi splendens*, with a spike of four flowers; and two good novelties in *Laelio-Cattleya Edith* (L. C. Geo. Woodhams × *C. Enid*), with large rosy-lilac flowers having a fine, wholly purple lip; and *C. Gatton Ruby* (Amabile × *Hardyana*), with the features of a good *C. Hardyana*.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. Hannington), showed two good forms of *Cattleya Bellona* (*Maggie Raphael alba* × *Dowiana aurea*), nearest to *C. Maggie Raphael alba*, and with very handsome lip; *C. Pretoria* (Peetersii × *Dowiana aurea*), *Odontoglossum Edna* and *Odontioda Rubia*.

H. F. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed *Sophrro-Cattleya Annette* (*C. granulosa* × *S. grandiflora*) and *Sophrro-Laelio-Cattleya Veitchii grandiflora* (L. C. elegans Turneri × *S. grandiflora*), both of bright red colour.

MESSRS. SANDER AND SONS, St. Albans, staged an extensive group, which consisted principally of their remarkable strain of *Cattleya Fabia alba* (*labiata alba* × *Dowiana aurea*), the latter being the seed parent. The flowers of all the seventy-five plants had white sepals and petals, the showy labellums being rich violet-purple with gold veining from the base. At one end was a fine batch of coloured *C. Fabia*, *C. labiata* and *Laelio-Cattleyas*, the best novelty being *Laelio-Cattleya aurealis* (L. autumnalis × *C. Dowiana aurea*), the flower of which is nearly as large as *C. Dowiana*, with creamy-white sepals tinged with lilac and slightly veined with green; the petals are light rose-coloured and delicately veined; the lip is crimped at the edge and veined and spotted with purple. (Silver Flora Medal.)



FIG. 93.—*BERBERIS RUBROSTILLA*.
(R.H.S. F.C.C., November 7, 1916 See p. 235.)

in large épergues. The varieties Mrs. Kinsey, white; Bob Pulling, yellow; Mrs. Edwards, white; Frank Ladds, yellow; W. Toffield, crimson with gold-coloured reverse; Mrs. R. C. Pulling, yellow with a greenish hue, and E. Tickle, pink, were the finest of these large Japanese blooms; Messrs. W. WELLS, LTD., Merstham, for a large floor group of Chrysanthemums. In the centre of the display was a batch of the large white Japanese variety *Louisa Pockett*, and others of the large exhibition type were Sir Ed. Letchworth, silvery-pink; Mrs. G. Gibson, pink; Golden Champion and Edith Cavell. Many pretty single varieties were included, also a number of the *Caprice du Printemps* type, of which Yellow Cap, Red Cap, Lilac Cap and Bronze Cap were the more notable.

Silver Flora Medals to Messrs. BARR AND SONS, Covent Garden, for hybrid Nerines; Messrs. STUART LOW AND Co., Enfield, for Carnations and Begonias. The latter included varieties of the winter-flowering section, such as Mrs. Heal, Optima, Fascination and Emita, all well grown and freely flowering, and others of the *Gloire de Lorraine* type, the new Mrs. Peterson variety being distinct in its deeper-coloured flowers and dark foliage. The latter has a

Bronze Flora Medals to Messrs. BLACKMORE AND LANGDON, Bath, for Violets and Begonias; Messrs. WATERER, SONS, AND CRISP, LTD., Bagshot, for autumn-tinted foliage. Special features in this exhibit were *Quercus coccinea* Waterer's variety, *Acer palmatum septemlobum* Bagshot variety, and *Forsythia viridissima*, some of the leaves of the last being deep bronze and others dark crimson, but all having the reverse colour unchanged.

Bronze Banksian Medals to Mr. C. BOATWRIGHT, Herne Hill, for Palms and Aspidistras, and Mr. W. MILLER, Wisbech, for hardy flowers.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart (in the chair), Messrs. Jas. O'Brien (hon. secretary), W. Bolton, H. J. Chapman, C. J. Lucas, W. H. White, J. Cypher, H. G. Alexander, J. Charlesworth, Walter Cobb, T. Armstrong, E. R. Ashton, A. McBean, Pantia Ralli, Frederick J. Hanbury, R. G. Thwaites, J. Wilson Potter and R. A. Rolfe.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cypripedium Mrs. Hilary Jenkinson (parentage unrecorded), from R. WINDSOR RICKARDS,

MESSRS. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, staged an effective group of hybrids, in the centre of which was a splendid plant of *Odontoglossum amoenum* with a tall, branched spike of ninety-seven creamy-white flowers blotched with purple. In the centre was a selection of Orchidhurst white seedlings, including *Cattleya Saturn* and *C. Cleodiana alba*, with a good example of *C. O'Brieniana alba*, which was used in producing some of them. Several hybrid *Odontoglossums* with their first flowers, good *Laelio-Cattleyas*, including a fine form of a very dark *L.-C. luminosa*: a pure white *Laelia pumila alba* raised from seed, and good red *Odontiodas* were also noted. (Silver Flora Medal.)

MESSRS. CHARLESWORTH AND CO., Hayward Heath, staged an excellent group of finely grown hybrids in which the beautiful forms of *Cattleya Scrbia*, one of the finest in shape when seen in a good variety, were prominent. Among *Laelio-Cattleyas* *L.-C. Salonika* (*L.-C. Fascinator albens* × *C. Warszewiczii* Fr. M. Beyrodt) with large and finely formed flowers with clear white sepals and petals having a slight pink shade, and large violet-purple lip with yellow centre; and *L.-C. Numidia* (*C. Empress Frederick* × *L.-C. Golden Onole*), with pretty copper-red flowers beautifully veined with rose and having a crimson front to the lip, were specially fine. *L.-C. Britannia* and two pure white *Brassia-Cattleya Queen Alexandra* were included. (Silver Flora Medal.)

MESSRS. J. CYPHER AND SONS, Cheltenham, arranged an effective group, in the centre of which the fine yellow sprays of *Oncidium varicosum* arched over and mingled with the white, rose and purple sprays of *Dendrobium Phalaenopsis*, a plant of the wholly white variety *hololeucum* being also shown. A fine selection of forms of *Cypripedium Leeanum*, *C. Maudiae magnificum*, *C. Corsair*, *C. Gaston Bullet*, *C. Rossetti*; excellent forms of *Cattleya labiata*, *C. Fabia* and *C. Bowringiana*, including the richly coloured *C. Bowringiana atrosanguinea*; a finely flowered *Miltonia Candida grandiflora* and some smaller species gave interest to the display. (Silver Flora Medal.)

MESSRS. FLORY AND BLACK, Orchid Nursery, Slough, showed *Brassia-Cattleya Merlin* (*C. Lord Rothschild* × *B.-C. Mme. Chas. Maron*), a handsome rosy-lilac-coloured flower with finely fringed lip; and *Odontioda Sunbeam*, of good shape, cream-white, closely spotted with bright red.

R. WINDSOR RICKARDS, Esq., Usk Priory, showed a *Cypripedium* between *Germaine Opoix* and *insigne Harefield Hall*.

MESSRS. STUART LOW AND CO., Jarvisbrook, Sussex, sent *Cattleya Prince John Low's* variety (*Hardyana* × *Dowiana aurea*), with white sepals and petals and a fine ruby-red lip with yellow disc.

MR. C. F. WATERS, Balcombe, showed a very dark-coloured *Cypripedium* of unrecorded parentage.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (vice-chairman), W. J. Jefferies, W. Bates, E. Beckett, W. Pope, A. Bullock, E. Harris, W. C. Humphreys, J. Jaques, E. A. Bunyard, Owen Thomas, P. D. Tuckett, A. R. Allan and A. W. Metcalfe.

Silver Banksian Medals were awarded to the Duke of DEVONSHIRE, Chatsworth, Derbyshire, for fruits of *Diospyros Kaki*, and the Hon. VICARY GBBS, Aldenham House, Elstree (gr. Mr. Edwin Beckett), for Leeks and Celeries. The Leeks were exceptionally large, and comprised the varieties *Prizetaker*, *Royal Favourite* and *Improved Musselburgh*.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

NOVEMBER 1. —The annual meeting of the Glasgow and West of Scotland Horticultural Society took place on the 1st inst. It was reported that as a result of the show held in September the sum of £435 had been paid over to the Red Cross Society and other war funds. The income for the past year constituted a record in the history of the society. Sir John Stirling-Maxwell was re-elected President.

LAW NOTE.

VAPORITE AND WIREWORMS.

IN the Lord Mayor's Court, on October 26 and 27, before the Common Serjeant (Sir F. Bosanquet, K.C.) and a jury, *The Strawson Chemical Co., Ltd., v. Cooke* came on for hearing. This was a claim made by the plaintiff company, manufacturers of Vaporite, against Mr. Thomas Cooke, farmer, of Bradwell, Norfolk, to recover the sum of £36 in respect of 4 tons of Vaporite sold and delivered. The defendant, in the proceedings, denied that he was indebted, and set up that it was a term of the contract that the Vaporite would kill wireworms on his land and consequently improve his crops. In breach of the said contract the Vaporite did not, after a fair trial, kill wireworms, nor improve the said crops. He had thereby been induced by misrepresentation to enter into the said contract, and claimed damages for breach of warranty.

Mr. Vachell, K.C., said Vaporite was an article in powder form manufactured by the plaintiffs. The Vaporite in question was sold by Mr. Layton, plaintiff company's representative for the Eastern Counties, to the defendant, a farmer living in Norfolk and who was in a large way of business. The Vaporite had been delivered and no doubt used, but the defendant refused to pay. The grounds for his refusal were (1) because at the time he gave the order he was told that Vaporite had been used by a gentleman in the neighbourhood, Mr. S. Rolfe, who had obtained good results from it. There was no suggestion, counsel said, that such representation was made fraudulently, but that it was untrue. He (counsel) would prove no such representation was made, and (2) that it was a term of the contract that Vaporite would kill wireworms on the defendant's land and consequently improve his crops. In breach of the said contract the said Vaporite did not, after a fair trial, kill wireworms nor improve his crops, and on those grounds he sought to escape payment. Vaporite had been manufactured by plaintiffs for twelve years, and if there was one thing it was confidently expected to make clear it was that that material was an excellent friend to the farmer and grower, and was used by some 100,000 growers and agriculturists in this country annually. This was an attack on the plaintiffs' staple production, and there was a substantial number of farmers and growers, who cultivated many thousands of acres between them, who would give important and conclusive evidence that Vaporite having been applied on the land that was pest-ridden with wireworm, upon which it was impossible to grow crops without coming up patchy, had become productive of vegetable life and raised such crops as had never been known before. In order to benefit the farmer the material had to be properly applied and worked into the ground upon the day of application, the land having previously been prepared.

Mr. Alfred Edgar Layton, now serving in H.M. Forces, gave evidence of having taken the order from the defendant. He had explained to the defendant the method of applying the Vaporite to the land, but he had never guaranteed that the stuff would kill wireworms on his particular land. He said it would kill wireworms and improve crops, but he did not say it would kill his (defendant's) wireworms. Cross-examined, witness said if sufficient Vaporite was put on the soil it would kill insects, assuming the simple prescriptions were carried out. If it was an exceptionally dry season Vaporite would be much slower in its action. Assuming wireworms were as plentiful in 1915 on defendant's land as before, and the material properly applied, a dry season would retard its action. He had said to the defendant that probably the Vaporite put down would benefit the crops of 1916, and the defendant replied that if it did benefit the crops of 1916 he would pay. If he was told that the defendant's crops for 1916 were as abundant in wireworm as in 1914 it would be a question whether the material had been correctly applied. In June last year sixteen complaints were received out of 3,000 customers from Norfolk. After several well-known farmers in the Eastern Counties had given evidence as to the efficacy of Vaporite

for the destruction of wireworms, Mr. Alan Guthrie Benson, managing director of the plaintiff company, said the war had not affected Vaporite in its constitution or essential ingredients. It was manufactured in such quantities that it never varied. It was an article growing in popularity, and they estimated that 100,000 growers and farmers were using it annually. They had received a very large number of testimonials—as many as 62 by one day's mail.

For the defence, Mr. Wild, K.C., said that the defendant's case was that Mr. Layton, plaintiffs' representative, in February, 1915, guaranteed or warranted that the stuff he was selling for the plaintiff company was a material that would kill wireworms on Mr. Cooke's land. It was not a general recommendation that Vaporite was a material that in other cases had killed wireworms, but that it could be used by him. Under the Sale of Goods Act, where there was a warranty or even a term in the contract and goods were accepted one could pay an amount in diminution or extinction of the price. Therefore, when the defendant was asked to pay £36 for 4 tons of Vaporite, and they (the jury) believed that a warranty or guarantee was the business effect of the interview between the plaintiffs' representative and the defendant, and that the stuff proved useless, the defendant was entitled to such a diminution of price that there would be nothing to pay to the plaintiffs. The Vaporite was bought for a specific purpose for use on the land, which had not benefited by the destruction of a single wireworm. It would be proved by evidence to be useless stuff. The material had been properly applied and had had every chance. It was administered in four different lots of four different 10 acres of land, 40 acres in all, and applied in accordance with the directions on the plaintiffs' circulars. There was the fact given in evidence that a number of farmers in the defendant's neighbourhood, who had given the Vaporite a trial, and found it to be perfectly useless. There had been discussions between the plaintiffs' representative and the defendant on the Norwich Corn Hall after the Vaporite had proved a failure, and in the course of conversation defendant had said if the Vaporite proved any good to him in the 1916 season he would pay for it. It was suggested that the climatic conditions prevailing in the 1915 season were such that Vaporite did not have a fair chance. In the 1916 season the climatic conditions were reversed, but wireworms were in equal abundance.

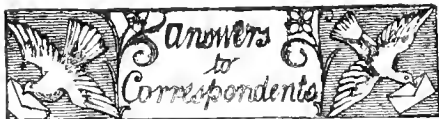
Mr. Thomas William Cooke, Hobland House, Bradwell, Norfolk, farmer, said he farmed about 2,000 acres, and had twenty-three years' experience. He had given the plaintiffs' representative an order for 4 tons of Vaporite on condition that he would guarantee it to kill wireworms. The stuff was ordered, delivered, and given a fair trial, and found to be useless. Wireworms were a serious trouble in his part, and if the material had been a success he would have been prepared to have given a big order for it. At the close of the defendant's evidence the Common Serjeant said he was not satisfied that the defendant had shown any warranty that the Vaporite supplied would kill wireworms on his land. As all of the evidence on that point had been given he would, at that stage of the case, put the question to the jury as to whether they, as business men, thought there was a bargain made out that the Vaporite should kill wireworms on the defendant's land.

The jury found there was no specific guarantee in respect of the Vaporite sold to the defendant. A verdict was returned for the plaintiffs for the amount claimed. A stay of execution was granted for ten days upon the defendant bringing £36 into Court, and the taxed costs paid upon the undertaking of the plaintiffs' solicitors to return them if unsuccessful.

AGRICULTURAL RELIEF OF ALLIES.—Among the contributions to the Agricultural Relief of Allies Fund during the past few days is a draft for £240 from the Manawatu and West Coast Agricultural and Pastoral Association of New Zealand. The amount so far forwarded from New Zealand to Mr. Adeane, the honorary treasurer of the Fund, approaches £300.

Obituary.

PROF. H. H. W. PEARSON.—A brief cable message in the *Times* of November 6 announced the death of Professor H. H. W. Pearson, Director of the National Botanic Garden of South Africa. The news has come as a severe shock to Professor Pearson's many friends in this country, who had no reason to anticipate that a career begun so brilliantly would be cut short on the threshold of middle age. Professor Pearson belonged to that somewhat small band of botanists which serves to prevent a total alienation between botany and horticulture. Although he had done notable work in the domain of pure botany he will be remembered most for his untiring exertions on behalf of the establishment of the National Botanic Garden at Kirstenbosch. In this most successful enterprise Professor Pearson was ably seconded by Sir Lionel Phillips and other public men in South Africa. Thanks to these efforts and to the modesty, tact and pertinacity of Professor Pearson, the gardens were established, and under his energetic direction bid fair to become one of the great botanic gardens of the world. An account of the site of these gardens and of the scheme, according to which it was proposed to develop them, is to be found in these pages* from the pen of Professor Pearson. After completing his botanical training at Cambridge, Pearson received the appointment of Professor in the South African College. In spite of his laboratory training—a training which so often prevents botanists from "seeing the wood for the trees"—he at once became active in forwarding the general botanical interests of South Africa. He travelled widely, and in particular explored the inhospitable regions of Namaqualand, and contributed an account of his journeys to these pages,† while still maintaining touch with academic botany and contributing valuable papers to the journals which deal with that aspect of the science. Prof. Pearson became more and more interested in the floristic side of botany. He was instrumental in bringing about the establishment of the *Annals of the Bolus Herbarium*, a periodical established in the interests of South African botany, and particularly designed "to treat of botanical work inspired directly or indirectly by Dr. Bolus, and with investigations conducted in or in connection with the Bolus herbarium." But above all his heart was set on the establishment of a great botanic garden wherein the floristic treasures of South Africa should be worthily preserved and displayed. This he achieved, and although he received well-deserved honours, such as Fellowship in the Royal Society, the most lasting honour which he won lay in the foundation of the National Gardens. His manner was quiet; his unassuming air hid a power of tenacious resolution. Not loquacious nor demonstrative, he had, nevertheless, the rare genius for friendship, and his many friends in England had firm confidence that what he undertook that he would see through. His early death is a severe loss to science, and a heavy blow to his friends and colleagues.



ADDRESS: *Horticultural Trades Journal*, Hortus Printing Co., Ltd., Junction Street, Burnley.

BOOK: *Constant Reader*. *British Floral Decorations*, by R. F. Felton. Price 4s., post free, from our Publishing Department.

HYDRANGEAS FOR MARKET: *B. W. L.* Select for cuttings the stout shoots that would flower the following season, and insert them in July in pots filled with sandy soil. Strike the cuttings in a close propagating case furnished with warmth. Roots will soon develop, and

at that stage the plants should be hardened gradually. When the pots are well filled with roots shift the plants into pots 5 inches in diameter, using fibrous loam, lightened, if necessary, by a little leaf-mould and sand. The plants should be wintered in a place free from frost. When the leaves have dropped less water is required at the roots, it being only necessary to keep the soil moderately moist in winter. With the advent of spring the plants will, if placed in gentle heat, grow freely, and at that stage stimulants should be applied. In order to obtain large plants carrying two, three or more heads of blossoms those that do not flower in a satisfactory manner may be cut back, and, when they break out into growth, shifted into 6 or 7-inch pots. With regard to the production of blue flowers, watering with a solution of iron alum is attended with satisfactory results (see *Gard. Chron.*, June 21, 1913, p. 422). The treatment employed by those who make a speciality of blue Hydrangeas is a jealously guarded secret, though there are at least two preparations that can be depended upon to give to Hydrangea flowers the much-desired blue tint. One, known as Cyanol, is of Continental origin, and can be obtained from the horticultural sundriesmen, while the other, Azur, is sold by English nurserymen. It is essential that both the water and soil be free from chalk, hence rainwater is preferable for watering. The following varieties are among the best in cultivation: Madame Emile Mouillière, the most popular white-flowered sort; Lilie Mouillière, deep rose; Elcœur, one of the deepest coloured of all; Cyanolada, with almost black stems and rose-coloured flowers; and Générale Vicomtesse de Vibraye, rose. The last two are the best for the production of blue flowers; the white or very light-coloured kinds should not be employed for the purpose. A further selection may be made from La Perle, white, with fringed flowers; Président Viger, bright rose; Radiant, bright carmine-rose; and E. G. Hill, pink.

NAMES OF PLANTS: *G. E. D.* 1, *Tilia platyphyllos* var. *Asplenifolia*; 2, *Berberis Fortunei*.—*Kerry*. 1, *Cryptomeria japonica*; 2, *Olearia Haastii*; 3, *Quercus lucumbeana*; 4, *Acer rubrum*.—*Novice*. *Euonymus europæus* (Spindle tree).—*W. W. Congleton*. 1, *Crinum amabile* var. *augustum*, figured in *Bot. Mag.* t. 2,397 as *Crinum angustum*; 2, *Diosma ericoides*.—*Gard.* *Crataegus tenacitifolia*.

PEACHES WITH FREE STONES: *Peach Lover*. The Peaches you name are all "freestone" varieties, and are to be recommended in preference to the "clingstone" Peaches.

PEAT AND SAWDUST MANURE: *R. V. A.* Both peat and sawdust are very absorbent, and would retain the greater quantity of the urine and other liquid constituents from the manure. Both are also retentive of ammonia compounds. The danger would arise from the sawdust, if it contains much resinous matter, and sawdust from coniferous wood is the worst in this respect. However, it is claimed by some authorities (e.g. Wheeler, *Manures and Fertilizers*, p. 22) that some manures are as valuable with sawdust litter as when straw is employed. Without being prepared to assent to this we suggest that, inasmuch as the sawdust is only one part in six, and that you can obtain the manure free, you would be well advised to take advantage of the offer, but stack it for as long a time as possible before use.

PIG MANURE: *J. P.* Pig dung is rich in plant food, but decomposes very slowly, and is best mixed with other animal manure. You would do well to mix it with the Oak and Beech leaves, as you suggest, and allow it to remain in a heap for some time before spreading it on the soil.

ROSES FOR POT CULTURE: *R. E. R.* The following varieties will be suitable for your purpose: Richmond, Sunburst, Mme. Abel Chateau, Catherine Mermel, Alexander Hill Gray, Caroline Testout, Lady Pirrie, The Bride, White Maman Cochet, Lady Hillingdon, Kaiserin Augusta Victoria, Captain Hayward,

Mrs. John Laing, Melody, Général Jacqueminot, Mme. Ravary, Bridesmaid, Mrs. A. R. Waddell, White Killarney, Lady Roberts, Mrs. Herbert Stevens, Mrs. W. J. Grant and Ulrich Brunner.

THRIPS IN A VINERY: *H. S. N.* Seeing that the *Pyrus* plants on the outside front wall of the vinery, the Azaleas, which are housed in the vinery in winter, and the vines themselves, are all infested with thrips, it is impossible for us to say which started the infection. You ask how to prevent a recurrence of the pest next season. Obviously measures must be taken to cleanse all the plants thoroughly of the insects. This may be done by syringing with tobacco-water and fumigating the vinery with a nicotine preparation. In summer wash the *Pyrus* with the hose on frequent occasions and treat the Azaleas similarly, placing the pots on their sides to reach the undersides of the leaves with the stream of water.

TO LAYER A YEW TREE: *A. H. P.* The lower branches of your Yew tree can be layered easily, and the present is a suitable time to do the work. The portions to be layered should be from 1 foot to 2 feet in length, and the part that is inserted in the soil should be cleared of all leaves and side-shoots. Dig the soil and remove all stones and roots. The branches should be cut from the undersides 1 foot to 2 feet from the tip in a slanting direction towards the tip of the shoot, making the cut portion about 2 inches in length and rather less than half-way through the branch. The latter should then be inserted 4 inches to 6 inches deep in the soil, and the end bent as near as possible to a right angle, so that the potential plant is as nearly upright as it can be made without breaking the branch. Special soil is not necessary, but the addition of sharp sand is beneficial. Make the soil firm around the layers, which should be tied to a short stick to keep them firm. It may be necessary to drive stout pegs into the ground to keep the branches down, but, from the description of your plant, this may not be necessary. The layers may be severed from the parent plant in two years, when they should be well rooted.

VINE BORDER: *E. C.* Apply very finely-ground basic slag to the vine border at once, at the rate of 10 lbs. to the perch. A good coating of wood ashes or burnt vegetable refuse applied at the same time, or when you have it, would also be beneficial.

VINERY: *P. E. M.* The weather since the ripening of the berries has not been favourable to the keeping of Grapes, the temperature being so high at times as to unduly excite the vines. Whether ventilation should be allowed on cool nights depends on circumstances. If the vinery is ventilated in the morning before the temperature outside rises there is no necessity for the ventilators to remain open at night. Grapes cut from a cool vinery as soon as they were ripe, and suspended in a dry shed with their stems in water, have kept well, as have those which remained on vines and which had a little fire-heat at night, with abundant ventilation during warm days. If the pot vines can receive full sunlight, without shading the permanent vines, they may be fruited in the same house. Black Hamburg is the best variety for this purpose, and also for planting permanently in a cool house. Black Alicante is the next best choice, and easy to grow, if a later variety is required. Figs on the back wall of a vinery will do no harm to your Vines provided they are kept perfectly free of red spider, but they are not likely to fruit well owing to insufficient light. Figs are amongst the most productive of indoor fruits, and they deserve a better position than the one proposed.

Communications Received.—Mrs. A. W.—Norvic.—W. D. and S., Ltd.—B. A.—Mrs. E. P. R.—H. F.—J. P.—G. P.—W. A.—C.—T. D.—A. M.—A. J. G.—H. T. S.—H. F. M.—G. H.—T. H.—G. B.—W. W. P. Manchester.—W. R.—F. R. S.—J. B.—S. B.—J. G. W.—N. McLeod, B.E.F.—W. B. H.—G. C.—R. C. Benedict, Brooklyn, N.Y.

* *Gard. Chron.*, August 29, 1913.

† *Gard. Chron.*, July 29, 1911, et seq.

THE

Gardeners' Chronicle

No. 1560.—SATURDAY, NOVEMBER 18, 1916.

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OF THE RECOGNITION OF APPLES —"TRUELLE'S LINE."

IN 1839 C. McIntosh*, after agreeing with London's remarks on the difficulty of delineating and describing Apples with sufficient perfection to ensure certain recognition, remarks "that the shades of difference between fruits are in general so slight, and these so liable to be changed by soil, situation, climate and cultivation, that it is often difficult to find sufficiently permanent marks by which one fruit may be distinguished from another." With the intercrossing and making of new varieties the situation is probably now much more complex than it was in those days, and it behoves us to be as accurate, as complete and as detailed as possible in our descriptions not only of newer introductions, but also of well-known older types; so that other features, hitherto undefined, should be added if possible to aid in the means of identification. The veteran pomologist, Monsieur A. Truelle, of Trouville-sur-Mer (*L'Art de Reconnaître les Fruits de Pressoir (Pommes et Poires)*, Paris, 1893), calls attention to a character amongst the anatomical features which he terms "Anastomoses." The four points he investigates amongst the anatomical characters are "(a) de la direction de l'oeil vers l'axe central constituant une petite cavité qui correspond, au point de vue botanique, à la direction et à l'épanouissement des styles hors de l'ovaire; (b) de la marche dans le mésocarpe ou pulpe des faisceaux appartenant aux verticilles extérieurs, sépales, pétales, étamines, circonscrivant dans la pulpe l'espace central auquel on a donné le nom de 'cœur'; (c) de la présence ou de l'absence des anastomoses de ces différents faisceaux; (d) de la courbe

décrite par le fruit suivant une coupe transversale faite en son plan médian et de l'observation des protuberances et des saillies qu'elle comporte." . . . "DES ANASTOMOSES.—Enfin la circonférence* décrite, passe-t-on à un examen un peu minutieux de la coupe (transversale) on voit au centre, une petite circonférence, ou un vide parfois très irrégulier, en raison de la maturité de la fruit, correspondant aux placentas et faisceaux placentaires; puis cinq loges disposés avec une plus ou moins grande symétrie, plus ou moins ouvertes ou déchirées, pour la raison donnée ci-dessus. Ces caractères ont moins de valeur, puisqu'ils sont subordonnés au moment où l'on fait la coupe, laquelle peut avoir lieu à une époque de maturité plus ou moins avancée, mais ceux qui ont davantage proviennent de la présence ou de l'absence de très petites lignes réunissant les loges ou carpelles entre elles et qu'on appelle 'anastomoses.' Beaucoup de variétés en sont dépourvues ou, tout au moins, je l'ai constaté sur des coupes faites pendant les récoltes 1889 et 1890. Cette observation a son utilité pratique; je suis même convaincu que je m'en servirai plus tard pour différencier plus sûrement un bon nombre d'espèces. Les Poires ne présentent point ces anastomoses." It is particularly with the presence or absence of these "anastomoses" in our table and dessert and culinary fruit that this contribution is concerned. So far as I am aware attention has not been attracted to the matter, and in some cases it may form an aid to recognition. For instance, last year a somewhat atypical example was thought by some to be Beauty of Kent, and by others to be Annie Elizabeth: in cross section it showed no Truelle's line, thus confirming the former view, which was subsequently established by better specimens from the same tree.

Truelle's term "Anastomoses" is unfortunate, as it is clear that the line is not due to the presence of vascular bundles; both by inspection with lens and from microscopical sections it can be seen that the fibrovascular bundles ramify out into the pulp; and in the latter case the line is seen to depend upon the arrangement and character of parenchyma cells. On enquiry at Kew, Mr. Boodle, of the Jodrell Laboratory, reported: "Presumably they (the lines) are bands of narrow cells such as occur in some Apples between the main bundles of the fruit. They may be connected to some extent with dilatation of the parenchyma during the growth of the flesh of the Apple." There seems to be scope for an investigation into the minute anatomy of the fruit, but the existence of the line appears to depend upon the amount and mode of development of the parenchyma within the core area, which in the case of some varieties is markedly more translucent than that without the area. The section of a Quince (F. fig. 94) shows that the core parenchyma is but little developed, and the pip-loculi lie close together. As the term "Anastomoses" is evidently a misnomer, it would be better

to call the line the "core limit line," or, in graceful appreciation of the discoverer, "Truelle's Line."

On comparing some results obtained from mature fruits last season with those from immature fruits this season it was found that reliable appearances were obtained, and this facilitated the examination of a considerable number of varieties. In order to make sure that the records should be as accurate as possible, I obtained specimens from different sources, and must acknowledge my indebtedness for material to my friend Mr. F. Bostock, to the King's Acre Nurseries, and Mr. C. Powell of Warham, for the more considerable collections.

The section should be made at about the widest part of the fruit, and a thin-bladed sharp knife (e.g., a much-worn table knife) should be used so as to get a clean cut, which severs the vascular bundles transversely. Where present, Truelle's line appears sometimes rather more clearly on the one half than on the other, especially when it is delicate and thin, and sometimes more clearly after a short exposure to the air; it usually shows as a beautiful tracery of a bracket (—) across the intercarpellary sector, on the centre side of the ten bundles, but looping out between them into the pulp, as is seen in the tracing from Newton Wonder (B. fig. 94), in which specimen, as often occurs, the ten bundles are not placed with true symmetry. In some cases the line is partial and incomplete (New Hawthornden, C. fig. 94); these two types have been described by Truelle amongst vintage varieties; it may also pass in an even curve, as I have found in Bismarek. Eeklinville Seedling is worth mention as one with an incomplete line (D. fig. 94), for a distinct irregular ring is seen in the intercarpellary sector. This proved so unique an appearance that I obtained specimens from five different sources, all of which confirmed the peculiarity. In some cases the bracket form of line is not well seen, and it passes along in wild irregularities; this was especially well marked in Easter Orange (E. fig. 94) (one source only), in which the line passed right to the periphery, where on the surface small lesions could be detected (xx), perhaps due to retention of sepals, as sometimes occurs. It may be noted that irregular appearances are given if the section is not truly in the transverse axis.

Besides Truelle's line, a number of features are exposed in the cross section: thus the bundles may be very fine and inconspicuous, as in Devonshire Quarrenden, or very thick and gross, as in New Northern Greening; the core area may be relatively large or small; the condition of the central tube, sometimes obliterated by pressure, sometimes fine, sometimes large and wide, or, lastly, ruptured into the pip cavities; and it is curious how early this rupture takes place in the development of the fruit in which it occurs. In immature fruit the condition of the eye and the habit of the sepals are, perhaps, worthy of further attention.

*The Orchard.

Trace on paper of outline.

It will be most convenient to arrange the various fruit that have been examined in alphabetical order.

TRUELLE'S LINE, APPLES, AS SEEN IN HALF-GROWN SPECIMENS.

x Complete. † Incomplete. o Absent.
 Adams's Pearmain x Well marked.
 Alfriston x Well marked: Bundles rather gross.
 Allington Pippin x Tend to break up and become irregular as fruit grows: Bundles medium.

Cox's Orange Pippin † Not well marked, irregular: Bundles fairly fine.
 Cox's Pomona x Strong, well marked.
 Crimson Queening † Rather irregular.
 D'Arcy Spice x Well marked.
 Devonshire Quarrenden o Bundles very fine.
 Dumelow's Seedling x Well marked: Bundles medium.
 Dutch Mignoane x Very well marked.
 Early Red Margaret x Well marked.
 Easter Orange x Very wild line: Bundles medium.
 Ecklinville Seedling † Incomplete: Curious ring figures.
 Edward VII x Well marked.

King's Acre Pippin o.
 Lady Sudeley x Faint, irregular: Bundles rather fine.
 Lang's Prince Albert x Well marked: Bundles rather fine.
 Langley Pippin o.
 Loddington o.
 Lord Burghley x Strong. Bundles medium.
 Lord Derby † Few incomplete irregular lines.
 Lord Grosvenor o.
 Lord Hindlip x Thin
 Lord Suffield o.
 Lord Lennox x Well marked: Bundles rather coarse.
 Margil x Well marked: Bundles do not show out strongly.
 Monstruense Incomparable o.
 Mrs. Phillimore † Few incomplete slight lines: Bundles medium.
 New Hawthornden † Some irregular lines: Bundles medium.
 New Northern Greening o Very coarse bundles.
 Newton Wonder x Well marked: bundles coarse.
 Norfolk Beeing x Rather irregular and weak: Bundles rather coarse.
 Old Hawthornden † Irregular, incomplete: Bundles fine.
 Ormead Pearmain † Few irregular lines.
 Peasgood's Nonesuch o Bundles punctiform.
 Queen x Well marked.
 Red Victoria † Rather irregular and incomplete.
 Ribston Pippin x Fairly well marked, but thin.
 Renown o.
 Rival x Thin, but well marked, tend to be irregular. Bundles rather fine.
 Royal Jubilee o.
 St. Edmund Russet Incomplete, irregular.
 Schoolmaster o.
 Stirling Castle o.
 Tom Putt o.
 Tyler's Kernel o.
 Warner's King o Bundles rather coarse.
 Wealthy x Strong: Bundles medium.
 White Transparent o.
 William Crump x Well marked, thin: Bundles medium.
 Winter Queening x Well marked; line rather even
 Wismer's Dessert o Bundles slender.
 Worcester Pearmain x Well marked.
 Wyken Pippin x Well marked.

Herbert E. Durham.

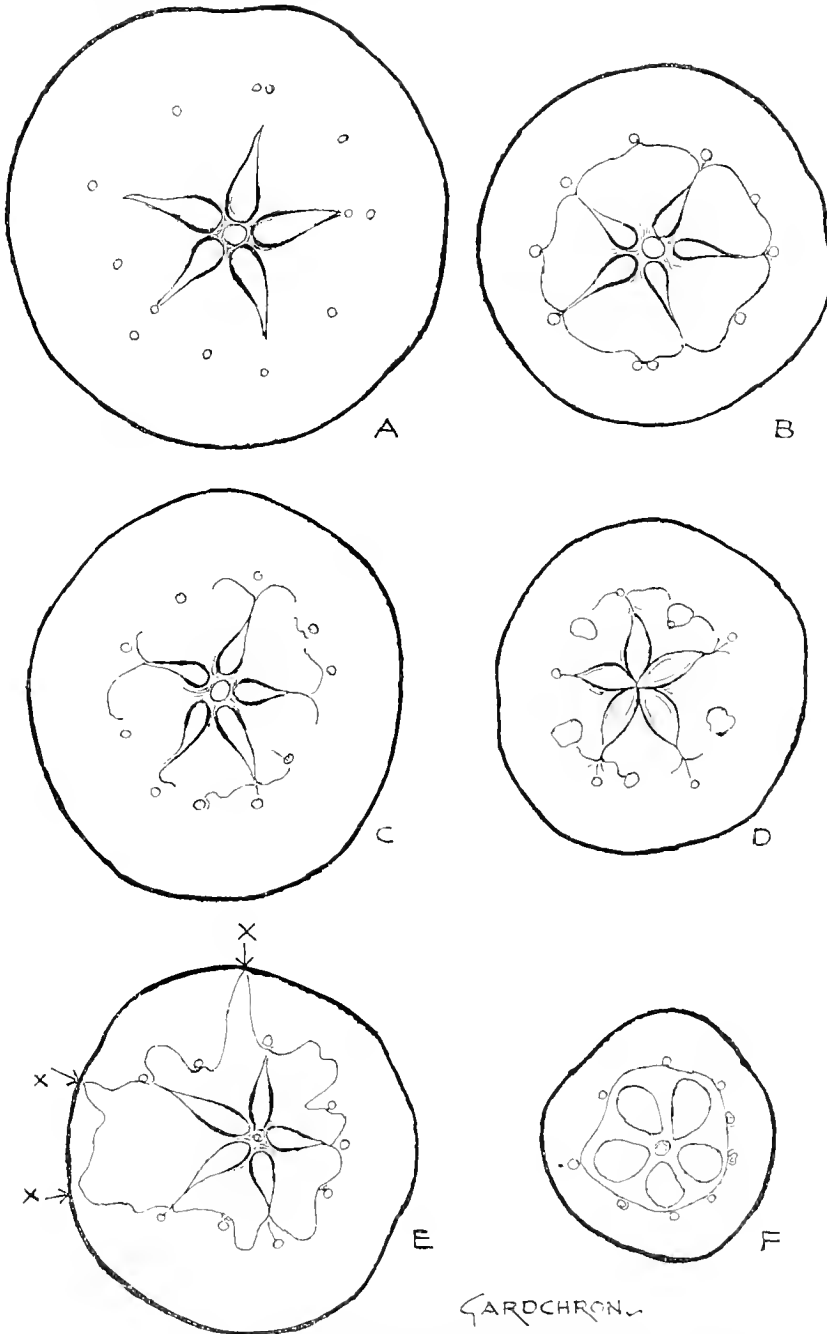


FIG. 94.—CROSS-SECTIONS OF APPLES AND A QUINCE SHOWING TRUELLE'S LINE.

A. Peasgood's Nonesuch. B. Newton Wonder. C. New Hawthornden. D. Ecklinville Seedling.
 E. Easter Orange. F. Cydonia japonica (Quince).

American Mother o Bundles rather coarse.
 Annie Elizabeth x Well marked.
 Baron Walseley † Few irregular lines.
 Beauty of Kent o
 Ben's Red o
 Bismarck x Strong: Very even line
 Blenheim Pippin x Rather fine, tend to be incomplete.
 Bramley's Seedling x Well marked.
 Celbi Pippin o
 Charles Ross o
 Claygate Pearmain † Few straggling short lines or absent: Bundles medium.
 Coronation x Well marked

Egremont Russet o Bundles punctiform: Section rather pear-like.
 Emperor Alexander o
 Gascoyne's Sc. Seedling x Well marked.
 Gladstone x Faint; tend to be incomplete.
 Gold Medal x Well marked.
 Golden Noble o
 Hambling's Seedling o
 Irish Peach o
 James Grieve x Slender, complete: Bundles fine
 Kerry Pippin o
 Keswick Codlin o Bundles fine.
 King of the Pippins † Fairly complete, fine: Bundles rather coarse.

ORCHID NOTES AND CLEANINGS.

BRASSO-CATTLEYA MRS. RICKARDS.

A FLOWER of Brasso-Cattleya Mrs. Rickards (B.-C. Digbyano-Mossiae var Queen Alexandra), a stately and delicately coloured hybrid, is sent us by Mr. Windsor Rickards, Usk Priory, Monmouthshire. The width of the flower is eight inches, the petals and lip being three inches across. The colour is silver-white tinged with light pink, and the disc of the handsome fringed lip is chrome-yellow. There are light claret-coloured lines from the base of the lip to the centre, and an elongated purple blotch from the disc to the front.

SOPHRO-LAELIO-CATTLEYA ISABELLA.

MR. RICKARDS also sends a two-flowered inflorescence of Sophro-Laelio-Cattleya Isabella (S.-L.-C. Marathon x C. Fabia), the blooms being five inches across, and shaped like those of C. Mossiae. The hybrid presents some interesting points in heredity, the most important item being the influence of the parents of Sophro-Laelia Psyche (L. cinnabarina x S. grandiflora), one of the parents of S.-L.-C. Marathon, in passing on strong evidence of their red and orange colour through successive crossings. The sepals and petals are light ruby-red with an underlying shade of orange scarlet, and a slight violet flush on the surface. The lip is dark ruby-red, with a beautiful gold veining running from the base to the centre. Both these plants were raised by Messrs. Charlesworth and Co.

LAELIO CATTLEYA ST. GEORGE.

A FLOWER of this new hybrid raised between L.-C. St. Gothard (C. Warneri x L. tenebrosa) and C. Fabia (labiata x Dowiana aurea) is sent by Pantia Ralli, Esq., Ashted Park, Surrey (Orchid grower, Mr. W. H. White). The flower, which is of good shape, the sepals especially being broad and well displayed, mainly discloses the features of C. Warneri and C. labiata, the colour being similar to typical forms of those species. C. Dowiana aurea appears in the veining, on the lip which is silvery-white, tinged with yellow in the centre, and not of the dark yellow colour of C. Dowiana. The pollinia also show but the slightest trace of the Laelia parent, the preponderance of Cattleya suppressing it.

The sepals and petals are coloured light rosy-lilac, the lip being of a dark shade of rose, with a light purple front, into which whitish, branched lines run from the base. The petals and lip are wavy at the edge and slightly fringed.

CALANTHES AT STANMORE HALL.

IN the gardens of W. K. D'Arcy, Esq., Stanmore Hall, near London, Orchids are not a speciality, and only *Calanthes* and a few others desirable for winter flowers are grown. But, as is often noted where a few kinds of Orchids are grown for special purposes, the results are better than the average in general collections of Orchids. The *Calanthes* grown at Stanmore Hall are principally *C. William Murray* and *C. Brian*, with smaller batches of *C. Veitchii superba* and *C. Regneri* for later flowering. The growing period has passed, the foliage on the stout plants in the range in two compartments which they occupy is passing away, and the plants are furnished with a profusion of flower-spikes, the earliest of which are about to expand their blooms. In gardens in the neighbourhood of London, where fogs prevail in winter, and in smoky manufacturing cities, *Calanthes*, unless very carefully treated, fail to expand their blooms in foggy weather, or, if the flowers do expand, they quickly fade. In his earlier experience, Mr. Taylor, the gardener at Stanmore Hall, overcame this difficulty by closing the ventilators when fogs commenced, and slightly raising the temperature of the house until the troublesome time is passed. The flowers now expand as perfectly and last as long as those grown in more favoured parts. In clear, mild weather, a little top ventilation is given day and night, but on the approach of fog all the ventilators are closed until the atmosphere is clear again.

TREES AND SHRUBS.

PROPAGATING HYDRANGEA HORTENSIS AND OTHER SHRUBS.

HAVING the proper conveniences for propagating this *Hydrangea*, I have not tried cuttings (see p. 206) nor layering (see p. 222), but as "necessity is the mother of invention," I should not hesitate to try both those methods if I wanted young plants. The secret of propagating many shrubs in summer is to select cuttings before the wood gets too hard, and to confine the moisture about them by means of a hand-light or bell-glass, and if these are put under a frame so much the better. The frame accumulates the heat of the sun, and the hand-light prevents excessive loss of moisture by transpiration from the young leaves. By this means I have rooted *Euonymus japonicus foliis aureis*, *E. j. latifolius albo-variegatus* and Golden Privet. The growing points of the latter root in half the time that the base of the same shoot requires in June or July. Both the varieties of *Euonymus* can be rooted in the open ground if care is taken to select shoots that have not burst the terminal bud, for this may happen at different periods of summer. When the young leaves are half expanded they lose so much water by transpiration as to cripple the cutting and delay or prevent rooting. Of course, the cuttings in the open must be watered and kept moist for the first fortnight till they callus and commence rooting. This method takes less time and attention than in a cold frame. I also made experiments with *Santolina Chamaecyparissus* and the shrubby *Veronica lobelioides*, inserting cuttings in the open ground at mid-winter, merely dibbling them into the soil of an ordinary border (rather light and well drained), without protection of any kind. As far as my memory serves me, every cutting of the *Santolina* rooted and made good plants the following summer. The *Veronica* bloomed in August, September, and October the third year from the time of insertion of the cuttings. A very large number of different shrubs can be rooted by layering in

July, or by heaping up the soil to the young shoots, and keeping it well watered in dry weather. *J. F.*

THE NORTH AMERICAN HAWTHORNS

POSSESSING as I do but a rudimentary knowledge of botany, it may appear presumption on my part to write of the above subject. As a plain gardener, however, when I learn (on p. 215) that 700 so-called species of North American Hawthorns have been described within the last quarter of a century, I shudder to think of the results if the same rule is brought to bear on other classes of plants. Those who are answerable for the forming of species in this wholesale manner make apparently not the least

as to render its acceptance by cultivators in this country in the last degree unlikely. *An Old Gardener.*

VIBURNUM RHYTIDOPHYLLUM.

MR. EVANS (on page 193) states that the fruits of *Viburnum rhytidophyllum* are red, but this is contrary to my experience, as I have seen the plant in fruit many seasons, and have always found the berries to be black. It is true that they are a dull red when beginning to ripen, but this stage is only transitory, as some of the berries in a cluster will be black whilst others are red. As Mr. Evans' description of this plant seems to be otherwise correct, he must either be mistaken in the colour, or he has a form in

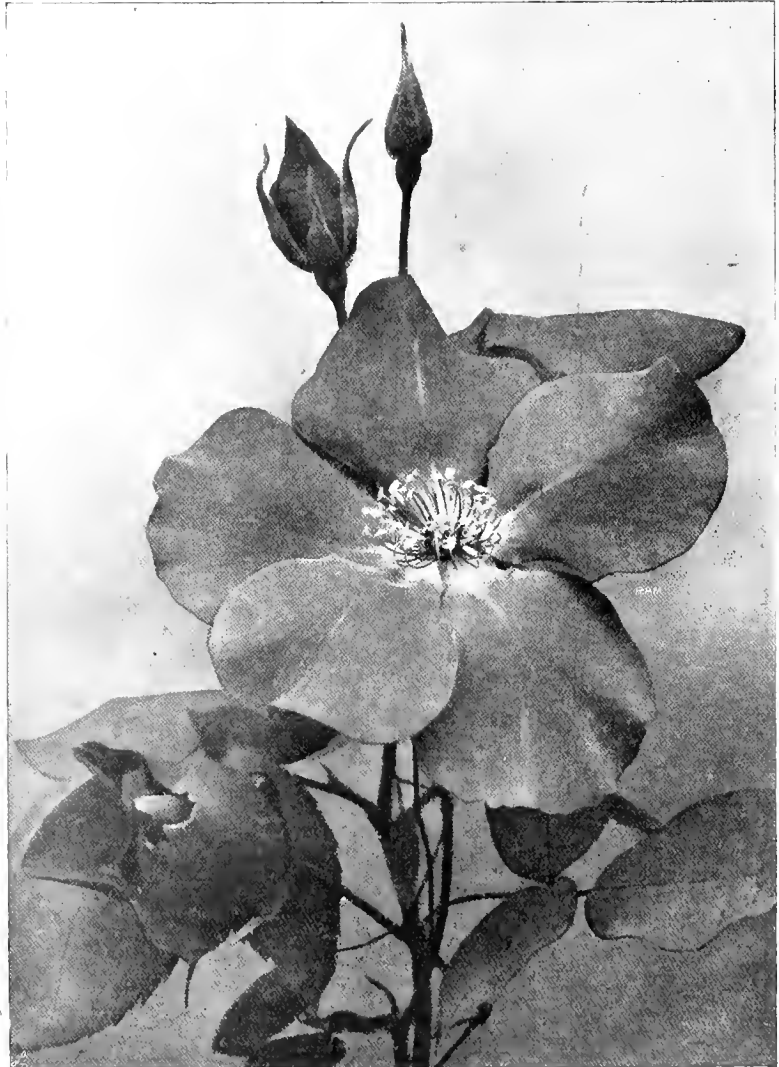


FIG. 95.—ROSE PRINCESS MARY: COLOUR CARMINE-CRIMSON SUFFUSED WITH SCARLET. (See p. 236.)

allowance for individual peculiarities, which, among the Thorns especially, are very pronounced. Take the case of our own native Hawthorn. If the same custom were followed with this as in the North American kinds we might have a hundred or two species made out of one. Varieties seem to be ignored, and the least divergence from the normal type is considered sufficient to be regarded as a new species. I cannot do better than conclude with a reference to the preface of Mr. Bean's book on trees and shrubs, which, after referring to the subdivision of species, genera, and natural orders to the fullest extent, as practised by some, states that if adopted in its entirety it would involve such confusion and readjustment of nomenclature

which the fruits are red. If the latter is the case, it would be interesting to know the origin of his plant. I consider this *Viburnum* to be a much overrated plant. It is usually described as a first-rate evergreen, and so it is in the summer, but during the winter it far from merits that description. The first frosts of autumn cause the leaves to droop and hang on the stems like those of a half-dead plant or the feathers of an old hen that has been well drenched with water. An evergreen, apart from the value of its flowers or fruits, is primarily a winter plant for the garden, and as such should hold its foliage erect and healthy; otherwise it may not have so much decorative value as many deciduous plants. *J. Clark.*

NOTICES OF BOOKS.

RECLAIMING THE WASTE.*

THIS book consists of a series of brief chapters contributed by Mr. Anderson Graham and other writers. Its object is to proclaim the need for the reclamation of such waste land as experience has shown may be brought under profitable cultivation. Perhaps the most interesting part of the book is the account given in Chapter II. of the reclamation of heath land in Norfolk. This work has been carried out under the superintendence of Dr. C. S. Edwards, and relates to an area of 190 acres belonging to the Duchy of Lancaster. The land consisted of derelict sand at Tangham, Capel St. Andrew, Suffolk, and the work demonstrates that it is possible to reclaim such land at no undue cost. The process consisted in the eradication of Heather and Bracken, the spreading of "crag," i.e., finely-broken shells, etc., occurring in deposits below the surface, and the breaking up of the ground by the steam cultivator; after second cropping of Wheat, Oats, Potatoes, and Blue Peas were taken. Artificial manures are used liberally, and the crops have yielded £6-£7 to the acre. In Chapter IX. an account is given of Professor Somerville's experiment in the improvement of poor grass land by the use of basic slag. The land in question, Downland Farm, near Newhaven, consisting of 530 acres, was bought for £6 5s. per acre. Basic slag was applied at the rate of 8 cwt. per acre with supplementary dressings in subsequent years, and the result appears to have been successful.

Professor Augustine Henry describes the afforesting of peat bogs and sand dunes, pointing out that, although the growth cannot be expected to be successful on water-sodden peat bogs, there is in Ireland a class of bog land eminently suitable for afforestation, namely, that from which only part of the peat has been cut. Such bog in Kildare produces Spruce 60 feet high in forty-five years after planting and yields 5,500 cubic feet (quarter girth) of timber per acre. Professor Henry estimates that such a plantation will yield 4½ per cent. (compound interest) on the capital. Sowing, instead of planting, as has been practised on Lord de Vesci's estate at Abbeyleigh, has proved practicable, and, of course, reduces considerably the initial expense; but of the species sown only *Pinus montana* and maritime Pine have proved successful, and only the latter promises success as a tree.

FRUIT REGISTER.

SELECTIONS OF APPLES.

As regards Norfolk Beauty Apple, I quite agree with *Southern Grower* and with *E. M.* (see pp. 179, 199), that it is a splendid variety for use during the three last months of the year. We have some very large bush trees planted by the side of the paths in the kitchen garden, sheltered from the north and east and in fairly light soil. The trees have made very strong growth, and in October, 1915, they were root-pruned. The next year they bore a large crop of fine fruit—the largest weighing 19 ounces—of a beautiful clear yellow colour, and every year since have borne good average crops. Norfolk Beauty is a good cooker, but requires careful handling.

I do not care for Bismarck, as it is deficient in flavour, and is not clean in the skin, being nearly always attacked by scab. Hambling's Seedling is a fine, weighty apple, and crops well here. The fruits are available early in the New Year. This variety is followed by Belle de Pontoise, a large fruit, having a green skin flaked with red. This variety is a good cooker. *R. H. Thatcher, Carlton Park, Market Harborough.*

* *Reclaiming the Waste.* Pp. 175. By P. Anderson Graham. The Country Life Library. 3s. 6d. net.



The Week's Work.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcott, Eastwell Park, Kent.

PRUNING AND TRAINING FRUIT TREES.—In favourable weather the work of pruning, cleaning and training of wall fruit trees should be pushed on, for during dry, mild autumn weather the operator can work with comfort. If such work has to be done in very wet weather the operators should stand on short lengths of plank.

MORELLO CHERRIES.—Most fruit trees have now lost their leaves, so that even Morello Cherries and Peach and Nectarine trees, which in the ordinary way were pruned after the crop had been cleared, can now be taken off the wall and given their annual cleaning and training. Morello Cherries, Peaches and Nectarines are all pruned similarly. In cases where it was impossible to give proper attention to the trees during the summer, a thorough overhauling may now be necessary. In the first place, as much of the old fruiting wood as can be dispensed with should be cut right away, leaving the best of the thoroughly ripened young shoots to furnish the wall very thinly. All weak and badly ripened wood should be discarded. Cut all ties, and if the trees have been infested with insect pests during the summer, special care must be taken now to cleanse them thoroughly. The pruning should be done before removing the trees from the wall, it being easier then to see what new growth is required. Having pruned and cleaned the trees, a commencement may be made with the training. Securely fasten the main branches in position first, then start at the bottom of the tree, and fill in the intervening spaces as required. See that in all cases the ties are left sufficiently loose to allow of the wood swelling, as this always takes place when the sap rises and growth commences in the spring. If the trees have been nailed to the walls previously the wall is doubtless full of holes; care should be taken when using the insecticide thoroughly to fill all holes, as these make ideal hiding places for insects. Training trees to wires on the walls is a much quicker and better method of training.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

AUTUMN-SOWN PEAS.—Those who intend to sow Peas during the autumn should make preparation for sowing the seed on the first favourable occasion. If the soil does not drain freely take measures to remedy this defect, as an excess of moisture at the roots in winter does more harm to the plants than severe frosts. Lime rubble, old potting compost, well-decayed leaf-mould and any material of a gritty nature should be incorporated freely with the soil. It is an advantage to raise the soil considerably above the surrounding level to ensure keeping the roots dry in winter. Choose a well-sheltered situation, such as a south border or one sheltered by glass-houses. Previous to sowing coat the seeds thoroughly with a semi-fluid mixture of paraffin and red lead, to prevent mice from eating them. Choose a hardy variety, such as Pilot, or some other sort that is known to succeed in the particular locality. Little Marvel is also suitable. Sow much thicker than for spring, sowing in shallow, wide drills made with the hoe. The rows for Little Marvel should be made 18 inches apart, allowing a greater distance for the Pilot variety. Where it is intended to intercrop the distances between the rows must be regulated accordingly.

BROAD BEANS may also be sown now in shallow drills as advised for Peas. In this case also sow much thicker than usual, to provide against possible losses. Broad Beans are much harder than Peas, and may be sown, if necessary, in the open. In warm districts Broad Beans from an autumn-sown bed furnish pods much earlier than those sown in the spring, but

in cold districts there is little to be gained, as the spring-raised plants, if transplanted, mature as quickly as the others. Beck's Green Gem is a suitable early variety, but the larger sorts are equally hardy.

BROCCOLI.—In exposed districts, where Broccoli are liable to be destroyed by cold in winter, the plants should be buried up to their leaves in soil, with the heads facing north. This is best accomplished by taking out a trench at the northern end of the bed, and inserting a spade behind the plants to push them bodily into the trench. The stems should be buried so that the heads alone are above ground. Protect the plants with hay or straw during times of severe frost, but remove the latter during mild weather.

CELERY.—If the earthing-up of late Celery has been delayed by the excessively wet weather or shortage of labour the work should be done at the first favourable opportunity when the stems are dry. Celery that has been bleached with paper collars should, if not required for immediate use, be earthed up with soil; it is not necessary to remove the paper collars.

LEeks.—The final earthing-up of Leeks growing in trenches should be done now, taking care not to drop soil in the leaf-bases. Late Leeks growing on the flat should be kept free from weeds. During mild weather they may be fed with diluted liquid manure from the farmyard or sewage water.

WINTER TOMATOS.—Plants that are fruiting freely should be top-dressed with compost consisting of four parts rich loam and one part dry wood ash. An occasional watering with liquid manure will be beneficial. Continue to remove the lateral shoots and stop the leading growth when sufficient trusses of fruit have set for a crop.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keels Hall, Staffordshire.

HERBACEOUS BORDERS.—The rains during the past month have greatly delayed work on the herbaceous borders. Lifting, replanting, and the making of new borders should be carried out directly the soil is sufficiently dry to be workable. Let those borders that have been in existence several years receive first attention. When the plants have been lifted, labelled, and temporarily planted in a convenient position (a most important matter), proceed to prepare the ground for permanent replanting. Apply a liberal dressing of manure, also leaf-mould or burnt ashes from the rubbish yard may be used with advantage. As the plants will remain undisturbed for several years, and may experience long periods of dry weather, deep trenching cannot be avoided. When all these things have been done, re-planting may commence directly the soil is in a friable condition. Several schemes of planting are in vogue; the three best are as follows: The individual plant system for small borders, the medium group, consisting of three to six clumps of one variety in a group, for ordinary borders, and the large, bold grouping for extensive borders. The medium group system is generally adopted, and rightly so. Harmonious colouring and a succession of bloom, through spring, summer, and autumn, must be matters of careful consideration. The background should consist of such plants as Hollyhocks, Phloxes, Asters, Delphiniums, Pyrethrum uliginosum, Heleniums, Astilbes, Artemisias, Helianthus, Eupatoriums, Galegas, Lupins, Anchusas, Lychnises, Chrysanthemums, Verbascums, Aconitums and Papavers, whilst for the foreground the following are only a few of the plants suitable for inclusion: Campanulas, Erigerons, Isatis, Doronicums, Irises, Coreopsis, Veronicas, Oenotheras, Achilleas, Malvas, Potentillas, Sidalceas, Geums and Anemones. The taller varieties must be planted to vary the outline, or a stiff, formal appearance will result. A light dressing of short manure and leaf-mould in equal proportions should be given directly the work is completed.

GENERAL WORK.—Owing to the scarcity of labour the necessary cleansing of paths, drives, and woodland walks may be in arrears. The leaf harvest always occupies much time, especially in gardens which are surrounded by decidu-

ous trees, as is ours at Keele. The leaves should be collected and placed in convenient positions for future use. Incorporated with stable manure, they form an excellent medium for hotbeds, also for protecting purposes, plunging shrubs and Roses for forcing, covering bulbs, and, not least, for potting purposes. Oak or Beech leaves are preferable for the latter purpose, therefore keep them separate from the bulk. During wet weather, stakes should be pointed, sorted into various sizes, and tied into bundles. Mats can be overhauled, labels made and painted, seats in the pleasure grounds, tubs and vases, given a coat of paint or varnish. Boxes for bedding plants may be made or repaired, and a good stock of Birch brooms got ready. Lawn mowers should be thoroughly cleaned and oiled before being stored away for the winter, and tools of all descriptions, including barrows, should have attention as regards cleaning, repairing, or renewals, as the case may be.

LAWNS.—The lawns should be well swept with Birch brooms to free them from worm casts and leaves, and the grass afterwards thoroughly rolled. All turf laying should be completed without delay; freshly laid turf should be frequently rolled.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq. Castleford, Gloucestershire.

CYPRIPEDIUM.—Many *Cypripediums* are pushing up their flower-scapes and the various sorts will continue to flower until winter is over. Use neat stakes to keep the stems straight, especially if the blooms are required for cutting. Water the roots liberally while the plants are developing their scapes, or the flowers will be small and of inferior colour. Do not keep the atmosphere so moist as hitherto, and let the plants receive all the sunlight available. A little top ventilation will be beneficial in mild weather, and especially at night, provided the requisite warmth can be maintained without much fire-heat. Vaporise the house before the bulk of the flowers open if thrips are present. Specimen plants of *C. insigne* and *C. Leeanaum* may be utilised as room plants, and will remain in full beauty for several weeks. When they are returned to their growing quarters cleanse the foliage, and for a week or so grow them in the shadier part of the house.

ODONTOGLOSSUM CITROSUM.—Plants of *Odontoglossum citrosimum* have nearly completed their growth; when the pseudo-bulbs are fully matured reduce the amount of water at the roots gradually until, finally, moisture is withheld almost entirely. The pseudo-bulbs will shrivel, but this will not harm the plants, as they will soon regain their former plumpness when water is again applied more liberally. Continue this dry treatment until the flowering season; in fact, very little moisture will be needed by the roots until the flower-scapes commence to develop from the new growths, when watering should be done more liberally. *O. Reichenheimii* should be rested for a long period, but sufficient water should be afforded the roots, to keep the pseudo-bulbs from shrivelling.

CYMBIDIUM.—Plants of *Cymbidium Lowianum*, *C. giganteum*, *C. eburneo-Lowianum*, and *C. grandiflorum* that have not been repotted recently are sending up flower-spikes. The plants may be copiously supplied with water, and they should be arranged so that the foliage is about 2 feet from the roof-glass. Plants that are not flowering should be watered sparingly for a few weeks, as dry treatment often causes the plants to flower, whereas, if the roots were well supplied with water, the plants would probably commence to make growth instead of blooming. *C. Hookerianum* (syn. *C. grandiflorum*) often fails to open its flowers, and especially in gardens near large towns. Exposing the plants to all the light available is the best means of counteracting this defect, and in country districts, provided the plants are strong and well rooted, the flowers should develop to perfection. During the greater part of the year this *Cymbidium* should be grown in the cool or *Odontoglossum* house, but when the flower-spikes commence to show a little more warmth is beneficial.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

CAMELLIA.—The present is a suitable time to cleanse *Camellias* of insects and dirt. Labour may not be available for sponging the leaves, but much may be done to keep the trees clean by syringing at regular intervals with an insecticide. Soluble paraffin is a safe and effective specific for the purpose. Exercise great care in watering the roots during the winter, or many of the flower-buds may drop. The beautiful *C. reticulata* is very subject to bud-dropping, and the tree must not receive a check of any kind.

SALVIA PITCHERI (see fig. 96).—This is one of the most useful of the autumn-flowering *Salvias*, and its lovely blue flowers contrast very



FIG. 96.—*SALVIA PITCHERI*: FLOWERS AZURE-BLUE.

strikingly with the yellow and bronze *Chrysanthemums*. When the plants have passed out of flower they may be cut down and placed in a cold frame for the winter. *S. Pitcheri* is easily propagated by cuttings or division of the roots in spring. *S. Heeri* is a scarlet *Salvia*, which flowers in January and February, making a large plant over 6 feet high when well cultivated. It needs a cool house from the present time until it comes into flower. The pots being full of roots, plenty of water and stimulants should be given, the latter once or twice a week. *S. splendens* will soon be out of flower, when the plants may be cut over and placed in a cool house for the winter. If red spider be present let them be dipped in a pad of insecticide or given a vigorous syringing.

CHRYSANTHEMUMS.—As the plants pass out of flower cut them down and place those which are needed for furnishing cuttings in a cool house near to the glass. Before commencing propagation make a careful survey of the old stock with a view to discarding inferior varieties. Where large quantities of cut flowers are in demand it is necessary to grow fairly large batches of those varieties which are most useful for this purpose, and this must be taken into account when deciding which varieties it is most desirable to grow. The single-flowered undoubtedly find the most favour, and as these can be obtained both early and late, the bulk of the stock for ordinary decorative purposes should consist of this section. Propagation may begin directly there are cuttings available, provided the soil is prepared several days in advance, and placed in the potting shed. A suitable compost consists of loam, leaf-soil, and sharp sand, passed through a $\frac{1}{4}$ -inch mesh sieve. There is no better place in which to strike the cuttings than a small temporary frame erected on the stage at the lighter end of the greenhouse; there the lights of the frame may be removed without danger of causing a check to the cuttings. Should there be difficulty in getting sufficient cuttings of any varieties, the old stools should be placed in a light position in a warmer house.

RICHARDIA AFRICANA (CALLA).—If these plants are required to flower early, a few of the strongest may be placed in a warm house, but it is best, as a rule, to keep them back until the *Chrysanthemum* season is over. The main batch of *Callas* should be kept near the glass in a cool house. They are very subject to attacks of aphid, but these can easily be destroyed by lightly fumigating the house with a nicotine compound.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

POT VINES.—When the vines are placed in position in the house suspend the canes in horizontal position until the lower buds start to grow freely. At that stage fasten the rods to the wires, disbud them, and, in due course, tie and stop the laterals at the first joint beyond the bunch. Plunging the pots in a bed of leaves mixed with a little short horse manure will assist growth, permit of using less fire-heat, and promote atmospheric moisture, thus reducing the amount of direct syringing of the vines. The fermenting materials should be renewed as often as is necessary. If the rods break into growth evenly do not use the syringe freely, but rely on damping the walls and paths with tepid water to keep the atmosphere moist. Use tepid water for the roots, and give too little water rather than an excess in the early stages. The temperature at night may range at first from 53° to 58°, and by day as high as 65°. A little ventilation should be permitted on all favourable occasions.

PERMANENT VINES.—Vines planted in inside borders should receive one or two applications of water at the roots at a temperature of 90°. Where pot vines are grown the houses containing permanently planted vines need not be closed until Christmas or the beginning of January, in which case the plants would benefit by the longer rest. Use the syringe, taking special care to moisten old stems near the hot-water pipes and in dry corners. Young canes being forced for the first time may be slightly bent down, but older vines may be secured to the wires from the outset. The same temperatures as recommended for pot vines are suitable.

MIDSEASON VINERIES.—The vines in these later houses should be pruned, cleansed and made ready for forcing, but the vinery should be kept quite cool for the present to rest the vines for as long a period as possible. If these houses are used for pot plants of any kind only the very hardiest plants should be selected, for closing the ventilators at night would have a bad effect on the vines. After the latter are pruned and washed, dress the cut surfaces with styptic to prevent bleeding. The roots having been attended to, the final operations include pricking up the hard surface and applying a thin layer of fresh compost to the border.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc.; but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, NOVEMBER 20—
Nat. Chrys. Soc. Ex. and Floral Coms meet.

TUESDAY, NOVEMBER 21—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 43.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, November 16, (10.0 a.m.): Bar, 29.5°; temp, 43.0°. Weather—Fair.

SALES FOR THE ENSUING WEEK.

MONDAY—

Rock, Alpine and Herbaceous Plants, Bulbs, etc., at 67-68, Cheap-side, E.C., by Protheroe and Morris, at 1 o'clock.

WEDNESDAY—

Rhododendrons, Fruit Trees, Herbaceous Plants, English and French Bulbs, at 12 o'clock. Consignments of Narcissus, Tulips, Snowdrops, Anemones, Lilies, etc., at 3 o'clock. Rose Trees, Perennials, Shrubs, and Bulbs, at Stevens's Rooms, King Street, Covent Garden, at 12.30 p.m.

THURSDAY—

Roses, by Protheroe and Morris, at 1 o'clock.

FRIDAY—

Orchids, at 67-68, Cheap-side, by Protheroe and Morris, at 1 o'clock.
Rock, Alpine, Herbaceous Plants, Bulbs, etc., at 67-68, Cheap-side, by Protheroe and Morris, at 1 o'clock.

Chrysanthemum.

It is natural for gardeners to associate certain flowers with the different seasons of the year—Daffodils with spring, Roses with June, Dahlias with autumn, and Chrysanthemums with autumn and winter. All these are designated florists' flowers—a term of special significance, but which admits of no easy definition—and they are sufficient to span the cycle of the year. At the present time Chrysanthemums are at their best, and the flower is more frequently to be seen than was the case fifty years ago, when Salter, of Hammersmith, and other raisers were distributing to appreciative buyers their little plants of Cleopatra, Lord Palmerston, Cardinal Wiseman, and other novelties. For forty years afterwards the varieties multiplied and enthusiasm increased; but the Chrysanthemum, bold and attractive though it be, could not for ever hold the exceptional place it made for itself in the floral calendar, and there came a time when its popularity appeared to wane. Yet it was only finding its natural position as a garden flower, and freeing itself from some of the restrictions from which it had suffered

owing to being over-exhibited. Market growers discovered the great value of the flower for their purposes, and raisers devoted themselves to producing varieties of special decorative merit for the flower garden in October. The flowering season was extended at both ends, so that, with the newer summer flowering varieties and the latest bloomers, Chrysanthemums may now be had for more than six months of the year, and the flower has taken a new and, it may be, longer lease of popularity. Some of the newer dwarf varieties are even suitable as bedding plants, and in some of the parks the beds of dwarf Chrysanthemums provide a very pleasing feature.

The exhibition of the National Chrysanthemum Society last week proved that the large Japanese varieties are still popular both with growers and the public. The advance made in the darker tones, such as crimson and red, is very marked, and the new crimson Japanese variety, named Mrs. George Monro, jun., is a most glorious flower. White, pink, yellow, and bronze varieties seem the easiest to produce, and each raiser has something new and good to offer in these colours for the special purpose of exhibiting. But it is in the section which includes the decorative or market varieties, and the large singles, that the greatest development is seen. Flowers of the Caprice du Printemps type are sold in immense numbers in Covent Garden and other markets. Owing to the great proclivity of the plant to sport, a wealth of varieties has arisen differing in colour, but retaining all the desirable qualities of the type plant, and thus we have a whole series of certain of these market kinds derived by bud-sports, from a common ancestor. The singles, also, have claimed the attention of the market growers, and though raisers have departed from the standard set by the old florists of a single row of petals, they have given us such beautiful flowers as Mensa, Ceddie Mason, and Sandown Radiance.

As a pot plant the Chrysanthemum provides the gardener with a good decorative subject for the greenhouse and conservatory, and for this purpose seedlings are being more and more utilised.

"Hard" Seed.

It is a well-known but none the less remarkable fact that many species of plants produce in greater or less proportion seeds the coats of which are hard, or, as it is better expressed, impermeable. Such seeds, when sown in the ordinary way, are slow of germination and often fail altogether to grow in the year of their sowing.

Any method of treatment which destroys or ruptures the seed-coat destroys also this resistance to germination, and hard seeds subjected to such treatment germinate as readily as ordinary seeds, and give rise to perfectly normal seedlings. Indeed, there is reason to believe that the percentage of germination of hard seeds*, which have been treated in such a manner that

their seed-coats are ruptured, is greater than that of normal, permeable seeds. It is in the Leguminosae that hard seeds most commonly occur. Red Clover, Alsike, White Clover, Alfalfa, Winter and Spring Vetch, Cow Pea, some Medicagos and Trefoils are among the leguminous plants of agricultural value which produce in variable proportions seeds of this kind. In some of these plants the percentage of hard seeds is very high indeed. Thus, in *Medicago sativa falcata* Mr. G. T. Harrington (op. cit.) finds that the percentage of hard seeds may be so high as 92, and in White Sweet Clover (*Melilotus alba*) 87. The percentage of hard seed is, moreover, exceedingly variable. For example, in different samples of Red Clover (*Trifolium pratense*) it ranges from 46 to 0 per cent., in Alfalfa (*Medicago sativa*) from 72 to 0 per cent. Peculiarly interesting, as offering an indication of the biological significance of hardness or impermeability, is the fact that whereas in Winter Vetch (*Vicia villosa*) the percentage ranges in different samples from 68 to 0, in Spring Vetch it is never at most more than 8 per cent., and may be nil. This peculiar condition of hardness is not confined to the Leguminosae. It occurs also in seeds of *Hibiscus esculentus*, Hollyhock (*Althaea rosea*), species of *Atriplex*, *Erodium cicutarium*, *Asparagus*, *Ipomoea purpurea*, *Canna indica* and doubtless many other plants.

Nevertheless, impermeability is most strikingly manifest in the Leguminosae, and it is significant that it is in this order that seeds possessed of the greatest "longevity" are to be found. Thus, as different observers have shown, the seeds of some leguminous plants may be caused to germinate eighty years after their harvesting. Evidently there is a close relation between hardness and longevity. Seeds so shut off by their seed-coats from all relation with the outer world might well be expected to retain their potentiality for germination for longer periods than do seeds which are constantly responding to changes of environment—absorbing water in moist air and losing it in dry; and such is, in fact, the case.

We may see, therefore, in the hard seed a method of life insurance for the species. If those that germinate quickly meet untoward conditions and perish, the life of the species is still provided for by the existence of seeds which germinate only after they have lain in the ground for a long time.

That hard seeds do gradually lose their refractoriness, for example, when they are kept in moist air, is shown by Mr. Harrington, who has found that in such circumstances the hard seed of Red Clover gives the following germinations (in per cent.): After one month in moist blotting paper, 8 per cent.; after one year, 30 per cent.; after two years, 44 per cent.; and after three years, 55 per cent. Freezing also brings about changes in hard seed, which results in their germination, and so also does alternation of temperatures, as, for example, changes from 10° C. to 20° C.

* "Agricultural Value of Impermeable Seeds," *Journ. of Agric. Research*, Washington, VI., 20, 1916.

Another fact of interest and significance is that the hard seeds of Red Clover, White Clover, and Alsike pass the winter in frozen soil without suffering injury, and, having withstood these adverse conditions, emerge from them chastened and capable of germination.

Needless to say, the seedsman's problem is not identical with Nature's, and he has to solve it in more drastic fashion. By "milling" the seed, scratching the seed-coat, or, in some rare cases, by treating it with acid, he tears off or spirits away the protection afforded by the hard coat and causes the impermeable seal to resume its suspended powers of germination.

ARALIA CHINENSIS ALBO-MARGINATA.—Our illustration (fig. 97) of the silver-variegated form of the Chinese Aralia is reproduced from a photograph taken in September last in the Hon. VICARY GIBBS' garden at Aldenham House, Hertfordshire. The plant was in flower, and formed one of the most conspicuously beautiful shrubs in the whole of the extensive collection. Some of the large, pinnate leaves were more than half-covered with cream-white variegation, which extended from the margin inwards. The white flowers are produced in large umbels, and are thrown into bold relief by the handsome foliage. The species is an old plant in gardens, having been introduced into this country in 1865; it is sometimes known as *A. canescens*. There are other beautiful forms in cultivation, of which the best known are *aureo-marginata* and *mandschurica*.

GIFT TO KEW GARDENS.—In accordance with the wishes of the late Mrs. DOHERTY WATER HOUSE, a large plant of *Todea superba* in the gardens at Well Head, Halifax, has been presented to the Royal Botanic Gardens, Kew. We understand that the fern is a splendid specimen of its kind, and measures five feet across, with upwards of fifty large, healthy fronds.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place on Tuesday, the 21st inst. The lecture at 3 o'clock will be delivered by Mr. J. JACKMAN, on "The Pruning of Clematis," and not by Mr. E. A. BOWLES, on "Books for an Amateur Gardener's Library," as announced in the Society's *Book of Arrangements*.

HORTICULTURE IN BELGIUM.—Information sent from Brussels on the 22nd ult. gives particulars of the condition of horticulture in and around the city. Apples and Pears are dear, but hot-house fruits are realising poor prices. Black Hamburg Grapes are only worth 3d. to 8d. per lb., Gros Colman 3d. to 11d. per lb., Black Alicante 3d. to 5½d. per lb., and Muscat varieties 5d. to 1s. per lb., although choice bunches of the last have reached 1s. 8d. per lb. Diseases are very prevalent in gardens. Sulphur for treatment against mildew realises 10d. per lb., compared with 1¼d. in pre-war times. Tobacco for nicotine compounds is very scarce, and although some have tried to grow their own supplies, they have not met with much success. Insect pests are spreading, and notably red spider, no chemicals used as specifics being available. Consignments of coal from the Liège district have been stopped, and, in consequence, Gros Colman Grapes will soon have to be cut. Repairs to glasshouses can hardly be thought of, as oil for paint or putty is unobtainable. Where glass is broken or blown out it is put in again with cement. Woodwool, paper and wadding for packing fruits have all advanced in prices. Boxes are expensive, too, and the supply insufficient since the local sawmills were destroyed by fire. Ordinary string for packing is sold at 3s. or more a pound.

RETIREMENT OF MR. GEORGE BAKER.—We are informed that Mr. GEORGE BAKER, head gardener for very many years at Membrand, Newton Ferrers, Plymouth, is about to retire from that position. Mr. BAKER's new address will be 31, Kingsley Road, Plymouth.

THE WEEDS OF QUEENSLAND.—Mr. J. F. BAILEY and Mr. C. T. WHITE's recent illustrated contributions to the *Queensland Agricultural Journal* on "The Weeds of Queensland," deal with *Aster subulatus* and *Eriogon canadensis*, North American annuals, which are compared with the allied native *E. linifolius*, *Alternanthera Achyrantha*, a South American Amarantaceous plant, is becoming troublesome on sheep runs, from its prickles becoming entangled in sheep's wool. It bears the popular name of Khaki Weed. *Gomphocarpus fruticosus* has spread so rapidly as to become one of the worst weeds of the State. The widely-spread sub-tropical *Cassia occidentalis*, the Coffee Senna of the United States,

tables were decorated with upwards of 1,200 rose-pink Carnations. The interior of the Russian chapel was decorated with white flowers exclusively, and a floral arch of white Carnations was placed within the entrance.

WAR ITEMS.—Private F. G. RABBETTS has been awarded the D.C.M. for conspicuous gallantry in carrying a wounded officer from the firing line, under heavy fire, on September 17. Private RABBETTS was formerly inside foreman in Givons Gardens, Leatherhead.

— A fine specimen of the "Potiron" or Pumpkin, weighing 66lb., was sold at Covent Garden recently for £2. in aid of the Soldiers' Plum Pudding Fund. It was grown by Mrs. PHILIP MARTINEAU, at Hurst Court, Berkshire. This vegetable is much prized by the French and other Continentals as a winter vegetable, and chiefly used for soup.

— We regret to learn that ROBERT JOHN



FIG. 97.—ARALIA CHINENSIS ALBO-MARGINATA.

[Photograph by C. W. Cole.]

is figured as a "nuisance." Among the plants described as new by the same authors are *Cassia costata*, *Siphonodon pendulum*, and *Agathis microstachya*. This is the third species of *Agathis* found in Queensland, all of which are figured by BAILEY and WHITE.

FLORAL DECORATIONS AT THE ROYAL WEDDING.—The floral decorations at the wedding of Countess NADA TORBY and Prince GEORGE OF BATTENBERG on Wednesday last were carried out by Messrs. WM. CUTBUSH AND SON. The principal rooms at Ken Wood, the residence of the Grand Duke MICHAEL OF RUSSIA, were decorated with pink and white flowers. In the entrance hall was a group of pink Chrysanthemums with Lilies and Ericas, and on the left-hand side of the hall two groups of pink Begonias, relieved with foliage and ferns. In the reception room were vases of large pink Japanese Chrysanthemums, and also two groups of Souvenir de la Malmaison Carnations and Begonias. At the entrance of the dining room, where breakfast was laid, was a large group of foliage plants and pink Chrysanthemums. The

WAUGH ("Bob"), eldest son of Mr. JOHN WAUGH, gardener at Hesse Mount, Hesse, near Hull, was killed in action on September 15 last. Deceased was foreman in the gardens at Hesse Mount, where he had been for nine years. He was twenty-five years of age.

BAGATELLE ROSE TRIALS, 1917-18.—A trial of Rose novelties will be made at Bagatelle, near Paris, in 1917-1918, as in past years. Plants sent for competition should have been raised in pots, and several specimens—five at least—must be sent to the Rosary at Bagatelle before April 15, 1917. A note must be attached as to their origin and parentage, and stating any special treatment required. The plants will be placed in the public Rosary as soon as they reach Bagatelle. They will remain there until the month of October of the second year, so that the jury may be able to study, during two seasons, the flowering and quality of vegetation. The address to which plants must be sent is:—Roseraie de Bagatelle au Bois de Boulogne, En gare de Neuilly-Porte-Maillot-Paris. Some of

the Roses planted in the spring of 1916, and now under observation, are as follow:—Gaston Lesieur, Eclatant, Jacques Hackenberg, Général Suyders, La Marne, Le Poilu, Paul Lédé Orange, Bouquet Rouge, Eskbank, Edina, Henriette, Crimson Chatenay, Gold Star, Rose d'Espérance, Red Star, President Woodrow Wilson, Mlle. Emilienne Moreau, Miss Cavell, L'Avenir, Nelly Verschuren, Dutch Beauty, Bertha von Süttner, Gloire de Hollande, Elégance, Argentine Cramon, Paulette Dental, Ile de France, Mr. Joh. M. Jelles, Rembrandt, G. Amadée Hammond, Mrs. Mackellar, Sir Henry Graham, Margaret Dickson, Hamil, Edward Bohane, Mrs. Maud Dawson, and Janet.

THE POTATO CROP.—The *Board of Agriculture and Fisheries Monthly Agricultural Report* for November states that much of the Potato crop was still in the ground at the date of the reports; even in the south lifting was hardly completed, and probably quite a fourth, or more, remains to be harvested. Comparatively little disease is reported from the large Yorkshire and Lancashire Potato-growing districts; but there is much disease in Cambridgeshire and the fen lands of adjoining counties, and in the south-west, while in the south also a certain amount is reported. Early Potatoes were generally satisfactory and sound.

THE ROSARY.

SOME ROSES OF RECENT INTRODUCTION

THIS is the time of the year when we remake our beds, get rid of the Roses that have been found wanting in some important quality, and order our new Roses from the nursery. It is quite the wrong time to do this. The model rosarian has taken time by the forelock; he went round his beds in summer, notebook in hand, he ruthlessly cleared his beds during September, and made new ones, sending in his orders at the same time, or even earlier, and so secured the pick of the nurseryman's stock. We all know quite well that this is the proper and desirable course to adopt. Many of us say we will do it next year, or after the war, when we shall, we hope, be no longer hampered by shortage of labour in our gardens.

But this year we were reluctant to dig up beds with many flowers to come. There was very much to be done that prevented a decision as to the autumnal alterations, and we were perhaps in doubt whether we should be able to make any alterations at all. At last, however, we take heart of grace and a digging fork, and proceed to clear out the failures, the Roses that have declined to grow, and those that have not pleased us. We look round the empty beds, count how many maidens we have available and how many we shall want from the nurseryman to supplement them; then we turn to our notebooks to find what new Roses appear worth a trial.

It is always interesting to try a few new Roses every year to see how they will take to our garden, but it should be remembered that while new Roses are many the prizes are few, and no one should enter on this interesting experiment who is not prepared to discard freely those Roses which fail to attain a certain degree of excellence in his garden or with his methods. If he is not prepared to do this he should recognise that new Roses are not for him, and that he must wait until he is able to obtain and make use of the experience of his friends.

A convenient plan is to collect one's new Roses or experiments into one particular bed or plantation, so that habit and foliage, as well as flowers, may readily be compared in the different plants.

It is often said that about four years usually elapse after the introduction of a Rose before it is known whether it will become popular or the reverse. Some Roses, like Frau Karl Druschki

and Mme. Abel Chatenay, sprang like Athene full grown, armed, from the brain of Jove; while others, and some of them good Roses, such as Christine Wright, take some years before they are discovered, or at least at all widely grown. Again, in some years we appear to find interesting Roses in many sections of the Rose family, in some in few only. Of the Roses of recent years that have attracted my notice in the past summer the yellows and the crimsons among the H.T.'s seem to predominate, and it is of some of these I will say a few words. I am not, of course, proposing to refer to the Roses of the current year, for of these no garden experience is possible.

Taking first the yellow Roses, which are now becoming rather numerous, my selection last year included Iona Herdman, Mme. Collette Martigny, Mrs. Ambrose Riccardo, Margaret Dickson Hamil, Mrs. Wemyss Quin, and Constance.

The two first are a fine orange-yellow colour, and I planted a good batch of Iona Herdman. The growth of the plants, however, has proved very unsatisfactory, only poor, weak shoots being formed; the flowers for the most part were small, and only occasionally of the fine orange-yellow they are capable of becoming. Apparently good weather is required to produce this colour, and we have had little of it this year. Mme. Collette Martigny appears to be a rather better grower, but has lost its leaves by the autumn, and perhaps it will ultimately prove to be one of those Roses like the Lyons Rose, which, if grown at all, should be kept in the reserve garden, where this defect is not so trying as when an important position is given to the plants.

Mrs. Ambrose Riccardo gave us some lovely flowers early in the season. The flower is larger and fuller than in the case of the first two I have named, and has a tinge of pink in it, but it has the misfortune to be somewhat too heavy for the stalk, and hangs down sadly. I had planted about half a dozen bushes of this Rose, but the autumn finds very few leaves left upon them.

Margaret Dickson Hamil is a Rose that seems to have proved more satisfactory in some districts than in others. With me the colour and form of the flowers has proved very fleeting, and though I hope that another year may be more propitious to it, I have not felt disposed to increase it at present. Mrs. Wemyss Quin, on the other hand, has turned out highly satisfactory, the plants making good growth with fine foliage, and the flowers, which are of the decorative type, and not large enough for the exhibition box, are of a fine clear yellow colour, and it appears to retain its foliage well. This Rose is very promising, and I hope to increase my batch of half a dozen plants to a larger number for next summer.

Constance is a Rose of the type of Rayon d'Or, of slightly better shape, and not quite so bright a colour, being intermediate between Rayon d'Or and Cissie Easton in this respect. It is variable in tint; once or twice the colour reminded us of Gustave Régis. All these three Roses have good foliage with dark green leaves having a glossy surface. They seem but little affected by mildew, which, if it appears at all, is only seen on the stem, so far as my experience goes; but there is some liability to black spot. If the black spot can be kept at bay they seem to retain their foliage fairly well. In considering the garden value of Roses of this type, which have Soleil d'Or for an ascendant, the power to retain the foliage into the late autumn is of the first importance, and Roses which fail in this respect should be rather closely criticised. For a Rose that drops its foliage in early autumn not merely deprives us of the flowers it might have given us for a month or more, but, if planted in beds or borders alongside other Roses that behave better in this respect, and carry their foliage well till the snow and frost arrive, spoils the effect of the rest, and makes the autumn garden in its neighbourhood something of a failure.

Of new crimson H.T.s a fair number have been offered. We still want a reliable crimson Rose as

free and continuous in flowering as Richmond, but capable of retaining its colour through the summer. The flowers of Richmond are excellent, both early and late, but it must be admitted that both its colour and form, on close inspection, leave something to be desired in August.

Hoosier Beauty (see fig. 98) and Hadley from America, Edward Bohane and Red Letter Day from Ireland, Admiral Ward from France, Dora van Tets from Holland, and Augustus Hartman, the single Princess Mary (see fig. 95, p. 241) and Waltham Scarlet from nearer home, form a fine addition to the crimsons.

The two Americans are of good colour, but I shall wait another year before deciding on their value as garden plants. Edward Bohane and Augustus Hartman make flowers large enough for the exhibition box, and well-formed. They are both good growers. The latter appears to me efficiently continuous for a bed, where its brilliant colouring, which is quite unique, should prove of value. Red Letter Day has been most satisfactory; though I have had only a few plants, they have been continuously in flower since the end of June, and the crimson scarlet colouring is bright and attractive. Dora von Tets has been equally satisfactory and continuous. The flowers are small and carried on rather thin stems, but the colour is excellent, and does not fade; the form is good, the buds long and pointed, and the thin stems carry the flowers better than one might expect. Being rather a dwarf grower, it is a plant for a small bed, and for this it seems well suited. Moreover, it is extremely fragrant.

Of the new Tea Roses the best seems to be Lady Plymouth. It has good glossy green foliage, which is well retained, and the pale creamy yellow flowers are well formed and pleasing.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

APPLE SOPS-IN-WINE.—Whilst living in the North Riding of Yorkshire I saw numerous trees of an Apple grown under the name of Wine Sops. It was a small red fruit, rather early, and with a strong aromatic scent. If this is the same variety as *G. P.* inquires of, I may inform him that it was grown by the cottagers in the villages, mostly on old trees. *Geo. Carrillo, Fernie Gardens, Salisbury.*

—*G. P.* may possibly find the object of his quest in a garden in central Essex. The variety, as I knew it many years ago, was of a very deep, almost claret, colour, the colour running through the flesh of the Apple as it does through a Blood Orange. When I passed the small orchard last year the trees appeared to occupy their original positions, so that possibly the variety is still there. If *G. P.* writes to the present tenant, Mr. Thomas, Spencers, High Ongar, Essex, he could ascertain if the tree is still living. *Jas. Brown, Alexandra Park, Glasgow.*

[Other correspondents' letters on the subject have been forwarded to *G. P.*—Ens.]

WAR-TIME MANURING.—Many correspondents advocate one or another alternative for farmyard and other manures not easy to be obtained at present, but no one has yet written of a most valuable one—burnt earth—i.e., all weeds, clippings, tree stumps, old wood (not of use for firewood), Potato, Pea and Bean haulms, and every kind of refuse from the house or elsewhere. These to be slowly burnt, by covering up the heap (once it is started and a good red-hot heart) with damp weedy earth, damp grass, and such-like. The crops of Onions and Carrots grown with this manure alone cannot be beaten, and there is no Onion or Carrot fly. In fact, I believe these pests are largely propagated by digging in (as so many advise) green vegetable-waste, crude farmyard manure and leaves, all swarming with eggs and animalculæ of every description. By burning the green stuff with earth the valuable potash is retained in the burnt earth, not washed out, as it would be without the earth, and, spread on the soil or lightly pointed

in, produces fine crops. I speak from experience. This garden had no other manure this year, and the crops were very satisfactory. Lime or chalk are not enough used. These, with soot and burnt earth, are most valuable in curing a garden of soil-sickness, from over manuring with farmyard stuff. *Western Wight.*

BELLADONNA.—I sowed last March a few ounces of seed of the above, picking out into seed-beds 18 inches each way. From 244 square yards of seedlings (which have grown very fast, many of which were in September 3 feet high, and producing ripe seed) I have picked leaves four times, and have sold

18 lb. of dry leaves at 5s. 6d. £4 19 0
267 lb. of fresh leaves at 1s. 13 7 0

£18 6 0

working out at 1s. 6d. per square yard, or £363 per acre. The plants have now been raised and transplanted, many of the roots being above 1 inch in diameter. The soil is light, and received a dressing of chalk a few years ago. I shall be glad to know whether this rate of growth is not unusual, also whether ripe seed is often produced the first year from seed—viz., in about 6 months. *H. Clinton Baker.*

THE PLANTING OF HERBACEOUS PAEONIES (see p. 235).—*E. M.* writes: "My experience with herbaceous Paeonies is that it does not matter whether they are planted in October or March provided the work is done properly." Let me say at once that, so far as affecting the immediate future welfare of the plant the two following seasons, the planting of the Paeony in March cannot be "properly done." There is no question of soil preparation—everybody knows that the Paeony requires generous treatment and the best soil cultivation. It is all a question of root production and root activity, and the thing that matters is that the planting be done at, or in advance of, basal, or primary root formation. No gardener, measuring the results of March planting with those of the commercial grower who plants in September or October and has in part to depend upon his flower crop for rent and other things, could for a moment claim that March is equal to the other months named. March planting of the Paeony in the past has been responsible for many failures; the slow recovery of the plants following such work causing many to regard them as "impatient of disturbance." March planting, too, is directly responsible for reduced root activity, which, weakening the crown buds, throws the whole plant into a debilitated condition from which recovery is slow. To those who study the plant the reason is clear. Disturbed at that time, the roots are practically powerless to retake to the soil, and the plant, thrown on its own resources for weeks or months, is materially weakened. For those who would have the object-lesson at first hand let me recommend the lifting of a few plants in March, when leaf growth is active, re-planting them instantly. In that instant root activity and development is virtually suspended for the season, with all the ills that follow in its train, and of this the moved plants will prove an unerring guide; they will need no searching out. *E. M.* refers to three dozen sorts planted twenty-five years ago, and their "uninterrupted success" since. At what season these were planted we are not told. Planting a few dozen once in a while, however, does not afford the operator great opportunities for observation. Far better circumstances is the grower of acres of plants, whose very business, compelling him to deal with his plants annually, also insures an intimacy with the subject not gained in any other way. It was my dealings with the Paeony on a very large scale thirty-five or so years ago that opened my eyes to the special value of autumn planting, and subsequent experiments, conducted for the sake of information, fully endorsed the conclusion at which I had arrived. Hence I can recommend my system of planting to all who would have the Paeony give of its best, and give it in the shortest possible time after planting. In fine, the test of correct work in this connection is best gauged by the quick return to a representative flowering of the plants, and following autumn planting the cultivator has not long to wait before witnessing this recovery. *E. H. Jenkins.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

NOVEMBER 7.—*Present:* Mr. E. A. Bowles, M.A. (in the chair), Col. Rawson, Messrs. J. Fraser, W. Hales, R. Hooper Pearson, E. J. Allard, E. M. Holmes, J. Ramsbottom, W. C. Worsdell, W. E. Ledger and F. J. Chittenden (hon. sec.).

I. curious Willow.—Mr. John Fraser showed a specimen of a large-leaved form of *Salix repens* which is called *argentea*, and used at

Variegated Tropaeolum majus.—He also said that he had examined the foliage of the *Tropaeolum* shown by Colonel Rawson at a recent meeting, and found the silver sheen upon it due to the separation of the epidermis from the subjacent tissue as in silver-leaf. A fungus was present, possibly a species of *Fusarium*, in some of the cells, but not in all, and he thought that it had followed, not caused, the disturbances in metabolism which had resulted in the variegation.

Abnormal Colchicum autumnale.—Mr. E. A. Bowles exhibited an abnormal *Colchicum* in which the floral segments were divided down to the base, very similar to the one figured in



FIG. 98.—ROSE HOOSIER BEAUTY: A HYBRID TEA WITH CRIMSON-RED PETALS SHADED SCARLET. (See p. 246.)

times for producing weeping trees by grafting or budding on an upright-growing stock. It occurs wild in sea sands here and there on the coast.

Cephalotus with partial pitchers.—Mr. W. Hales showed a well-grown specimen of *Cephalotus* with many well-developed pitchers and ordinary foliage leaves, and among the latter a leaf of structure intermediate between the pitcher and the foliage leaf.

Colour Standards.—Mr. Ramsbottom remarked that a committee of the British Association had been formed to consider the question of producing an efficient colour standard chart, as the result of a paper he read at the meeting in 1915. The committee was not, on account of the war, sitting at the present time, but its meetings would be resumed as soon as possible.

Sowerby's *British Botany*, but now flowering in autumn.

Rhodostachys andina.—Mr. Bowles also showed flowers of a Bromeliad raised from seed collected in Chile by Mr. Elwes, and probably *Rhodostachys andina*, figured in the *Bot. Mag.*, t. 7, 143.

Uncommon Fruits.—Fruits of a variety of *Diospyros Kaki* called "Vashomari" and of *Encephalartos caffer* were shown from the Duke of Devonshire's gardens at Chatsworth.

Curious growth in Pear.—Mr. Sandeman, of Ware, sent a curious hard growth, consisting largely of sclerenchymatous cells, from the inside of a Pitmaston Duchess Pear. It seemed to be of gall nature, for on cutting it open two grubs of an unknown species were found feeding in it.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 9, 10.—The National Chrysanthemum Society's annual exhibition was held on Thursday and Friday, the 9th and 10th inst., in the Royal Horticultural Hall, Westminster. The show was opened by the Marchioness Inoué, wife of the Japanese Ambassador. Sir Albert K. Rollit, president of the National Chrysanthemum Society, in thanking her Excellency, remarked that possibly the hall would not for some time be again available for flower shows. The Rev. W. Wilks, secretary of the Royal Horticultural Society, said they would be ready to surrender the hall at the end of the week, but the War Office had not yet made arrangements for taking it over.

With regard to the exhibits, the quality was good, and the more important classes were well contested. Mr. THOS. STEVENSON won the chief prizes for Japanese varieties, thus repeating his successes of last year. The standard of quality in the incurred classes was above the average of recent years.

AWARDS.

FIRST-CLASS CERTIFICATES.

Chrysanthemum Alice Benson.—A refined ivory-white, exhibition Japanese bloom. The florets are narrow and the flowers are of perfect form. Shown by Messrs. W. WELLS and Co.

C. Mrs. H. Tysoe.—This large exhibition Japanese variety was shown as Sulphur Turner, but that name had already been registered for another, though not so meritorious, sport from the well-known William Turner. The colour is described as sulphur-yellow, and the flower possesses all the merits of the type. Shown by Mr. H. WOOLMAN.

C. Shirley Golden.—This valuable large, deep yellow exhibition Japanese variety was also the best in the class for a vase of three yellow Japanese blooms. From Mr. H. WOOLMAN.

C. Mrs. Algernon Davis.—A charming silvery-pink exhibition Japanese bloom. The florets are broad and of good substance. Shown by Mr. NORMAN DAVIS.

C. Thomas Bodman.—This is a brilliant exhibition Japanese variety of Master James type. The colour is rich velvety-crimson; the petals have a golden reverse, but it is rarely exposed. Shown by Mr. W. BAXTER.

C. Edith Dimond.—A very large single flower which has reflexed tips. The colour is bright crimson spangled with golden yellow. Shown by Mr. PHILIP LADDS.

C. Mrs. W. Smith.—This single variety has finely-shaped flowers, and the ivory-white florets are relieved by the greenish-yellow disc. Shown by Mr. A. ROBERTSON.

C. J. H. Blyth.—A splendid fiery crimson single flower of Merstham Jewel type. Shown by Messrs. CRAGG, HARRISON and CRAGG.

C. Alice Jinks.—This variety is a very beautiful claret-crimson coloured single flower of large size. Shown by Mr. WALTER JINKS.

C. Thorn.—A very fascinating Anemone-centred single-flowered variety of large size. The ray florets are rose-coloured, while those of the disc are greenish-yellow.

C. Cordelia.—A strikingly beautiful Anemone-flowered Chrysanthemum. The ray florets are rose suffused with golden yellow, which gives a rosy-huff effect. The disc colour is cinnamon tipped with golden yellow. Both were shown by Messrs. CRAGG, HARRISON and CRAGG.

C. Golden West.—A miniature Pompon of Snowdrop type but brilliant yellow colour.

C. Mary.—A deep golden-yellow Pompon of Elsie Dordan type.

C. Baby Felton.—A very charming Pompon of rosy-magenta colour. The unexpanded centre florets are tipped with rich yellow. All three were shown by Messrs. W. WELLS and Co.

CARDS OF COMMENDATION.

C. Artemis.—A large canary-yellow single flower of Mensa type. Shown by Messrs. CRAGG, HARRISON and CRAGG.

C. Hampton Bronze.—A medium-sized single of orange-scarlet colour and which has broad florets. Shown by Mr. C. PAGE.

C. Edward Stanton.—A blush-pink exhibition Japanese bloom of Frances Jolliffe type. Shown by Messrs. W. WELLS and Co.

C. Elspeth.—A very decorative, lilac-pink spray-flowered Anemone Chrysanthemum. Shown by Messrs. CRAGG, HARRISON and CRAGG.

COMPETITIVE CLASSES.

ANEMONE VARIETIES.—Messrs. CRAGG, HARRISON and CRAGG were the only exhibitors in a class for six vases of Anemone Chrysanthemums, and were awarded the 1st prize for excellent blooms of the varieties Cordelia, old rose with deeper-coloured centres, and Aphrodite, pink.

PLANTS IN POTS.—The schedule contained two classes for Chrysanthemums in pots, but the only exhibit was in the class for 12 plants, in pots 6½ inches in diameter. The exhibitor was the Marquis of Ripon, Coombe House, Kingston Hill (gr. Mr. T. Smith), and he was awarded the 2nd prize. The varieties were mostly of the Caprice du Printemps type, and the plants not more than 3 feet high.

AFFILIATED SOCIETIES.—In the class for 12 vases of Chrysanthemums, of representative types of the flower, the only entrant was the FINCHLEY CHRYSANTHEMUM SOCIETY. The 1st prize was awarded for an excellent exhibit.

DECORATIVE CLASSES.—Mr. D. B. CRANE, Highgate, was the only exhibitor in the class for a table decorated with Chrysanthemums. He was awarded the 1st prize for a pleasing arrangement in which singles of the Mensa type, Lizzie Adcock, yellow; Mary Morris, a bronze-coloured single, and Source d'Or, were employed with sprays of Asparagus plumosus, Phalaris grass, and Codiaem leaves for foliage.

One of the best vases of large exhibition blooms was seen in these classes. It was put up by Mr. THOMAS STEVENSON in the class for a vase of large exhibition blooms decorated with any kind of foliage. The variety was the white Mrs. W. Turner; the blooms were of exceptional size and of first-rate exhibition quality. Sprays of Oak and Beech with autumn-tinted leaves were in excellent harmony with these flowers of autumn. Mr. C. W. MANN was awarded the 2nd prize for blooms of Frances Jolliffe.

The 1st prize for a basket of Chrysanthemums was won by Mr. CRANE's exhibit, but we much preferred the basket of pink varieties shown by Mr. TOFIELD, who erred, however, in placing short stiff spikes of Pannas grass like paint brushes, in an otherwise admirable arrangement.

One of the best competitions in these classes was for three vases of Chrysanthemums "suitable for drawing-room decoration." The best individual vase, to our taste, was composed of Bronze Beauty, Mary Morris, terra-cotta, and a crimson seedling, with autumn-tinted leaves. It was shown in the 1st prize exhibit, staged by Mr. THOMAS STEVENSON, whose other vases contained incurred varieties George Glenn, straw yellow; Mrs. Dixon, yellow, and Mrs. Rundle, white, the blooms showing to great advantage in a tall glass vase; and the pretty Pompon Elise Dordan intermixed with Fred Green, deep amaranth; Dracaena Godsfeina being used for greenery; 2nd, Mr. D. B. CRANE.

In the Amateurs' Classes for floral decorations Mr. C. Fox, Tunbridge Wells, showed the best vase of five blooms of a Japanese Chrysanthemum with the variety Mr. Keith Luxford, white with a greenish shade; Mr. G. RICHARDSON, Tulse Hill (gr. Mr. J. Vanstone), excelled in the class for one large vase of Chrysanthemums, with fine blooms of H. E. Converse; and Mr. W. J. Dav. Walthamstow, for one vase of Single Chrysanthemums.

BLOOMS SHOWN ON BOARDS.

JAPANESE VARIETIES.—The Holmes Memorial Challenge Cup was offered for the best exhibit of 36 Japanese blooms distinct, and this class provided some of the finest blooms in the show. The winner of the trophy was E. G. MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. T. Stevenson), whose flowers were of sterling quality, being of large size, fresh, and exceptionally bright in colour. Notable varieties were Rear Admiral, with broad florets of vinous red with gold-coloured reverse; Mrs. K. Luxford, white; Mrs. R. C. Pulling, yellow; Sir Ed. Letchworth, rosy-purple; Frank Ladds, deep yellow; Mrs. W. Tricker, a large incurred white bloom, of perfect outline; Mrs. A. F. Tofield,

crimson, with gold colour on the reverse side; F. S. Vallis, yellow; Mrs. James Gibson, Mrs. G. Hartmann, deep terra-cotta-red; Master James, crimson; Miss A. Finch, claret-red; William Turner, white; Mrs. H. Tysoe, sulphur-yellow; and Edith Cavell, pale bronze. The 3rd prize was awarded to Lady ESMÉ GORDON, Paxton Park, St. Neots (gr. Mr. G. H. Clack), who was the only other exhibitor.

In the smaller class for 24 Japanese blooms, distinct, the President, Sir Albert Rollit, offered a silver cup. Mr. MOCATTA was again successful in winning the 1st prize easily with magnificent blooms of F. S. Vallis, Lady Talbot, Mrs. Algernon Davis, William Turner, His Majesty, Bob Pulling, Queen Mary, Mrs. A. E. Roope, Mrs. A. F. Tofield, Frank Ladds, Undaunted and others; 2nd, H. BALFOUR, Esq., Langley Lodge, Headington Hall, Oxford (gr. Mr. A. E. Hewlett), with smaller, but refined blooms, of which W. Turner, Thos. Lunt, His Majesty, Mrs. E. A. Tickle, Capt. Fox, Mrs. R. Luxford, F. S. Vallis and H. E. Converse are a selection; 3rd, C. W. MANN, Esq., Ravenswood, Bexley (gr. Mr. J. Simon).

The class for 12 Japanese blooms, distinct, resulted in an excellent competition amongst eight, and the quality throughout was of a high standard. The premier exhibit was again shown by Mr. MOCATTA, his outstanding collection consisting of the varieties Charlotte E. Soer, yellow; Mrs. J. Gibson, Queen Mary, Bob Pulling, Lady Talbot, Undaunted, F. S. Vallis, Mrs. A. F. Tofield, Miss E. A. Tickle (a magnificent flower), William Turner, Mrs. R. C. Pulling and Mrs. Algernon Davis, all well-known names at exhibitions. W. H. ALLEN, Esq., Brougham House, Bedford (gr. Mr. H. Blakeway), who won the 2nd prize, made a splendid bid for first honours with large, richly-coloured blooms of Mrs. G. C. Kelly, old rose; His Majesty, crimson; Mrs. E. Tickle, deep mauve-pink; Queen Mary, white; Bob Pulling, yellow; Francis Jolliffe, Mrs. T. Stevenson, deep yellow, and others; 3rd., C. W. MANN, Esq.

Nine competed in the class for 6 Japanese blooms, distinct, in which Mr. ALLEN excelled with Mrs. Pulling, his best flower; Reginald Vallis, Mrs. J. Gibson, Queen Mary, Francis Jolliffe and Miss Elsie Davies; 2nd, Mr. MANN, with a finely-coloured bloom of the crimson His Majesty, Mrs. Keith Luxford, white, F. S. Vallis and others; 3rd, Mr. H. BALFOUR.

INCURRED VARIETIES.—The blooms in these classes were of very even quality and exceptionally good. The 1st prize in the class for 24 blooms, distinct, in which three competed, was won by Mrs. CHALMERS, Bickley, Kent (gr. Mr. A. B. Hudd). The blooms were large, shapely, and well finished. The best varieties were Edwin Thorp, white; Mrs. P. Wiseman, cream; Clara Wells, yellow with bronze flush; Romance, golden yellow; J. Wynne, bluish-purple; Hanwell Glory, pale bronze; Buttercup, rich, deep yellow; Mrs. G. Denyer, pale mauve-pink; Master Chas. Hall, Calypso and W. Biddle. H. BENNETT, Esq., Abbeyfield, Bickley (gr. Mr. E. Dove), followed closely with similar varieties; and Lady ESMÉ GORDON was a good third.

In the smaller class for 12 varieties there were five good exhibits, the 1st prize being awarded to the largest blooms, which were shown by Mrs. CHALMERS, who thus proved the champion in these two classes. White Empress was magnificent, and others specially good were Pantia Ralli, Clara Wells, Calypso, Mrs. P. Wiseman, Mrs. J. P. Bryce and Romance; 2nd, Mr. H. BENNETT; 3rd, Mr. C. W. MANN.

Mr. H. BENNETT was awarded the 1st prize in the class for 6 incurred blooms, distinct.

BLOOMS SHOWN IN VASES.

The schedule contained only two classes for large exhibition Japanese varieties in vases, for one vase of a white and one vase of a yellow variety respectively, each exhibit to include three blooms.

For the white variety Mr. MOCATTA won easily with the large incurred William Turner; J. TEMPERLEY, Esq., Bletchingley (gr. Mr. J. Small), was placed 2nd for smaller blooms of Queen Mary; and Mr. W. H. ALLEN 3rd for the same variety.

In the class for yellow varieties, Mr. H. WOOLMAN, Sandy Hill Nursery, Shirley, Birmingham (gr. Mr. H. Woolman), carried off the premier honour with his new Shirley Golden (see Awards); 2nd, Mr. J. TEMPERLEY, with William Higby; 3rd, Mr. H. BALFOUR, with Mrs. Lloyd Wigg.

DISBUDED BLOOMS IN VASES.—The only exhibitor in the class for a collection of disbudded blooms displayed in vases on a table space of 9 feet by 3 feet, was Messrs. CRAGG, HARRISON AND CRAGG, Nurserymen, Heston. As might be expected from these skilful market growers, the blooms were of sterling merit, highly decorative for either the conservatory or dwelling-room, and of rich colours. *Portia*, a single of old-rose or deep terra-cotta-red colour, with golden centre; *T. Page*, pink; *Mrs. Roots*, white; *Yellow Money-maker*; *Crimson King*; *E. Cox*, white; *Pioneer*, yellow incurved; and *Max*, deep bronze with clear golden zone around the disc, were all splendid.

The same firm also exhibited alone in the similar class for partially disbudded blooms, and were awarded the 1st prize, *Orlando*, yellow single; *Arabella*, yellow single; *Mabel Weston*, white, anemone-centred; *Atalanta*, yellow, anemone-centred; *Elspeth*, pink, anemone-centred; and *Ceddie Mason*, crimson, are a selection of those shown.

POMPONS.—Three competed in a class for 6 vases of Pompon varieties, and the 1st prize was won by C. URBAN, Esq., Bushey Lodge, Teddington (gr. Mr. F. Fitzwater), with *Black Douglas*, *Mlle. Martha*, *Lizzie Holmes*, *Osiris*, *Mr. Sabey*, *Prince of Orange*, *Mme. Elise Jordan* and *William Westlake*; 2nd, F. J. YARROW, Esq., St. John's Wood (gr. Mr. A. Robertson).

SINGLES.—For a display of single varieties on a table space of 8 feet by 3 feet, Mr. YARROW was the only exhibitor, and he was awarded the 1st prize for large-flowered varieties, of which *Sandown Radiance*, *Mensa* and its derivatives, *Juno*, pink, and *Robert Thorpe*, white, were the more notable sorts.

SIX VASES OF LARGE SINGLES.—This class was very attractive, and showed the great advance in this type of the flower, especially in size and colour. Mr. CHALMERS excelled easily with *Kathleen Wells*, crimson; *Isabel Felton*, yellow; *Bertha Fairs*, apricot, suffused with purple; *Alberta*, old rose; *Caledonia*, pink, with a white central zone, the gem of the collection; and *Stewart Smith*, a glorious white flower; 2nd, Mr. F. J. YARROW; 3rd, Messrs. CRAGG, HARRISON AND CRAGG.

AMATEURS' CLASSES.

There were fewer classes for amateurs than usual, and the total number of exhibits were contained on one large table. Japanese blooms were shown well, especially in the class for 12 varieties, in which Mr. C. Fox, Tunbridge Wells, excelled with good flowers of W. Rigby, Undaunted, Mrs. R. C. Pulling, Rosamond, Daily Mail, Capt. Fox, Bob Pulling, Mrs. G. C. Kelly, Queen Mary, T. Lunt, Mrs. G. Drabble and Mrs. J. Gibson; 2nd, Mr. C. PULLEN, Raynes Park, the variety Mrs. H. J. Jones was the outstanding feature of this collection.

For 6 Japanese blooms, distinct, the 1st prize was won by Mr. C. Fox with excellent blooms of Mrs. R. C. Pulling, Queen Mary, Mrs. J. Gibson, Master James, W. Rigby and Rosamond; 2nd, Mr. J. VANSTONE, Tulse Hill.

The best exhibit in a class for 6 Japanese blooms was shown by Mr. BARNARD.

Incurved blooms were best shown by Mr. TOPFIELD, who won 1st prizes for (a) 12 varieties and (b) 6 varieties.

Mr. J. W. HUSSEY, Exeter, exhibited the best Pompon varieties and the best 3 vases of singles, whilst Mr. C. PULLEN won the first honours for 6 vases of singles.

NON-COMPETITIVE EXHIBITS.

The following medals were awarded to non-competitive exhibits staged by nursery firms:—*Large Gold Medal* to Mr. PHILLIP LADDS, Swanley, for a group of Chrysanthemums. This magnificent exhibit, which was arranged by Mr. Felton, was adjudged the best miscellaneous exhibit in the show, and won the *Large Gold Medal* offered by Messrs. Clay and Son. *Gold Medal* to Messrs. W. WELLS AND CO.,

Merstham, for Chrysanthemums. This group remained from the R.H.S. meeting on the 7th inst. *Small Gold Medals* to Mr. NORMAN DAVIS, Framfield, for Chrysanthemums, which included a new variety named Mrs. George Monpo, Junr. The colour is of the richest shade of crimson, and the florets have a sheen of purple like a delicate plum bloom. Other novelties were Mrs. Geo. Goodsir, with long florets of rich clear gold colour; Mrs. Algernon Davis, the finest pink Japanese variety of recent times; Chas. Harland, a silvery-pink, incurved Japanese variety, and Monica Mitchell, a new single variety of cardinal rose colour; and Messrs. H. J. JONES, LTD., Lewisham, for their group of Chrysanthemums from the R.H.S. meeting. *Silver-gilt Medal* to Messrs. CRAGG, HARRISON AND CRAGG, for Chrysanthemums of the *Caprice du Printemps* type. *Large Silver Medals* to Messrs. STUART LOW AND CO., Enfield, for Begonias and Carnations, and Mr. W. J. GODFREY, Exmouth, for Chrysanthemums. *Silver Medals* to Messrs. H. B. MAY AND SONS, Edmonton, for Ferns, and Messrs. ALLWOOD BROS., Wivelsfield, for Perpetual-flowering Carnations; *Small Silver Medal* to the Misses PRICE AND FYFE, for Chrysanthemums.

WINDSOR CHRYSANTHEMUM.

NOVEMBER 8.—The twenty-fifth exhibition of the Windsor Chrysanthemum Society was held in the Royal Albert Institute, Windsor, on Wednesday, the 8th inst. The exhibits of Chrysanthemums were numerous and of fine quality. Grapes also were shown well.

The society offered a Challenge Cup for a group of decorative Chrysanthemums, not disbudded. Mr. E. B. FOSTER, Clewer Manor, Windsor (gr. Mr. W. Cole), was the only exhibitor.

CUT BLOOMS.—The King Edward Challenge Cup was offered for 8 varieties, three of each sort, arranged in vases, with not fewer than 18 inches of Chrysanthemum foliage. Three competed, and Mrs. HAMILTON FELLOWS, Langley Park, Worplesdon, Guildford (gr. Mr. W. J. Smith), won the trophy with first-rate blooms of *Lady Talbot*, Mrs. James Gibson, W. Turner, H. E. Converse, Mrs. G. Drabble, Bob Pulling, Master James and Mrs. H. J. Jones; 2nd, J. B. FORTESCUE, Esq., Dropmore (gr. Mr. Page), with richly-coloured blooms.

In the class for 18 Japanese blooms, distinct, arranged in a space of 5 feet by 3 feet, with foliage plants for effect, Mrs. GOODLAKE (gr. Mr. H. W. Hearn), was easily 1st for magnificent blooms arranged with good effect. *Queen Mary*, *Master James*, Mrs. G. Drabble, Mrs. James Gibson and Mrs. G. C. Kelly were noteworthy varieties; 2nd, Mr. W. C. FIOMAINÉ (gr. Mr. J. Gutteridge), with smaller flowers.

Single-flowered varieties in sprays, in vases, made an interesting display. Mrs. FOSTER won the 1st prize easily in the class for 6 vases; 2nd, W. HARTLEY, Esq., Englefield Green (gr. Mr. W. Holder).

For a basket or vase containing 12 specimen blooms, arranged with any kind of natural foliage, there was keen competition. Mrs. GOODLAKE excelled with handsome blooms of, chiefly, white varieties, effectively arranged with Ferns, *Codiaeums*, and other foliage; 2nd, Mr. R. EVANS, with yellow blooms decorated with Beech twigs.

In a class, open to ladies only, for a basket of Chrysanthemums arranged for effect, with foliage, Mrs. W. COLE was successful.

MESSRS. C. TURNER AND SON, Slough, showed a collection of Apples decorated with foliage.

PATRIOTIC FLOWER SHOW AT BIRMINGHAM.

NOVEMBER 8, 9.—Although the exhibition of the United Horticultural Societies of Birmingham and district, which took place on the 8th and 9th inst., was not so extensive as the one held two years ago, the general display of fruit, flowers and vegetables was generally considered satisfactory.

The present exhibition was promoted with the object of helping the Lady Mayoress's Prisoners of War Fund, the Star and Garter Fund for Disabled Soldiers and Sailors, and St. Dunstan's Home for Blind Soldiers and Sailors. It

is anticipated that a good sum will be handed over to these deserving funds.

The exhibition was formally opened by the Lady Mayoress (Mrs. Neville Chamberlain), who was accompanied by the Lord Mayor. Most of the produce was given to the committee and sold for the benefit of the above-named funds. Many of the usual competitive exhibits were not present, probably owing to the shortage of garden labour, which is keenly felt in Birmingham, the city having been converted into a munitions beehive. Mr. E. H. Weaver (chairman), Mr. Councillor G. Johnson (vice-chairman), Mr. W. L. Webster (secretary), and a band of energetic committee-men were responsible for the arrangements, which met with general approval. Honorary awards took the place of cash prizes, as follows:—

Gold Medals to Messrs. E. WEBB AND SONS, Wordsley, for vegetables; Messrs. SUTTON AND SONS, Reading, for vegetables; Messrs. H. WOOLMAN AND SON, Shirley, for Chrysanthemums; the Earl of PLYMOUTH, Hewell Grange, Redditch (gr. Mr. J. J. Graham), for 33 bunches of Grapes; the Earl of CRAVEN, Coombe Abbey, Coventry (gr. Mr. H. Chandler), for Begonias and Chrysanthemums; E. ALLDAY, Esq., Solihull (gr. Mr. J. Taylor), for 28 dishes of Apples, Pears and Oranges; THE CITY OF BIRMINGHAM EDUCATION COMMITTEE, Northern Districts (gr. Mr. J. Smith), for fruit; Messrs. ALLWOOD BROTHERS, Haywards Heath, for Carnations; THE TAMWORTH MARKET GARDENERS, for vegetables; THE SMALL HEATH ALLOTMENTS ASSOCIATION, for vegetables and flowers; Mr. FRANK ANDERSON, Moseley, for vegetables; WOLSELEY ATHLETIC CLUB, Birmingham, for plants, flowers, fruit and vegetables; BIRMINGHAM MUNICIPAL EMPLOYEES, for fruit, flowers and vegetables.

Silver-gilt Medals to Mrs HUGH ANDREWS, Toddington Manor, Winchcombe (gr. Mr. J. R. Tooley), for Grapes; J. B. BROOKS, Esq., Bromsgrove (gr. Mr. T. Avery), for fruit, flowers and vegetables; THE CITY OF BIRMINGHAM EDUCATION COMMITTEE, Southern District (gr. Mr. J. D. Jones), for fruit and vegetables; GODFREY NETTLEFOLD, Esq., J.P., Edghaston (gr. Mr. J. Higley), for 14 bunches of Grapes; Mr. H. J. MILLER, Handsworth, for 18 dishes of Apples grown within 3 miles of Birmingham Town Hall; H. C. ATKINSON, Esq., Handsworth (gr. Mr. S. J. Griffiths), for vegetables; SPARKHILL HORTICULTURAL SOCIETY, for vegetables.

Silver Medals to Mr. A. M. McCORMACK, King's Norton, for Pot Chrysanthemums; Miss S. S. THOMPSON, Handsworth, for cactaceous plants; Miss M. L. DEAKIN, Hay Mills, for Chrysanthemums; Messrs. PEWTESS BROS., Hereford, for Apples; Mr. J. C. L. HAGEE, Greet, Birmingham, for vegetables; Mr. W. H. DYER, Northfield, for Chrysanthemums; Mr. T. BANNISTER, Marston Green, for Potatos; SPARKHILL LADIES, for cut flowers; BIRMINGHAM POST OFFICE HORTICULTURAL SOCIETY, for Chrysanthemums and vegetables; HILL AND FOUR OAKS ALLOTMENTS ASSOCIATION, for vegetables.

Bronze Medal to W. A. CADBURY, Esq., West Hills, King's Norton (gr. Mr. H. A. Bick), for Carnations.

Award of Merit to Mr. J. R. PHIPPS, Bognor, for Alpines; Mr. O. YARDLEY, Solihull, for a bouquet of Roses.

SCOTTISH HORTICULTURAL.

NOVEMBER 7.—The monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on this date. Mr. Pirie, the president, was in the chair, and there was an attendance of 65 members.

A paper, with lantern illustrations, was read by Mr. J. Beats, Binrock, Dundee, on "Rock Gardens."

The exhibits were: Perpetual-flowering Carnations, from Messrs. DOBBIE AND CO., Edinburgh; Ailsa Craig and Cranston's Excelsior Onions, grown without artificial manure on ground which had been successively cropped with Onions for ten years, from Mr. R. H. COCKBURN, Gartmore Gardens, Perthshire (awarded a Cultural Certificate); Intermediate Carrot, from Miss BURTON, New Saughton Hall, Polton (awarded a Cultural Certificate); Chrysanthemums and *Dasyliroiu* sp. in flower, from Mrs. BEATS.

JAPAN SOCIETY.

LECTURE ON THE CHRYSANTHEMUM.

NOVEMBER 8.—The Japan Society opened its winter session on the 8th inst. with a lecture by Mr. C. HARMAN PAYNE on "The Chrysanthemum: Its Historic and Literary Associations." Sir Albert K. Rollit presided over a large attendance, which included the Japanese Ambassador and a deputation from the National Chrysanthemum Society.

Mr. Payne stated that immediately before the war there were more than four hundred Chrysanthemum Societies in the British Isles, and that the National Chrysanthemum Society has held 70 consecutive shows. With many quotations from the eminent writers of China and Japan the lecturer showed that for many centuries the "golden flower" was held in the highest esteem in those countries, and even now, with such a wealth of variety to choose from, it is still the yellow varieties that find most favour. His excerpts from the Eastern classics showed that the perfume of the Chrysanthemum is also greatly valued, though in this country, probably owing to the lack of autumn sunshine, the Chrysanthemum is not regarded as a fragrant flower.

The festivals and annual Chrysanthemum shows in Japan were described, and beautiful lantern-slides faithfully depicted scenes from ancient history and the drama in which the full-sized figures and scenery are clothed in flowering Chrysanthemums. Mr. Payne stated that invitations to the great Chrysanthemum shows in Japan are eagerly sought after. Illustrations were given of trained specimen plants, one of which bore as many as 1,083 flowers. In this connection Mr. Payne referred to a plant grown at Ipswich some years ago which had over 1,000 flowers. Another form of Chrysanthemum in Japan, which was a single-stemmed plant, and each bearing one bloom and arranged formally, was also shown.

LINNEAN.

NOVEMBER 2.—Sir David Prain, F.R.S., president, in the chair.

A paper was given by Prof. G. S. BOULGER, entitled "Early Chapters in Plant Distribution," in which he sketched the first glimpses in the works of Cardinal Bembo, M. de l'Obel, Sir Hans Sloane, Dr. Christian Mentzel, and J. Pitton de Tournefort. The last has enjoyed a reputation which his actual record as to plant distribution does not deserve, believed to be the result of an early misquotation from his *Voyage du Levant*. The second chapter was devoted to Carl von Linné, whose *Flora lapponica* and several theses in the *Amoenitates academice* were brought forward in support. Next followed Haller, J. G. Gmelin, Buffon and Forskal, C. L. Willdenow, with a brief allusion to P. A. Broussonet.

Dr. Stapf suggested that reference to the works of Theophrastus Eresios, Rumpf, *Flora amboinensis*, and C. de l'Escluse *Hariorum stirpium per Hispaniam historia* would reward the student of this subject.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 2.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Haumer, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya labiata Memoria Lord Kitchener, a beautiful flower of pure white, and *Laelio-Cattleya luminosa aurea* var. *Ashworthiana* (*L. tenebrosa* Walton Grange var. × *C. Dowiana aurea*), a large flower with bright yellow sepals and petals, and crimson lip; both from R. ASHWORTH, Esq.

Cattleya Fobia var. *Cramore* and *Brasso-Cattleya Nestor* var. *Cramore* (*B.-C. Maronice* × *C. labiata*), a large flower of good form; the lip with yellow band across the centre and a light purple base, both from Dr. CRAVEN MOORE.

Cypripedium Mrs. Hilary Jenkinson (*Trilobis* × *albortense*).—The round, flat, dorsal sepal measured $3\frac{1}{4}$ inches across, and is well spotted; the petals are $1\frac{1}{2}$ inch across, from R. WINDSOR RICKARDS, Esq.

Laelio-Cattleya Serbia var. *Princess Patricia* (*C. Portia* × *C. Mantinii*), from J. J. BOLTON, Esq.

AWARDS OF MERIT.

Cypripedium Cramore (*C. Gaston Bulteel* × *C. Dreadnought*), *C. Christopher* var. *Cramore*; *Odontoglossum crispum* var. *Hamilton*, and *Cattleya Enid* var. *Conyngnam*, all from Dr. CRAVEN MOORE.

Odontoglossum eximium var. *Prince of Wales* and *Cattleya hvathfeldensis*, both from J. J. BOLTON, Esq.

Brasso-Cattleya Nestor Houghton's var. and *Cattleya Fobia Rex Houghton's* var., both from T. HOUGHTON, Esq.

Cattleya Alcimedia var. *Fair Lady*, from R. ASHWORTH, Esq.

C. Prince John Risden var. (*C. aurea* × *C. Hardyana alba*), from Mr. ALWYN HARRISON.

GROUPS.

The following medal awards were made for collections:—

Large Silver Medals to R. ASHWORTH, Esq., Newchurch (gr. Mr. W. Gilden) and Dr. CRAVEN MOORE, Victoria Park, Manchester (gr. Mr. Tom Arran).

Silver Medals to the Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), J. J. BOLTON, Esq., Pendleton (gr. Mr. J. Law), R.



THE LATE PROF. H. H. W. PEARSON.
(See Obituary notice in the last issue, p. 238.)

WINDSOR RICKARDS, Esq., Usk Priory, Monmouthshire, and Messrs. CYPHER AND SONS, Cheltenham.

Mr. E. ROGERS, gardener to O. O. Wrigley, Esq., was awarded a Cultural Certificate for a pair of *Pleione lagynaria*.

Obituary.

THOMAS FRANKS.—*The American Florist* records the death of Mr. Thomas Franks, founder of the florist firm of Thomas Franks and Son, Champaign, Ill., and the first gardener at the University of Illinois. He died on October 18, aged 72 years.

Mr. Franks was born in Westbury, England, and emigrated to America at the age of twenty-one, first landing in Quebec, going from that city to Hamilton and Ancaster, Canada, where he remained for about three years. He removed to Chicago, and was employed in that city for several months on park work at the time when Lincoln Park was laid out. While thus engaged he was appointed gardener at the University of Illinois, and laid out the grounds and superintended the tree planting.

In 1871 Mr. Franks purchased property in Champaign and erected the first greenhouse in the county of Illinois.

ANSWERS TO CORRESPONDENTS.

ALLEGED WRONGFUL DISMISSAL: *G. C., Surrey.*
In cases of wrongful dismissal there are usually many facts to be determined that can best be inquired into by someone in the district. We think, therefore, you would do well to employ a local solicitor.

GRAFT HYBRID ON MEDLAR: *T. D.* The fact that your Medlar tree is bearing branches of which some have typical Medlar fruits and one has smaller, brightly coloured, Crataegus-like fruits, suggests that the latter represents a graft-hybrid between the Medlar stock and the unknown scion on which the Medlar is grafted. If the branch bearing the small fruits does not come from below the level of the graft you may be sure that this explanation is correct. The case is similar to but not identical with that of the well-known graft hybrid Crataegus-Mespilus Asniensis, described and figured in these pages (Sept. 9, 1911, p. 185). The main difference in the two cases lies in the fact that the leaves of your graft-hybrid are not so pronouncedly lobed as are those figured in the Crataegus-Mespilus graft-hybrid. The explanation of the formation of graft-hybrids is as follows: They arise from a bud which is formed as the result of joint activity of tissues of both scion and stock. In the case of the Crataegus-Mespilus hybrid, and apparently in your example, the surface tissue (epidermis) is that of the scion (Medlar), and the deeper tissues are those of the stock. The composite bud produces leaves and fruits which are a compromise, but more nearly like those of the plant which contributes the deeper tissues. A full account of known graft-hybrids will be found in the *Gard. Chron.*, Sept. 2 and 9, 1911, pp. 161 and 185.

IVY ON A DWELLING-HOUSE: *Landowner.*
There is no evergreen climbing plant more suitable for your purpose than Ivy, especially as it would be in keeping with the character of the house. We do not think the surface of the walls would affect the growth of the Ivy in any way. The belief that Ivy harbours insects is an old and erroneous one; the same objection rules with any other climber. You need only cut the Ivy once a year, about April or May, just as growth is commencing. In addition to the common varieties such sorts as Emerald Gem, triloba, colchica, angularis aurea or any of the fast-growing forms may be used to give variety.

MILLIPEDES: *A. R. D.* The insects infesting the soil of your Cypripediums are millipedes, a species of Julius. They may be trapped with pieces of Mangold, which should be placed about the Cypripediums.

NAMES OF FRUITS: *Norvic.* The larger Pear was too ripe to be identified. Can you send better fruits, less ripe than these, and two of each variety? *W. P. L. S., Ltd.* 1, Apple Scotch Bridget; 2, Scarlet Golden Pippin.—*W. D. and S.* 1, Apple Hollandbury; 2, Prince Bismarck.

NAMES OF PLANTS: *B. A.* Polyporus versicolor.—*H. P.* Crithium maritimum (Samphire).

POTATOS DISEASED: *E. P.* The injury is a form of winter-rot, caused by a fungus. In certain conditions, apparently depending on the kind of soil the tuber is grown in, the disease does not appear externally.

POTATOS WITH HOLLOW CENTRES: *P., Sussex.* The affection is known as "sprain." No insect or fungus is concerned with the trouble, and no cure is known. Lime is said to favour the disease. It is important that tubers for planting be obtained from a district free from the complaint.

PRUNING THE YEW: *Constant Reader.* The best time to undertake the work of pruning Yew trees is early summer.

Communications Received.—*J. A., B.E.F.*—H. F.—G. J. L.—B. W.—F. R. S.—G. H.—F. J. H.—T. H.—H. F. M.—H. C. H., Upper Assam—J. B. R. (The answer is in the affirmative.)—*J. O'B.*—S. L.—W. H. W.—A. B. H.—A Fifteen Years' Reader—S. B.—F. J. H.—A. D. W.—Walter S. Chamberlain. (The letter has been forwarded.)



THE

Gardeners' Chronicle

No. 1561.—SATURDAY, NOVEMBER 25, 1916.

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THE MARKET FRUIT GARDEN.

A BROWN ROT SEASON.

IN the spring it was stated that brown rot (*Sclerotinia fructigena*, formerly named *Monilia fructigena*) (see figs. 99 and 100) had not attacked Plums so badly as in some preceding seasons, though the attack on Apples was exceptionally extensive. The former comparative exemption did not last long, and when the Plums were fit to be gathered great numbers of rotten fruits were on the trees, while thousands more would have begun to rot at one end if they had not been picked before they were fully ripe. The rotten fruit which did not drop has been removed. It was not only the fruit, however, which became affected by this worst of all fungous diseases. The shoots and spurs became diseased to a great extent, as shown at the present time by withered leaves sticking on them—a certain sign of rot (see fig. 99). It is important to cut these shoots and spurs back to sound buds, burning the cuttings. Women, armed with pruning scissors or secateurs, have been at this work for some time, and they have done it fairly—quite as well as ordinary labourers of the male sex would have done, though not so completely as experienced pruners. But my Gisbornes, fortunately only on a small piece of land, had become so poisoned with the disease that it has been necessary to grub them up. The withered shoots and spurs on Apples showed just when, or shortly after, the blossom dropped, and, as mentioned at the time, these were cut off and burnt. Perhaps to this precaution may be attributed the almost entire exemption of the fruit of Apples. It is difficult to find a mummified Apple in any of my orchards. Nevertheless, the loss of fruit from brown rot is very serious in the case of some varieties of Apples, as the fungus mainly



FIG. 99.—PORTION OF A BRANCH OF COX'S ORANGE PIPPIN SHOWING THE "BROWN ROT" CANKER. THE DEAD SPUR WAS ATTACKED WHEN IN FLOWER. PUSTULES OF SPORES CAN BE SEEN.



FIG. 100.—BROWN ROT CANKER ATTACKING A BRANCH OF APPLE JAMES GRIEVE. THE FUNGUS ENTERED THE BRANCH THROUGH THE DEAD FRUIT-SPURS.

attacks the fruit spurs and the blossoms, entirely destroying the affected fruitlets, and often the whole spurs. This dreadful disease has been becoming more and more common for several years, perhaps because we have had wet winters and springs with exceptional frequency. A systematic campaign against it is needed, and experiments might well be carried out on a large scale in order to ascertain, if possible, the best system of operations. The best plan which can be provisionally recommended is that of spraying the trees with lime-sulphur of winter strength or Bordeaux mixture, drenching the trees just before the blossom begins to open, and afterwards cutting off and burning every diseased twig, or spur, or blossom. The latter operation is a very expensive one, but it is absolutely essential. Probably, if a thorough investigation were made, it would be found that a spraying before the one suggested above would be necessary. Infection is said to take place in the spring, but how early, I believe, has not been certainly ascertained. It is supposed to arise from spores developed on the ground, and this may be the case, but probably at least as much infection arises from spores on the trees, even when all mummified fruits are removed and burnt. So far as spores developed on the ground are concerned, it may be assumed that the digging of the orchard during the winter would be a safeguard. With all possible care in removing diseased fruit, twigs, and spurs, millions of spores of the fungus must be shed on the ground, and these would be buried to a very great extent by digging. Every possible prevention of the spread of the disease should be tried systematically. The endowment of research in this direction is as emphatically and urgently desirable as in any problem connected with fruit-growing.

APPLES DAMAGED BY CAPSID BUGS.

Mr. Theobald informs me that he has had numerous inquiries this season as to the cause of russeted swellings on Apples, some specimens of which I sent him. They were most common on Allington Pippins with me, but were found more or less on some other varieties, including Bramley's Seedling. Mr. Theobald believes them to be the results of damage done to the Apples when small by one or more of the Capsidae. This opinion has been confirmed by a friend in Suffolk, who has noticed the injury done by the bugs during several past seasons. There are several species of these bugs, which differ in colour, but all found in my orchards are yellowish-green. Various periods of the season are named for their appearance. Those found by me have been in the trusses of blossom with the Apple suckers. They are active little creatures, the smallest species being about as big as fully grown suckers. They hurry out of sight when observed. Mr. Fryer, entomologist to the Board of Agriculture, in a paper contributed to *The Annals of Applied Biology* in July, 1914, refers to injury to the foliage, as well as the fruit, done by capsid bugs, and Mr. Theobald mentioned distortion of young shoots as attributable to them. Mr. Fryer notices the cracking as well as the distortion of Apples as resulting from punctures of the fruitlets by capsid bugs. The life history of the pest is unknown at present. It has been stated that the bugs are difficult to kill by spraying, but I found that they were as easily destroyed as either suckers or aphides when shoots and blossoms containing all three were dipped into a contact wash, such as one of soft soap. Spraying the trees is very much less effective than dipping the shoots, and the former, in my experience, is not greatly effective against either suckers or leaf-curling aphides. It can hardly be less so against capsid bugs.

THE SCARCITY OF BRAMLEY'S SEEDLING APPLE.

Ten shillings a bushel for good samples of Bramley's Seedling is probably a record price. At any rate it is considerably more than I have ever made before, even when the fruit was kept till February and March. *Southern Grower.*

NEW OR NOTEWORTHY PLANTS.

MESEMBRYANTHEMUM ELISHAE, N. E. Br.*

Among the many new species I am describing and figuring for a monograph of that group of the genus *Mesembryanthemum* to which Haworth gave the name of *Sphaeroidea*, *M. Elishae* is one of the most distinct. Its nearest allies are *M. bilobum* and *M. stylosum*, but it differs from both of them in its much dwarfer and proportionately stouter growths, which form very compact or dense clusters. From Haworth's description of *M. nuciforme*, I think that species must also be an ally of *M. Elishae*, but I do not remember ever to have seen the true *M. nuciforme*. There are plants cultivated under that name in gardens that are most certainly not the plant to which Haworth gave the name, and according to the description can have no similarity to it.

M. Elishae forms neat clumps composed of many crowded growths. Each growth is from about two-thirds of an inch to nearly one inch high, nearly as much in breadth, and about half an inch thick, somewhat obovoid in side view, two-lobed at the top, with the lobes much compressed, as if pinched between the finger and thumb, keeled along the top, smooth, glabrous, of a slightly bluish-green colour, obscurely marked with scattered darker dots. The flowers are half to three-quarters of an inch in diameter, bright yellow, expanding during bright sunshine and closing at night. The calyx-tube is variously exerted from the small orifice at the bottom of the notch separating the lobes of the plant, so that the calyx-lobes are sometimes much shorter than those lobes and sometimes overtop them. Petals 35-40, in about three series, united below into a tube, with the free part about one-third of an inch long. Stamens numerous, yellow. Stigmas, 5-6, pale yellow.

When in flower this is a very pretty species, which I have much pleasure in naming after M. G. Elisha, who has generously presented me with a living specimen of this interesting plant, and has frequently aided me in preparing my monograph with flowering specimens of other species. *N. E. Brown*.

WINTER TREATMENT OF GREENHOUSE PLANTS.

During these times of forced economy in the gardens, especially as regards fire-heat for indoor plants, many gardeners are faced with increasing difficulties as to the successful wintering of stove, greenhouse, and other tender plants. The circumstances of the past and present seasons have compelled many of us to make somewhat drastic experiments in this direction, the results of which have demonstrated to a remarkable degree the hardness of many so-called tender subjects—plants for which our forefathers would have considered the stove temperature absolutely necessary.

In my particular establishment firing has been reduced to the veriest minimum, and this must be fairly common in gardens now. Throughout the summer, artificial heat, except a little necessary for propagation, has not been used; and even now we have only sufficient to guard against the effects of frost and the occasional wet and foggy nights. Yet, speaking generally, the various batches of plants are very little below the usual standard.

Kentias, such ferns as *Nephrolepis*, *Adiantums*,

Pteris and *Aspleniums*, *Crotons*, *Gardenias*, and many other stove and greenhouse plants are looking perfectly healthy. The ferns made excellent growth during the summer: the *Palms* have also grown, though slowly, and are apparently quite happy. Many of the true stove plants are now practically at a standstill, but do not appear to be suffering in any way, and insect pests have given very little trouble. *Begonia Gloire de Lorraine* and the winter-flowering hybrids, such as *Mrs. Heal*, *Optima*, and their kindred varieties, are flowering well, although the night temperature is often below 40°. The plants might have been larger, perhaps, but the flowers are strong and free, and their colours seem extra bright. The variety *Gloire de Sceaux* looks a little uncomfortable, and probably needs warmth to develop its flowers. *Gloxinias* and *Streptocarpus* grew and flowered well, though a little later than usual, and the former plants made excellent tubers. The *Cyclamen* tasted a degree or so of frost, and appear none the worse for it; they are throwing up good flowers, though they have scarcely known fire-heat since last winter. So with many other indoor subjects, a few have suffered, but, considering the saving effected, it might justly be called a negligible few.

Naturally, such drastic reductions in temperature are not resorted to except as an emergency measure, and are not recommended. Such conditions can only be safe and successful in co-operation with special and careful treatment, particularly in regard to the use of the watering-pot. Reduction of temperature must be accompanied by an equal reduction of moisture, both at the roots of plants and in the atmosphere. Fresh air should be afforded in abundance whenever possible. During the winter months syringing and damping should be entirely suspended, and water applied with great care, only when absolutely necessary. Experiments prove that the majority of greenhouse plants require very little water indeed under winter conditions, and if kept on the dry side are much better able to withstand frost and the evil effects of fog.

This dry principle applies equally to many tender shrubs, such as the *Eucalyptus*, *Bottle-brush* and *Leptospermum*. These, when planted out in ordinary garden soil, rarely survive the English winter. Yet the frost alone is not entirely responsible. I believe many of these subjects would survive several degrees of frost but for the continuous saturated condition of the soil. Most of us have seen the *Bottle-brush* (*Metrosideros*), the *Aralia* (*Fatsia japonica*), and even the indoor varieties of *Fuchsia* comfortably established and defying the winter's worst when planted in an open, naturally

drained position near a wall, and it is probable that many tender shrubs, if planted in a porous, rubbly soil, well drained below, might become equally immune from frost attacks, although artificial watering might be necessary during summer. There certainly seems to be room for experiment here.

I might remark, in closing, that I planted a batch of hybrid *Streptocarpus* in an open rockery in June, and they grew and flowered profusely well into October.

Perhaps a little more fresh air and cooler treatment might reveal the hidden charms of many of our over-coddled inhabitants of the greenhouse. *M.*

CAMPANULA CAESPITOSA.

CAMPANULA CAESPITOSA is commonly known in gardens as *C. pusilla*, and although some authorities consider the plants distinct, the less stoloniferous character of *C. pusilla* does not seem sufficient distinction to warrant the two names. The plant grows wild in the calcareous regions of the Jura, the Pyrenees, the Cevennes, the Vosges, and the Carpathians, amidst the natural debris, stone slides and glacial moraines, its habitat extending to 6,000 feet. It is one of the most charming of the small-growing *Campanulas*, and thrives in sunny or shady places amongst rocks or on the level ground, though it flowers best in full exposure to sunshine. There are numerous varieties in cultivation, the one illustrated in fig. 101, named after Miss Willmott, has beautiful pale blue flowers, whilst the white form is shown in fig. 103.

ORCHID NOTES AND CLEANINGS.

CATLEYA LABIATA MEMORIA LORD KITCHENER.

This magnificent pure white form of *Cattleya labiata*, which was awarded a First-class Certificate and Silver Medal when shown by Richard Ashworth, Esq., Ashlands, Newchurch, Manchester (gr. Mr. W. Gilden), on November 2, is undoubtedly one of the finest white *Cattleyas*. A flower sent us from Ashlands measures eight inches across from tip to tip of the petals, which are three inches in width. The lip is nearly four inches in length, and its fringed front lobe two and a half inches wide. The whole flower is pure white except for a small blotch of orange colour at the base of the lip.

HYBRID ORCHIDS.

(Continued from Oct. 14, p. 181.)

Hybrid.	Parentage.	Exhibitor.
Brasso-Cattleya Menda var. Mrs. Rickards	B.-C. Digbyano-Mossiae x C. labiata Purity ..	Charlesworth and Co.
Brasso-Laelio-Cattleya Jeau	B.-C. Digbyano-Mossiae x L.-C. Gottoiana ..	Flory and Black.
Cattleya Alexandra	Carmen x Hardyana	Flory and Black.
Cattleya Amazon alba	Lord Rothschild alba x Maggie Raphael alba ..	Sander and Sons.
Cattleya Ancre	Hardyana x Peetersii	Sander and Sons.
Cattleya Aumania	Dowian aurea x Germania	Duke of Marlborough.
Cattleya Florida	Marstersoniae x Dowiana aurea	Mr. C. F. Waters.
Cattleya Regina	Dupreana x labiata	Duke of Marlborough.
Cattleya Rexful	Rex x Fulvescens	Flory and Black.
Cattleya Ruby	Vesta x Dowiana	Dr. Craven Moore.
Cattleya Thiepal	Fabia alba x Marguerite Maron	Sander and Sons.
Cypripedium Arthera	Arthuriannum x Hera	R. Windsor Rickards, Esq.
Cypripedium Cranore	Gaston Bulteel x Dreadnought	Dr. Craven Moore.
Cypripedium Monitor	Actaens x Albidiales	Armstrong and Brown.
Cypripedium Mrs. Hilary Jenkinson	Parentage unrecorded	R. Windsor Rickards, Esq.
Cypripedium Sentur	Fulshavense x Lady Dillon	W. R. Lee, Esq.
Cypripedium Success	Earl of Tankerville x M. de Certe	R. Ashworth, Esq.
Laelio-Cattleya Advance	L.-C. Golden Glory x C. Hardyana	Sander and Sons.
Laelio-Cattleya Edith	L.-C. Geo. Woodhams x C. Enid	Sir Jeremiah Colman, Bart.
Laelio-Cattleya Flamboyant	C. Dowiana aurea x L.-C. Cora var. plumosa ..	Sander and Sons.
Laelio-Cattleya Florence	L.-C. Dominiana langleyensis x C. Carmen ..	Flory and Black.
Laelio Cattleya Hester	L.-C. rubens x C. Pittiana	Flory and Black.
Laelio-Cattleya Houghtonii	C. Harrisoniana x L. Perrini	Cowan and Co.
Laelio-Cattleya Mita	C. Fabia x L.-C. Golden Oriole	Hassall and Co.
Laelio-Cattleya Paletta	Pallas x C. G. Koehling var. Violetta	Flory and Black.
Laelio-Cattleya Perceiwells	C. Percivaliana x L.-C. Walsiana	Duke of Marlborough.
Laelio-Cattleya St. George	L.-C. St. Gotthard x C. Fabia	Paula Rall, Esq.
Laelio-Cattleya Shambrook	C. Dowiana aurea x L.-C. Schneideri	Alwyn Harrison, Esq.
Laelio-Cattleya Supermax	L.-C. superbiens x C. maxima	Duke of Marlborough.
Laelio-Cattleya Vera	L.-C. Black Prince x C. labiata	Flory and Black.
Laelio-Cattleya Brusseau-Hye var. Wilps	L.-C. Aphrodite alba x C. Warscewiczii Fr. M. Bey-	
	rodt	P. Smith, Esq.
Laelio Cattleya Winnie	L.-C. bleckleyensis x C. Carmen	Flory and Black.
Odontioda Olympia	Ola Charlesworthii x Odm. Olympia	Dr. Craven Moore.
Odontoglossum General Cadoma	Ossulstonii x King Emperor	Armstrong and Brown.
Sopiro-Laelio Cattleya Isabella	S.-L.-C. Marathou x C. Fabia	Charlesworth and Co.

* *Mesembryanthemum Elishae*, N. E. Brown. Corolla dense caespitosa, 1.4-2 cm. alta, 1.2-2 cm. lata, 1-1.2 cm. crassa, sub-obovoides, biloba, apice multo compressa lobis erectis carnatis, glabra, subnervulosa, obscure punctata. Calyx 3.5-lobus, submembranaceus, pallide virescens, lobis rubescentibus. Corolla 1.2-2 cm. diametro, lutea; petala 35-45, triseriata, linearia, apice bifida vel obtusa, infere in tubum connata. Stamina numerosa lutea. Stigmata 5-6, filiformia, pallide lutea, inferne in stylum connata.

BRITISH EAST AFRICA.

The following interesting notes on plants in British East Africa are contained in a communication from Mr. J. H. Cameron to the Bureau of Plant Industry of the Department of Agriculture, U.S.A. :—

"I wonder if you would be interested to read a few lines descriptive of this extraordinary country in regard to its flora. I am the manager of a farm of thirty thousand acres situated exactly on the equator, but at an elevation of from eight thousand to ten thousand feet above the level of the sea. On account of this great elevation, the climate is most salubrious. I have never known the temperature to rise above 86° F. or drop below 45°. We have a large rainfall, too, so that we can and do grow almost anything.

"On this estate Flax is the main industry; we both grow and manufacture the fibre, and it commands a price on the London market that compares well with the best Belgian and French Flax. On account of the unfortunate destruction of the first-named country we are, of course, experiencing a boom in price.

"At our nine-thousand foot level we work the forests, cutting the timber, most of which is sold in the colony, but some we send to England, more especially the Cedar (*Juniperus procera*), a splendid tree growing 150 to 200 feet high. We ship it in baulks 12 inches by 12 inches up. I do not know what they resaw it into in England, but here we build our houses with it, inside and out. We also saw it up in a special mill for pencil Cedar. *Olea Hochstetteri* (native name, m'shraghue) is a fine Olive; this wood we saw into ties for the Uganda Railway, and for the new railways that our military authorities are pushing forward every day. We also cut it into wagon parts, bridge material and furniture. It is the hardest wood I have ever known with the exception of the Quebracho (*Aspidosperma Quebracho-blanco*) that I came across in the forests of North Argentine. Another Olive we have, *Olea sp.* (native name, m'weri), much lighter than the other Olive, but very tough. It is as red as Rosewood, used for ox yokes and furniture. There is still another *Olea* called brown Olive, a very handsome wood used for hubs, spokes and felloes, and for completely making jinrickshaws, a form of vehicle much used in Mombasa, Nairobi and other towns.

"For most of the local building *Podocarpus gracilior* takes the place of the Pines, etc., of Europe and North America. It is a splendid tree with a perfectly straight bole for 80 or more feet. It is the principal forest tree at the 7,000 and 8,000 feet level. The Cedar goes higher. I have cut it at 9,548 feet. Above that the forest dwindles and it becomes dense Bamboo (and buffalo, the latter a very nasty customer to meet). The pasture on these hills at 9,000 and 10,000 feet is the finest I have ever seen, not even excepting in England. Much lower down at from sea level to 1,000 feet grow Mangoes and all the tropical trees, Palms, *Dracaenas*, etc.

"Growing on these hills, but having no utility purposes, we have a giant Heath which I call *Erica gigantea*, 25 feet high. It usually grows in broken gullies where grass will not hold and is favourite "cover" for lions. *Lantana ericoides* grows on the outer edge of the forest and the roadsides, as also does *Heliotrope*, a giant *Asparagus* (edible), a herbaceous *Althea* or *Hibiscus*, and many beautiful flowers whose names I know not. In my garden I grow Oranges, Mandarins, Lemons, Limes, Loquats, Coffee and Tea. Coffee is a great industry at the 6,000 feet level. In one small district of Kisambu, near Nairobi, there are 12,000 acres planted in Coffee. I also have Strawberries (imported), native Raspberries, and the Cape Gooseberry, which is not a Gooseberry at all but an excellent fruit. I will send you some seed, as it would grow well in all your non-freezing States, and will even stand a few degrees of frost, as I have seen it do at 10,000 feet. I have what are called Tree Tomatos; the bush (perennial) grows 8 feet high with large

shiny leaves that get smaller as the tree grows older. The fruit looks like a large reddish-purple Plum, but has many small seeds like the Tomato, and a very pleasant taste; it is used for pies and puddings.

"In the matter of vegetables, we grow here everything that is found in an English or North American garden only they are produced for twelve months in the year.

"In my flower garden I grow the most beautiful Roses I ever saw. There is not a day in the year when I am without their blooms; also all the old English garden perennials, annuals, etc. *Passiflora edulis* and its cousin *P. trifasciata* cover my house, and mixed up with it are *Mandevilla suaveolens* and *Cobaea scandens*; the latter

nounced meewo). One tribe, called Kikuyus, is never without it. It would be interesting to know how it came here, but, of course, the native knows nothing of his history and cares nothing.

"The agricultural tribes are great farmers. Their methods are those of the Stone Age. The women do all the work; the men hunt, drink, steal, and stand around naked and discuss the value of the goats, sheep and cattle, which they barter for more wives. The amount of Maize grown and exported by just one tribe, the Kavirondo, who live along the shores of Lake Victoria Nyanza, is astonishing. Another tribe raises quantities of Beans, Peas and Potatoes. To-day I have stood on top of a great hill on this farm, 10,000 feet high, but only about 1,500 feet



[Photograph by R. A. Malb.]

FIG. 101.—*CAMPANULA CAESPITOSA* VAR. *MISS WILLMOTT*.

(See p. 252.)

with very much larger flowers than I ever raised in either Virginia or Devonshire.

"We have 250 acres of black Wattle, *Acacia decurrens*. It is now just three years old, and is 30 feet high. In another year we shall cut it and strip the bark, which is used for tanning in Europe. Sisal Hemp is a great industry here, the fibre of *Agave rigida* var. *sisalana*. It is used for cordage; but, of course, you grow it in Florida, and know all about it. Among other things that we grow here, but at different elevations, are Coffee, Wheat, Rubber, Cotton, Coconuts, and Mangos.

"The Dasheen, by the way, has been grown here by the natives from long before the coming of the white man. They call it Miwoo (pro-

above the surrounding table land, and looked down through field glasses into Lake Victoria, 80 miles away to the west, Kilimanjaro, 19,000 feet high, away to the south-east, over to Lakes Rudolf and Baringo to the north, and German East Africa, 30 miles to the south. At the foot of the hill great herds of antelope and countless zebra graze. I have caught some of the zebra foals, and intend when they are fully grown to cross them with my Somali pony stallion.

"I am sending you seeds of a fine *Amaryllis* which grows here on the veldt, and which we wrongly call the Veldt Lily. It may be *Hippeastrum*; its flowers are immense, white, with pink stripes; its bulb is a foot long. It seems to thrive in the very dry weather."

TREES AND SHRUBS.

CHINESE VIBURNUMS AND COTONEASTERS.

THE *Bulletin of Popular Information* (No. 14), issued by the Arnold Arboretum, states that compared with most of the American and some of the Japanese species the new *Viburnums* from Western China are of small value as flowering plants, but at least two of them, *V. theiferum* and *V. hupehense*, deserve a place in the garden for their handsome fruits. That of *V. theiferum*, found in broad, long-stalked, drooping clusters, is oval and about half an inch long. Early in October this fruit is light orange colour and very lustrous, but later becomes scarlet. This *Viburnum* has grown rapidly in the Arboretum, where it forms a broad shrub with rather

flowers, and large bright red fruits which completely cover the branches. Some of the Chinese species have more conspicuous flowers and handsomer foliage, but none of them has yet equalled in the Arboretum this inhabitant of the dry, arid river valleys of Western Szech'uan in the size, brilliancy, and abundance of the fruits.

Of the large-growing Chinese species, *Cotoneaster divaricata* is perhaps the handsomest at this time, for the small bright red fruits which are produced in great abundance make a handsome contrast with the small, dark green, shining leaves. The flowers of this shrub are small and bright rose colour. The new Chinese *Cotoneasters* include some of the most valuable shrubs for American gardens of recent introduction.

GARRYA ELLIPTICA IN FRUIT.

MESSRS. ROBERT VEITCH AND SON send us fine specimens of *Garrya elliptica* in fruit, as



FIG. 102.—GARRYA ELLIPTICA IN FRUIT.

spreading stems. The leaves are thick, long, and narrow, dark dull green, conspicuously veined, and hang on long stalks; the flowers are small, and in small, compact clusters. The leaves are used by the Chinese in the mountain regions of the West as a substitute for those of the Tea plant. As it grows here it proves to be the best of the numerous *Viburnums* introduced by Wilson. *Viburnum hupehense* is a vigorous shrub with erect stems, smaller and thinner leaves than those of *V. theiferum*, and globose scarlet fruits about one-third of an inch in diameter, in broad, lax, many-fruited clusters. Of no particular beauty when in flower, just now this plant is one of the most attractive of the red-fruited *Viburnums* in the collection. The handsomest shrub in the Arboretum during the month of September was a form from Western China of *Cotoneaster racemiflora*, which has been called variety *songorica*. It is a tall shrub, with spreading and drooping stems, pale leaves, white

shown in fig. 102. Most of our readers are familiar with the long catkins of the female plant, which are generally to be seen at their best from November to January; but the fruit is far from common. In the first place, the female plant is less decorative than the male, owing to its much shorter catkins; consequently, it is not equally valued for cultivation. Then, the fruits only set when the shrub is growing in very favoured localities, such as occur in Devonshire, Cornwall, or the West of Ireland. The species was introduced by Douglas, from California, in 1828, and in the counties mentioned the plants grow to a height of 16 feet, and produce male catkins 10 to 12 inches long. It is not a bad town tree, judged as an evergreen, but in strictly urban districts the catkins are often rather miserable specimens. *Garrya elliptica* is characterised by a peculiar pubescence, consisting of curly hair on the lower surface of the leaves and on the young fruits.

The Week's Work.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

FRENCH BEANS.—Make a successional sowing of French Beans to obtain a supply of pods for use in mid-season. Sow the seeds about 2 inches apart in each direction, in boxes containing light soil. Germinate the seeds in a temperature ranging from 60° to 65°, and grow the seedlings in the same house. In winter the foliage and roots of Beans do not develop to the same extent as in the spring and summer, therefore smaller pots should be employed, those of 7 inches in diameter being suitable. Transfer the seedlings to the pots as soon as they are large enough to handle, using a compost similar to that advised for Peas on p. 5 (Jan. 1, 1916). Guard against attacks of red spider, a pest that is usually troublesome when much fire-heat is employed in times of frost. The small amount of sunshine in December tends to produce soft foliage; this would be injured by much atmospheric moisture, and the moisture would hinder the setting of the flowers. - Osborne's Forcing or a similar dwarf variety should be chosen for winter cropping.

SEAKALE.—Crowns of Seakale that have been exposed to the weather may be forced in a similar manner to Rhubarb, but in total darkness. The forcing may be done in Mushroom houses, cellars, or beneath greenhouse stages. Lift and expose at regular intervals a supply of crowns for the purpose.

CHICORY.—If this vegetable is required as salad the roots should be lifted and forced in a similar manner to Seakale, darkness being essential to obtain well-blanced, crisp heads. The temperature should not exceed 55°, or it will be found that the heads will become infested with aphids, which is difficult to remove from the interior leaves.

ROOT CROPS.—Late-sown roots, such as Carrots, Salsafy and Scorzonera still in the ground should be lifted and stored forthwith. Store them in a well-protected clamp in preference to a shed. Carrots sown in August to supply small, young roots may remain in the ground until they are required for use. Turnips from an August sowing may be pulled as required; those that remain until the spring may be dug into the soil as green manure. Chicory also may be lifted as required. The ground may be frozen hard at any time from now, and a supply of these roots for forcing, and Parsnips for consumption, should be lifted and kept in reserve.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

SWEET CHERRIES.—These require rather a different method of pruning from that recommended for Morellos (see p. 242). The Sweet Cherry fruits principally on spurs formed on the older wood. They are more impatient of neglect than Morellos, and should be carefully pinched and trained during the season of growth. It is through neglect of this summer treatment that one often sees trees much injured by gumming, which evil appears to be aggravated by severe cutting in winter. Trees that have been systematically stopped and trained during the summer require very little pruning now, but they and the wall must be thoroughly cleaned before starting the training. Where young trees have not filled the allotted space about 12 inches of new growth should be left for extension, following out the lines of the main branches. Great care must be exercised to avoid injury to the fruit buds. Cordon trees require little attention now, beyond the cleaning and re-tying. All should be taken in rotation, and thoroughly cleaned and trained for the season.

PEARS.—In gardens where the soil and climate are unfavourable to Pears the disadvantages may, in the majority of cases, be surmounted by preparing the borders with extra care and giving

the trees special cultural attention. The best Pears are usually obtained from wall trees, and in gardens where the wall space is limited no better use can be made of it than for growing Pears: even a boarded fence is suitable for training Pears. Trees in the open, as distinct from those on walls, are best grown in bush, pyramid, cordon or espalier form, and they should be grafted on the Quince stock, which makes the trees of a dwarf habit and earlier in fruiting. Standard trees on the Pear stock are best planted in orchards, paddocks or other large open spaces, for they need plenty of room to develop. Good ordinary garden soil will grow good Pears, but if it is considered that the soil is not suitable, a special compost should be substituted. Free drainage is essential. If a compost is prepared, use rich loam mixed with wood ash, mortar-rubble and charcoal. Animal manures should not be incorporated with the soil at the time of planting, which should be done as soon as the ground is in a suitable condition for working. Do not plant when the ground is very wet. Arrange the roots near to the surface; many failures with Pears can be traced to planting deeply in cold soil. Pear trees grafted on the Quince usually have plenty of fibrous roots, which, being near the surface, benefit by the warm air and sunshine, and such trees give fruit of high quality. Pear trees that have hitherto been a failure in cold, wet soils should be lifted and replanted in mounds of prepared soil. Work some of the finer soil around the roots, and make the whole thoroughly firm. Mulch newly-planted trees with strawy litter or light manure, but not with heavy farmyard dung, which should be utilised for the established trees.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

PERENNIAL ASTERS.—Michaelmas Daisies have, with the exception of those of the *Aster ericoides* section, finished flowering, and the clumps may be lifted, divided, and replanted. For replanting select very small portions from the outside of the old clumps, entirely discarding the central portions of the plants. Perennial Asters thrive in ordinary soil, enriched with manure, and are suitable plants for planting in herbaceous or mixed borders, the wild garden, and shrubberies. For decorative purposes of all descriptions the flowers are excellent. The following is a list of select varieties: Beauty of Colwall, Climax, Edwin Beckett, Lil Fardel, Wm. Marshall, King Edward VII., St. Egwin, Peggy Ballard and varieties of the *ericoides* and *Novi Belgii* sections.

EARLY-FLOWERING GLADIOLI.—The smaller Gladioli of the *Colvilei* type are very serviceable where cut blooms are in request. The planting of the corms should be done forthwith, as it is injurious to them to remain for too long out of the ground. Select a sunny, dry situation for them, and, if the ground is retentive of moisture, use old potting soil of a sandy nature for mixing with it. Plant the corms about 4 inches deep, and cover them with leaf-mould or other light material during severe weather. The plants increase rapidly, and when they have made large clumps protection is not necessary. Gladioli may be forced gently in pots or boxes to flower in May, followed by a succession of those planted outside. Several varieties should be included to ensure diversity of colour. Desirable sorts are The Bride, Blushing Bride, Fire King, Peach Blossom, Ackermannii, Crimson Queen, *Colvilei* and *C. rosea*.

HELLEBORUS NIGER (CHRISTMAS ROSE).—Christmas Roses promise to bloom earlier than usual this season. Remove all decayed foliage and stir the soil with a small hand-fork. Occasional feeding with manure water will be beneficial. Take precautions to keep the blooms clean by covering the plants with spare frames or hand lights, allowing sufficient room between the foliage and the glass for a free circulation of air. Ventilation must be given on all occasions, for the plant is perfectly hardy, but it is necessary to keep the foliage dry.

VIOLETS.—Pay strict attention to ventilating the frames in which Violets are grown, as a close, moist atmosphere is injurious to the

foliage. Remove all decaying leaves frequently, and stir the soil lightly with a hand-fork. Guard against injury by slugs, and at the first signs of disease or mildew take prompt measures to eradicate the complaint. Light dustings of fine, fresh lime over the surface of the soil are a good preventive of spot disease, whilst flowers of sulphur will keep mildew in check.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

LATE VINERIES.—Houses containing ripe Grapes should be kept cool and airy in mild, dry weather. The temperature of the vinery should be 50°, and 53° to 55° in those containing Muscats, with gentle warmth in the pipes when there is danger of frost. In times of rain or fog the lighter the firing and the steadier the temperature the better will the Grapes retain their colour. Remove decaying leaves each day. If there be only a few bunches of Grapes they may be cut and bottled, for they will keep as well as on the vines, and their removal will permit of giving the plants a longer season of rest.

POT FIGS.—The earliest house in which pot Figs are grown should be closed, the trees placed in position, and the roots moistened with tepid water. Introduce a little fermenting material into the house; it may be placed around the pots in a similar manner to that recommended for pot vines on p. 243. Commence forcing with a night temperature of 50°, rising to 55° or 60° by day. The night temperature must not exceed 50°, but take advantage of the sun's warmth to increase the temperature by day. Syringe the trees and bare spaces in the house twice in the early part of the day, for the branches should be dry again before it is dark. Figs planted in borders may be treated in a similar manner, after the house and the trees have been thoroughly washed and cleansed, and the borders top-dressed and well moistened with tepid water. Keep a sharp watch for mealy bug and scale insects where they have been troublesome, as a little extra care in this respect at the commencement may save much trouble later. Methylated spirits applied with a small brush will destroy solitary insects that may have escaped destruction in the earlier treatment.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq, Castleford, Gloucestershire.

SEED-SOWING.—As soon as the seed-capsules of *Cypripediums* are ripe, gather and sow the seeds around the bases of plants belonging to the same genus, selecting as host-plants those that will not require potting for some months to come. The surface of the compost should be free from large heads of Sphagnum-moss and all other foreign growth. Give the host-plants a thorough watering, and, after a few hours, sprinkle the seeds evenly and thinly over the surface. Arrange the seed pots together, and never allow the soil to become dry. If the surroundings of the pots are kept moist by occasional dampings the number of direct applications of water will be reduced, thereby improving the chance of a good crop of seedlings. Several pots of each kind should be sown, as it often happens that four out of five will fail, while the remaining pot will yield a number of seedlings. Seeds of *Cattleya* and *Laelio-Cattleya* may be sown in prepared pots, but a portion of the seeds should be retained for sowing in the spring.

COELOGYNE CRISTATA.—Plants of *Coelogyne cristata* and varieties *alba* and *lemoniana* have finished their season's growth, and a few of them may be placed in a warm house to develop their flower-scapes, but I do not recommend forcing if the gardens are situated near large towns, or the flowers may be spoiled by fogs. A few of these Orchids may be placed in a cool house until the end of January to prolong the flowering period. *C. cristata* only requires water at long intervals. When in flower the plants should be grown in a house with a moderately dry atmosphere, or the blooms may become spotted through an excess of atmospheric moisture.

BULBOPHYLLUM AND CIRRHOPETALUM.

Plants of these two genera should be suspended from the roof rafters of a warm or intermediate house. Their growth is sometimes slow, but they are not difficult subjects to keep in good health. They should be repotted when fresh roots develop, irrespective of the season. The rooting medium should consist of Osmunda-fibre, peat and Sphagnum-moss in equal parts. Pans and teak-wood baskets are suitable receptacles, and they should be half-filled with drainage material, as most of the plants are surface-rooting. When growth is active the roots need copious supplies of water, but when the pseudo-bulbs are fully developed less moisture is needed, and the atmosphere should be drier and cooler. Such plants as *Cirrhopetalum robustum* when at rest may not require water for several weeks together, but the lesser species should be watered more frequently. The majority of *Bulbophyllums* and *Cirrhopetalums* may be grown in small pans or baskets, but *B. virescens* and *B. Ericssonii* produce their pseudo-bulbs at intervals on a creeping rhizome; therefore, when these species are repotted the back part of the rhizomes should be placed close to the rim or edge of the basket, to allow the growing point space for development. If it is desired to increase the stock, the leading shoot, with one or two pseudo-bulbs, should be detached and potted. The remaining portion of the plant may be left intact until new shoots appear. Useful *Bulbophyllums* include *B. barbigerum*, *B. Careyanum*, *B. cupreum*, *B. Dayanum*, the rare *B. Gentilii*, *B. Lobbii*, *B. recurvum* and *B. rufinum*. *Cirrhopetalums* should include *C. appendiculatum*, *C. picturatum*, *C. robustum*, *C. Rothschildianum*, and *C. refractum*.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

PALMS.—The foliage of Palms must be kept clean by sponging if the plants are to be maintained in a healthy condition; during bad weather labour for the purpose can sometimes be spared from the outside departments. Scale insects are amongst the worst pests and difficult to eradicate entirely. The leaves should first be wetted with an insecticide, and should be kept constantly damp whilst the work of removing the insects is in progress. Should there not be time to sponge the plants they should be syringed at regular intervals with soluble paraffin, which will help, in a great measure, to keep them clean. Before rearranging the plants on the stages cleanse the house thoroughly.

EUPHORBIA PULCHERRIMA (POINSETTIA).—After this date withhold stimulants from the plants of *Poinsettia* and exercise great care in watering them. When the bracts are fairly developed lower the temperature of the house; a night temperature of 50° is suitable, provided the atmosphere is kept dry. Admit a little air on all favourable occasions; permit no ventilation in times of dense fog.

EARLY-FLOWERING GLADIOLI.—Where cut blooms are always in demand early-flowering Gladioli may be grown for the purpose. The corms should be potted as soon as they are received from the nurserymen, placing several together in a 6-inch or 7-inch pot filled with a fairly rich compost. Plunge the pots in a bed of ashes in a cold frame. When the foliage has grown an inch or two remove the pots from the ashes and stand them near to the roof-glass in a cool house. Do not attempt to force these plants until they are well advanced in growth, but at that stage they may be placed in a warm house in batches as required.

BULBS.—Examine bulbs in pots plunged out-of-doors in a bed of ashes from time to time, and when growth is active remove them to a cold frame. Small batches of the early-flowering kinds may be placed in a warm house when they are well rooted. Bulbs need to be protected from rats and mice, and it is wise to anticipate attacks of these pests. Mice are easily caught by trapping, but rats are not so easily destroyed. Poisoning them is the most effective method of destruction, but this must be done by an experienced person.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

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

Special Notices to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, November 25. (10.0 a.m.); Bar. 29.7°; temp. 54.5°. Weather—Fine.

SALES FOR THE ENSUING WEEK.

MONDAY—

Herbaceous Plants, English and French Bulbs, by Protheroe and Morris, at 67-68, Cheapside, at 1 o'clock.

WEDNESDAY and THURSDAY—

Nursery Stock, at the Tunbridge Wells Nurseries, Kent, also the Lease of the Nurseries, by Protheroe and Morris, at 12 o'clock.

WEDNESDAY—

Rock, Alpine and Herbaceous Plants, Fruit Trees, Bulbs, etc., by Protheroe and Morris, at 67-68, Cheapside, at 12 o'clock; and at 3 o'clock, Poly-anthus, Darwin Tulips, etc., Japanese Lilies, retarded, and just to hand.

Rose Trees, Bulbs, Comifers and Perennials, at Stevens's Rooms, King Street, Covent Garden.

THURSDAY—

Standard, Dwarf and Climbing Roses, by Protheroe and Morris, at 67-68, Cheapside, at 1 o'clock.

FRIDAY—

Herbaceous Plants, English and French Bulbs, by Protheroe and Morris, at 67-68, Cheapside, at 1 o'clock.

**The
Potato Problem
in 1917.**

It has been known for some time past that in many localities the Potato crop is a poor one, and that the yield for Great Britain will prove to be considerably below the average. The immediate result of this misfortune is seen in current prices. There is reason to believe, moreover, that the shortage in this year's crop is likely to prejudice the supplies of "seed" for next year's sowing. For example, it is said by those in a position to know what they are talking about that certain buyers have been so eager to purchase supplies that they have even included in their buying Potatoes which will pass through a 1½-inch riddle. If this be true, it means that a large number of tubers which should have been reserved for next year's sowing are no longer available for "seed." Furthermore, since ills never come singly, it seems

probable that the poor yield will be further reduced by the prevalence and spread of disease in the stored Potatoes. Loss from this source occurs every year, and it is likely to prove heavier than usual this year.

It is therefore our duty to point out betimes what steps should be taken in view of this somewhat gloomy prospect. Fortunately, the Potato is not only an agricultural but also a horticultural crop. It is grown on a vast scale both on farms and intensively in gardens. With the agricultural production we cannot deal now, but we may suggest to gardeners certain steps which, if taken, will in our opinion help in some measure to relieve the situation.

Those who will require seed for planting in 1917 should place their orders without delay, and those who have Potatoes should, as a measure of precaution, take care that they save sufficient seed for next year's planting. If we are wrong in our prognostication no great loss will be incurred; if right, and good seed is difficult to obtain, they will find their own seed much better than none. It is true that "own seed" generally gives in southern districts an inferior yield to that obtained from Scotch or Irish seed, but evidently it is better to have half or two-thirds of a crop than none at all. Seed selected now from small and immature tubers should be properly treated and stored. There is a good deal of evidence to show that tubers dusted with dry slaked lime—or lime and powdered charcoal mixed—suffer less from decay than those which are not dusted. Therefore, the seed should be treated in this way, and boxed and stored in favourable conditions, not massed in heaps.

Needless to say, the practice of sprouting seed—always to be recommended—should be regarded as a duty by all gardeners in present circumstances. All are agreed that tubers exposed to the light in shallow Potato boxes before planting give a larger return than that obtained from unsprouted tubers or from tubers sprouted in darkness or in the dim light of a cellar. Even under farm conditions the yield from sprouted sets is greater than it is from unsprouted sets. Under garden conditions the increased yield brought about by planting sprouted tubers is even greater. Again, though it is to be remembered that tubers or sets of less than 2 oz. in weight give a lower yield than do tubers of 2 oz. or over, it should also be borne in mind that so long as the pieces do not weigh less than 2 oz., good crops may be obtained by using as sets pieces cut out—each, of course, with an eye—from mid-sized or larger Potatoes. Thus, experiments made in the Ontario Agricultural College* show that whereas the yield from small whole Potatoes was 201 bushels per acre, that from medium-sized Potatoes cut into two was 211 bushels.

If, by reason of shortage of seed, large or medium tubers are to be used—the latter cut into two and the former into more pieces—the sets after they have been cut

should be covered (by sprinkling) with either plaster (gypsum) or slaked lime. Experiments carried out in Ontario (op. cit.) show that the effect of gypsum or of lime is to increase the yield from cut sets by about 23 bushels per acre in the case of gypsum, and by about half as much in the case of lime. Whether the beneficial effect of this treatment is due to a checking of disease—as appears to be the case when clamped Potatoes are dusted with lime—or whether it is due to prevention of drying and shrivelling, is not clear. The immediately important point, however, is that the treatment leads to larger yield.

One further advantage of cutting (and sprouting) may be mentioned, namely, that it gives the grower an opportunity of discarding those tubers which, though they may seem sound when uncut, reveal in their cut surface the symptoms of disease.

Overshadowing all these little devices of increasing production is the large and vital problem of the supply of an adequate amount of "seed" for next year's crop. That problem, we may hope, has already for some time past been engaging the attention of our administrators. The problem is simply stated. The acreage under Potatoes is known—at all events, so far as farm land is concerned. The amount of seed required per acre is known. Are the home supplies sufficient and of the right kind to meet these requirements, and can the price for seed be maintained at such a figure as to encourage planting on an extensive scale in 1917?

HORTICULTURE AFTER THE WAR.—The President and Council of the Royal Horticultural Society have summoned a meeting of the horticultural trade at the Royal Horticultural Hall, Vincent Square, Westminster, at 4 p.m., on December 5. The object of the meeting is "to consider the interests of the Horticultural trade and the best means of safeguarding its interests after the War," and to pass a resolution. The chair will be taken by Lieut.-Col. the Right Hon. MARK LOCKWOOD, M.P., C.V.O.

R.H.S. WAR HORTICULTURAL RELIEF FUND: A MUNIFICENT OFFER.—We learn that a Fellow of the Society, who desires to remain anonymous, has made an offer the munificence of which should prove a great stimulus to the War Relief Fund. From the date of his offer he is prepared to give a sum of £1,000 if and when a further £9,000 has been subscribed.

—Christmas Greeting Cards for the benefit of the R.H.S. War Horticultural Relief Fund.—It has been suggested by the Ladies' Committee that special cards of greeting should be issued this Christmas and New Year in aid of the fund. Two series (six different cards in each series) of garden cards have been selected. The cards will be sold in half dozens of six different reproductions in colours, of country garden scenes, the prices being 3s. for either series, or 5s. for the two series. The cards may be obtained from the Secretary of the Royal Horticultural Society.

PAEONIES IN AMERICA.—The records of the American Paeony Society* indicate that this flower grows yearly in popularity in America. The annual exhibitions continue uninterruptedly, and the proposal to form a collection of Paeonies at Washington appears likely to be carried out. The Bulletin contains, in addition to official records, an interesting contribution from Mr.

* Potatoes. By C. A. Zavitz. Bull. 239, 1916.

* Bulletin of Paeony News, 1916.

W. T. THURLOW on "Paeonia lutea as a Basis for Hybridisation."

THE LINNEAN HERBARIUM.—In the autumn of 1914 the council of the Linnean Society took steps to guard the Linnean herbarium from damage by enemy aircraft, by storing it in the basement. This arrangement rendered consultation troublesome, and, during the past summer, the council decided to bring the herbarium from the basement to its former position in the meeting room. Additional security was provided by enclosing the packets of plants in a series of twenty-one metal cases, resting in an iron frame, and enclosed within an outer cabinet lined with sheet asbestos and galvanised steel, and similar non-combustible material took the place of the glass which previously shut in the original Linnean cabinets. The three original cabinets have now been transferred to different uses in another part of the Society's apartments.

CENSUS OF POTATO STOCKS.—The Board of Trade has made an order requiring a return of Potato stocks and contracts by the cultivators of more than 10 acres of Potatos. The return must be made not later than December 7.

A SEEDLESS PEAR.—At a meeting of the Linnean Society on the 16th inst., Dr. GEORGE HENDERSON sent for exhibition three seedless Pears, from a tree which practically produces no seeds; it is about twenty-five years old, and usually flowers twice—once very early in the season, and again two months later, both sets of flowers producing fruit, but the later ones often do not ripen.

THE WORLD'S CROP OF POTATOS.*—The average annual production of Potatos throughout the world is 91,666,666 tons, and of that quantity nearly 90 per cent. is produced in Europe, the American contribution being less than 9 per cent. To this total Germany in normal years contributes 31.3 per cent.—nearly one-third of the world's production; Great Britain and Ireland contribute 4.7 per cent. (over 4 million tons). Of this quantity Ireland provides little less than half—nearly 2 million tons. Estimated according to population, however, Ireland heads the world with a production of not far short of $\frac{1}{2}$ ton (26 bushels) per head; Germany comes next with 25.8 bushels per head. Mr. RUNCIMAN, in his "Food Dictator" speech, estimated the consumption of Potatos by people in England at half a pound per head per day, so that England, producing 162 pounds and consuming 182 pounds per head of population per annum, is in normal years nearly self-sufficing. Reckoning the Irish production at 1,560 lb. per head of population—nearly 10 times that of England—and allowing for a larger consumption in Ireland than in England, the people in the British Isles in normal years certainly produce all the Potatos they need for food.

THE GALPIN HERBARIUM.—News comes from South Africa that Mr. ERNEST E. GALPIN has presented his large and valuable herbarium to the Union of South Africa, to be kept at Pretoria, and made accessible to working botanists. It is scarcely more than a generation ago that there were less than a dozen known botanists in all South Africa, of whom the late Dr. BOLUS, Dr. WOOD, and Prof. MACOWAN were the chief. The valuable herbaria formed by these pioneers have all been given or bequeathed to different centres in South Africa. And now Mr. GALPIN, finding that his official duties as manager of a bank have increased so as to prevent him from devoting so much time as formerly to his hobby, has generously given his very fine collection to the public. The Galpin herbarium is stated to contain some 15,000 sheets of mounted specimens, besides some 30,000 duplicates. These sheets of specimens were mainly, if not entirely, mounted by Mr. GALPIN, aided by Mrs. GALPIN, which in itself is no small task, particularly when it is considered that

botany was merely a hobby, to be indulged in during the unofficial hours of a busy life. The Galpin herbarium will form a very valuable addition to that at Pretoria, for at present the Pretoria collection is chiefly composed of plants from the Transvaal and neighbouring regions, whilst Mr. GALPIN'S herbarium contains plants from all parts of South Africa, the majority of them having been collected by himself, some at Barberton, some in Swaziland, others in the eastern and north-eastern parts of Cape Colony, others during a trip through all the southern districts from Uitenhage to the Cape Peninsula, others from Walfisch Bay, and others still from British East Africa, where Mr. and Mrs. GALPIN collected some interesting and new species on the Aberdare Mountains at an altitude of 13,000 feet. Besides these, there are numerous specimens from other parts obtained by exchange with other botanists, or by gift from friends or by purchase. Mr. GALPIN'S name is best known in

Street, Aberdeen, died in the Royal Infirmary, Aberdeen, on the 17th inst. from injuries received on the previous evening. He was returning home from Old Aberdeen when he was knocked down in Spital by a runaway bullock. Mr. GILL was sixty-six years of age.

BULBS AND SEEDS FOR RUHLBEN CAMP.—The following have contributed to the Royal Horticultural Society's scheme for sending bulbs and seeds to the English Prisoners' Camp at Ruhleben, through the agency of the Prisoners of War Help Committee:—BARR AND SONS, A. BRASSEY, J. CARTER AND CO., CARTER PAGE AND CO., W. H. DIVERS, Lady GLYN, E. HICKLIN, Miss L. JONES-BATEMAN, KELWAY AND SON, E. W. KING AND CO., Miss MELLISH W. H. SIMPSON AND SONS, E. WEBB AND SONS, M. WILSON, and SUTTON AND SONS; also one parcel from Weston-super-Mare, without the sender's name attached.



FIG. 103.—*CAMPANULA CAESPITOSA ALBA.*

(See p. 252.)

this country as the discoverer and introducer of the charming *Bauhinia Galpinii*.

WOMEN'S NATIONAL LAND SERVICE CORPS.—The interim report* of this organisation records that 791 women have been trained for work and have been placed on the land, and that a further 1,312 women have been placed, either as permanent workers with previous experience or as untrained workers in gangs.

PERPETUAL-FLOWERING CARNATION SOCIETY.—The twenty-first exhibition of the Perpetual-flowering Carnation Society will be held at the R.H.S. Hall, Westminster, on Wednesday, December 6, and the annual general meeting of the members will be held the same evening.

FATAL ACCIDENT TO A SCOTTISH GARDENER.—Mr. GEORGE GILL, gardener, St. Andrew

LAND SETTLEMENT FOR PARTLY-DISABLED EX-SERVICE MEN.—A short time ago the Governor of the West of Scotland Agricultural College offered prizes for the best solution of the problem of finding employment for discharged and disabled service men. The scheme* propounded by Messrs. THOMAS YOUNG, County Organiser and Adviser to the Edinburgh and East of Scotland College of Agriculture, and Wm. Ross Young, town planning engineer (Lanarkshire) received the first prize. The essay now published is well worthy of the attention of everyone interested in this all-important problem. The authors are not favourably disposed to the proposed establishment of colonies. They have looked around and find that there are villages which could be made to serve the purposes of extensive settlement. These deserted villages, "whence all the blooming flush of life

* Potatos, Bull. 239, Ontario Agric. College, 1916.

* Issued from Headquarters, 50, Upper Baker Street, London, N.W.

* For the Training and Employment of Discharged and Disabled Soldiers. By Thomas Young and Wm. Ross Young.

is fled." are in their opinion much more promising sites for rural reconstruction than would be brand-new colonies. They have roads and houses, and churches and church bells, and all the hundred and one amenities of established civilisation. Evidence of the existence of suitable villages is given, and the authors make the suggestion that every rural local authority should be required to engage in a survey of such villages in their several districts as seem suitable for resuscitation. Plans of such villages should be prepared, and the land available for occupation indicated. In each village set apart for the purposes of this work a central depot should be established, in charge of a competent agriculturist.

THE CARE OF SOLDIERS' HOLDINGS.—Mr. E. C. CHOLMONDELEY, Military Representative, has, in consultation with the Central Advisory Committee for South Worcestershire, prepared a plan to render available for service in the Army a number of men who have hitherto been exempt as market gardeners. The plan has been approved by the committee, and is being submitted to the War Secretary, the Local Government Board, the Board of Agriculture, and the County Agricultural Committee. The scheme suggests the formation of Trust Committees, each consisting of three or more market gardeners of repute, who would undertake to direct and supervise the cultivation of all holdings entrusted to them by men who were called up for service. The Government should supply the labour of German prisoners at a moderate remuneration. Suggestions were made as to machinery for working the scheme which would prevent the impairing of the food-producing capacity of the Vale of Evesham or the throwing of valuable land out of cultivation.

WAR ITEMS.—Corp. JACK SPARROW, who was employed as a young gardener at Kew when war broke out, and is serving in the Cyclists' Corps, has been awarded the Military Medal for "bravery in the field."

—Sergt. S. G. CORBOLD, who left Kew in 1910, was killed in action on October 3. Deceased was employed as foreman at Capesborne Hall, Cheshire, when war broke out, and enlisted in the Rifle Brigade in June, 1915.

"THE ORCHID WORLD."—The excellent number of this useful monthly periodical just issued completes Vol. 6. It contains an inset as follows:—"The Editor having been called up for military service, the publishers beg to notify all subscribers that the *Orchid World* will be discontinued for the duration of the war." We sincerely hope that Mr. GURNEY WILSON, the editor, will return safely to continue the work which he has so well done in the past.

LARKSPUR POISONING OF LIVE STOCK.—Complaints of stock poisoning by animals feeding on Larkspurs have been made from time to time by farmers in N. W. America. Experiments carried out by Messrs. C. DWIGHT MARSH, A. B. CLAWSON, and H. MARSH in the U.S. Department of Agriculture (*Bulletin No. 365*, p. 916), confirm the fact that Larkspurs (*Delphinium Barbeyi*, D. Meuziesii and others native of N. America) are poisonous to cattle but not to sheep.

THE FRENCH AUTUMN HORTICULTURAL EXHIBITION.—As in the previous year, the National Horticultural Society of France has organised at its headquarters in the Rue de Grenelle an exhibition for the benefit of victims of the war. The exhibition, which was held on November 3-6, was opened by M. MÉLINE, Minister of Agriculture. Although far more restricted than in peace times, the exhibits made a brave show; the Chrysanthemums in particular were admirable, and formed a great bank of flowers at the end of the hall. Of Chrysanthemum novelties some of the best were Corfon, fine yellow; Mitylene, rose;

Tenedos, rosy-cream; Lemnos, greenish-yellow; and a number of fine unnamed seedlings. Orchids included Laelia-Cattleyas and Brasso-Cattleyas. Fruits, as usual, were superb. Of Pears, the novelty of recent years, Merveille Ribot — or December Doyenné du Comice as it has been called—was much admired. It is a seedling from Passe Crassane, and, flowering late, it escapes spring frosts.

PUBLICATIONS RECEIVED.—*The Food Garden.* By W. F. Rowles. (London: Headley Bros., Kingsway House, Kingsway.) Price 6s. net.—*Report of the Ceylon Department of Agriculture for the Year 1915; Vulcanisation Tests at the Imperial Institute on Samples of Rubber prepared in Ceylon by L. E. Campbell*, Bulletins 23 and 24; *Hevea Tapping Results*, Experimental Station, Peradeniya, 1915, by T. Petch (Bulletin 25), all from H. E. Cottle, Government Printer, Colombo.—*A Year in the Garden: An Anthology in Prose and Verse.* Selected by Norah Elizabeth Mustard, with 54 illustrations in colour by Ellen Warrington. For every day in the year the author gives selected extracts from well-known writers on gardens and gardening. These are often very appropriate and of great interest, whilst occasionally they are amusing. (London: Cecil Palmer & Hayward.) 3s. 6d.—*British-Grown Timber and Timber Trees.* By A. D. Webster. (London: W. Rider & Son, Ltd.) Price 5s. net.—*Journal of the Board of Agriculture* for November, 1916.—*Agricultural Statistics for 1915.*—*The Origin of New Varieties of Nephrolepis by Orthogenetic Saltation.* By R. C. Benedict. (The Brooklyn Institute of Arts and Sciences, U.S.A.)—*The Making and Management of an Allotment.* By A. S. Galt. (University of Leeds.) Price 4d.

SCOTLAND.

THE ANCIENT SOCIETY OF GARDENERS.

FEW, if any, horticultural societies have so long or so proud a record as is enjoyed by the Ancient Society of Gardeners of the Kingdom of Fife, instituted in 1716, and this year celebrating its bi-centenary. From an excellent account* of these celebrations we learn that within a few years of its incorporation this society, with rare thriftiness, began to acquire land. Of that land, known as Gardener's Land, some remains in possession of the society to this day, whilst portions acquired in early days appear to have been exchanged for other sites in the neighbourhood. The Ancient Gardeners was evidently—like their modern descendants—a simple and confiding body, and they neglected to secure a title for the exchanged land. This omission cost them dear and paid the lawyers well, and so now at intervals, not to let their possessions slip away from them, the descendants of the Ancient Gardeners "walk the marches"—a prettier way of beating the bounds.

Gardening, which struck such firm root in Dunfermline 200 years ago, still flourishes there, and the Society of Ancient Gardeners—the pioneers—look with satisfaction on the modern foundations, the Dunfermline Horticultural Society, the Gardening Department formed under the Carnegie Trust, and the new School of Horticulture under the direction of Mr. John Hynd. Truly Dunfermline, which so long ago established this Ancient Society, has reaped an exceeding rich reward for its enterprise. There every encouragement is given to gardening; prizes for successful growers, demonstrations and lectures in fruit culture, school gardens for boys and girls—for Eve, who used to spin, now delves like Adam—prizes to householders for the best-kept gardens—these are among the incentives to gardening offered to the modern dwellers in Dunfermline. The gardens of that city long ago were doubtless restful places wherein grew herbs and simples, but few flowers.

Now, thanks to the generosity of Mr. Carnegie, that place can boast the possession of one of the most beautiful even of modern gardens—that attached to the Pattencrieff Park and Glen. Even in Dunfermline—that gardeners' paradise—need must sometimes come, and the needy brethren of the Ancient Society look with certainty to that institution for assistance. Thus encouraged, they would appear to renew their hold on life, for, as we learn from the report, the three oldest annuitants of the Society can boast already of a combined age of 245 years. May the Ancient Society for ever prosper and its worthy annuitants enjoy in their green old age the fruits of thrift and the benefits of the Society.

PLANT NOTES.

CRINUM POWELLII.

CRINUM POWELLII is a very useful plant for growing in tubs, on terraces, and similar places, where it is not convenient to plant specimens permanently. This species develops a large number of roots, and in consequence requires a large tub. I have specimens 6 feet across and 4 feet high growing in tubs 2 feet wide and 1½ foot deep. These produce six or seven tall flower stems, each of which in favourable conditions will develop twelve or more flowers. The foliage is 4 to 5 feet in length and of graceful appearance. W. H. Divers, *Belvoir Castle Gardens, Grantham.*

THUNBERGIA GIBSONII.

I WAS pleased to see this brilliantly coloured Thunbergia mentioned on page 209. The first public appearance of Thunbergia Gibsonii in this country was at the meeting of the Royal Horticultural Society on May 14, 1913, when it was given an Award of Merit by the Floral Committee. The specimen as shown spread out in a horizontal manner, and the blossoms, borne upright, or nearly so, on firm stems, protruded from a large, inflated hairy calyx, in colour green striped with purple. Its nearest relative is the popular Black Eyed Susan—Thunbergia alata—but it differs from any of the forms of that well-known annual in some well-marked particulars. In the first place, T. Gibsonii is of a perennial nature, and the blossoms, which are larger than those of T. alata, are of intense orange tint, far surpassing in colour any variety of that species. A year after it received the Award of Merit this Thunbergia was shown at the Chelsea Exhibition, but I have not met with it since. This is a matter for surprise, considering its desirable qualities and the fact that it can be readily propagated both by cuttings and by seeds. In the days when new stove and greenhouse plants were much sought after such a subject as this Thunbergia would have met with a ready sale and at a good price. So far as I know it has not been distributed from the ordinary trade sources. The specimen shown in 1915 was said to have been raised from seed sent from East Africa. W. T.

EUPHORBIA JACQUINIAEFLORA.

EUPHORBIA JACQUINIAEFLORA, Carnations and other indoor winter-flowering plants are grown very successfully by Mr. Taylor, gardener to W. K. D'Arcy, Esq., Stannore Hall, Stannore. Mr. Taylor's method of growing the Euphorbia is noteworthy. The young plants are placed about 9 in. apart in boxes containing rich soil, at the back of the staging, and they are trained on each side of the house to form an arch, the points of which at the present time nearly meet. The first blooms are expanding, commencing a display which will last through the greater part of the winter. The staging is filled with dwarf plants of Euphorbia (Poinsettia) pulcherrima perfecting their scarlet heads. Euphorbia jacquiniaeflora is also trained over the roof of the ornamental stove-plant house. B.

REVIVING WOODLAND INDUSTRIES.

THE war has brought about a great change in many of the time-honoured occupations of our woodmen, such as charcoal-making, Osier cutting, bark-stripping, lath-rending, and faggot-making. A number of half-obsolete trades have suddenly become prosperous and remunerative, and the crafts of the countryside have recovered their importance. In the most unexpected places one comes across little bands of charcoal-burners who are busy day and night providing fuel with which to heat the trenches in France and Flanders.

Basket-makers were never so busy as at present, and at Hurstmonceaux, in Sussex, the trug-basket making, which has long been a recognised industry of that part, has given way to the manufacture of baskets for the conveyance of shells to the Front.

Before the war, cheap Austrian chairs competed hardly with our native produce, but now the numerous little camps in the Beech woods of the Chiltern Hills tell that the trade has again been revived in these parts. Tent-pegs are being turned out in Buckinghamshire and other counties by the thousand, while the making of boxes and packing-cases for the conveyance of ammunition is giving remunerative employment to hundreds of men and women.

Toy-making, which heretofore was monopolised mainly by the Germans, finds employment for many hundreds of workpeople, while the making of crutches and artificial limbs for wounded soldiers requires a large number of experienced hands. Willow timber is largely used for this purpose.

Clog-making was never so brisk; of late years the clogger has returned southwards, and in West Somerset and in many parts of the Principality of Wales little bands of sole-cutters may be seen busy at work converting the Birch and Alder timber into the footgear of the mill-workers.

Oak bark for tanning leather was, before the war, reduced to about £3 per ton, but now three times that amount is being paid for best quality bark properly harvested.

Firefighters, that were formerly made from disused batten ends, have now become so scarce and expensive that the old-fashioned faggot or "pimp" has again appeared on the markets; at a higher figure than was the case some years ago, though of comparatively smaller bulk. With the scarcity of coals, firewood has considerably gone up in value, and lotting or cording the wood for sale is a common operation in many Kentish and other plantations where tree-felling has lately taken place.

The collecting and harvesting of tree seeds—quite a new industry—is being carried out in many a Northern forest now that supplies from German sources are not forthcoming.

Then, what might be termed by-products of our woodlands are greatly in demand. Heather, which is used in connection with the manufacture of steel, is being cut and harvested in quantity by the moor dwellers of Pickering, in Yorkshire; and in Bedfordshire and other adjoining counties Foxgloves and Belladonna for medicinal purposes find a remunerative market.

Timber-felling was, perhaps, never engaged in to such an extent as at present, and in many of our more extensive woodlands Canadian logging camps in miniature are a feature; there, from early morning till late at night, the woodman's axe and the circular saw are busy.

These are but a few of the many industries of our woods and plantations that have been called back to existence by the exigencies of the war. A. D. Webster.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE SCENT OF MINTS.—When reading the descriptions of plants in old books I often wonder if our sense of smell has altered within the last two hundred years or so; or whether we have come to appreciate scents in a different way. I generally find myself in perfect agreement with people of the present day with regard to plants that are pleasantly scented or decidedly sweet, and from that I take my standpoint. In 1799, James Edward Smith, or Dr. Smith, afterwards Sir James Edward Smith, wrote of *Mentha rotundifolia*, "Odor totius herbae acris et ingratus." In his comments he further stated that it could be distinguished from any variety of *M. sylvestris* by "its very peculiar acrid and disagreeable smell." At the present day it is the Apple Mint, and more or less cultivated throughout Britain for the sake of its pleasing scent. Forty to fifty years ago it formed part of the nosegays carried to church on Sunday morning. Plukenet describes the scent of a variety of the Spearmint as emulous or lovely (odore aemula). Other writers said the odour was heavier than that of the type. The scent of *M. viridis* is described as pungent in the *Student's Flora of the British Islands*. I regarded it as acrid even before I knew the name of the species, and still think it the least agreeably scented of all the British Mints. At the same time it is one of the best for Mint sauce, and is the most extensively cultivated for that purpose. The scent of *M. piperita* is strong, but not unpleasant; that of *M. aquatica*, *M. rubra*, and *M. gentilis* is mild and agreeable rather than otherwise. *M. aquatica citrata* smells like the leaves of the Orange when bruised. It is strong, but agreeable to most people. An old name for it is Orange Mint, and I recently recognised it in a Surrey garden as the Bergamot Mint of cottage and farm gardens, though I had not seen it for thirty or more years previously. The scent of *M. gracilis cardiaca* is particularly sweet, though the flavour is mild. Dr. Smith said *M. arvensis* could be distinguished from every other species "by its smelling like blue mouldy cheese," though I believe the Rev. John Lightfoot (1735-1787) was the original author of that description. Nevertheless, Bauhin said it had the scent of Basil (odore Ocym). Of *Pennyroyal* Dr. Smith said, "Odore aeri, aromatico," and it certainly is strong or pungent, but not disagreeable. J. F.

WAR-TIME MANURING.—All practical men will, I should say, agree with *Western Light* (p. 247) as to the great manual value of burnt garden rubbish. Your correspondent, however, might as well have cautioned residents in most parts of the country that the keeping in of such a fire night and day might be attended with considerable risk. Owing to the lighting regulations, if such a rubbish fire happened to break out in the night it would probably lead to the person responsible for this being brought before the magistrate and having to pay a substantial fine. In theory, I know, it is easy to smother up a fire for the night, but the springing up of a strong wind may upset all calculations, and once the fire breaks through it quickly increases in volume. H. T.

ARE WE MAKING THE BEST USE OF OUR LAND?—In these troublous times the proper and full use of the land for the production of food crops is a question which must be exercising the minds of all who have their country's welfare at heart. In spite of the warnings and advice tendered by the *Gardeners' Chronicle* and from other quarters, it seems to me that the nation as a whole has not taken this important question sufficiently seriously. During peace times a vast amount of land in all parts of the country either remained practically waste, or was not utilised to nearly its fullest capacity for the production of crops. This neglect has continued during the present war, whereas steps should have been taken by those in authority to ensure that every plot of land was cultivated to its utmost. Had some such course been adopted, it is certain that the public would not have been called upon to pay the exorbitant prices for fruits and vegetables which now rule. In the past, we have been content to depend far too much on importations, whilst it is evident that very much of our food

can be produced as well, if not better, in Great Britain. It is not so much the amount of land a grower has under cultivation as the quantity of produce he can raise from a given area. I am fully convinced that the large majority of growers have much to learn in this direction. This applies to almost every form of food which can be produced in this country, and especially with regard to cereals, vegetables, fruit, poultry and pigs. Edwin Beckett.

THE CULTIVATION OF BELLADONNA (see p. 247).—I read with interest Mr. Clinton Baker's notes on the cultivation of Belladonna. I should say that the seedlings have grown unusually well. In this district the wild plant grows luxuriantly, often attaining a height of 5 to 6 feet. Self-sown seedlings grow about 1 foot only in the first year, and do not ripen seed. Seedlings take a good root hold when and where the ground has been disturbed, and afterwards take care of themselves. They grow on the outskirts of woods and shrubberies, where old roots are very large. Mr. Baker surprises me by his statements regarding the prices he obtained for the leaves, as I find only berries and old roots are asked for here, probably for purposes of propagation. The berries are very juicy, and might serve a useful purpose in the making of dyes. C. R., Gloucestershire.

THE HAILSHAM BERRY (see pp. 211, 234).—*Southern Grower* will find that the expense of transplanting is not great, because the work need not be done so carefully as in moving Raspberries. A hole is dug between the rows by a couple of thrusts with the spade, three more thrusts lift a stool that is only 3 feet off, the selected cane is shortened and separated by three or four knife cuts, placed in position, covered and trodden in—the whole operation occupying less than three minutes. When transplanting is finished, the 4-foot space of the ground between the rows can be dug and used for any early crop. With correct treatment the fruit comes at a time when Raspberries are generally unprocurable. Fruit for market travels best if cut with a stalk. The fruit mildews in some seasons if allowed to hang after it will separate from the core. I gathered a handsome dish of these berries on the 17th inst. T. of Kent.

THE LATE HUGH PRICE (see p. 261).—An old Kewite has passed away in the person of Hugh Price, than whom no more honest, painstaking and conscientious gardener ever lived. In the early eighties he and others shared the comforts of the bothy at Marbury Hall, Northwich, Cheshire, where he gained the goodwill of the head gardener, Mr. Jones, and the esteem of all with whom he came in contact. In 1885 he was employed at Kew, where his merits as a doctor of plants were such that, whenever anyone had a sickly plant he sent it to "Price's Pit" (No. 18) for medical treatment, and in the event of Price's failing to bring it round to normal health it was considered beyond human aid. From Kew, in 1888, he left to take up a position in the gardens at Gogerddan Hall, Aberystwyth, North Wales, whence, after a time, he moved to Chester, eventually to become gardener at Oakwood. It was here that his illness first became evident. The garden, from a small beginning, developed into a first-rate establishment, and although Mr. Price's capabilities were equal to the demand, the mental and nervous strain he sustained were such that, after a time, a breakdown of health occurred, and he was forced to resign. Eventually he regained his health to some extent, and was appointed gardener at Ty Mynydd, Radyr, Cardiff, a position he held with satisfaction to his employer and credit to himself for a number of years. At last he was seized with partial paralysis; this, unfortunately, was accompanied by much pain, which for three years he bore patiently and with cheerful resignation until the end came on the 15th of the present month. He leaves a wife and daughter. W. Young.

Owing to the earlier dispatch of the morning trains from London the hour of going to press has again been advanced, and in future communications received after 5 p.m. on Wednesday will be held over till the following week.

were Tom Thumb, Drumhead, Covent Garden Late, Selected Drumhead, Sugar Loaf, Perfection (HURST AND SON), and Norwegian. The last is a large variety, with less bullate leaves than most, the foliage being almost smooth, and the outer leaves tinged with red, suggesting perfect hardness. When cut, the centre is found to be close and solid, with much edible material. The variety was recommended an Award of Merit. Sent by Messrs. BARR AND SONS.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 20.—At the meeting of the Executive Committee, held at Carr's Restaurant, under the presidency of Mr. T. Bevan, it was agreed that arrangements should be made with the Royal Horticultural Society for the N.C.S. Exhibition to be held on November 8 and 9, 1917, at the Horticultural Hall, Westminster.

The interim financial statement showed that the Society had a balance more than sufficient to meet all liabilities to the end of the year.

The prize-money awarded at the recent show amounted to £78.

The committee awarded a Silver-gilt Medal to the Japanese Ambassador as a souvenir for her Excellency's kindness in opening the show on the 9th inst., and the same award was made to Sir Albert Rollit in recognition of many valuable services.

Nineteen new members were elected.

The following awards were made at the meeting of the Floral Committee held on the 20th inst. at the Royal Horticultural Hall, Westminster:—

FIRST-CLASS CERTIFICATES.

Chrysanthemum J. Bryant.—(see p. 260.)

C. Lady Stanley.—(See p. 260.)

C. Inez.—A very attractive Pompon which measured 1½ inch across. The bright chestnut colour is flecked with gold. This and the two foregoing varieties were shown by Messrs. W. WELLS AND CO.

C. Philip Ladds.—A golden-yellow single of Merstham Jewel type.

C. Mrs. Moss.—(See p. 260.)

These two varieties were shown by Mr. PHILIP LADDS.

CERTIFICATE FOR COLOUR.

C. Master John Aggs.—A large exhibition Japanese variety of old-gold colour. The petals are broad and drooping. This variety should find favour with exhibitors. Shown by Mr. H. POULTON.

CARDS OF COMMENDATION.

C. Lily Nevill.—A trim and decorative single of medium, full round shape and blush-white colour.

C. Rajah.—This very decorative, small crimson single was erroneously distributed as C. Cardinal. It has the ideal slender, but stiff stems and small foliage which properly belongs to the decorative section, and its only fault is a rather large disc. A narrow yellow zone enhances the beauty of the flower. These two varieties were shown by Messrs. W. WELLS AND CO.

OTHER NOVELTIES.

The many varieties which failed to receive award included C. Monastir, a very compact silvery-pink market Japanese variety, and C. Rita, a snow-white Pompon, which in form falls short of the high standard required by the committee, but it is decorative in the spray form and would be of value for wreath-making. Both were shown by Messrs. W. WELLS AND CO. Mr. E. UNDERDOWN submitted some single-stemmed plants of C. Mrs. Harry Goschen, a golden-yellow sport from Mrs. Gilbert Drabble. As grown on a late bud it is a useful variety, quite unlike William Rigby in form. The sport originated several years ago, but until now was inconstant. In view of its history the committee desired to see it again.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

NOVEMBER 13.—The monthly meeting of this society was held at the R.H.S. Hall on Monday, the 13th inst., Mr. Chas. H. Curtis presiding. Two new members were elected. One member

was allowed to withdraw the sum of £17 10s. 7d. from his lapsed account. The Army forms were received of six young members who had been killed in action, and the sum of £23 2s. 3d. was duly passed for payment to their nominees. The sick pay for the month on the ordinary side amounted to £55 0s. 8d., and on the State section to £30 10s., and maternity benefit £7 10s.

PERPETUAL-FLOWERING CARNATION.

THE following new varieties of Carnation have recently been registered by the Perpetual-flowering Carnation Society. The descriptions are supplied by the secretary:—

C. Holme Barnett. A seedling of deep salmon colour, striped and splashed with salmon-red. YOUNG AND CO.

Destiny. A seedling, deep clear cerise colour, rich fragrance, a valuable commercial variety. ALLWOOD BROTHERS.

Eastern Maid. A seedling, rich old rose colour, flushed with heliotrope of a distinct shade from existing varieties, strong grower. ALLWOOD BROTHERS.

Golden Idol. A seedling, old gold colour, the best yellow variety. The plant is an exceptionally good grower for a yellow variety. ALLWOOD BROTHERS.

Montrose. A sport from Marmion, flesh pink, flaked with carmine; a great improvement on the parent variety. YOUNG AND CO.

WORCESTER CHRYSANTHEMUM.

NOVEMBER 15.—The annual show of the Worcester Chrysanthemum Society was held on the 15th inst., in the local Public Hall.

In the absence of the Earl of Coventry (president of the society), Mr. John White presided at the opening ceremony, which was performed by the Mayoress. The show occupied all the available space in the large hall. Exhibits from the Earl of COVENTRY and Mrs. WHEELEY LEA covered the whole of the front of the platform, which itself was decorated by an exhibit from Messrs. J. H. WHITE AND CO. Lord COVENTRY'S space was occupied by a collection of mixed single and double Chrysanthemums, including specimen blooms, and a choice collection of fruit. Adjoining was Mrs. WHEELEY LEA'S excellent display of pot Chrysanthemums and cut blooms. Lady BARBARA SMITH showed some fine Japanese and single Chrysanthemums, together with a miscellaneous collection of fruit and vegetables. Lady MARTIN had an imposing display of Palms, Crotons and Chrysanthemums, and also a collection of vegetables and fruit. Mr. E. J. PARSONS contributed foliage plants and Chrysanthemums. In his exhibit were highly coloured fruits of Madresfield Court Apple. Mr. J. H. DANIELS sent Ferns and Palms in variety. One of the most interesting exhibits was a collection of vegetables shown by Mr. W. J. GRESSON, Stoke House. There were in all some sixty dishes, comprising twenty-three distinct kinds. Mr. HEDLEY MASTERS showed Calliflowers and Brussels Sprouts.

At the close of the exhibition Mr. Foley Hobbs sold certain gifts from the exhibitors and raised over £15 for War Relief Funds. There was keen competition for two Vegetable Marrows, about fifty bids being made. One fetched £1 8s. 9d. and the other £2 0s. 3d.

Obituary.

EDWIN POLLARD.—We learn with regret that Mr. Edwin Pollard died at his residence, "Woodlands," Goldsworth Hill, Woking, on the 15th inst., aged sixty-seven years. For more than thirty years Mr. Pollard was employed at Mr. Slocock's nurseries, Woking.

HUGH PRICE.—Old Kew men will hear with regret of the death on October 15 last of Mr. Hugh Price, at the age of fifty-five. Employed at Kew from June, 1885, to March, 1888, Mr. Price left to take up the position of foreman to Sir Pryse Pryse. From 1902 to 1912 he occupied the position of head gardener to Colonel Fisher at Ty Mynydd, Radyr, near Cardiff. Since August, 1912, Mr. Price had been confined to his bed with creeping paralysis.

MARKETS.

COVENT GARDEN, November 22.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.

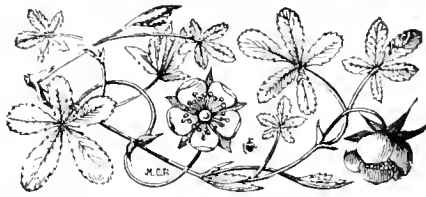
Cut Flowers, &c.: Average Wholesale Prices.

Table listing prices for various cut flowers including Arums, Bouvardia, Camellias, Carnations, Chrysanthemum, and Roses. Columns include flower names, quantities, and prices in s.d.s.d. and s.d.s.d.

Cut Foliage, &c.: Average Wholesale Prices

Table listing prices for various cut foliage including Adiantum, Asparagus plumosus, Autumn foliage, and Carnation foliage. Columns include plant names, quantities, and prices in s.d.s.d. and s.d.s.d.

REMARKS.—There is still an abundant supply of Chrysanthemums, which are selling cheaply. Carnations are less plentiful than last week, and Roses are fast decreasing in numbers, the prices being much higher, especially for red varieties. There is still a limited supply of Lilium longiflorum, which is arriving in good condition; prices are a little easier, but they are not expected to decline further for some considerable time. The consignments of Lily-of-the-Valley are very uncertain; a few bunches may reach the market one day a week, and they are soon sold for exceptionally high prices. A few bunches of Roman Hyacinths were on sale this week, and sold for 3s. to 3s. 6d. per bunch. White Camellias find a ready sale. The first consignment of yellow Narcissus Sol d'Or reached the market this week, also a few good heads of Poinsettias. French flowers are arriving at very irregular intervals. Paper-white Narcissus reaches the market in good condition. These flowers and "Mimosa" form the bulk of the consignments, but there are also a few bunches of pink Anemones, red Ranunculuses, yellow Narcissus, and a few single Violets. Large bunches of Parma Violets are cleared immediately after reaching the market.



THE

Gardeners' Chronicle

No. 1562.—SATURDAY, DECEMBER 2, 1916.

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LAST SEASON'S POTATO CROP.

AS was pointed out in the leading article in these pages last week, many years have elapsed since the Potato crop throughout the country was so unsatisfactory as it has been in 1916. Various reasons for the failure will be advanced, both by theorists and practical men alike, but the wise, whilst not passing these unheeded, will look to the future with a view of remedying any faults there have been in the methods of cultivation.

The weather is beyond our control, and no doubt much of the failure is traceable to unsuitable climatic conditions. For instance, the months of April, May, June, July, and the first half of August were dry; only 6½ inches of rain were registered during that time in South Hants. This period covers the principal growing time of the Potato, and in such unfavourable circumstances the tubers were unable to swell as they should have done. This defect in the growth is largely accountable for the shortage of the crop. When but three tons of ware is obtained per acre instead of ten tons it can easily be seen why the crop is short. At the same time, a greater proportion of seed tubers has been obtained, and these will be a boon.

Another reason for the shortage of crop is the prevalence of disease at digging time; it was much worse in some districts than in others. In light soils, especially those with a chalk subsoil, and where but a minimum quantity of farmyard manure and little of other stimulants such as nitrate of soda were used, less disease was found, and probably a lighter crop of

tubers of extra good cooking quality. On the contrary, heavy soils liberally manured during the winter or at planting time, and with liberal quantities of quick-acting stimulants during the period of growth, produced a vast amount of disease before lifting and since the tubers were clamped or stored in sheds.

The question of spraying is an important item in the success or otherwise of the Potato crop. The main object of spraying is to preserve the haulm in a satisfactory growing condition as long as possible, or certainly until the tubers are fully grown and matured, as a preventive of disease attacking the leaves, haulm, and afterwards the tubers. Unfortunately, this immunity is not always obtained, no matter how carefully the spraying be done nor how often repeated. I have in some seasons had worse results in the preservation of the haulm when spraying was carefully done three times than I have had when spraying was not done at all.

The continuous rain and low temperatures, with a general lack of sunshine during the latter half of September and the whole of October, no doubt accelerated the spread of disease both in growing crops and amongst the tubers already lifted. Late planting was another source of crop shortage. The month of March, when tillage preparations should be active, was exceptionally wet; as much as 4.63 inches of rain fell during that month, and but twelve dry days were recorded. Many light crops are also traceable to a want of manure. Some plots were insufficiently fed; the plants grew slowly and weakly, naturally producing a small yield.

Owing to shortage of labour many plots were overrun with weeds in the spring previous to the earthing-up, and in some instances afterwards, when that common pest Charlock grew most luxuriantly, robbing the Potatoes of much of the manurial stimulant provided for their growth. The stirring of the surface soil about growing Potatoes, even if there are no weeds, is of great benefit, admitting air to the roots, and thus warming the soil. Especially is this an advantage in soil of a heavy character.

Intending cultivators for the coming year, especially those of inexperience who will cultivate the small garden plots, will be cogitating in their mind what should be their mode of procedure to ensure the best results. For the information of such I will briefly detail a few advantageous principles in cultivation.

The preparation of the seed is an all-important point to study. Far too common is the practice of storing the tubers in bulk in a clamp or on shelves and not examining them until they are required at planting time, when all too often they are found to have "sprouted" into growth several inches long. Such premature growth must exhaust the stored-up energy. At no time should the tubers be allowed to grow in this manner. They should be examined occasionally and all such growth checked. In bulk, a Potato fork is the handiest tool to turn them over, giving them a vigorous throw, which will

check any attempt at sprouting by bruising the shoots.

The manner of preparing the tubers for planting—"sprouting" as it is generally termed—now so much in favour is in shallow skeleton boxes some 3 inches deep, some two months before planting, and it is an excellent plan, especially for early varieties. Strong growth right away from the start is assured, and there is no risk of blanks in the row because none but the with a promising shoot are planted. Stand the boxes in a cool shed or building where ample light is obtained to induce a stocky growth.

There is much dispute and misconception, too, among cultivators, especially those with little actual experience, as to the wisdom of cropping the same plot with Potatoes year after year. Too many persons are taught to believe that an annual change of site is necessary. The sooner that idea is banished the better. When a plot is found to produce good results continue the crop until it fails to do so, is my advice.

As long as the soil is properly prepared by cultivation and the addition of suitable manure there is no reason why Potatoes should not be planted continuously. I grew Potatoes on a seven-acre plot for seven consecutive years with good results. An allotment holder here has grown this crop on the same site fifty-three years. The point is, the land must not be left untouched after lifting the crop until the next is put in, but it must have due attention.

The preparation of the soil for the Potato crop is one of the most important of items in culture, and should vary according to types of soil. The most difficult to deal with is soil of a heavy character, especially that which has not been previously cultivated.

In the case of small plots I advise the trenching of the soil at least 2 feet deep, more, if possible, where the subsoil is impervious clay, liable to become waterlogged, and hence to cause a check to growth.

Some writers advise the bringing up of the bottom spit of soil to the top, burying the top soil at the bottom of the trench. This method of trenching is wrong in a general way for small growers. The surface soil should be retained in the same position as a convenience for the future manipulation and for the immediate success of the crop.

Trenching has distinct advantages; the soil is warmed by the admission of air, a quick percolation of excess water from heavy rains is provided for, thus reducing stagnation about the roots to a minimum, and moisture is conserved during a spell of dry weather in the summer.

As early in the autumn as possible all ground intended for Potatoes should be prepared by trenching or deep digging, as the case may be, leaving the surface as rough as possible for winter rains, frost, and wind to disintegrate thoroughly, and thus provide a good tilth for planting. Where farmyard manure is employed on heavy land it should be dug in in the

autumn, thus allowing ample time for decomposition. Recent experiments in the deeper earthing of the plants in spring have proved that such plants are less liable to disease than others. Some suggest that the extra depth of soil prevents the penetration of the disease to the tubers to a large extent. I am inclined to attribute the smaller amount of disease experienced in such instances to a more perfect maturation of haulm and leaves—which is an admitted preventive—to the fact that the extra depth of soil maintains the haulm in a more upright position, thereby exposing the plant more fully to the influence of sun and air.

Generally, less disease is prevalent where ample space in planting is given the haulm to develop and mature fully.

The question of variety no doubt plays an important part in both the extent of the crop and immunity from disease, and will, I think, do more so in the future.

Growers of Potatoes in bulk for market naturally choose sorts that succeed best in their locality; unfortunately, some varieties, though excellent croppers, lack cooking qualities. I need hardly say, though, that there is a wide difference in ideals of what is a perfect cooking Potato.

etc., a fine specimen of the Weeping Beech, and Conifers. The few flower beds are at present planted with Wallflowers.

Clothing the building itself are many and various creeping plants, the most striking of which are the ornamental vines, including *Ampelopsis Veitchii*, radiant with autumn tints. The Ives, chief of which are the green and yellow forms of *Hedera Helix palmata*, the Jasmine (*Jasminum officinale*), *Celastrus scandens*, and other climbers, all assist in producing an effect which is indeed beautiful.

The rockeries, though not large, hold an extensive variety of plants. There is a fine specimen of *Cotoneaster microphylla*, with its gorgeous hues. The dwarf Ivy (*Hedera Helix conglomerata*) looks exceedingly well; there are several varieties of the Cistus, or Rock Rose, and, among the Saxifrages, the mossy species, *Saxifraga Wallacei*, and the encrusted species, *S. aizoon*, are prominent. Several of the Thymes, including *Thymus azoricus*, are also represented, whilst such plants as *Aubrietia*, *Arabis*, *Dianthus*, *Sedum*, the Cobweb Houseleek (*Sempervivum arachnoideum*), *Primula cashmeriana*, *Aethionema grandiflora*, *Phlox subulata*, *Silene Schafta*, *Erinus alpinus*, are all to be seen in

The warm greenhouse and stove contain, *inter alia*: Ferns.—*Adiantum cuneatum*, *A. tenerum* Farleyense, *Nephrolepis* and *Pteris tremula*. Orchids.—*Dendrobium Phalaenopsis*, *Cypripedium Spicerianum*, *Coelogyne cristata*, *Cattleya labiata*, and numerous other decorative plants. The frames accommodate a very good batch of *Cinerarias* and *Primulas*, the latter chiefly *P. sinensis*.

The decoration of a large hospital like Beaufort is no small task—the heat of the wards, combined with somewhat irregular treatment, ruins the plants—but, nevertheless, the wards are always cheerful with plants and flowers, and reflect great credit on the ability of the gardeners.

The kitchen garden of an institution which, apart from the permanent staff, may have to accommodate 1,500 patients, is necessarily of great importance. The ground devoted to the production of fruit and vegetables covers several acres, and consequently demands a great deal of attention.

The Potato, naturally, is the most important vegetable grown, and King Edward VII. is the principal crop. A large area has each year to be devoted to the production of greenstuffs, and in the way of roots, Parsnips, Carrots, Turnips and Beet have all to be grown in large quantities. The variety of Parsnip which seems to be most successful is Elcombe's Improved, while for the maincrop Carrot Intermediate is utilised. An excellent bed of Celery (Major Clark's Red) is worthy of mention; it certainly would do credit to any garden. Other less important vegetables, such as Onions, Leeks, and Marrows, all demand a place, not to mention salads and herbs.

The fruit garden and orchard are fairly extensive. The soil is particularly suitable for the Plum, and good crops are produced—*Magnum Bonum* being especially good. Apples, Pears, Gooseberries, Strawberries and Raspberries are also well represented.

Apart from the horticultural interest, the institution possesses about one hundred pigs, among which are some fine specimens of the Yorkshire Cross—these provide a use for the huge food wastage inseparable from a large institution of this kind. There are beehives, too, the bees being apparently free from Isle of Wight disease.

The whole place suffers, as every place must now be suffering, for the want of labour, but, taking this into consideration, the results obtained are certainly very creditable, and the grounds provide a beautiful and interesting place wherein wounded soldiers may recuperate. Patient.

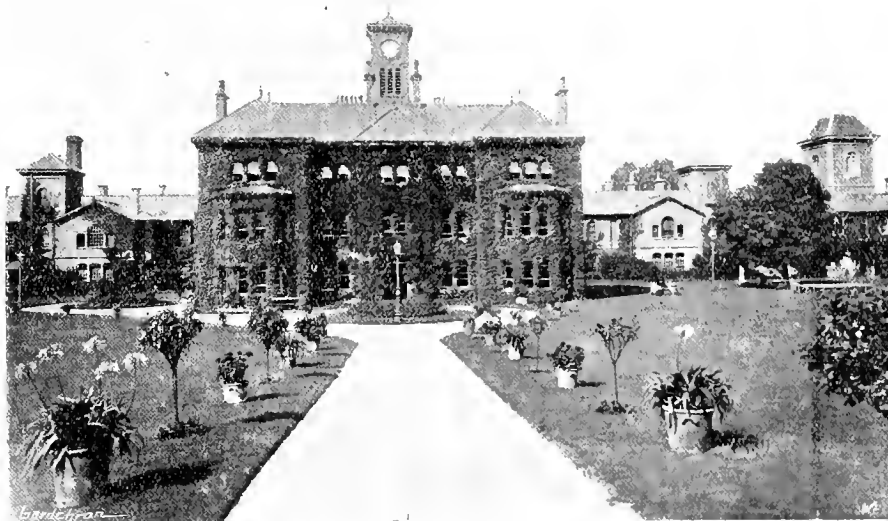


FIG. 104.—BEAUFORT WAR HOSPITAL, BRISTOL.

It is safe to say that amongst maincrop varieties Up-to-date has stood a severe test as to crop and quality.

Certain seed firms are devoting much time and attention to the raising and introduction of new and improved varieties, and they deserve praise for their endeavours to improve what is commonly known as the "people's food." *E. Molyneux, Swanmore, Bishop's Waltham.*

HORTICULTURE AT A WAR HOSPITAL.

BEAUFORT War Hospital is an extensive building spreading over a large area, enclosing in its grounds both a chapel and a concert hall; its maze of wards, at one time providing accommodation for 1,500 of the mentally deficient, is now devoted to the treatment of our wounded soldiers. Standing in extensive grounds to which great care and attention have been devoted in the past, the place provides much interest to the horticulturist.

The hard asphalt paths which thread their way here and there around the grounds provide promenades for the patients. The spacious and well-kept lawns contain some good trees, including Chestnuts, Sycamores, Poplars,

happy conditions. In a suitable corner is a small collection of hardy Ferns, including *Scolopendrium* in several varieties, the Bladder Fern (*Cystopteris fragilis*), the Lady Fern (*Asplenium Filix-foemina*), the Soft Prickly Shield Fern (*Aspidium angulare*), and several others.

The glasshouses provide an additional interest; one house, about 60 feet in length, which during the season was used for Tomatoes, is now devoted to Chrysanthemums, and contains some very good specimens of the decorative varieties, which are grown chiefly for the decoration of the hospital wards. Among the singles are *Mary Richardson*, *Mary Pope* and *Mrs. Gibby*, whilst among the bush varieties are *Madame R. Oberthur*, *Foxhunter*, *Princess Caprice* and *Bronze Caprice*. Few large blooms are grown, but they are all certainly good, *Mrs. A. E. Miller* and *Reginald Vallis* especially so. Others grown are *Mrs. F. W. Vallis*, *Mrs. A. C. McKinley*, *Nellie Bean*, etc., the whole house making an admirable display.

There is a small vinery which has this year done exceedingly well, the varieties cultivated being *Black Hamburgh*, *Grös Colmar* and *Muscat of Alexandria*. A greenhouse contains a good hatch of *Callas* (*Richardia africana*), a few good plants of *Primula sinensis* and *P. sinensis stellata*, and a large number of bedding *Pelargoniums*, both cuttings and old stools.

THE HARDY FLOWER GARDEN.

THE PLANTING OF FLAG IRISES.

In endorsing my views as to the best time for planting the herbaceous Paeonies, namely, before the emission of the new root system, *J. F.* (p. 211) says he "would extend the practice to Christmas Roses and Flag Irises." I quite agree; but he goes on to say that the Flag Irises "may be divided and transplanted any time after the flowers are over, but not later than September," a remark which I cannot endorse. Flag Irises only agree with Paeonies and Christmas Roses in that all are periodical in their rooting: producing, virtually, but two sets—primary and secondary—of roots each year. In the two last-named the primary or "basal roots" issue at about the same time—September—hence the importance I attach to this time for their planting. In the Flag Irises these primary roots are emitted at a wholly different time—early spring—hence March and April are the best planting months. The aim of intelligent planting should be to arrive at a good representative flowering with the least possible delay. This in the case of the "Bearded" or "Flag" Irises is only achieved by March planting, preference being given to the earlier month in order to be "in advance" of

TREES AND SHRUBS.

PROPAGATING HYDRANGEA HORTENSIS.

I MUST confess I cannot follow your correspondent, *J. F.*, in his article on the above subject (p. 241). He says, having the proper conveniences for propagating this *Hydrangea*, I have not tried cuttings nor layering. Omitting these two methods, the raising of seedlings appears to me the only alternative, and that, given good seed, is an easy matter, though not to be depended upon for the increase of any particular variety, of which there are now so many in cultivation.

With regard to the statement that young shoots will strike in less time than the more mature ones, this is a fact which is fully recognised by all propagators. In increasing the more difficult subjects under glass, this feature is largely taken advantage of by professional men. The usual practice is to take the stock plant which is to furnish the cuttings into a structure kept at a temperature 10° or so higher than that in which the plant has hitherto been grown. Should this be done in the spring, young shoots will quickly be pushed forth. This is

tion. Those of medium vigour are the most suitable, as the strong leading ones are apt to decay, and the very weak ones, though they may root without difficulty, take a long time to acquire the normal vigour of a healthy specimen. *W. T.*

Two correspondents, in two recent issues of the *Gardeners' Chronicle*, give directions for the propagation of *Hydrangeas*. I have found them of the easiest, and in the southern counties one has nothing to do but trim off the two lower leaves of the cuttings in autumn and thrust them into mellow open soil, in some sheltered corner of the garden, with practically no failures. *Western Wight*

BUDDLEIA VARIABILIS VEITCHIANA.

In these gardens, on the hard, marly site of a recently removed building, hundreds of seedling plants of *Buddleia variabilis* have this season appeared with weeds and other vegetation, and some of the plants of *Buddleia* flowered. I was somewhat surprised to find this colony of plants, especially in ground apparently unfavourable to growth, and at a distance of some

new root formation. Where for any reason it cannot be done at that time, I place August-September as a fairly good second. At that time leaf and rhizome are fully developed; the germ of the ensuing year's flowering is fully laid, and, albeit that there will be found on examination a loss of the earlier-formed root-fibres, and a modified development of the plant, the flowers, though somewhat smaller, will issue in due season.

Dividing and transplanting these Irises "any time after the flowers are over," as recommended by *J. F.*, is wrong in principle and bad in practice, yet growers of repute, amateur, commercial, and some of those in public gardens continue to divide and transplant at the wrong time. Even so great a student of the genus *Iris* as Mr. Dykes falls into the common error, and advises gardeners, in *Irises* (Present-day Gardening Series, Chapter XIV.), about "shifting Irises when they have only just finished flowering, or even when actually in bloom." It is advice of this kind which sends the ordinary gardener and amateur astray. Continuing, Mr. Dykes remarks: "The reason is obvious to anyone who has ever taken the trouble to examine the root system of the *Iris*." It is; though Mr. Dykes himself is apparently one of those who has failed to grasp all the potentialities of this root system. Further, Mr. Dykes says, "to insure success, then, in transplanting Irises, they should be shifted in time for the main roots to go down uninjured into the soil." I entirely agree. It is a complete endorsement of a practical experience of thirty years with these plants. Unfortunately, Mr. Dykes fixes on the wrong time.

The "Flag" or "Bearded" *Iris* commences to produce its main roots in March or thereabouts, contemporaneously with the new growth, and divided and transplanted at that time they are prodigal of good results. Planted at any other time, it is impossible for "the main roots to go down uninjured into the soil." The great advantage of March planting is that a maximum development of primary root, leaf and rhizome is promoted unchecked in proper order; a fact which also accounts for plants so treated flowering cent. per cent. the following year. Planted at flower-time, when the main roots have made considerable progress, mutilation and loss ensue, and the plant, dependent upon the thereby enfeebled secondary, or lateral root-fibres, has to put in another season's growth ere it is capable of a good representative flowering. Truly, as Mr. Dykes observes in the chapter referred to, "Rhizomatous Irises have suffered much from the very fact that their hold on life is tenacious," since the ignorant and unobserving take liberties with these long-enduring plants.

When in 1913 a trial of *Iris* was contemplated at Wisley—the plants being asked for in July—I made representation in the proper quarter that the planting time fixed was wrong, and that March was by far the best month for the work. Eventually, acting on suggestions I had made, a private trial, unknown to myself, was conducted, six plants each of three varieties being employed. The following table gives the results:—

Variety.	Number of spikes produced.			
	October, 1913.	May, 1914.	October, 1914.	May, 1915.
<i>Argus</i> —				
March planted	6	16	0	58
June planted..	0	3	6	32
<i>Graculus</i> —				
March planted	0	43	0	98
June planted	0	14	6	51
<i>Queen of May</i> —				
March planted	0	6	0	29
June planted..	0	3	0	4

Dismissing the October flowering throughout as erratic, all else will be seen to greatly favour March planting. The report on the experiment will be found in the *Journal of the R.H.S.*, Vol. XLII., Part 2, December, 1915. *E. H. Jenkins.*

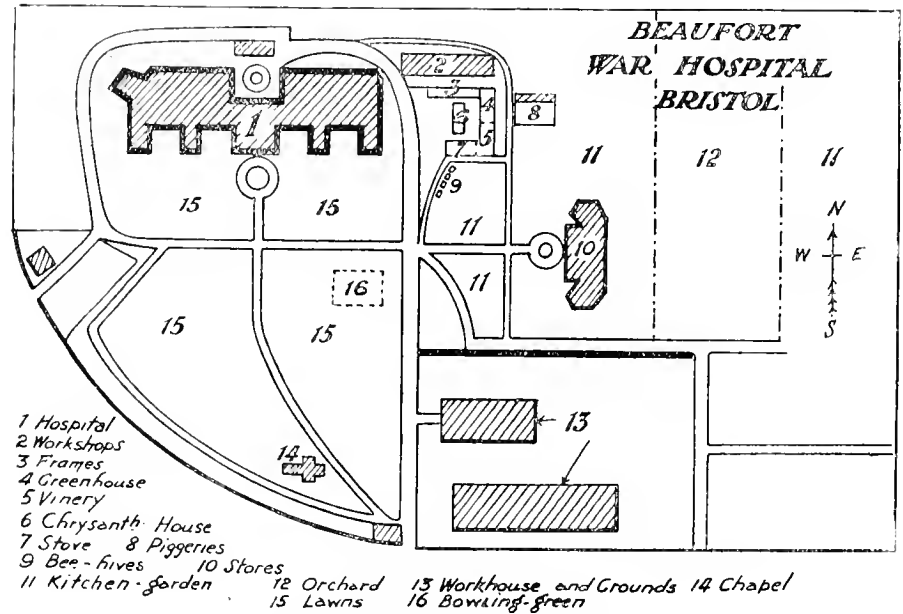


FIG. 105.—GROUND PLAN OF BEAUFORT WAR HOSPITAL. (See p. 264.)

professionally termed drawing out the cuttings. As soon as the shoots have acquired the requisite degree of firmness they may be taken as cuttings. This is where the knowledge of the experienced propagator comes in, as some subjects require the young shoots to be more mature than do others in order to ensure success. With regard to the cuttings of hardy shrubs, the two mentioned by your correspondent are among the easiest of subjects to strike. It is surprising what a great number of hardy shrubs can be increased by taking cuttings of the current season's shoots in July and the first half of August. They will by then have lost their extremely succulent character, so that the risk of damping off is considerably lessened. At the same time, though the wood will be sufficiently hard to resist decay, it will not be firm enough to retard the action of rooting to any great extent. The best place for these summer cuttings is in a cold frame kept close and shaded. If there are a great number of one kind, some sandy soil may be placed in the frame and made quite firm. Into this the cuttings may be dibbled. Where there are many varieties a good plan is to put them in pots, a suitable size being 4 inches in diameter. Choosing the shoots likely to make the best cuttings is another important considera-

tion. eighty or more yards from the nearest old plant of the same species.

With reference to the cultivation of this shrub close pruning yearly both weakens its growth and lessens the size of its flower-spikes. Although it is sometimes desirable to keep the plant dwarf by pruning, yet it is seen at its best when allowed to grow naturally and develop its flowering laterals. *Thos. Coombe, The Hendre Gardens, Monmouth.*

AUSTRALASIA.

THE QUEENSLAND FLORA.

SINCE 1897 additions to the flora of Queensland have been recorded in the *Queensland Agricultural Journal*. In future new records are to be published in special Bulletins. Bulletin XVIII.* contains descriptions of plants belonging to a large number of orders. Of these plants *Leptospermum flavescens* var. *citratum*, the leaves of which emit a pleasant citrou odour, is a compact, bushy shrub or small tree (20 feet), and may prove of commercial value.

* Contributions to the Queensland Flora, Botany Bull. XVIII., 1916, by J. F. Bailey and C. T. White.

THE ROSARY.

ROSES OF RECENT INTRODUCTION.

THE notes by *White Rose* are always instructive, and I have read with much interest his notes on the newer Roses (see p. 246). As regards the yellows, I fancy we shall find Janet a better Rose than Margaret Dickson Hamil. It is a splendid grower. Whether Mrs. T. Hillas was a year too old to be included I know not, but certainly everyone should grow this splendid Rose. It is what I may term a yellow *Mélanie Soupert*. Mrs. McKellar is a fine flower of exhibition type, and quite good, and Mrs. Hugh Dickson is another beautiful variety. Perhaps the growth of the last is not quite vigorous enough.

As regards the erimsons, I can endorse all he states about Red Letter Day. This variety will be grown very largely in the near future, and it is a splendid "doer." The blooms are a much darker colour in autumn. I have been using it as a low hedge Rose and for short pillars with charming effect. This will be a far more satisfactory Rose than Princess Mary, which, although very bright and sweet, droops its flowers too much to be effective in the garden. Hadley has a fine future. At times it "blues" badly, but during the summer it gives rich, blackish-crimson flowers of wondrous beauty. Hoosier Beauty has a too slender stem to be a valuable garden Rose; it is a good colour. National Emblem would make a grand standard; as a bedder it partakes too much of its presumptive parent, *Château de Clos Vougeot*.

Among new Roses of art shades, Cheerful and Muriel Dickson are splendid, and only require planting to become extremely popular. Gorgeous has an enchanting mixture of tints, and its growth is excellent. Henrietta is a fine variety. Had it appeared before Mme. Edouard Herriot it would have been much sought after. The erect carriage of its blossoms is just what is required in a bedding Rose. *Experience*.

NOTICES OF BOOKS.

FLORA OF MADRAS.*

A COMPLETE and separate account of the flowering plants of Madras was a great desideratum, and the Secretary of State for India is to be congratulated on having secured the services of so competent an authority as Mr. J. S. Gamble, F.R.S., for the task. The author's long years of practical experience in India, and his ready pen in descriptive botany, combined with a love of his subject, leave no doubt of an excellent result. Furthermore, he has had the advantage of a technical printer, good paper and excellent typography. The plan and classification are practically the same as in Hooker's *Flora of British India*, with desirable modifications. Mr. Gamble's important contributions to the flora of the Malayan Peninsula are well known to botanists, and we can imagine his pleasure in following up that work with the flora of the Western Peninsula, between which the affinities are so great. It appears that Mr. S. T. Dunn, late Superintendent of the Botanical and Forestry Department at Hong Kong, prepared the first half of the part before us, but was obliged to relinquish his share in the work, and Mr. Gamble is the responsible editor of the whole. Trees and shrubs largely preponderate in the vegetation of the Western Peninsula. The polypetalous families, Anonaceae, Menispermaceae, Capparidaceae, Malvaceae, Tibaceae, Sterculiaceae, Dipterocarpaceae, Rutaceae, and Meliaceae being largely represented. Impatiens is the only herbaceous genus in this division numerous in species, seventy being enumerated and described.

* *Flora of the Presidency of Madras*. By J. S. Gamble, Part I. Ranunculaceae to Opiliaceae. Small 8vo., pp. 200. Published under the authority of the Secretary of State for India in Council, Calcutta, 1915. (London: West, Newman & Co. and Adlard & Son.) Price 8s.

The Week's Work.

THE FLOWER GARDEN.

By W. J. GURSE, Gardener to Mrs. DEMPSTER, Keels Hall, Staffordshire.

DRAINING FLOWER-BEDS.—Attend to any draining of the soil that may be needed in flower-beds, in order that the soil may settle before planting time comes round again. Efficient soil drainage is of the greatest importance in the flower garden, for success is never attained in a water-logged soil. New beds and borders should receive attention in this respect, especially where the soil is of a heavy, retentive nature. Clear out the drains in paths and carriage drives from time to time during the next few months.

WALL PLANTS.—Plants trained on walls should receive attention. Remove dead foliage,



FIG. 106.—DISA LONGICORNU: FLOWERS PALE BLUE.

(See p. 271.)

weeds and leaves that have blown from neighbouring trees. Stir the soil lightly with a small hand-fork, and give some slight protection to the tender varieties. Intended alterations should be carried out at this time; much may be done to improve unsightly banks, or rough slopes, which generally fail to grow even weeds. Such places may be turned into first-class wall gardens, which are always a source of pleasure. Low retaining walls (with a south aspect for preference) built in a sloping position are very suitable for the purpose; sandstone is the best material to use, because of its moisture-retaining qualities, but sandstone is not essential to success. The walls should be built in an irregular manner, simply placing the stones in positions to form pockets of various sizes for the reception of the soil and plants, occasionally allowing a stone here and there to protrude from the face. Fill in space at the back of the stones with rich decayed turf of a retentive nature,

mixed with a small quantity of leaf-mould, sandstone chippings or mortar rubble. The pockets should have a downward slope towards the bank, and should be filled with a similar compost, or, for the plants described below, old potting soil, provided it is sweet. Certain kinds of plants require a special compost, which must be prepared accordingly. The following plants will furnish the walls quickly and give a charming effect: Aubrietia, Arabis, Valerian, Cerastium tomentosum, Erinus, Corydalis, Sedum, Antirrhinum, Alyssum, Campanula, Saxifraga, Sempervivum, Linaria, Dianthus, Silene, Gnaphalium and Veronica. The tops of existing walls may be adapted for the same purpose, making pockets and filling them with soil for planting.

BORDER CARNATIONS.—Let reserve plants of Carnations in frames have plenty of ventilation during mild weather. After frost, young plants in beds should be examined, and pressed firmly into the soil where necessary.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

DESSERT PEARS FOR A SUCCESSION.—My remarks on p. 231 as to the distinction between Apples for private establishments and market gardens apply also to Pears. Varieties differ greatly in their behaviour in different localities. If certain good sorts succeed in the neighbourhood of the garden, be guided by this and plant accordingly, trying other varieties on a moderate scale. For small gardens the following six dessert and two stewing varieties are suitable:—Dessert: Jargonelle, William's Bon Chrétien, Marie Louise, Doyenné du Comice, Marie Benoist and Olivier des Serres; stewing: Bellissime d'Hiver and Catillac. For larger gardens and those who exhibit at shows, in addition to those mentioned above, a select list includes Fondante d'Automne, Marguérite Marillat, Souvenir du Congrès, Triomphe de Vienne, Beurré Mortillet, Louise Bonne of Jersey, Beurré Superfin, Durondeau, Charles Ernest, Fondante du Thirriot, Beurré Bosc, Beurré Diel, Comte de Lamy, Madame Treyve, Beurré Hardy, Conférence, Conseiller de la Cour, Pitmaston Duchess, President Barabe, Nouvelle Fulvie, Winter Nelis, Bergamotte Espéren, and Beurré Perrault, whilst other good culinary Pears are Verulam, Directeur Alphonse, Vicar of Winkfield and Uvedale's St. Germain.

PLANTING RASPBERRIES.—If the making of a new plantation of Raspberries is contemplated this season the work should be commenced forthwith. By planting carefully in the autumn, without unduly exposing the roots, the canes quickly become established, and are thus better able to withstand the harmful effects of the drying winds in spring than are those planted at that season. Though the Raspberry develops a fibrous root system near the surface the main roots penetrate the soil to a considerable depth, therefore deep cultivation of the soil is necessary. Trenching is the best system, and plenty of manure should be placed below the surface, as the Raspberry is a gross feeder. There are several methods of training the Raspberry; the one generally followed in private gardens is to tie the canes to wires, strained between upright posts. By this method each individual cane receives the maximum of sunshine and a free circulation of air. The full advantage of this method of training may be seen in wet seasons, for the fruits dry much more quickly than when the canes are close together. Tying a bundle of canes to a post is not recommended for general use, but if this method is followed let the canes be limited to a small number. In arranging the uprights for the wires, allow for an extra foot or so in height to carry the nets in the summer that are used as a protection from birds. When the canes for planting are obtained from the garden, use for preference those that are small and well ripened, as they usually have plenty of fibrous roots, which will quickly become active again when transplanted. The Raspberry flourishes in a rich, free soil. Heavy ground may be improved by the use of plenty of wood ash, old potting soil, and other material of a light nature. Work some of the finer soil round the

roots when planting, and do not plant deeply. Allow a space of 5 to 6 feet between the rows and 2 to 3 feet between the plants in the rows. Superlative is one of the best all-round varieties. Baumforth's Seedling, Hornet, Queen of England, Yellow Antwerp and The Guinea are other excellent sorts.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

PERPETUAL-FLOWERING CARNATIONS.—The flowering plants of Perpetual Carnations have filled their pots with roots and may be given stimulants at every alternate watering. Admit air to the houses, opening the ventilators more or less according to the weather, as a close atmosphere is favourable to the rapid development of rust disease. Watch for infestations of red spider, and directly the pest is detected take measures to destroy it before the plants receive injury. The young growths are in a suitable condition for use as cuttings, and propagating should be commenced soon to have the main batch rooted early.

SOUVENIR DE LA MALMAISON CARNATIONS.—“Malmaison” Carnations should be grown in cool conditions at all times; only during very severe frost is it necessary to use fire-heat, and then only sufficient should be employed to keep the thermometer above freezing-point. If the plants are affected with rust disease dip them in a suitable specific at regular intervals of a fortnight or three weeks.

CYCLAMEN.—The earliest plants of Cyclamen latifolium are in full flower, and require careful management to prolong the flowering season. Let the roots have plenty of stimulants, including a little soot-water occasionally. Be careful when affording the plants water that none is spilt into the centres, as this would cause many of the flowers to damp off. Pick off faded flowers and decayed leaves, removing the petioles and peduncles right down to their bases. Cyclamen grow best in a light, airy house, which should be freely ventilated whenever the weather is fine; the top ventilators may remain open a little at night.

HUMEA ELEGANS.—Treat plants of Humea elegans with extra care during the next few weeks or many of them may fail. I have always found that Humeas grown in cool conditions in winter give better results than those that are coddled. The plant's development should not be hastened by forcing, as this treatment ends in failure. The best position for the plants now is in a light house on a gravel bottom. Fire-heat should only be used to ward off frost. If the plants need re-potting the work must be done very carefully and the roots watered with extra caution for several weeks afterwards.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

RHUBARB.—Roots of Rhubarb that have been lifted and exposed to the weather, as advised on p. 195, may now be forced. Many persons prefer Rhubarb that is well coloured, and to obtain colour the stems must receive a little light, and should not be grown in total darkness. A high temperature is not necessary to force Rhubarb; 50° to 55° is suitable, increasing the amount of warmth, if necessary, during the later stages of growth. It will be found that growth will be more regular if the early batches are not unduly forced. Pack the roots closely together and fill all the interstices with ordinary soil, which should contain no manure; leaf-mould answers the purpose as well as soil. Soak the roots with water at the commencement and keep them always moist. Lift a supply of roots at regular intervals to ensure a succession for forcing.

PEAS FOR INDOOR CULTIVATION.—To obtain very early pods make a sowing now in boxes filled with light sandy soil to have plants for potting early in the new year. Place the seeds 1 inch deep and about 2 inches apart in each direction. Do not attempt to hasten the germination of the seeds or the growth of the seedlings, as this would probably result in partial failure. Place

the boxes in a cool house or pit near to the roof-glass, and let the plants make sturdy growth. Use the soil in a moist condition to obviate the necessity of watering before the seeds have germinated, as watering often causes partially germinated seeds to decay. Place baited mousetraps near the boxes as soon as the seed is sown, as mice may destroy a large proportion of the seeds in a single night. Choose a dwarf variety, but if walls are available for training the plants, taller varieties may be grown in pots or boxes.

EARLY POTATOS.—Plant Potato sets required for forcing forthwith, with the principal eyes pointing upwards, in shallow trays or boxes, placing a little fine soil between the tubers. Keep the soil fairly moist. Growth will advance more freely in a slightly warm house or pit; stand the boxes near to the light. When the shoots are 2 inches long shift the tubers into pots filled with a light compost. If the loam used is of a heavy nature mix with it leaf-mould or manure from a spent manure-bed in equal proportions. Let the pots be well drained, and place the tubers midway between the bottom and top of the pot to allow of a subsequent top-dressing of soil. Forcing should be gradual; a temperature of from 50° to 60° is suitable at the commencement.

SALADS.—The measures for maintaining an unbroken supply of salads should receive attention. As autumn-sown Onions may be too large for salad purposes sowings of Onions should be made in boxes at frequent intervals. Endive growing in frames may be blanched by darkening the frames with some heavy material, but the necessity for free ventilation must not be overlooked or much loss may occur through damping. If small quantities of this salad only are required the plants may be lifted and placed in a dark shed at frequent intervals, or they may be blanched under a darkened stage.

LIFTING PARSNIPS.—Parsnips keep best in the soil, but it sometimes happens that the ground in which they are growing is needed for other crops. In such cases the roots may be lifted and packed upright closely together in a hole made in a corner of the garden. The roots need no protection from frost, but it is necessary to place soil between the roots when stored.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warton Priory, Yorkshire.

POT PEACHES.—The earliest house should be cleared of the Chrysanthemum plants, cleansed thoroughly, and made ready for the reception of the trees. Select trees with well-ripened, short-jointed wood, and plenty of fruit-buds. Those in relatively small pots are the best for early forcing, provided they are furnished with healthy roots, Cardinal and Early Rivers Nectarines, and Duchess of Cornwall and Duke of York Peaches are suitable varieties for the earliest forcing. Keep the heads of the trees well exposed to the light, with plenty of space between them. Light fermenting material is an important aid to forcing if used judiciously. If the trees have been disbudded, pinched, and superfluous shoots removed as recommended in previous calendars, very little, if any, pruning is needed at this stage beyond the removal of a weak shoot here and there, or the shortening of an extra strong one to a triple bud about 12 inches from its base. Thoroughly moisten the ball of earth and roots with clear water, and afterwards apply water with great care until growth commences. A temperature of 50° by day is suitable, in the absence of sun-heat, in the early stages, and 60° with sun-heat. Admit a little air whenever the weather permits, but guard against cold draughts reaching the trees.

EARLY PEACHES IN BORDERS.—In most gardens permanent trees are relied upon for supplying the earliest fruits of Peaches, and as these trees require a little longer time to mature their fruit than those in pots the earliest house should now be closed. Syringe the trees lightly in the mornings and early afternoons according to the weather, and do not allow the night temperature to exceed 50°, but the thermometer may rise to 60° with sun heat during the day. Admit a little air on favourable occasions and keep the roots moist.

SUCCESSION HOUSES.—If succession Peach houses have not been cleansed, the trees pruned and borders top-dressed, this work should be done forthwith. Keep the roots moist and lightly top-dress the borders with rich loam mixed with bone-meal, and for old trees a few handfuls of Thompson's chemical manure. Later trees with roots in an unsatisfactory condition may be attended to, taking out the soil to the drainage, preserving the fibrous roots and replanting them in better compost. Add plenty of charred soil and old lime rubble to the soil in which young trees are growing, but use no manure except bone-meal. Prune these trees as little as possible, and endeavour to check this grossness by light annual root-prunings and permitting them to mature a heavier crop than would be advisable in other circumstances.

LATE HOUSES.—The cleaning of late Peach houses and pruning of the trees should follow quickly the same work in the succession houses. The mild weather has not suited late trees, and where Chrysanthemums are still in the houses they should be removed at the first opportunity to enable the trees to have a complete rest for some time before they are started.

THE ORCHID HOUSES.

By T. W. BAISCOB, Gardener to W. R. LYSAGHT, Esq, Castleford, Gloucestershire.

THE COOL HOUSE.—A number of Odontoglossums in the cool house are developing their flower-spikes, and they should receive every encouragement, that the scapes may grow strong and the flowers become of fine texture. Other plants are in full growth, and these again must receive constant attention in watering and regulation of the temperature. The plants need all the light available, and the glass should be washed both inside and out whenever it becomes dirty. In gardens near large towns the outside of the glass must be washed frequently, and especially after fogs. Due regard must be paid to ventilating, and although it is not possible to ventilate so freely as hitherto, sufficient air must be admitted to maintain a buoyant atmosphere. Great care is essential in watering the plants, for the soil must not be kept too moist; in mild winters very little fire-heat is needed, and the soil is a long time drying. Odontoglossums must never be allowed to become quite dry at the roots. They require plenty of moisture when the pseudo-bulbs have formed and until they are mature. A less quantity of moisture will suffice when the flower-spike is removed, and this treatment may continue with advantage until the new growth is an inch or so in length. At this period of the year slugs and small snails are very troublesome, and must be diligently sought for and destroyed; make a nightly examination of the plants with the aid of a strong lamp, when slugs are most easily caught. They may be trapped with Lettuce leaves, hollowed-out portions of Potato tubers, and saucers of bran. A band of cotton-wool placed around the bases of the flower-spikes is helpful in preventing damage to the blooms, but this is not an infallible remedy. The house should be fumigated once every fortnight or three weeks to destroy thrips and aphids. For the next few weeks plants of *O. pulchellum* should be kept fairly dry at the roots.

MILTONIA VEXILLARIA.—Plants of *Miltonia vexillaria* and its several varieties are growing steadily; as the roots are very active the compost must not be allowed to become dry. A small sheath is sometimes found at the base of the new growth, which prevents the roots from growing downwards and entering the soil. This sheath should be split in several places, and each piece pulled off separately. I referred in a previous Calendar to the leaves sometimes adhering to each other, and this trouble is most likely to occur at this season. The leaves should be released at once to prevent them becoming injured. The tips of the leaves occasionally damp off, and this I am inclined to attribute to lack of ventilation and over-watering. Where the leaves are affected damping should cease in the immediate surroundings of the plants, extra ventilation afforded, and the roots kept slightly drier. *M. vexillaria* should be grown in a light position in the intermediate house, about 2 feet from the roof-glass.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, DECEMBER 5—
Roy. Hort. Soc. Coms. meet.
Scotch Hort. Assoc. meet.

WEDNESDAY, DECEMBER 6—
Perpetual-flowering Carnation Society's Ex. at Royal Horticultural Hall.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, November 30, (10.0 a.m.): Bar. 29.8°; temp. 45°. Weather—Fine.

SALES FOR THE ENSUING WEEK.

MONDAY—

Herbaceous Plants, English and French Bulbs, by Protheroe and Morris, at 67-68, Cheapside, at 1 o'clock.

Palms, Ferns, etc., and Motor-Van, at the Nurseries, 107A, Upper Tulse Hill, Brixton, by Protheroe and Morris, at 12 o'clock.

WEDNESDAY—

Rock, Alpine and Herbaceous Plants, Fruit Trees, Bulbs, etc., by Protheroe and Morris, at 67-68, Cheapside, at 12 o'clock; at 3 o'clock, large consignments of Polyanthus, Darwin Tulips, etc., cases of Japanese Lilies, retarded, and just to hand. Rose Trees, Perennials, Shrubs and Bulbs, at Stevens's Rooms, King Street, Covent Garden.

THURSDAY—

Special sale of Standard, Dwarf and Climbing Roses, by Protheroe and Morris, at 67-68, Cheapside, at 1 o'clock.

FRIDAY—

Bulbs, by Protheroe and Morris, at 67-68, Cheapside, at 1 o'clock.

Plant Breeding in Sweden.

Under the title of "Plant Breeding in Sweden" Mr. H. Hjalmar Nilsson has given an interesting account* of the foundation and work of the famous plant-breeding Institute of Svalöf, in Sweden.

Not the least interesting fact concerning Svalöf is that it owes its establishment solely to the private initiative of Swedish agriculturists. The object which the founders of this research station had in view was the provision of new and improved seed for Swedish agriculture. Albeit that the purpose was and is a purely practical one, and, as we may at once admit, one which has been amply fulfilled, those responsible for planning the work recognised from the outset that it could only be carried out

with the assistance of scientific men. In Sweden apparently troublesome and somewhat sterile debates as to the parts to be played respectively by "practical" and "scientific" men in developing the technical arts of agriculture and horticulture do not absorb men's energies and waste opportunities. They assume, and rightly, that a good scientific man is nothing if not practical, and that a good practical man must be one who works—instinctively and not perhaps deliberately, but nevertheless consistently—along scientific lines. To them, as it was to Huxley, science is "organised common sense." Another great advantage enjoyed by Svalöf was the fact that those who were responsible for its foundation recognised that the Institute must devote the whole of its energies to the work of improvement of seed, and not play the silly part imposed on so many institutes in this country of a general utility machine. Teaching, comparative field trials, analyses of seeds and manures—all excellent things in themselves—were rigorously excluded from the programme. It is to the lasting honour of Swedish agriculture that this Institute, the fame of which is now world-wide, was the direct outcome of the work of one of its members—Mr. M. B. Welander, a young farmer at Svalöf, who was instrumental in forming a local society for the improvement of seeds. This society succeeded, and from it sprang a larger organisation. This in time grew until it was in receipt of support from all the agricultural associations in Sweden, and finally from the Government itself.

As was inevitable, the work first undertaken was along the lines prescribed by science. At that time methodical selection was supposed to be the means by which improvement could be obtained. It was soon found, however, that methodical selection alone was insufficient, that it led to the production of no new varieties, and that unless the selection were continued the stocks soon fell back to their previous mediocrity. Thus, after some years of hard work, the results were frankly a failure, and this was the situation when Nilsson was appointed director in 1890. By 1893, however, a new method had been devised. The method consisted in the now well-known practice of isolating as many varieties as possible from the complexity of forms occurring in any so-called commercial variety of that period. Almost at once some of these isolated varieties or sub-varieties showed signs of promise. In each case of such promise it was found that the plants (autumn Wheat) came from a single plant. Thus was discovered the value of the individual plant in plant breeding. This idea was promptly put to the test. In 1893 2,000 different sowings were made from the seed of as many individual plants. The result conclusively established the fact now so well recognised that the individual plant must be the starting point of the plant breeder. Selection in mass was henceforth discarded in favour of pedigree or individual culture. Although the principle is easy, the practice of it is laborious, because for the prin-

ciple to be of practical use, the multitudinous varieties isolated in this way have to be each tested and compared one with the other.

Others before the staff at Svalöf had, of course, used this method—Patrick Sheriff, Vilmorin, and Hallet, for example; but it remained for the Swedish Institute to show the boundless possibilities which may result from applying it, and to demonstrate that these possibilities are capable of rapid realisation.

Hybridisation has also played its part—and that a large one—in the work of plant improvement carried out at Svalöf, and the statement needs no emphasis that hybridisation carried out on previously isolated and tested pure lines, with the object of combining in the hybrid characters occurring separately in the parents, was bound to result in rapid as well as brilliant results. It did. Varieties have been produced suitable to the different climates and soils enjoyed by different parts of Sweden—large-yielders for the south, cold-resisters for the north.

Besides improving the cereals, Wheat, Barley and Oats, Svalöf has also extended its work to forage grasses, Clovers, Peas, Potatoes, and other plants of economic importance. The methods which we have briefly described are now well known, yet they deserve repetition because even to-day in this country these methods are not so generally followed as they ought to be.

ROYAL HORTICULTURAL SOCIETY.—In compliance with the lighting regulations, the fortnightly meetings of the Royal Horticultural Society will close at 4.30 p.m., and not at 5, as announced in the *Book of Arrangements* and on Fellows' tickets. The schedule of the Daffodil Show to be held on April 17, 1917, may be obtained on application to the secretary.

A NEW ROSE.—The American daily Press is enthusiastic over the merits of a new Rose raised at Baltimore, U.S.A., by Mr. JOHN CROOK. The colour is pink; the variety, which is at present unnamed, is said to be a glorified La France.

WOMEN IN AGRICULTURE.—The President of the Board of Agriculture desires to call public attention again to the urgent need that exists for the assistance of women, not already connected with agricultural industry, in the work that is required for food production on the land, and to replace agricultural labourers who have been called up for military service. Hundreds of women have already rendered valuable service in maintaining the home-grown food supply, but thousands are now needed to meet the national emergency. Educated women are especially invited to offer their services, and short courses of training can be provided for them. Application should be made to the secretaries of the Women's War Agricultural Committees in the various counties, or to the Women's National Land Service Corps, 50, Upper Baker Street, London, N.W.

KNIPHOFIA MULTIFLORA AT NEWRY.—Mr. T. SMITH has forwarded to us spikes of *Kniphofia (Tritoma) multiflora*, which he states has flowered very freely this autumn in his nursery at Daisy Hill, Newry.

A REMARKABLE COLLECTION OF AGAVES.—What is probably the most remarkable collection of Agaves in the world is that in the gardens of Prof. G. ROSTER, of Florence, who has spent 20 years in cultivating tropical plants. In a note

* *Journal of Heredity* (the organ of the American Genetic Association, Washington), V., 7, July, 1914.

recently published,* Prof. ROSTER records that his collection includes 842 species (with nine varieties), of which the following 27 have flowered since 1889:—*A. americana*, *A. americana* var. *luteo-marginata*, *A. chareariodonta*, *A. chiapensis*, *A. coccinea*, *A. dealbata*, *A. Desertii*, *A. filifera*, *A. filifera* var. *latifolia*, *A. Franzosinii*, *A. geminiflora*, *A. grandidentata*, *A. Haynaldii*, *A. Jacobiana*, *A. lephantha*, *A. lurida*, *A. macroacantha*, *A. miracantha*, *A. mitraeformis*, *A. Peacockii*, *A. rupicola*, *A. Salmiana*, *A. univittata*, *A. vivipara*, *A. Warelliana*, and *A. yuccaeifolia*.

GREEN MANURING AND SEED GERMINATION.

—Observations reported by Mr. E. B. FRED† show that where green manures are turned under and the soil sown immediately germination is adversely affected. This, however, applies only to certain seeds, Cotton, Soy Beans and Hemp, for example, but not to Maize or Oats. The injurious influence introduced by the green manure disappears in the course of about 25 days. In the course of his investigations the author found that 1.2 per cent. of soluble carbohydrates—which presumably would be liberated during the breaking down of green manure—retard germination, but does not cause the seed to decay as is the case with green manures. The cause of this curious effect on the part of green manures remains to be discovered.

POTASH IN BANANAS.—At a recent meeting of the Yorkshire Section of the Society of Chemical Industry, Mr. R. H. ELLIS gave an account of the discovery that Banana stalks are extraordinarily rich in potash. It appears‡ that some Banana stalks were left inadvertently in the polished seat of an office chair. Where the stalks came in contact with the chair the polish was removed. Mr. ELLIS, informed of the fact, proceeded to inquire into it, and discovered presently that juice from the stalks sets up a decided irritation when it comes in contact with the skin. The irritation was traced to potash in the juice, and analysis showed that dried Banana stalks contain as large a percentage of potash as is contained in kainit. A ton of stalks yields over 25½ lb. of potash. Some 16,000 lb. of Banana stalks are destroyed every week in Leeds alone—that is, 170 lb. of potash are wasted there every week, or about 8 tons a year. The potash contained in the Banana stalks destroyed weekly in Leeds would suffice to manure 100 acres of land. At present the stalks go into the dust destructors.

WAR ITEMS.—Gunner A. J. WARD, late Superintendent of Public Parks, Shrewsbury, writes from —, as follows:—"It may interest many of your readers—more especially the young men with whom I had the pleasure of serving my time at the Royal Gardens, Windsor Castle, Welbeck Abbey, and The Warren House, and the numerous members of the Birmingham City Parks Department—to hear that I still take an interest in weight-lifting, wrestling, etc., and to know that for the past four months I have been physical instructor to —. While at Welbeck I was the means of persuading the Duke of PORTLAND to start a gymnasium school. At Windsor Castle I was an honorary member of the Grenadier Guards' Gymnasium, and at Warren House I formed a class and instructed it. At all the above-mentioned places I was the strongest man, although I have on several occasions met some tough customers. In 1909 I was the winner of a certificate for physical development in an international contest, there being over 5,000 competitors. In conclusion, let me say that a few days ago I had the pleasure of meeting Mr. WITTY, the Hull Parks Superintendent, who informed me that his two sons were serving with the Colours."

— Many thanks for the *Gardeners' Chronicle*,

* *Bull. I. R. Soc. toscana di orticoltura* 1916.
 † *Bull. Internat. Inst. of Agric.*, reported in *Tropical Agriculturist* (Ceylon), XLVII, 4.
 ‡ See *Journ. Jamaican Agric. Soc.*, and also *Tropical Agriculturist*, XLVII, 4.

which I have received safely each week, through the kindness of the Rt. Hon. Lady THEOPHRA GUEST. Since I wrote last the temperature is much more healthy for a good many of us who are serving in this part of the world. Not long ago it was often 123° in the shade. I am glad to say it is cooler now, but the miniature

seems to cause a kind of fever. I find the *Gardeners' Chronicle* very welcome out here in this old-time land of Mesopotamia, and if you post it to the enclosed address I shall be sure to get it safely. Wishing the *Chronicle* every success. *Pte. A. C. Davis.*

— Mechanist Sergeant-Major A. G. MOOR-



FIG. 107.—DISA VEITCHII: FLOWERS ROSEY-PURPLE. (See p. 271.)

sandstorms we get here are nuisances. It has not rained for the past five months, and now in September the ripe dates are being gathered by the Arabs along the Euphrates, who seem to be experts at this particular work. The mosquito has given us a rest for a while, but in its place a kind of sandfly has appeared, which is nearly, if not quite, as bad as the mosquito, and which

MAN, only son of Mr J. W. MOORMAN, late superintendent of Victoria Park, London, has had conferred upon him the Gold Good Service Medal of the Royal Serbian Army for his services with the British Mission doing duty with the Royal Serbian Army in connection with the war.

— The Croydon Horticultural Society's Flower Show, held in the Park Hill Recreation

Ground, on June 21, proved a financial success, and as a result the Committee has been able to forward a cheque for £142 10s. to the Mayor of Croydon's War Relief Funds.

THE AMERICAN APPLE CROP.—The United States Bureau of Crop Estimates places the Apple crop in America for 1916 at 66,169,000 barrels, and gives the value at \$2.30 per barrel on September 15, compared with \$1.79 on the corresponding date last year. Energetic methods are adopted by the growers to push the sale of their fruits. The North-Western Fruit Exchange, representing twenty-six growers' associations, with an output of 700,000 boxes, has

FIRST-CLASS LEEKS.—Mr. W. ROBINSON, Sunny Bank, Forton, Lancashire, sends us a photograph of a bunch of Leeks he has cultivated this season. The stems are as straight as gun-barrels and the blanched portion, as white as milk, measures 22 inches long, whilst the girth of the stem is 6 inches. They are certainly worthy of a Cultural Commendation.

ORCHID SALE.—After a considerable interval, caused more by the shortage of labour than by a scarcity of plants or buyers, a successful sale of Orchids, chiefly in bloom, was held at the Great Central Rooms of Messrs. PROTHEROE AND MORRIS on Friday, the 24th ult. The properties

CROPPING SEVENTY YEARS AGO.—It is admitted by most practical men that nothing is more conducive to success, whether in agriculture or horticulture, than a judicious rotation of crops. Setting aside the doctrine of excrementitious matter, which, I believe, understood to be in some respects untenable, it has sufficient foundation in the well-known facts that different plants require different proportions of food; and that, consequently, what is rejected by one will be appropriated by another. As for the circumstance that a given crop may be produced on the same plot for several years in succession, this, although perfectly true in itself, is not, as would at first sight appear, antagonistic to the above doctrine, inasmuch as such generally occurs with plants that are somewhat indifferent as to texture of soil, provided their favourite manure is afforded them. At this period, those who are desirous of attending to such principles, and thus laying the foundation for a good garden in the ensuing year, should closely review the routine of cropping for the past summer, and even cast their eye back on the preceding year. Various are the schemes or rotations practised by different gardeners, many of them being based on no better foundation than the convenience of the present hour; when, however, the kitchen garden is sufficiently extensive, and where much produce is required, the rotation of crops should be carefully studied. Calendrical limitation will not permit me to offer more than a few words of advice, which, however, will, as far as they go, be a tolerably safe guide. The great difficulty is to procure fresh ground for the Brassica tribes, so numerous are the kinds, as well as successions in cultivation. Broken up plantations of Strawberries, Raspberries, bush-fruit, with Celery ground, should at all times, as a leading principle, be set apart for some of the Brassica family. The ground from which Celery has been taken, especially in the Scotch or bed fashion, is also ready-made ground for new Asparagus beds. Potatoes prepare well for almost any crop. Deep or tap-rooted crops should be succeeded by shallow or fibrous rooted plants. Carrots and Onions, in rich kitchen gardens, will be found much safer crops if grown on high raised beds, without a particle of fresh manure. When the course of cropping has been decided on for the ensuing year, and duly entered with numbers in the garden book, my practice is to set up laths opposite to the space appropriated to each crop, with a number corresponding with the book, and the name of the crop on one side; and on the other the manure (if any), of what kind, where from, and the quantity, with the mode of cultivation, digging or trenching. This done, a labourer who can read the label, can set out or proceed with the work at any spare time. *Gardeners' Chronicle, December 5, 1846.*

LAND FOR FOOD CROPS.—In the House of Lords on Wednesday last Lord CRAWFORD, President of the Board of Agriculture, stated that the Government proposed to issue orders under the Defence of the Realm Act which will make the acquisition of land for the purpose of small allotments and market gardens more easy. The Board of Agriculture would take power, acting through local councils, to enter upon unoccupied land, including building land awaiting development. In many parts of the country hitherto unoccupied land was used for growing produce. Much of it was in the neighbourhood of towns where spare labour was available. In purely rural districts allotments were going out of cultivation because labour was not available. Selected portions of common land, which at present provided little more than indifferent grazing, would also be made available for food production. Crops of "astonishing value" were harvested every year from allotments, and though many new allotment holders would be inexperienced, he hoped they would receive assistance.

came from various owners, and a great show of flowers of the season was made by the fine forms of *Odontoglossum crispum*, hybrid *Odontoglossums*, hybrid *Cattleyas* and *Laelio-Cattleyas*, *Vanda coerulea* and other favourites. The old and much-prized *Oncidium flexuosum*, *Odontoglossum grande*, and hybrids of *Odontoglossum Edwardii* were specially attractive. The prices realised were moderate.

LEGACY TO A GARDENER.—By the terms of the will of the late Sir R. G. C. MOWBRAY, Warrens Wood, Mortimer, Berkshire, his gardener, Mr. JAMES BARFOOT, is to receive a sum of £100 as a legacy.



FIG. 109.—FLOWERS OF *DISA GRANDIFLORA*.

1. Flower stalk. 2. Leaf. 3. Flower segment cut away to show the column with the anther and pollen mass a: h. Base of lip. (See p. 271.)

appropriated a sum of 10 cents per box for the purpose of advertising. The methods to be adopted are given in *American Fruits*, which states that "full-page advertisements in colours will appear in magazines. The fruit will be temporarily displayed in its own natural colours. Much of the copy is based on the health appeal. The wholesomeness of Apples is insisted upon, and backed up with statements from authorities. The quality of the Apples is described. The reader is told about the sanitary conditions under which they are picked and packed. The magazine copy, as, in fact, all of the advertising, shows the trade-mark of the fruit."

THE DISAS OF THE CAPE.

A rough estimate shows that there are about eighty-five different sorts of Disas to be found growing in the neighbourhood of the Cape. Some of them, as *Schlechteriana*, a washed-out blue are so rare as only to be found in one locality; some, like the striking *ferruginea*, so common that they are sold in bunches at the street corners. In spite of their number and variety, only about half a dozen are popular in European gardens, while perhaps another dozen are occasionally grown. Quite seventeen species are unpopular sorts. Quite seventeen species are useless from the gardener's point of view. Some of the dingy species, however, have showy varieties, as the lovely blue form of *sagittalis* from historic Ladysmith, and the rosy form of *tenuis* from Houw Hoek. Another species best avoided is *cernua* (a robust plant only saved from dullness by the bright red of the hood), not on account of the dingy grey-brown remainder, but because of its very disagreeable odour. Some are interesting as botanical curiosities, like *conferta*, too compact in growth for beauty, yet having red petals and a yellow lip; *draconis*, like a dragon's head made of cream; and *Charpentieriana*, quite a freak, blue with a very long, grassy lip. Others, like *Schlechteriana*, are interesting by reason of their rarity. *Marlothii*, from marshy spots; *sanguinea*, a stone lover; *Forficaria*, dingy green with purplish edges; and the dull, yellowish-red *sabulosa*, which is confined to an area of not more than three acres; have also the charm of scarcity. Blue is a very rare colour in Orchids, yet many of the Cape Disas are blue. The shades and shapes vary exceedingly. *Stachyoides* is pale, pretty, and small; *lacera* has a bearded lip; *longicornu* (fig. 106) has only a single flower, quite large; *maculata*, too, has a single flower, but it is small; *macrostachya* (*reticulata*) has many dark-lipped flowers on a slight spike; and *cornuta*, the commonest kind around the suburbs of Cape Town near Table Mountain, has a blue hood and white lip. The mere fact that there is so much blue amongst these Disas ought to make them exceptionally valuable to the hybridist for crossing with other genera lacking in the colour, thus obtaining good bigeneric hybrids. Hybridists might also give some attention to the genus itself, as some species, such as *longifolia*, are handsome and distinct, but their dull colour renders them useless in our gardens. A little work has already been done with them in England. Kew has produced several hybrids; Messrs. Veitch's beautiful child of *grandiflora* (fig. 108) and *racemosa* (fig. 109), namely, *Veitchii* (fig. 107), which received a First-class Certificate years ago, is well known; and Mrs. Bischoffsheim, who received a Botanical Certificate for the blue *venusta*, raised a hybrid between this plant and *grandiflora*. The hybridist does not have long to wait for the result of his work, for the plants mature very quickly, *Veitchii* having flowered only twenty-one months from the sowing of the seed. This hybrid is distinctly advantageous, as it does not require the dry rest or ripening off so necessary to *grandiflora*, and lacks but little of its beauty. It has, indeed, a decided charm of its own, which proves the value of the hybridist's work. The best known of all this group is the said *grandiflora*, wonderful in scarlet, surely one of the most brilliant of all Orchids. It is much grown here, but many gardeners complain of great difficulty with it. Some declare that the secret of success is only to give it rain-water, but it is also important to remember that plenty of sunshine and fresh air (avoiding draughts) are absolutely essential. Though insects are no longer active in cross-fertilisation in its native haunts, it still spreads considerably by means of lateral growths, forming dense masses beside the streams of Table Mountain, W. *Herbert Cox.*

(To be concluded.)



FIG. 108.—DISA RACEMOSA : FLOWERS ROSY-CRIMSON. (See p 271.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

GARRYA ELLIPTICA (see p. 254).—Generally this evergreen climber is employed as a wall plant, and it is seldom seen growing as a bush in the shrubbery or on the lawn. When planted in an open, sunny site on grass, with protection from north and east winds during the winter, and allowed to develop freely, when covered with its long catkins and dense green foliage, no greater ornament could be imagined. *E. M.*

LATE PEAS.—I have found the best varieties to be *Late Queen*, *Michaelmas*, *Mr. Gladstone* and *Autocrat*. I sowed seeds of these in trenches on the top of a 4-inch layer of farmyard cow manure. I used as an experiment in one row clippings of lawn grass, which were well pressed down, and sowed the seeds on the top of this material. The Peas did exceedingly well, so much so that I shall use grass clippings more extensively another season. Our soil is of a light, sandy nature, over Bargate stone, which varies in depth from 4 to 7 feet. The plants were watered copiously in dry weather, and there were only traces of mildew, as the haulm was sprayed with sulphide of potassium. *Autocrat* is one of the best all-round Peas for all soils, and succeeds remarkably well either as a mid-season or late variety. *W. A. Cook, Godolming, Surrey.*

SOCIETIES FOR INCREASING THE PRODUCTION OF FOOD.—In asking you to give publicity to a further appeal for the full and economic use during the war of all land capable of growing vegetable crops, the Royal Horticultural Society has in mind the changed conditions which have arisen since our previous appeal, issued on the day of the outbreak of war. Circumstances have abundantly justified that appeal. The increase in home-grown food supplies, which was in large measure the outcome of the publication of our letter in your columns, has contributed notably to the health and well-being of the nation. Now, with increasing scarcity of labour and of transport, it is both more difficult and more imperative to increase the production of home-grown food. In making this appeal we are mindful of the fact that, after the war services are provided for, the claims of agriculture must have priority over all others, but at the same time we wish to impress on all people that it is possible to raise large quantities of food crops by the steady and strenuous devotion of such hours of leisure as even in war-time are enjoyed by many thousands of people in this country. The crops produced by holders of allotments prove this. We urge that it is the duty of everyone having the use of land or strength to devote their spare time to the work of increasing food production. In order, however, to achieve adequate results, organisation and co-operation as well as willingness and public spirit are necessary. We are of opinion that this organisation and co-operation should take the following form. Local food production societies, some of which exist already and are doing excellent work, should be established in all parts of the country. The county horticultural instructors, aided by other experts in gardening, should advise the societies in each county as to the suitability of land. Wherever possible one or more gardeners should be made overseers of the work of the society. Each society should arrange for the local disposal of produce either through tradesmen or by forming depots. Owners of private gardens could greatly assist in the increased production of food if they were to agree both to pool the services of such gardeners as still remain in their employment, and to encourage them to take part in the organisation and oversight of the work of local societies. We have shown in our pamphlet, "The Garden in War Time," how the routine work of the garden may be curtailed, and if all owners of private gardens would restrict garden work in this manner much skill and energy would be liberated for food production. The R.H.S. has evidence that the provision of seeds which it made to the base camps and hospital grounds in Northern France has resulted in a considerable and greatly valued supply of fresh food to our convalescent soldiers. Garden work that has been done by convalescent soldiers in France can be done by hale civilian men and women in Britain. Surely the

small amount of co-operation and organisation necessary to produce this beneficent result will be possible of attainment! For its part, the R.H.S. is already taking steps to urge on the Local Government Board the need for exercising, and if necessary taking, powers to enable municipalities and other public bodies to acquire for tillage purposes the use of vacant land. The R.H.S. is, moreover, prepared to assist by all means in its power in establishing local committees and in advising gratuitously on the proper cultivation and manuring of land used for this purpose, on the choice of crops for summer and autumn cultivation, and on the amount and kind of seed which should be sown. We appeal, therefore, to all who are willing to lend their aid—both private individuals as well as municipal bodies. We ask them to assist us by stimulating local interest, summoning meetings, establishing societies for the increased production of food, and by keeping us informed of the steps they are taking and of the assistance they require. The spade is one of the most powerful instruments of victory not only at the front but also at home. *Grinjell, F.M.; Frederick Keeble, Arthur W. Sutton, W. Wilks.*

ROSE LADY ASHTOWN.—I am surprised to see the *Rose Lady Ashtown* included in the list of mildew-resistant varieties in *The Rose Garden* pamphlet of the R.H.S. It is common knowledge that this otherwise excellent Rose is especially subject to mildew, and as the pamphlet is designed "for the assistance of amateurs and cottage gardeners," it seems a pity that a little more care was not bestowed on its preparation, none the less so as it bears the imprimatur of so authoritative a body as the R.H.S. A minor blemish is that the word *Wichuriana* is rendered "Wichuriana" wherever the term is used in the pamphlet. *F. R. H. S.*

SOCIETIES.

ROYAL HORTICULTURAL
Scientific Committee.

NOVEMBER 21.—*Present:* Mr. E. A. Bowles, M.A. (in the chair), Dr. Voelcker, Messrs. Odell, Hales, Allard, Worsdell, and Chittenden (hon. sec.).

Ptelea 5-lobata.—Mr. W. C. Worsdell showed shoots of *Ptelea trifoliata* seedlings with five leaflets. The tree itself bears trifoliate leaflets, but suckers at times have five leaflets, as in the case of the shoots shown, so that this character appears to be confined to the juvenile stage. No specimens in the Herbarium at Kew or the British Museum show five leaflets.

Damage by stoke-hole fumes, etc.—Dr. Voelcker drew attention to specimens he had received showing damage to various plants, particularly in the occurrence of brown spots on the leaf-tissue by fumes from coke fires and ovens.

Damage to Apple by Capsid Bugs.—Mr. E. M. Holmes sent an Apple from a Wisbech garden having warts russeted on the outside over its surface, each of them with a brown stain about the middle. These, which seem to have become increasingly prevalent during the past few years, are the result of attacks by Capsid bugs upon the growing fruits.

Passiflora Failing to Flower.—Shoots of a Passion Flower which failed to produce flowers were received from Ashford. Neither the parent plant nor offshoots from it planted in different spots had flowered, and inspection of the shoots showed that they bore the leaves characteristic of immature shoots, not those characteristic of flowering shoots. It appears that the offshoots from *Passifloras* almost always take a considerable time to arrive at the flowering condition.

Trial of Savoys.

The following awards have been made to Savoy Cabbages by the Council of the Royal Horticultural Society after trial at Wisley:—

AWARDS OF MERIT.—*Norwegian*, sent by Messrs. BARR, Covent Garden.

No. 31, *Perfection*, raised, introduced and sent by Messrs. SUTTON AND SONS, Reading.

HIGHLY COMMENDED.—*Sugarloaf*, raised, introduced and sent by Messrs. SUTTON AND SONS, Reading.

COMMENDED.—*Drumhead Covent Garden Late*, raised, introduced and sent by Messrs. WATKINS AND SIMPSON, London.

No. 29, *Perfection*, sent by Messrs. HURST, London.

Selected Drumhead, introduced and sent by Messrs. SUTTON AND SONS, Reading. Awarded as an early variety good for market.

Tom Thumb, re-selected, sent and introduced by Messrs. CARTER AND CO., Raynes Park, S.W.

The award is given to a strain, and where the trial gives evidence of the existence of several strains, as in the case of *Perfection* (see Nos. 29 and 31 above), the award applies only to the strain indicated.

MANCHESTER AND NORTH OF ENGLAND
ORCHID.

NOVEMBER 16.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hammer, F. Houghton, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Mars (parentage unknown).—The flower is of good form and shape, 4 inches across, and coloured deep claret with white margin; *O. crispum xanthotes Rayon a Ur*, a pure white variety marked with spots of primrose yellow; the lip is almost wholly yellow. Both from Dr. CRAVEN MOORE.

Cypripedium Actacus ashlandense No. 3 (*Lord Ossulston x Lecanum Clinkoberryanum*), a fine flower with large, white dorsal sepal, faintly spotted with green at the base. From P. SMITH, Esq.

AWARDS OF MERIT.

Cattleya Alcimeda var. Snowstorm (*labiata alba x Gaskelliana alba*); *Cattleya Moira var. rubra* (*jabia x Muntini*); *Brasso-Cattleya Nestor var. Brilliant* (*B.C. Maroniae x C. labiata*), and *Odontioda Lambraunum var. Torchlight*, all from Dr. ASHWORTH, Esq.

Cypripedium Britannia and *Sophro-Cattleya Faboris* (*C. jabia x S.-C. Doris*), both from P. SMITH, Esq.

Cypripedium Conyngham (*Alcibiades x Mrs. Mostyn*), from Dr. CRAVEN MOORE.

Cypripedium Traceyanum Carter Place var. (Lecanum Clinkoberryanum x aureum), from T. WORSLEY, Esq.

Laelio-Cattleya Carmencita Houghton's var. (L.-C. luminosa x C. aurea), from F. HOUGHTON, Esq.

CULTURAL CERTIFICATE.

To Mr. WOOD, for *Cypripedium Fairricanum*.

SHEFFIELD CHRYSANTHEMUM.

NOVEMBER 17, 18.—The annual exhibition of the Sheffield Chrysanthemum Society was held in the Lower Albert Hall, Sheffield, on these dates.

Local growers showed blooms in the members' classes which reached a good average standard. A vase of three incurved varieties, shown by Mr. COLIN FLETCHER, was remarkably good, and this exhibitor had exceptionally fine blooms of Japanese varieties. Six specimen incurveds shown by Mr. JAMES HARRISON constituted a specially fine exhibit. In the classes for singles Mr. T. M. PETCH had a splendid exhibit of six vases, which was awarded the 1st prize.

A collection of 100 Orchids was staged by Mr. EDMUND HOWARTH, of Roewood Nurseries, Pitsmoor.

The prize-winners in the members' classes were as follows:—

Two vases Japanese Chrysanthemums: 1st, Mr. COLIN FLETCHER, Stannington; 2nd, Mr. JAMES HARRISON, Walkley. Two vases incurved: 1st, Mr. COLIN FLETCHER; 2nd, Mr. JAMES HARRISON. Six Japanese varieties: 1st, Mr. COLIN FLETCHER; 2nd, Mr. JAMES HARRISON. Six incurved varieties: 1st, Mr. JAMES HARRISON. Six vases of single flowering Chrysanthemums: 1st, Mr. T. M. PETCH.

Obituary.

HERBERT ERNEST MOLYNEUX.—Many besides his personal friends will read with regret of the sudden death of Mr. H. E. Molyneux. As treasurer of the National Rose Society for many years, and by his writings in the gardening press he had become known to a wide circle of Rosarians. Born in the year 1868, he was only 48 at the time of his death. Mr. Molyneux resided for many years at Purley, where he was secretary of the Purley Rose Society, which he managed with much success. He resigned the position of treasurer of the National Rose Society in 1908, owing to increasing private business. Of the six treasurers the Society has had during its existence, it would be difficult to name one who was more courteous and enthusiastic in promoting the interests of the Society. Deceased was well known as a judge of Roses, not only at the Metropolitan, but at many local shows, where his services will be much missed. After the passing of the land legislation of 1909-10 he was appointed one of the Government valuers, and removed from Purley, first to Rochester and afterwards to Southampton, and at both places, notwithstanding his duties, which had become somewhat onerous, he found time to grow a number of Roses, especially the new varieties which particularly interested him. In 1910, with the assistance of the Rev. F. Page Roberts, he edited the 4th Edition of Foster Meliars' *Book of the Rose*. The descriptive portions, entitled "Manners and Customs," were rather drastically treated, and descriptions of a large number of new Roses added. For many years before he left the London district he had been a most useful member of the Publications Committee of the N.R.S. His knowledge of garden Roses was wide, and his special interest in the decorative sections was of the greatest service to the Society. His tastes were refined, and even in some respects fastidious, and he possessed no inconsiderable knowledge of the best English literature. Though Roses, and particularly those of a decorative character, held the first place in his affections, he was essentially a lover of flowers, and interested himself in many other families of plants. He did a good deal of work among Carnations, and raised many seedlings, some of which, e.g., Peggy Molyneux and Brantwood Scarlet, became generally known. He had a considerable knowledge of rockery Campanulas and Dianthus, and grew many of the new varieties of Daffodils. Like many Daffodil lovers, he was something of a purist for form in this flower, and was somewhat impatient of the double varieties, or those of brilliant colour which failed to come up to his standard of beauty in form. Many of us who knew him well were looking forward to a time when his business might prove less burdensome, and we might see more of him in the flower world in which he delighted. This was not to be; he has left us in the full tide of a busy life, and the world is the poorer because he has gone. The funeral took place at Southampton Cemetery, The Southampton Royal Horticultural Society was represented by Messrs. C. S. Fuidge (secretary), B. Ladhams, E. Wills, F. Chandler, G. Greenslade, and G. Verdon. Floral tributes were sent by the Council of the Southampton Horticultural Society, the Council of the National Rose Society, the Committee of the St. Denys and District Horticultural Association, and the Southampton and District Gardeners' Mutual Improvement Society.

WILLIAM ELLIS BUNTING.—We learn with deep regret of the death, on the 21st ult., in the 79th year of his age, of Mr. William Ellis Bunting, The Nurseries, Lexden Road, Colchester. Until recent years Mr. Bunting regularly attended the autumn sales in London, and his genial presence will be well remembered by the older generation of the seed trade. The deceased specialised in seed growing, and his strains of vegetable and flower seeds were famous. The funeral took place on the 25th

ult. at Colchester Cemetery, amid widespread evidences of sorrow. Deceased leaves two sons—Mr. W. W. Bunting, the well-known Lily importer and grower, of Colchester, and Mr. G. A. Bunting, of the firm of Messrs. G. A. Bunting and Co., wholesale seed and bulb merchants, London.

THE APIARY.

By CHLORIS.

ISLE OF WIGHT DISEASE.—Some time ago I was shown a copy of a letter from the Board of Agriculture in which it was asserted that it has been definitely ascertained that the cause of Isle of Wight disease is the presence of a highly virulent strain of Protozoan *Nosema Apis*. It is also believed that many of the ailments from which bees suffer are merely different forms of the same disease. Whilst a mild attack may take the form of 'spring dwindling,' a serious outbreak can scarcely be distinguished, under certain conditions, from fatal dysentery, caused by yeasts in the fermenting pollen, or from another form of dysentery (known as amoebiasis), caused by an animal parasite known as an amoeba. True Isle of Wight disease can only be diagnosed microscopically, and may exist in bees which show no microscopic symptoms of disease at all. Five stages or degrees of seriousness of the disease have been described, the first two of which cannot be detected by the ordinary observer, and the last two of which are incurable. The third stage, which usually attracts the attention of careful bee-keepers, offers little ground for hope, but cases have occurred in which a cure has been effected. For some years past Drs. Fantham and Porter, who first investigated and described the causal agent of the Isle of Wight disease, have experimented with various specifics in the hope of finding a cure. A very large number of substances have been tested and rejected for one reason or another, but at last they have found two drugs which appear to have the power of destroying the parasite in the early stages of the attack without rendering the honey poisonous or unpalatable to man. The drugs are given in syrup or candy to bees at regular intervals, and for obvious reasons can only be effective at certain seasons of the year. Experiments with these drugs, applied under proper supervision, have given excellent results, and, in the opinion of the Board, the time has now come for an experiment on a larger scale to be made, with the object of trying to eradicate the disease in a certain area. With this object in view, it is proposed to take a well-defined area, which can be fully controlled, and containing not more than 100 colonies of bees. Each hive is to be numbered, and early in the spring a small number of bees, about 25, from each hive is to be sent to the Board's expert advisers for microscopical determination as to the presence of *Nosema* and the degree of intensity of the disease. The Board's advisers will then supply a quantity of the two drugs with directions for use in each case, except where the disease is so bad that destruction is the only practicable course. The drugs are to be administered by an agent appointed locally, who will undertake to make periodic reports as to the condition of the bees, and will send further samples for microscopical examination as and when required. It is an absolutely necessary condition of the experiment that (1) no new bees are introduced into the district, and that invading or stray swarms are destroyed and not kept; (2) all the bees are included in the experiment; (3) that no other treatment of any kind whatsoever, whether for the Isle of Wight disease, foul brood, or anything else shall be practised; and (4) requeening must be carried out if directed, the history of the new queen being known. The experiment will last a full year at least, and may extend to the following summer. If the success of these drugs is established, it is anticipated that all bee-keepers will find it profitable to feed their bees in this way as a regular practice, irrespective of the presence of the disease, since the drugs not only act as prophylactics against Isle of Wight disease, but are considered innocuous to healthy bees.

MARKETS.

COVENT GARDEN, November 29.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Arums, per doz.	5	0-7	Lilium lancifolium		
Azalea, white,			rubrum		
per doz. bun.	6	0-7	short ..	1	0-16
Bouvardia, white,			Mimosa (Acacia)		
per doz. bun.	6	0-8	per doz. bun.	12	0-15
Camellias, white			Narcissus, paper		
per doz. blms.	2	6-3	white, per		
Carnations, per			doz. bun. ..	2	6-3
doz. blooms,			Orchids, per doz.:		
best American			— Cattleya ..	10	0-12
varieties ..	2	6-3	— Cattleya Har-		
— Carola (Crim-			risonii ..	4	0-5
son), ex. large	3	0-4	— Cypripedium	2	6-3
— Malmaison,			— Od on toglos-		
per dozen			sarium crispum	3	0-4
blooms ..	8	0-12	Pelargonium, per		
Chrysanthemum,			doz. bunches,		
white, per			doublescarlet	8	0-
doz. blooms ..	1	6-3	Poinsettias, per		
— pink, per doz.			doz. blooms ..	10	0-12
blooms ..	1	6-2	Roman Hyacinth		
— yellow, per			per doz. bun.	36	0-42
doz. blooms ..	1	6-3	Roses: per dozen		
— bronze, per			blooms—		
doz. blooms ..	1	6-2	— Liberty ..	3	0-4
— white, per			— Madame A.		
doz. bunches	7	0-10	Chatenay ..	3	0-5
— coloured, per			— Melody ..	3	0-4
doz. bunches	6	0-10	— Niphetos ..	2	0-2
— single dis-			— Prince de Bul-		
budded blooms,			garian ..	2	6-3
per doz. ..	1	3-2	— Richmond ..	3	0-4
— sprays, per			— Sunburst ..	3	0-5
doz. bun.	8	0-10	— White Craw-		
Gardenia, per			ford ..	2	6-3
box of 12 and			Tuberous, per		
18 blooms ..	4	0-5	packet, 24		
Heather, white,			blooms ..	1	6-2
per doz. bun.	12	0-	Violets, single,		
Lilium longi-			Princess of		
florum, long	4	0-4	Wales, ..	3	0-4
— short ..	4	6-	— ordinary	2	0-2
— lancifolium			— double, Marie		
album, long ..	2	6-3	Louise ..	3	0-5
— — short ..	2	6-3	— Parma ..		
— lancifolium			French, per		
rubrum, per			bunch ..	3	6-4
doz. long ..	2	0-2			

Cut Foliage, &c.: Average Wholesale Prices

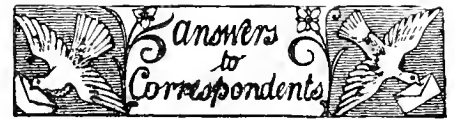
	s.d.	s.d.		s.d.	s.d.
Adiantum (Mai-			Fern, French, per		
denair Fern)			doz. bunches	0	6-8
best, per doz.			— common ..	3	0-4
bunches ..	6	0-7	Honesty, per doz.		
Asparagus plu-			bun. ..	12	0-15
mosus, long			Ivy leaves, per		
trails, per			doz. bun. ..	2	0-2
half-dozen ..	1	6-2	Moss, gross		
— medium			bunches ..	6	0-7
doz. bunches	12	0-18	Myrtle, doz. bun.		
— Sprenger ..	8	0-12	England,		
Autumn foliage			small-leaved	6	0-
in variety, per			— French, per		
doz. bun. ..	6	0-8	doz. bunches	1	0-1
Bronze foliage ..	3	0-6	Pernetias in		
Carnation foliage,			variety, per		
doz. bunches	4	0-5	doz. bun. ..	8	0-9
Croton foliage,			Smilax, per bun.		
doz. bunches	12	0-15	of 6 trails ..	1	3-1
Cycas leaves, per					
doz. ..	5	0-12			

REMARKS.—There was a diminished supply of Chrysanthemums this (Wednesday) morning, and prices for all grades of the flower are advancing; bunches of spray white flowers have advanced the most. Carnations and Roses are still making high prices; the high value of Carnations is exceptional for November. Richardias (Arums) are becoming dearer. There is little change in the prices for Liliums, although it is anticipated that they will rise still higher. A few bunches of Lily-of-the-Valley are realising 4s. to 5s. per bunch, which is probably a record price; spikes of medium quality are selling freely at the prices quoted above. Large consignments of paper-white Narcissus are arriving from France, but there is no great demand for these flowers, owing to a plentiful supply of Chrysanthemums. A few boxes of cut white Azaleas are coming to hand.

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Aralia Sieboldii,			Cacti, various,		
dozen ..	5	0-6	per tray of 15's	4	0-
Asparagus plu-			— tray of 12's ..	5	0-
mosus nanus,			Chrysanthemum,		
per doz. ..	10	0-12	per doz. ..	8	0-12
— Sprenger ..	8	0-10	Cocos Weddelli-		
Aspidistra, per			ana, 48's. per		
doz. green ..	24	0-36	doz. ..	18	0-30
Begonia, Gloire			— 60's per doz.	8	0-10
de Lorraine,			Croton, per doz.	18	0-30
per doz. 48's	12	0-15			

DEBATING SOCIETIES.



	s. d. s. d.		s. d. s. d.
Erica gracilis	10 0-12 0	Kentia-con.	
- thumb pots.		- larger, per	
- per doz.	4 0-4 6	doz.	18 0-36 0
- nivalis	12 0-15 0	- Forsteriana.	
- thumb pots.		60's, per doz.	5 0-8 0
- per doz.	4 0-5 0	Latania borbon-	
- hyemalis	9 0-10 0	ica, per doz.	12 0-30 0
- hyemalis in		Lilium longi-	
thumbs	4 0-5 0	Borum, per	
Ferns in thumbs,		doz.	30 0 36 0
per 100	10 0-15 0	- lancifolium	
- per 100, in		rubrum	24 0-30 0
small and		- album	24 0 30 0
large 60's	11 0-24 0	Marguerites, in	
- in 48's, per doz.	6 0-7 0	48's, per doz.	10 0-12 0
- in 32's, per		Pandanus Veitchii,	
doz.	12 0-18 0	per doz.	36 0-48 0
- choicer sorts,		Phoenix rupi-	
per doz. 48's.	8 0-12 0	cola, each	12 6-21 0
Geonoma gracilis.		Roman Hyacinths	
60's, per doz.	6 0-8 0	per box 24's.	8 0-10 0
- larger, each.	2 6-7 6	Solanum, 48's per	
Kentia Belmore-		doz.	9 0-10 0
ana, per doz.	4 0-8 0	Spiraea, per doz.	8 0-10 0

REMARKS.—Business is more brisk in this department. Ericas, Solanums, white Spiraeas and pink Begonias are the main attractions. A few boxes of Roman Hyacinths, 24 bulbs in a box, sold freely this morning at 8s. and 9s. per box.

Vegetables: Average Wholesale Prices.		s. d. s. d.	
Artichokes, Globe,	per doz.	6 0	-
- Jerusalem,	per 1/2 bus.	2 6	-
Beetroot, per bus.	4 0	-	-
Beans, Guernsey,	per lb.	1 2-1 4	
Brussel Sprouts,	per bus.	5 0	-
Cabbages, per	tally	5 0-8 0	
- Red, per doz.	2 0-3 0		
Cauliflowers, per	tally	10 0-15 0	
Celery, per doz.	2 0-3 0		
Celery, per doz.	6 0-24 0		
Cucumbers, per	doz.	6 0-7 0	
Endive, per doz.	2 0	-	-
Greens, per bag.	2 0	-	-
Garlic, per cwt.	35 0-38 0		
Herbs, per doz.	bun.	2 0-6 0	
Horseradish, per	bundle	3 0-4 0	
Leeks, per doz.	2 0-3 0		
Lettuce, Cabbage	and Cos, per	doz.	1 6-6 0

Fruit: Average Wholesale Prices.		s. d. s. d.	
Almonds, per	cwt.	70 0	75 0
Apples—			
- Californian	New towns,	per case	12 0-12 6
- English	Cooking, per	bus.	9 0-11 0
- Dessert, per	4 bus.	8 0-14 0	
- Nova Scotian	barrels	30 0-40 0	
- Oregon, per	case	15 0-16 0	
Asparagus, Paris	Green, per bun-	2 3-3 0	
Bananas, bunch—			
- Medium	.. 8 6-11 0		
- X-medium	.. 10 6-13 0		
- Extra	.. 12 6-15 0		
- Double X	.. 14 6-17 6		
- Red, per ton	£25 0	-	-
- Jamaica, per	ton	£18	-
Chestnuts, per	bag	18 0-30 0	
Coru Cobs, per	doz.	2 6	-
Cranberries, per	case	19 0-21 0	
Dates, per doz.	boxes	7 0-7 3	
Grapes: English,	Almeria, per	brl.	15 0-18 0

REMARKS.—There are good supplies of both home-grown and imported Apples, and their prices are fairly well maintained. Californian Pears are moderately plentiful. The market is well supplied with Grapes. Kent Cobnuts are a very limited supply. The consignments of English Tomatoes are decreasing, but Tenebriffe Tomatoes are fairly numerous. Guernsey Beans are scarce and in demand. New Potatoes are arriving from Guernsey. Mushrooms continue scarce, but there is a fair supply of Cucumbers for the time of year. Forced Seakale is obtainable. The commoner vegetables, including roots, are plentiful. E. H. R. Covent Garden Market, November 29, 1916.

Potatoes.		s. d. s. d.	
Bedford—			
King Edward	.. 10 0-11 0	Lincoln con.	.. 10 0-11 0
Arran Chief	.. 10 6-11 6	Evergood	.. 10 0-11 0
Lincoln—			
Arran Chief	.. 10 0-11 6	King Edward	.. 11 0-12 0
REMARKS.—Trade is very steady, and prices remain firm. Consignments from growers are quite equal to the demand. E. J. Newborn, Covent Garden and St. Pancras, November 29, 1916.		Queen	.. 10 6-11 0

WARGRAVE AND DISTRICT GARDENERS'.—On Wednesday, the 22nd ult., the hon. secretary, Mr. H. Coleby, gave a lecture on "Some Insect Plant Pests." Mr. Coleby's remarks were illustrated by a number of coloured diagrams. The life history of each pest was given, with methods for its eradication. The following pests were described: The Lackey Moth, the Ermine Moth, Gouseberry and Currant Saw Fly, the Asparagus Beetle, the Black Currant Mite, the Raspberry Moth, Millipedes and Centipedes, and Scale Insects.

DUMFRIES AND DISTRICT HORTICULTURAL.—The annual meeting of this society was held in the Wesley Hall, Dumfries, on the 25th ult. A brief statement of the work of the society during the year was made by the retiring president, Provost S. Arnot. Mr. Gray submitted the accounts of the society, which showed the satisfactory balance of upwards of £56. The committee's annual report and balance-sheet were adopted. On the motion of Mr. A. W. MaAlister, Provost Arnot was unanimously reappointed president. The vice-presidents were re-elected, and it was remitted to the president and vice-presidents to secure an hon. secretary and treasurer in the place of Mr. Edgar, who has joined the Colours. The retiring members of committee were reappointed, and Mr. J. McLeod, Dalawoodie Gardens, was elected to a vacancy caused by the retirement of Mr. J. B. Crichon, who has removed to Hertfordshire. Mr. F. W. Michie, H.M. Inspector of Schools, who is organising the work of the Food Production Committee in Dumfriesshire and Galloway, addressed the meeting, inviting the co-operation of the society in increasing the production of food in the gardens of the three counties. The meeting unanimously agreed to assist the scheme, and it was remitted to the committee to consider in what way this could be done. The question of holding a show or sale was left to the discretion of the committee.

READING AND DISTRICT GARDENERS'.—The fortnightly meeting of the Reading and District Gardeners' Association was held on Monday, the 27th ult., under the chairmanship of Mr. Alderman F. B. Parfitt. There was a large attendance. The subject of the evening was "Stone and Other Small Fruits Suitable for 'Bottling'" and it was introduced by Mr. F. W. Costin, University College Fruit Farm, Sharnfield. The lecturer dealt with the kinds and varieties which were, in his opinion, the most suitable for the purpose, and they comprised Plums, Damsons, Cherries, Gooseberries, Raspberries, and Loganberries. Much valuable advice was given as to preventive measures against insect pests and diseases. The exhibits were exceedingly good. In the competition for three dishes of vegetables, three distinct kinds (Potatoes not admissible), open to all excepting prize-winners in either of the previous vegetable competitions, the awards were as follows:—1st, Mr. D. Turner, The Gardens, Coley Park; 2nd, Mr. H. C. Loader, The Gardens, Erlegh Park; 3rd, Mr. E. J. Dore. Mr. H. C. Loader exhibited blooms of single and decorative Chrysanthemums, and Mr. H. Wilson, The Gardens, Wysex Hall, showed three vases of single Chrysanthemums.

GARDENING APPOINTMENTS.

Mr. F. L. Thurston, for the past 8 years Gardener and Steward to the late Capt. H. M. LAMBERT, and previously for 3 years to the late E. T. LAMBERT, Esq., Tatham Court, Battle, as Gardener and Steward to H. W. REED, Esq., Felbridge Place, East Grinstead.

Mr. Herbert Hall, for nearly 13 years Gardener and Instructor in Horticulture at St. Benet's, Caversham, Reading, as Gardener to the Countess of WILTON, Elkington Hall, Louth, Lincolnshire.

Mr. D. F. Debnam, late Gardener to C. B. TRENS, Esq., Snelmore House, Newbury, as Gardener to C. FETHERSTONEBAUGH, Esq., Kingsworthy House, near Winchester.

Mr. G. Benford, late Gardener to A. HOOD, Esq., Strathallyn, Rossett, North Wales, as Gardener to the Hon. Mrs. TALBOT, Hartham Park, Corsham, for the duration of the war.

Mr. J. Preater, for 3 1/2 years Gardener and Balliff to H. H. BAGNALL, Esq., Avishays, near Chard, Somerset, as Gardener and Steward to WILSON NOBLE, Esq., Park Place, Henley-on-Thames, Berkshire.

Mr. J. Arkell, for the past 18 months at Woodborough Gardens, near Bath, and previously for 13 years Gardener at The Boynes, Upton-on-Severn, Worcestershire, as Gardener to Lt.-Col. BOURNE, Cowarne Court, near Ledbury, Herefordshire.

CATALOGUES RECEIVED.

- A. F. UPSTONE, 35, Church Street, Rotherham, Yorkshire.—Seeds.
- H. J. JONES, LTD., Ryecroft, Hither Green, Lewisham.—Chrysanthemums, Michaelmas Daisies, Phlox decussata, Zonal-leaved Pelargoniums, and Puchsias.

* * * NEW POSTAL RATES.—Contributors and correspondents are reminded that under the new postal rates, letters bearing a penny stamp must not weigh more than one ounce. The postal charge for letters exceeding one ounce, but not exceeding two ounces, is twopence, and thereafter at the rate of 1/4 every two ounces.

APPLE TREES INFESTED WITH AMERICAN BLIGHT: A Reader. It is almost impossible to get rid of American blight by spraying. On young trees the pest can be extirpated by applying methylated spirit with a paint brush repeatedly, but on old trees the insects are more or less protected by scale of bark, moss or lichen. Good may be done by spraying when the trees are dormant with 20 lb. caustic soda to 100 gallons of water, thoroughly drenching the branches. The spraying should be done two or three times at weekly intervals, because the eggs are not killed by the spray fluid. After the trees are in leaf drenching with any aphid wash will be useful. A caustic wash cannot then be used.

BEGONIA LEAVES UNHEALTHY: J. N. W. The decay in the leaves of your Begonia plants is due to an excess of atmospheric moisture, and is not caused, as you suggest, by a fungus disease. Ventilate the house freely, be sparing with water at the roots, and maintain a drier atmosphere.

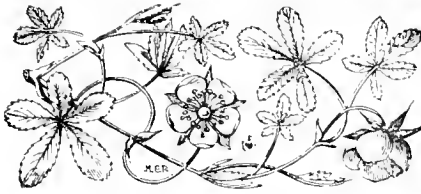
CHRYSANTHEMUMS: Large Grower. The following six varieties of Japanese Chrysanthemums will be suitable for your purpose:—Mrs. E. A. Tickle (pink), William Turner (white), Francis Jolliffe (yellow, rose stripe), Mrs. J. Gibson (pink), Mrs. R. C. Pulling (yellow), Bob Pulling (yellow). If a crimson variety is desired choose Master James, and if you require more white sorts, select White Queen and Mrs. Howard Kinsey. You do not mention the particular date when you desire to have the decorative varieties in bloom. The following list is a selection of mid-season to late sorts:—Mrs. H. W. Thorpe (white), Mrs. J. W. Streeter (primrose), Heston White, Ivy Gay (pink), Miss A. Brooker (chestnut), December Gold (rich yellow). If October varieties are desired, the different varieties of Caprice du Printemps are excellent in every respect, and very dwarf-growing.

NAMES OF PLANTS: C. B. 1, Cupressus Lawsoniana; 2, Juniperus recurva; 3, Thuja orientalis; 4, Juniperus chinensis; 5, Thuja plicata; 6, Veronica Traversii; 7, Probably Origanum vulgare, specimen insufficient for correct determination.—Kerry, 1, Cryptomeria japonica var. elegans; 2, Cephalotaxus pedunculata; 3, Abies nordmanniana; 4, Pinus densiflora; 5, Cupressus Lawsoniana; 6, Rubia tinctorum.—G. Cooper, 1, Veronica tobarcomensis; 2, V. speciosa var.—Scotty, Cassia corymbosa.—Ignoramus, 1, Cotoneaster salicifolia var. rugosa; 2, Pyracantha angustifolia; 3, Rosa pisocarpa; 4, Cotoneaster horizontalis; 5, C. microphylla; 6 and 9, Berberis Gagnepainii; 7, Ruscus aculeatus; 10, Cotoneaster thymifolia; 11, Berberis Hookeri var. viridis; 12, Caryopteris Mastacanthus; 8, 13 and 14, Too scrappy to identify, send in flower or fruit.—J. M. Ononis rotundifolia.

NAMES OF FRUITS: R. K. Apple Radford Beauty.—Miss A. W. Pears: 1, Glou Morceau; 2, Beurré Diel.—W. B. Apple Pile's Russet.—W. D. S. Apple Braddick's Nonpareil.—Primar, Apple Claygate Pearmain.—G. M. Apple Wadhurst Pippin.—C. H. H. Apple Paradise.—W. P. L. and S. Apples: 1, D'Arcy Spice; 2, Flower of Herts.

ONION FOR A LARGE PLANTING: J. H. Cranston's Excelsior is a good all-round Onion. It gives good bulbs that keep well. James' Keeping is also a good variety; the bulbs are smaller than those of the former variety, and they keep rather longer.

Communications Received.—W. Taylor—W. H. D.—J. F. McL.—H. J. W.—White Rose—F. J. H.—E. S. R. T.—R. H. Norwich—F. B. T. Ballarat—W. B. R. Waltham Cross—S. L.—F. W. M.—J. Udale—T. H.—T. R. P.



THE
Gardeners' Chronicle

No. 1563.—SATURDAY, DECEMBER 9, 1916.

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APHIDES AND THEIR EGGS.

FOR many years past I have taken a keen interest in matters relating to economic entomology. In the latter part of last year that able correspondent, *Southern Grower*, suggested that research was needed in relation to aphides and their eggs, as there seemed to be much uncertainty as to whether aphid infestation arises from eggs laid on the trees, especially in the case of Apples and Plums. There was no doubt in my own mind, but in order to prove the matter I determined to extend my search to a wider area, as my previous observations had been mainly confined to the gardens under my charge and their surroundings. During the months of February and March I visited eight of the principal gardens and fruit orchards within a radius of five miles. They included the gardens of the Earl of Plymouth at Hewell Grange, those at Studley College, and the large fruit farm of Messrs. Dixon, Tardebigge. In each case I found plenty of eggs on Apples and Plums—most, of course, on the Apple. The eggs in every instance were shown to those in charge of the trees, who are readers of the *Chronicle*, and they would confirm my observations. The gardens here are surrounded by woods and coppice, where many kinds of forest trees and underwood are grown. I have always considered these ideal conditions for research, as most of the host plants are to be found within an easy distance. I found the eggs of aphides, and in most cases in goodly numbers, on the following host plants:—the Apple, Plum, Damson, Cherry (wild and cultivated), Crab (wild and cultivated), Blackberry (wild), Haw-



FIG. 109.—LARVA OF THE BLACKBERRY APHIS, HATCHED ABOUT 30 HOURS, AND EGGS. Magn. 20.

thorn, Hazel, Birch, Lime, Spanish Chestnut, and Euonymus.

Although I examined a great many more plants, I was not successful in finding eggs



FIG. 110.—APPLE LEAF-CURLING APHIS: WINGED FEMALE AND TWO OVIPAROUS FEMALES. Magn. 8.

upon them. I have followed each species of aphid from the egg to the perfect insect, and in many cases to the second and third



FIG. 111.—APPLE LEAF-CURLING APHIS: WINGED MALE AND TWO OVIPAROUS FEMALES. Magn. 10.

generation from the egg. Where I fixed my positions for investigation I selected shoots with eggs, and marked them with

suitable tallies, so that in my round of observation I knew exactly where to find my subjects. In this way I found it easy to record any observations made almost daily.

THE BLACKBERRY (WILD).

In my communication in *Gard. Chron.*, January 8 (p. 26), I said that up to that date I had not found eggs on the Blackberry, but after a more careful search I have now found them in large numbers, and I have noted particularly that they are nearly always deposited on the underside of the shoots; also that some shoots are more hairy than others; that these hairy shoots are the more favoured for ovi-deposition, the eggs being held in position between the hairs. On February 12, in addition to finding numbers of eggs, I found many larvae just hatched out (see fig. 109). So from that date I started to take careful notes. On the night of the 14th we had 6 degrees of frost in the screen, followed by snow reduced to water (0.57 inch), and rain on the next day (0.32 inch). I thought such weather good evidence of the endurance of baby aphides, as they were quite lively on the 17th. I sent four specimens, together with Apple shoots with eggs, to Mr. Lees, Bristol University; also others to another interested friend. Between February 12 and April 1 I paid 29 visits to these Blackberries; during that period snow fell on 19 days, and it finished with a blizzard on March 27 to 28. This was the most awful weather I have known. The greatest falls of snow during the above period (reduced to water) were: February 14, 0.57 inch; 23, 0.70 inch; 24, 0.39 inch; 28, 0.28 inch; March 27, 0.43 inch. Total snow (as water) for the period, 3.55 inch. Also during the above period we had thirty-two frost nights; the most severe were February 24, 7°; March 4, 9°; 28, 10°. All the above records were taken in the screen in a fairly sheltered position. During the night of the blizzard one baby aphid was born, and this specimen survived. Out of twenty-one specimens I had under observation eleven died and ten survived from February 17 to April 1 and onward, and during that time they never moved from their particular buds, into which they had their beaks firmly fixed. On April 14 they began to produce young. On May 3 one had produced twenty, after which I lost these particular females. I think they must have been taken by birds. Some similar ones began to breed again on May 17. The above were wingless females in the first and second generations. In regard to the specimens that died, I am of opinion that death was caused more by their being covered by a film of water than by frost, as many that were covered by snow survived. I notice that Buckton, in his monograph, gives an instance of Rose aphides hatching on March 12, with snow, and the thermometer at 25°. (They are now being born (November 28) with hoar frost, and the thermometer at 25°.)

CHERRY (WILD).

On March 31 I carefully examined a tree upon which I had found eggs some time

before. In addition to eggs I found many larvae living and a still greater number dead. No doubt these had been killed by the severe weather. In fact, I believe that every one that hatched out previous to and during the frost and snow had been killed, and that this species is certainly not so hardy as that on the Blackberry. Of the living larvae the first produced young on April 30. One female had fifteen young by May 7. These again produced young to May 21—wingless females in first and second generations. This is certainly the Cherry leaf curl aphid, *Myzus cerasi*. The dull black eggs are deposited on the shoots just below buds.

THE APPLE (CULTIVATED).

In all the gardens visited I found large numbers of eggs, not only singly and scattered, but also in large clusters. In one garden the head gardener called my attention to a fairly young tree (standard) that was affected by the woolly aphid. There were numerous short shoots (fruit spurs) that were swollen into knobs or galls, the effects of the woolly aphid. On one of these, about the size of a small Walnut, I counted over 150 eggs of the Apple leaf curl aphid, *A. pomi*. These were much more numerous on the galls than on the normal wood. Larvae of this species I found in plenty on April 2. On the 16th I found thirty-two specimens on the terminal bud of an unpruned shoot. Females began to breed again on May 4 (wingless in first generation). Continuing my observations on the Apple at the beginning of October, I found winged females had made their appearance. These produced yellow larvae, which developed into oviparous, wingless females. About the middle of the month winged males came on the scene. I found them in copulation on the 21st, and up to November 6, after fertilisation, these oviparous females became darker in colour, due to the dark-coloured eggs within their bodies. There were large numbers of both males and females on the under-sides of leaves on November 6. On the 10th I found eggs had been laid on the shoots. Numbers of winged specimens were found dead from the middle of October to November 10; they had been killed by a small species of spider. On November 14 most of the leaves had fallen from the tree upon which I made my most critical observation. From time to time I carefully examined fresh leaves as they fell, but rarely did I find an aphid upon them. So I came to the conclusion that most of the specimens crawl on to the shoots before the leaves fall. *J. G. Blakey, Bromsgrove, Worcestershire.*

(To be concluded.)

ORCHID NOTES AND CLEANINGS.

HYBRIDS AT SCAMPSTON HALL, YORKSHIRE.

LAELIO-CATTLEYA HELICE.—Mr. F. C. Puddle, gardener to W. H. St. Quintin, Esq., Scampston Hall, Rillington, Yorks, sends flowers of this pretty hybrid raised in the Scampston Hall gardens, and which in point of beauty ranks with *Cattleya aurea* and *C. Venus*, approaching the latter nearest in size and shape, but with *C. Dowiana aurea* colour. The parents were *Laelio-Cattleya Florentia* × *C. Dowiana aurea*. *L. C. Florentia* was obtained by crossing *L. C. La France* and *C. labiata*, the parents of *La France* being *C. bicolor* × *L. tenebrosa*. The ovate sepals are sulphur-yellow shaded with orange and delicately veined, the broad petals projected towards the front, and with the edges reflexed, primrose-yellow. The lip is distinctly three-lobed, showing a separation between the side lobes and front, but without the isthmus peculiar to the nearer crosses of *C. bicolor*. The colour of the lip is a bright shade of rose, with mauve veining. Lines of yellow extend from the base to the centre of the lip and margins of the side lobes. The flower is fragrant; the column fleshy and pure white.

LAELIO-CATTLEYA PHICOMENE.—A flower of this new hybrid raised at Scampston Hall is also before us. The parents are *Cattleya Dowiana aurea* and *Laelio-Cattleya Lady Rothschild* (*L. Perrinii* × *C. Warszewiczii*). In colour the hybrid adberes closely to *L. Perrinii* and exhibits in the deflected front lobe of the lip evidence of that species, but the flowers in size are a great improvement on most other hybrids of *L. Perrinii* ancestry. The sepals and petals are rosy-lilac with silver-white midribs, the lip Mulberry red, with chrome yellow veining extending to the base of the front lobe, on each side of which shaded yellow patches appear, distinctly indicating the bright yellow blotches in a similar position in *C. Warszewiczii*.

CATTLEYA DOWIANA AUREA AND CYPRIPEDIUM FAIRRIEANUM FROM SEEDS.—Mr. Puddle also



FIG. 112.—HOME RAISED SEEDLING OF CYPRIPEDIUM FAIRRIEANUM.

sends excellent photographs of home-raised seedlings of these species taken by W. H. St. Quintin, Esq., his letter stating: "The *C. Dowiana aurea* are from a batch raised from seed sown March, 1912. Those which have flowered so far are good and very in form. In fact, they show no variation worth mentioning. *Cypripedium Fairrianum* is of the first to flower of a batch raised true from seeds." Here we have evidence that skilful raisers are not altogether dependent on importations, and we hope that many rare species may be dealt with in this way. *Cypripedium Fairrianum* has a remarkable history. It first came into notice in 1857, and for some time appears to have been fairly plentiful, but later

gradually declined, until early in 1905 only one very small plant was known in England, and four on the Continent, and for these poor examples very high prices were offered. Its native habitat was then not known; many expensive searches for it were made, and £1,000 offered for its rediscovery. But, as often happens when things are at their worst, a rapid change took place. In the *Gardeners' Chronicle*, April 29, 1905, p. 265, it was announced that two fine plants had been received at Kew from the Botanic Gardens, Calcutta, and in the issues of September 2 and September 9 a consignment was advertised for unreserved sale at Messrs. Protheroe and Morris' Rooms, where they were duly disposed of, the 179 plants realising £550. The best specimen fetched 21 gs., and others in proportion, ordinary plants averaging 3 gs. each.

Before the introduction of the 1905 plants some fifteen direct crosses of *C. Fairrianum* had been made, and at present there are fifty, with a very large number of secondary crosses. But attempts to raise it true from seeds had failed, and Mr. Puddle's success is on that account the more praiseworthy.

Errors in cultivation have no doubt caused the failure of many specimens of this beautiful *Cypripedium*, and the following particulars of his methods which Mr. Puddle kindly gives will be useful:—

"We grow it with the *C. insigne* section, but the chief point in our method of cultivation is that we have come to the conclusion that it is one of the lime-loving *Cypripediums*, and we are growing ours in soil from a limestone quarry; in fact, the same soil as we use for *C. niveum*.

"The seed of *C. Fairrianum* was sown on the top of a pot in which *C. niveum* was growing, and the seedlings have been grown in similar soil. Respecting *C. niveum* and its allies, we have no trouble whatever with them. They appear to be happy in any position, and I feel certain that growers who have difficulty with the section fail simply from the fact that the soil they use does not contain sufficient natural lime in a readily-available form. I do not consider that old mortar or hard limestone breaks down readily enough for the plants to assimilate it to a sufficient extent."

MELON CULTIVATION.

AFTER more than forty years' experience in Melon cultivation I have found the following methods well worthy of recommendation. The soil should be got in readiness in late autumn or early winter, and should consist of good fibrous, turfy loam from old pasture land. It should be sterilised by burning over a large gridiron, which should be raised about 1½ foot above the ground on bricks or stones at the four corners, to allow sufficient room for the fire underneath. The turves should be placed on the top of the iron and baked sufficiently to kill all insects and other harmful life. They should be turned and baked on both sides equally, and afterwards put in a dry place until sufficient is sterilised for the season's requirements.

Procure a quantity of Oak leaves and stable manure (with both straw and droppings), and mix them together in equal proportions. If dry, water the materials. Allow the heap to ferment for a fortnight or longer if necessary, turning it several times. When ready, make up the hot-bed in the house, treading and ramming the mixture firmly. The soil from the baked turves should then be placed on the surface of the hot-bed, pulling the turves to pieces by hand as they lie upon the bed, which should be covered to a depth of 2 or 3 inches with the broken turves.

Make a ridge of soil several inches high along the bed for planting the Melons. The soil will become settled in a day or two, when the Melon seed may be inserted just beneath the surface. Many raise the seedlings in small pots, but I prefer the former method. Over each seed invert a 5-inch pot, placing a crock over the drainage

hole to prevent insects from damaging the young plants. Allow the pot to remain in position night and day until the Melon plant begins to show; afterwards remove it every morning, but replace it at night, until the plants are strong enough to withstand the attacks of enemies.

I have often found it necessary, after a certain stage in growth, to use a pot 8 or 9 inches in diameter for the night covering. Retain the main leaves on the plant from the soil upwards, and do not pinch them off between the soil and the wire, but let them remain until the Melons are ripe; all lateral foliage should be picked off as soon as it appears.

When the plants reach the wires (ours are nearly 2 feet from the bed) the flowers will appear, and they should be pollinated in the middle of the day, when the air is driest. The number of fruits each plant must carry will depend on the space to furnish. We grow on an average 70 or 80 fine fruits in a house 21 feet long, 12 feet wide, and 12 feet high.

In a span-roofed house pinch the leaders at 2 feet from the apex of the house on either side to allow the sun's rays to enter. We secure each Melon to the wires with a Melon net. Our pits have no water pipes *beneath* the beds, but we make a deep hot-bed to furnish bottom heat.

When the crop from those in the house is set, the plants should have a top-dressing of turfy loam mixed with a little Clay's fertiliser or Thompson's vine manure. The soil should be spread about an inch thick all over the surface. When the fruits are swelling fast, a little very weak liquid manure may be used for watering once a week, but great caution must be exercised in the use of this stimulant; indeed, it is better to do without it entirely than to use too much. Sometimes it may be necessary to repeat the top-dressing to feed the young roots when they show through the surface. Watering should be done at all times with soft water of the same temperature as the bed. Until the Melons are rather more than half grown the bed should be watered all over as often as is required to keep the soil moderately moist. After this stage be careful not to wet the soil within 2 or 3 inches of the stem of the plants.

The atmosphere of the house should be kept always circulating, and air should be admitted on all favourable occasions, but cold draughts must not be permitted. The pipes should be warm at night to maintain a genial temperature and keep the air in movement to prevent moisture from condensing either on the fruits or on the plants. When the fruits begin to net freely, increase the air on all suitable occasions, and continue to water the roots in moderation until the fruit is ripe, slightly diminishing the amount during the last few days.

The variety Godden Green Queen raised in these gardens is a good all-round Melon, beautifully netted, and of delicious flavour. *F. Woodward, Godden Green Gardens, Sevenoaks.*

ROCK AND WATER GARDEN AT GROVE PARK, WESTON-SUPER-MARE.

RECENT visitors to Weston-super-Mare have shown keen appreciation of the new rock and water garden (see figs. 113, 114) which has been constructed on the west side of the Grove Park. Though the site was somewhat unattractive, it lent itself conveniently to transformation.

The rockery consists roughly of an upper and a lower portion, the latter being traversed by a bold flagstone path, terminating in a flight of steps leading to an upper terrace from which a good general view of the whole rock garden is obtained. The water is not supplied direct from a natural spring, but from the town reservoir.

It enters the rockery at the highest point, and in its course forms five cascades, between which the stream spreads itself into three rock fringed pools. These pools afford accommodation for

various aquatics, amongst which varieties of *Nymphaeas*, *Aponogeton distachyon* and *Myriophyllum proserpinacoides* are conspicuous. The margins are planted with marsh-loving plants, including *Acorus Calamus*, *Cyperus longus*, *Typha angustifolia*, *Pontederia cordata*, *Menyanthes trifoliata* and *Iris Kaempferi*.

On either side of the paths, between rocky boulders, is given accommodation for a varied selection of Alpines, whilst near the lower entrance a large portion, partially shaded, is devoted to hardy Ferns, amongst which can be seen *Osmonda regalis* and *Asplenium marinum*.

The rock garden is well sheltered, and it may be of interest to note that in a dry position some sixteen species of *Meembryanthemum* remained out last winter without protection, and bloomed profusely during the past summer.

Municipal authorities are to be commended for their enterprise in encouraging such gardening in public parks, where formal planting has so often excluded scenes of this nature. The rockery was designed by, and constructed under the direction of, Mr. H. P. Norman, superintendent of the Weston Parks, and he is to be congratulated on the results obtained.



FIG. 113.—ROCK GARDEN IN GROVE PARK, WESTON-SUPER-MARE.

THE MARKET FRUIT GARDEN.

WOMEN GARDENERS.

NOVEMBER added one more to the wet months of this year. Rain fell in considerable quantity on every day in the first week of the month; then followed ten dry days, while seven out of eight days after the 17th were rainy, and the last five days dry. Altogether there were fourteen rainy days, making a total fall of 4.88 inches, a quantity about double the average for November. Men and women lost much time, excepting the regular men who are paid whatever the weather may be. My gang of twelve women, some of whom are now digging, while a few are picking big buds off Black Currants, were away for half the month. Those who are digging an orchard make neat work. They cannot dig more than three or four inches deep, as the roots of Apples and Black Currants are all over the ground; but stooping to work under the branches of the low half-standard trees is somewhat back-aching work. Much is said and written about the employment of women at nearly all kinds of work on the land, but only those who are used to hard work could

make good progress with digging day after day, for eight hours per day. My women are not encouraged to work on Saturdays, as they have much to do at home on these days; but about half of them wish to come on every fine day.

A POINT IN PRUNING PLUMS.

In the last two seasons and the present one, when pruning Plum trees planted four to five years ago, I have noticed a peculiarity of growth which has not been seen in Apples. In the cases of some of the trees which were well furnished with young branches sufficiently strong, the leaders have been left entire, in order to avoid the encouragement of excessive lateral growths. The precaution, however, generally failed to have the desired effect, for it was frequently found in the following season that the tips of the leaders had died off, and that more or less numerous laterals had grown out a few inches below each tip. In not a few cases from three to five laterals had developed, all close together, necessitating the cutting off of all but one. This being the case, it is clear that it is better to cut just above a bud pointing in the direction in which extension is desired, as branching must result from either

method of pruning. Moreover, it has been noticed that only two laterals, as a rule, grow out just below the point of pruning, instead of the three to five found under a tip that dies, and that the former are much stronger than the latter. The feature referred to has been noticed only among young and vigorous-growing Plums of the President and Belle de Louvain varieties, but probably it may be seen in other free-growing kinds.

THE PRESIDENT PLUM.

This Plum is an awkward grower, and difficult to train into a shapely tree. It has the habit of growing rankly towards the top, some leaders being out of all proportion to the rest, and the lower shoots are thus deprived of their fair share of nourishment. The gross-growing shoots in the centre of a tree need to be cut out entirely; for, if they are merely cut back, they repeat their disproportionate growth in the following season. Another fault is the production of numerous long and slender spurs. If these are left uncut they are apt to blossom along their entire length, and the blossoms prove abortive. At least, this was the blossoms prove abortive. When these spurs are removed it is doubtful if there is any

latent bud to emerge, and, if not, there will be more permanently bald gaps in the branches than it is desirable to have. Lastly, President is badly subject to brown rot. A satisfactory late Plum, to follow Pood's Seedling, is a desideratum which I have not yet met with.

RESULTS OF APPLE SUCKER ATTACK.

In 1915 an equal number of trusses of blossom infested and not infested respectively with Apple sucker, were labelled, and the results on several varieties showed a practically equal amount of setting. But it is one thing for fruit to set, and another for it to remain on the trees until it is of marketable size, and the latter point was not tested in 1915. Last summer the experiment was repeated on four varieties of Apples, and the results were noted twice, on June 5 and July 4. At the latter date the fruit of the two very early varieties were approaching the full marketable size, while the two mid-season kinds were advanced enough to be safe to remain on the trees.

JAMES GRIEVE.

6	2	0	7	0	0
9	2	0	7	5	2
6	3	0	8	1	0
7	3	0	8	4	0
6	4	0	7	4	0
7	3	1	7	2	2
Totals 41					

LORD DERBY.

6	2	0	7	2	0
4	2	1	6	2	1
7	2	1	5	1	0
5	1	1	6	1	1
6	4	0	5	2	1
0	2	0	4	2	2
Totals 31					

These figures indicate that more Apples set on the infested than on the free trusses, while fewer matured. But at least one more trial will be needed to warrant any definite conclusion, and more than one if next season's results do not tally with those of the past season. It might be sup-



PLANTS UNDER GLASS. 8

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

ANNUALS IN POTS.—For the next few weeks grow annuals in pots in a cool house, and use fire-heat only when severe frost threatens. Clarkias are very subject to damping, which may be prevented by careful watering, keeping the soil on the dry side in winter. Pinching the shoots is sometimes recommended for Clarkias, but this should only be done if dwarf plants are desired. Repotting may be done now, if necessary; newly potted plants need very careful treatment until they become re-established. A fairly rich compost should be prepared for all annuals. Use clean pots, and see that they are efficiently drained. Aphis causes considerable damage to Schizanthuses and Clarkias, but occasional light fumigations with a nicotine compound will keep the plants free from this pest.

COLEUS THYRSOIDEUS.—This beautiful blue Coleus is coming into flower, and with careful treatment in watering and feeding may be had in bloom throughout the winter. The plants have practically finished their growth, and need only a little stimulant occasionally. Concentrated manure or weak soot-water once a week will meet their requirements in this respect. This Coleus is essentially a stove flowering plant, but the greenhouse or conservatory will be suitable for the plants when in flower, provided the temperature is not lower than 50°.

LACHENALIA.—A shelf near the roof-glass in a cool house is a suitable place for growing Lachenalias at this season. Do not attempt to force the plants by the use of fire-heat, as forcing would end in failure. When the pots are filled with roots, give the plants stimulants, increasing the strength as growth advances.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSAGHT, Esq, Castleford, Gloucestershire.

TRICHOSMA SUAVIS.—This interesting Orchid produces its fragrant, creamy-white flowers during the winter, and should be grown in a cool house throughout the year. The work of re-potting should be done when the new growth is partly developed; a mixture of peat, Sphagnum-moss and partly decayed Oak-leaves, with a sprinkling of crushed crocks, forms a suitable compost. Ordinary flower-pots form suitable receptacles, and they should be one-third filled with material for drainage.

ONCIDIUM.—Some of the plants of Oncidium are resting, and require only a moderate supply of water, but others are either in flower or sending up their scapes. *O. ornithorychnum* needs careful treatment after flowering, for the roots decay if the compost is kept too moist. *O. varicosum* produces its large, arching sprays of bold, yellow flowers in late autumn and winter. When the spikes are cut, the plants should be rested in cool, dry conditions, and watered only sufficiently to prevent the pseudo-bulbs from shrivelling. *O. splendidum*, *O. tigrinum*, *O. obryzatum*, *O. dasyle*, and *O. bicallosum* are other winter flowering species. With the exception of the last and *O. splendidum*, which require an intermediate temperature, these Oncidiums should be grown in a cool house. *O. macranthum* is developing its long, rambling inflorescences, but the flowers will not open for some weeks to come. It is often a difficult matter to decide how to train these long spikes; the best method is to grow them horizontally, about 2 feet from the roof-glass, but care must be taken to prevent the tips touching the glass, or they may get chilled, and eventually die. Weak plants should not be allowed to develop their flower spikes, for it would exhaust them and cause the pseudo-bulbs to shrivel to such an extent that it would take two or three years for the plants to recover.

CATTELEYA.—The various forms of Cattleya Trianae and *C. Percivaliana* are sending up their



FIG. 114.—WATER POOL IN GROVE PARK, WESTON-SUPER-MARE.

(See p. 277.)

As the full details of the trial show the great difference between the number of blossoms and that of fruit set, and again of fruit remaining on the trees until a more or less close approach to picking time, it may interest readers to see these particulars, which appear in the following tables, concerning which it is only necessary to explain that six trusses of blossom infested with the Apple sucker and six free from the pest were labelled on each variety:—

Blossoms per truss.	Infested.		Free.		
	Apples set June 5.	Apples set July 4.	Blossoms per truss.	Apples set June 5.	Apples set July 4.
6	2	2	6	3	0
5	2	2	8	3	2
8	2	1	7	2	1
6	2	1	6	2	2
6	3	2	8	1	1
6	2	1	5	1	1
Totals 37					
Totals 13					
Totals 9					
Totals 40					
Totals 12					
Totals 7					
BEAUTY OF BATH					
7	1	0	6	1	1
7	0	0	5	2	1
7	1	0	5	0	1
8	2	0	7	0	0
5	0	0	4	1	1
7	1	1	6	1	0
Totals 41					
Totals 5					
Totals 1					
Totals 33					
Totals 6					
Totals 4					

posed from the figures relating to Beauty of Bath that the yield was spoilt by the Apple sucker, whereas there was a very large crop, in spite of about an average infestation. The figures for James Grieve are not worth much attention, because, while it was only slightly attacked by the sucker, a very heavy setting of fruit resulted in a miserably small crop. Lord Derby was by far the most extensively infested, and yet the infested trusses did better than those of James Grieve or Beauty of Bath. In 1915 Royal Jubilee was more severely attacked by suckers than any other variety, nineteen out of twenty trusses having been found infested in each of three examinations. Nevertheless it produced a very large crop of Apples. A much larger number of trusses than six in each group is needed to guard against chance results. Moreover, note should be taken in the final examination of the relative sizes of the Apples on infested and free trusses respectively, as this is an important point to notice when considering the amount of injury done by the Apple sucker. No spraying should be done on trees which are subjects of a trial of this kind, and there should not be any thinning of Apples in the labelled trusses. *Southern Grower.*

flower-spikes. When the buds of the latter species appear at the base of the shaft, increase the warmth of the house by a few degrees, for a low temperature at a time when the atmosphere is heavily charged with moisture is often the cause of the flower-buds decaying. All *Cattleyas* showing for flower should be placed in a light position at the warmer end of the house.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcote, Eastwell Park, Kent.

RASPBERRIES.—The plantations of Raspberries should be put in good order for the winter. Fill up blank spaces in the rows, and renew all posts or wires that are out of order. Lightly fork the surface soil to destroy seedling weeds, and apply a mulching of well-rotted manure.

STRAWBERRY BEDS.—When the ground is sufficiently dry for working lightly fork amongst the Strawberry plants, burying seedling weeds and other rubbish. In frosty weather wheel manure to the bed, and apply a good dressing of the dung to plants that have cropped freely. The Strawberry is a gross feeder, and strong, vigorous plants respond to a heavy mulch of animal manure. The fertilising properties of the dung will be washed down to the roots by the winter rains, and be available for the plants in the spring. Where a number of varieties is grown make notes of the more satisfactory sorts, for a variety that is a success in one district is often worthless in another. New beds that were planted last summer will not require heavy dressings of manure, provided the ground was well prepared previous to planting. If the planting of new beds has not been completed, finish the work at the first favourable opportunity, for if the runners are allowed to remain in small pots until the spring the roots will become matted and the plants checked. Strawberries planted now cannot be expected to produce fruit next season, but they will throw out exceedingly early and strong runners, which are always valuable where pot Strawberries are grown.

THE FRUIT ROOM.—Examine the fruit in store at regular intervals, and remove any that shows signs of decay. The atmosphere of the fruit-room should be kept moderately cool; only employ fire heat when severe frost prevails, as dry heat would cause the fruit to shrivel. To counteract a dry atmosphere damp the floor as often as is necessary.

GENERAL REMARKS.—Push forward the work of pruning and training fruit trees whenever the weather permits. Fruit trees received from the nurserymen in times of severe frost should be placed without unpacking them in a cellar or dark shed until the frost departs. If the ground is too wet for planting when they arrive, cover the roots with soil or ashes as a temporary measure.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lady Nunburnholme, Warton Priory, Yorkshire.

STRAWBERRIES.—The first batch of Strawberries may be introduced into a warm house for forcing. The mild weather has not favoured the ripening of the crowns, for in the absence of frost the plants have continued to grow. Extra care will be needed in forcing the plants, and the house should be ventilated freely to regulate the temperature. Place the plants near to the roof-glass, and as the trusses develop remove them to a slightly warmer and drier position, increasing the temperature to 55° when the flower-spikes appear. Introduce fresh batches of plants into heat for successional forcing; wash the pots, remove dead leaves, and see that the drainage is perfect. Fumigate the plants at short intervals to keep them free of insects, and syringe them, especially if fire-heat is used, to ward off attacks of red spider.

PINEAPPLES.—Examine the beds in which Pines intended for starting in January have been resting, to see if the plunging material is absorbing the little moisture contained in the pots. If water is necessary, moisten the tan or leaves around the pots rather than the roots themselves.

It will be quite another month before the first plants need to be started, and little or no direct watering will be required. The temperature having been lowered to 58° or 60° on cold nights and 65° to 68° by day, the amount of atmospheric moisture should be small, and damping the floors once or twice daily will suffice until the turn of the year. Much, however, will depend on the weather in this matter; in times of severe frost much fire heat is needed, and then the dry heat must be counteracted by extra damping of the floors, but not the pipes. Much can be done to economise fire-heat by the use of protective coverings at night, and this applies to other fruit houses, such as those in which Cucumbers and Melons are planted. Make preparations for the coming season by placing a quantity of turf under shelter where it can be kept dry, and securing Oak and Beech leaves in large quantities, making a heap of them when quite dry.

SUCCESSIONAL PINES AND SUCKERS. In mild weather use only a little fire-heat to allow the plants a complete rest. During times of frost and snow, when extra fire-heat is needed, examine the plants for watering at short intervals, and especially those in small pots near the water pipes. A temperature of about 55° by night and 60° by day will be sufficient warmth for the remainder of the year.

THE FLOWER GARDEN.

By W. J. GUISS, Gardener to Mrs. Dampster, Keele Hall, Staffordshire.

HARDY HEATHS.—Heaths may be associated with similar small growing shrubs; they may be grown in the foreground of shrubberies, planted in the wild garden, or used for covering rough banks. They may also be grown in beds by themselves, or in bold irregular groups in the wild garden, or even in grass. Dig the soil, which should be free from lime, 12 inches deep, and incorporate with it a quantity of well-decayed manure and leaf-mould. Sandy peat may be mixed freely with the soil, but it is not essential. Firm planting is one of the secrets of success. Some of the most desirable species are *E. carnea*, *E. cineraria*, *E. alba*, *E. carnea hybrida*, *E. codonoides*, *E. tetralix*, *E. vagans*, *E. arborea*, *E. rosea*, *E. australis*, *E. atropurpurea*, *E. stricta*, *E. coccinea*, *E. Veitchiana*, and *E. Hammondii*. These plants will give flowers through the greater part of the year.

PLANTING LILIUMS.—No bulbs deteriorate more rapidly out of the ground than Liliams, and they should be planted directly they are obtained. There is no difficulty in growing these beautiful flowers in the open, for the majority are quite hardy. A deep, moist loam, in which well-decayed manure, peat and leaf-mould have been well incorporated, will suit them. Care in planting is an important detail, especially with the stem-rooted varieties, which should never be placed less than 6 inches deep; in some cases, according to the size of the bulbs, a depth of 8 or 9 inches is necessary. Plant them in groups of five or six in well-prepared, deep soil; they may be massed in twenties or more in shrubberies and similar places, allowing ample space between each plant, according to the habit and size of the individuals. Lilies are moisture-loving plants, and once they are allowed to suffer a check from drought very rarely recover. The following species and varieties will thrive in good ordinary soils, and are suitable for planting in herbaceous and mixed borders:—*L. croceum*, the Orange Lily, flowering in July; *L. pyrenaicum*, one of the earliest flowering Lilies, and with strongly scented blooms; *L. umbellatum*, an early variety producing large heads of flowers; *L. Chalcedonicum*, the scarlet Martagon, which requires a sunny position, producing its flowers in July; *L. Martagon*, one of the most graceful of Lilies, with spotted, purple flowers; the white Martagon (album), that develops large trusses of pure white flowers; *L. tigrinum*, *L. Fortunei*, *L. giganteum*, *L. splendens* (all members of the *Thunbergianum* or elegans type, are eminently adapted for grouping in herbaceous borders or the wild garden); *L. Hansonii*, a glorious golden-yellow flower with black spots; and *L. Henryi*, a very strong grower that should be planted at least 6 inches deep in a sheltered posi-

tion, as the shoots often grow 6 feet high. Heavy, retentive soils should be lightened by the addition of coarse sand, as a water-logged soil is fatal to success with Lilies. Certain varieties succeed best when their roots are partially shaded, and this may be achieved by planting between *Paeonies*, *Ferns* or similar dwarf-growing plants or shrubs, but not where they might be subjected to prolonged drought. *Lilium auratum*, and especially the variety *platyphyllum*, is suitable for associating with *Rhododendrons*, *Bamboos* and *Azaleas*. Other good garden Lilies are *L. cordifolium*, which grows 5 feet high and has white flowers; *L. giganteum*, with white flowers streaked with purple (the bulbs of this species need ample space, and should be planted in a position protected from strong winds); *L. Kramerii*, one of the most beautiful of pink Lilies, which should be planted in well-drained soil; *L. monadelphum*, a very early-flowering species, with rich yellow flowers that are occasionally spotted; *L. rubellum*, which resembles *L. Kramerii*, but is a stronger grower and produces sweetly scented, rosy-pink flowers with yellow anthers; and *L.utchuense*, a hardy species flowering in August, and capital for massing. For planting in moist, shady places, the bog garden, along the margins of lakes or by the sides of streams, the following species are suitable, but it must be borne in mind that they will not tolerate stagnant moisture or sour soil, and they need peat:—*L. canadense*, which may be planted in large groups in moist situations; *L. pardalinum*, which produces large trusses of bright orange-coloured flowers, spotted dark crimson; *L. pardalinum californicum*, *L. p. minor*, a dwarf, early, free grower; *L. superbum*, a rather late bloomer, but eminently adapted for planting in moist, shady situations; and *L. excelsum* (testaceum).

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

CARROTS.—Make a sowing of Carrots in heated pits, choosing an early maturing variety, such as Early French Horn or Inimitable Forcing. If desirable make a hotbed in the pit, but this is not essential. In preparing the hotbed make allowance for the materials sinking after fermentation and decomposition, and cover the surface with fine soil to the depth of 6 inches, arranging it so that there is a space of 6 inches between the bed and the roof-glass. Sow the seeds fairly thickly in drills, which need not be more than 9 inches apart, as the roots will be pulled when a small size. Keep the soil moderately moist at all times. Close the frames entirely until the seeds have germinated, and afterwards ventilate cautiously to prevent the seedlings receiving a check from a chill. Radishes may be grown in a similar manner, or, if small quantities only are required, a supply of Radishes may be maintained by sowing frequently in boxes containing light soil. Place the boxes in a fairly cool house, such as a newly started fruit-house.

MANURING.—Take advantage of frosty weather to wheel manure on the ground where it is needed. Continue the work of digging and trenching on every favourable occasion. The soil of old kitchen gardens often becomes sour through annual dressings of farmyard manure. A liberal application of lime instead of manure will neutralise the acidity, release much hitherto unavailable plant food, and, as lime is applied easily, obviate the transporting of manure.

ECONOMY IN GATHERING THE CROPS.—Brussels Sprouts should be gathered from the base of the stem upwards. Gathering the more advanced sprouts from each plant is better than cutting whole plants or stripping a few stems of all their sprouts. The tops of the plants should be used last. Scotch Kales should be retained for use until the last, as they withstand the winter better than most green crops, and do not develop flower-spikes quickly. They will fill in the gap between the Brussels Sprouts and early Cabbages. The most fully developed Savoys should be cut first, instead of selecting the best heads, or many of the plants will decay and eventually become useless. Frequent examination of the roots in store will prevent loss.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our correspondents would oblige by delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.5°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, December 7, (10.0 a.m.): Bar. 29.6°; temp. 42°. Weather—Fine.

SALES FOR THE ENSUING WEEK.**WEDNESDAY—**

Rock, Alpine, and Herbaceous Plants, Fruit Trees, Bulbs, &c., by Protheroe & Morris, at 67-68, Cheapside, at 12 o'clock. At 3 o'clock 500 cases of Japanese Lilies and consignments of other Bulbs. Sale of 10 Greenhouses, hot-water piping, &c., at the Nursery, Oakfield Road, Finchley, by Protheroe & Morris, at 2 o'clock. Rose Trees, Perennials, Shrubs, Bulbs, at Stevens' Rooms, King Street, Covent Garden.

THURSDAY—

Special sale of Standard, Dwarf and Climbing Roses, at 67-68, Cheapside, by Protheroe & Morris, at 1 o'clock. Clearance Sale of Nursery Stock, Greenhouses, Piping, and Sundries, at South Hill Nursery, Westmoreland Road, Bromley, by Protheroe & Morris, at 12 o'clock.

Under the title "Is the hybrid origin of the Loganberry a myth?" the *Journal of Heredity*

publishes an interesting series of contributions from Mr. W. O. Backhouse, Economic Botanist to the Argentine Government, and other horticulturists. Mr. Backhouse, whose valuable work on fruits, begun in this country, has not been wholly interrupted by his labours in the Argentine, is roundly of opinion that the Loganberry is not a hybrid between the Blackberry and Raspberry.

As is now well known, this berry originated about 1881 in the grounds of Judge J. H. Logan, of Santa Cruz, California. The plant appeared spontaneously, and Judge Logan believed that it originated as a chance seedling from a natural cross between the Auginbaugh (a variety of

Rubus vitifolius, the wild Blackberry of California) and a red Raspberry (probably Red Antwerp). This opinion was based on the fact that the Blackberry and Raspberry grew near to one another in the garden.

The first point made by Mr. Backhouse in his criticism is that the claim that the Loganberry breeds true from seed is not absolutely correct. Both Mr. Backhouse and Messrs. Laxton Brothers have observed a considerable number of minor variations in seedlings raised from seed of the Loganberry. The variations—such as length of fruit, spininess and leaf colour—are such as may often occur when a species is raised from seed. On the ground of the supposed uniformity of the offspring of the Loganberry, it has been suggested that this plant is parthenogenetic—that is to say, that, as is the case with certain other plants, it does not require fertilisation in order to produce seed; instead of, as in ordinary plants, the embryo being the result of the fusion of female (egg) cell and male (pollen) cell, in the Loganberry on this hypothesis, an egg cell alone produces the embryo. If that were indeed the case, the supposed uniformity of seedlings from the Loganberry would be explained. As we have seen, however, these seedlings are not absolutely uniform, and that in itself is evidence against the hypothesis of parthenogenesis. Furthermore, by crossing the Loganberry with other species of *Rubus*, both Messrs. Laxton and Mr. Backhouse have obtained evidence against both the occurrence of parthenogenesis in this berry and also against its hybrid origin.

Thus, if Loganberry were a hybrid we should expect, by crossing it with a Raspberry, to obtain in the first generation more than one distinct type. In point of fact, the result of the cross is remarkably constant, and, broadly speaking, intermediate between the Loganberry and the other parent used in the cross.

In many cases, moreover, as often occurs in species crosses, the hybrids between Loganberry and other species of *Rubus* are very apt to be sterile.

In the cross between Loganberry and the common English Blackberry (*Rubus ulmifolius*), Mr. Backhouse obtained in the first generation plants intermediate between the parents, and very fairly fertile. The flavour of the fruit of this hybrid is a mixture of that of Loganberry and Blackberry, and not, as would have been expected, on the basis of a hybrid origin of the Loganberry, variable, in some like that of the Blackberry and in others like that of the Loganberry. In the second generation segregation occurred: a series of forms passing by small gradations from almost typical Loganberries to almost typical *Rubus ulmifolius*; so that again no sign is given of a hybrid origin of the Loganberry.

Other contributors to the article favour Mr. Backhouse's conclusion that the Loganberry is a true species. Thus it is stated, on indirect testimony, it is true, that the Loganberry grows wild in Vancouver Island; and that a nurseryman there was in

the habit of going into the woods and digging up wild plants to fill orders when his stock was depleted. In Oregon also the Loganberry is said to occur wild.

Perhaps the most interesting fact of all—apart from the question of origin of the Loganberry—is that its supposed hybrid origin led to the crossing of Blackberries and Raspberries, and to the production of undoubted hybrids, for, so far as we know, there is no doubt but that Phenomenal and other of the big berries now in cultivation are of hybrid origin (see fig. 116). Thus what now appears to have been a fiction was prophetic of fact.

THE CONTROL OF AMERICAN GOOSEBERRY

MILDEW.—Results of considerable importance to growers of Gooseberries are described by Messrs. PETHERBRIDGE and COLE in a recent account* of their spraying experiments carried out in the Eastern Counties. Having already satisfied themselves that by thorough tipping and by spraying twice or thrice the disease may be greatly reduced, they set themselves to inquire to what extent the disease may be reduced in a single season by spraying only. The test was carried out on a number of plots of Whinham's Industry, each plot consisting of 10 rows of Gooseberries, with Plums and Apples in every third row. As a result of spraying with lime-sulphur (1 in 40), mildew was reduced so considerably that when the berries were picked only 1 per cent. was found to be infected. The authors also observe that topping as carried out commercially was found to be of little value in reducing the amount of disease on the heavily infected plantations on which they conducted their experiments. Inasmuch as Messrs. PETHERBRIDGE and COLE regard lime-sulphur as a preventive rather than as a cure, they recommend that the first spraying be done before the disease breaks out in the spring. They have recorded the first appearance so early as April 6 (in 1914), and they recommend, therefore, that a first spraying should be given in the first week of April. In many seasons, however, the spring outbreak occurs later, and May is then a better time.

THE LATE MR. JOSEPH KENT.—A correspondent draws our attention to the fact that no notice has been published in the gardening Press of the death of Mr. JOSEPH KENT, late superintendent of the Hanley Cemetery, North Staffordshire, who died in August last, in his seventy-first year. He had filled the position of registrar to the cemetery for thirty-seven years. Deceased was a man of strong personality, and was widely known. Before entering upon his duties in connection with the Hanley Cemetery he was in business at Penkull as a florist. When the Old Hanley Corporation purchased land in different parts of the town for public parks, Mr. KENT became the first superintendent, combining the work with his registry. The development of the park scheme was carried on largely, if not entirely, by him, and the labour, particularly in the case of the Central Park, involved great strain. The dual duties ultimately proved too exacting, and eventually in 1903 the parks passed under the control of the present superintendent, Mr. ROBERT THOMPSON. Mr. KENT was the founder of the Hanley Flower Show and Fête, and for a good number of years officiated as its secretary. Mr. KENT threw great energy and unbounded enthusiasm into the work, and was naturally proud of the success achieved in the early days as the outcome of his labours. In 1901 Mr. WILLIAM POULSON, the present secretary, took over the duties of Horticultural Fête secretary. For many years Mr. KENT was associated with the old Hanley Chrysanthemum

*W. O. Backhouse, *Journal of Heredity*, November, 1916, organ of the American Genetic Association, Washington.

* *Journal of Board of Agric.*, XXIII, 5

Society, of which he was joint secretary with his son.

A GARDENER'S OPINION ON WALL COPINGS SEVENTY YEARS AGO.—That copings are of very considerable service I have not a moment's doubt, but the nature of their services has lain under much misapprehension. I am inclined to think that a majority of persons view them in the light of mere blossom protectors, whereas, in fact, they afford little, if any, protection in this respect. Their real service, when sufficiently large, is of twofold character, viz., the accelerating an early growth in the early part of summer, and the thorough maturation of such growth in the autumn. To be guarded, however, in my observations, by early growth I do not mean causing the trees to bud earlier, but rather exciting the young growth, when it has fairly commenced, to proceed with greater freedom and rapidity. On the latter circumstance depends, in no mean degree, the preservation of the tender growth from the attack of insects, more especially in the case of Peaches and Nectarines. This principle is fully recognised in agriculture in the case of the Turnip crop, and why not in gardening? The benefits of coping in September and October are, perhaps, even greater still, and I think it would not be asserting too much to say that at that period alone, in effect, they add a fortnight to the length of our summers—or, in other words, they produce results equivalent to a fortnight's fine weather. The rationale of their operation is, I suppose, by the interception of radiation; be that as it may, a wall with a good coping will be found warmer after sunset for some hours than one without a coping. The objections in point of excluding the dews and rains are, I conceive, of no weight, as it is quite certain that first-rate fruit is, and has been, produced under copings. For my part, I am disposed to look on a wall wet with rain in the summer as a disadvantage rather than other wise, such being a robber of heat, which can ill be spared, more especially in Peach walls. For this reason I am decidedly opposed to so many ablutions with the garden engine, unless applied early in the morning; more mischief is occasioned by this work than people commonly imagine. There are ample means of keeping trees clean without robbing them of one-half the benefits of a wall. With regard to the width of the coping, I think that from 7 to 9 inches at least should be provided, and if twice that width in the months of April and May it would be a benefit. One half of this entire width should be movable at pleasure, and might be composed of boards on brackets. With copings of about 7 inches, and trees planted on platforms, of stiff loam only, a foot in depth, Peaches succeed here admirably; the wood is probably as perfect as in the native country of the Peach. Whatever width be adopted, it should by all means be wide enough to throw the drip beyond the leaves. *R. Errington, Oulton Park, Cheshire, in "Gardeners' Chronicle," December 12, 1846.*

PEACH-GROWING IN ONTARIO.*—The number of Peach trees in Ontario in 1911 was 1,684,647, of which 794,192 were then in bearing. By far the great majority of trees—one and a quarter million—were in the famous Niagara district of the Province. The varieties grown are numerous, and include St. John, Garfield, New Prolific, and Captain Ede. Attempts to grow Peaches on Plum stock (*Prunus americana*) to produce dwarfing have not proved very successful. Growth is indeed restricted, but the union made is not so good as could be desired.

PAPER IMPORT RESTRICTIONS.—The President of the Board of Trade has informed the Paper Committee that the Government has decided that the imports of paper materials must from January 1 next be placed on the same footing as the imports of paper, that is to say, the im-

ports of paper-making materials must be reduced by one half, instead of by one third as at present. In order to give effect to this decision the licences issued by the Commission for importation in respect of the supply already allowed for the two months January and February, 1917, will be reduced so that allowance for that period will be one fourth less than it would have been if the reduction had remained at one third.

mainly writes. But it is difficult to stoop so low, and it does no injustice to the author to state that the teaching of his book is suited only for those who have no knowledge of gardening routine. The book is composed of details of how to cultivate fruits and vegetables on the usual lines and by methods which the author has found by experience to yield good results, and such as are employed by gardeners everywhere, consistent with divergences which are due to climate,

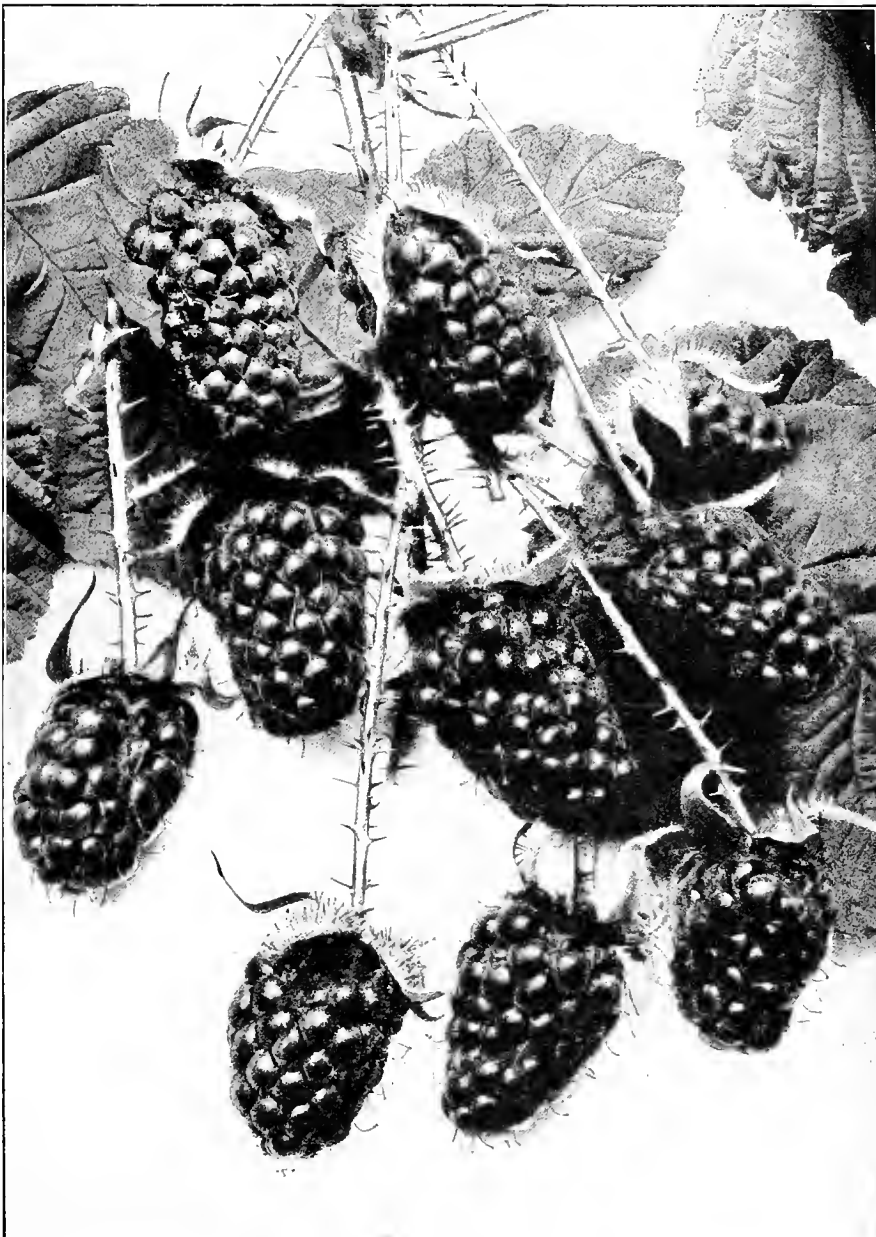


FIG. 115.—FRUITING SPRAY OF THE LOGANBERRY.

(See p. 280.)

NOTICES OF BOOKS.

FOOD FROM THE GARDEN.*

To the person possessed of a garden information on the cultivation of vegetables will always be received with gratitude. To such this book appeals, but the main reason given by its author for the launching of a new volume is the number of people who are ignorant of the simplest gardening operations, and for these people he

soil, or local circumstances. Numbers of paragraphs are duplicated for no apparent reason. Notwithstanding a certain vagueness in many of the directions, the contents of the book are reliable, and we hope that the volume may do much to aid many to add to the supply of food from their gardens and allotments. Many will doubtless avail themselves of the opportunity to acquire land for vegetable growing under the new Government scheme, and to such the book will be most useful. Illustrations add to the interest of the volume, which contains a foreword in cautious terms from the Rev. W. Wilks. *R.*

* *The Food Garden*. By William F. Rowles, (London Headley Bros.) Price 6s.

* Ontario Dept. of Agric., Bull. 241.

A NEW HERBAL.*

The nation has been warned that many drugs in the future will be possible only for the wealthy, just as Orvietan and Venice treacle in the past were confined to the uses of the rich. Not only the rarer, but also many of the commoner drugs have become scarce since the sources of supply have been cut off by the war, notwithstanding that increased acreages have been grown by wholesale druggists in order to meet the demands of their trade. Many people are again turning their attention to simple remedies, and it is possible that Mallow for coughs, Elder for burns, Sea Wormwood as a tonic, Linseed tea, Barley water, carminatives such as Peppermint drops and Caraway comfits, and Liquorice sticks, the joy of schoolboys, may soon be as usual as they were fifty years ago, when aged women carried sprigs of Applingie or of Balm to church or chapel. That these things may again be assumed in this handbook, so well written by its authoress, and the main reason for its production is just that the herbs, the sources of these simple remedies, most of them growing unnoticed in our midst, may be again utilised and a lapsed trade revived,

that of a perennial. Even if we agree that it is patriotic to fill flower-beds with Potatos, French Beans and Beetroots, we cannot maintain that the change is agreeable to the eye. In this book it is demonstrated that one may be patriotic and yet use beautiful objects to furnish flower-beds, the Hollyhock being of value as a drug, while those plants already named, and many more, may be utilised similarly. The authoress supplies brief cultural remarks which to the gardener will mostly be superfluous; but remarks on collecting and drying are of value, though in some instances they are all too brief. In the matter of preserving colours, for instance, the simple expedient of dipping blue flowers momentarily into boiling water might have been mentioned, and the reason explained why the corms of Meadow Saffron should be sliced transversely, and not dried artificially by heat. Such little additions help to rivet the teaching by interesting the mind, which a bald statement fails to do.

Names are singularly free from mistakes, a few only, due to the compositor, striking the eye. "Roses Cremieres" is one such, given as the French name for the Hollyhock, and is

THE HARDY FLOWER BORDER.

THE PLANTING OF FLAG IRISES.

MR. JENKINS' article on this subject (see p. 264) has appeared at a time when it was already in my mind to write a note suggesting certain modifications in the rule that I have hitherto observed, namely, to endeavour to transplant my Irises as soon as possible after the flowering season. I was going, however, to advocate a later, and not an earlier, period of the year, and Mr. Jenkins' article has not converted me to his view.

Statistics are often deceptive, and the figures which, on the surface, seem to support Mr. Jenkins' contention, suggest on closer examination that they may equally well be used as an argument against his view. In the first place, the first flowering season after planting, namely, May, 1913, is altogether omitted, presumably because plants shifted in March could hardly be expected to flower in the following May. Secondly, Argus transplanted in March produced 16 spikes in 1914 and 58 in 1915, increasing to rather less than four times the number, while those transplanted in June increased no less than eight times in the same period, namely, from 4 to 32. For Gracchus the figures also show that from 1914 to 1915 the June-planted specimens increased faster than those transplanted in March. The figures quoted for Queen of May do not, it is true, support my view, but I am confident that most Iris growers will agree with me that if six plants of this variety were planted in 1913 and gave only three flower-spikes in 1914 and only four in 1915, there must have been something seriously wrong either with the plants selected, with the planter, with the planting, or with the position chosen.

Not having any weather statistics at hand, I am unable to suggest any definite reason why the plants moved in June, 1913, flowered so poorly in 1914, but I should not be surprised to find that a period unusually dry, or in some other way exceptional, was the cause of their failure.

If it has been Mr. Jenkins' invariable practice for thirty years never to transplant Irises except in early spring, he has doubtless forgotten that new main roots are pushing out from the rhizomes certainly as late as August, and often even in September. We must remember that an Iris rhizome is not a stationary bulb, but a creeping stem which grows by travelling horizontally, and travels only by putting out fresh roots all through the growing season. Even among bulbs and corms there are two distinct classes, those which, like the Tulip and the Crocus, send out all their annual output of roots at one period of the year, and those which, like most Narcissi and the Gladiolus, are practically always sending out fresh roots unless they are lifted and dried off.

Mr. Jenkins, it seems, wishes us to believe that the Iris behaves like the Tulip or the Crocus, whereas the fact is that it resembles rather the Narcissus or the Gladiolus in producing a few roots at intervals over a long period.

This period begins in spring, and continues throughout the summer into the autumn, and doubtless if we always had genial growing weather in March and April, and if we were content to lose the first flowering season entirely, Irises transplanted in March would be better prepared for the flowering season some fourteen months later than those moved later in the season. Unfortunately in March and April we often get long spells of east winds, beneath the influence of which freshly moved plants suffer visibly, and, moreover, we are not always willing to sacrifice the first flowering season.

There is a further point. No rhizomatous Iris continues to grow in the same straight line beyond the flowering point. The flower-stem is the end of the axis, and growth is only continued by lateral branches. My impression is (but I admit that I should still like to make some observations on this point next spring) that



FIG. 116.—THE LOWBERRY. A HYBRID BETWEEN THE LOGANBERRY AND THE BLACKBERRY.
(See p. 280.)

to the benefit of all concerned. Some of the most important simples grow wild. Such are Fox-glove, Henbane, Couch and Yarrow, and the new Herb Growers' Association has already done much as an intermediary between the collector and the wholesale druggist to improve the supply of these and other herbal remedies. But this book, while it gives reasonable directions to the collector, aims also at enlisting the energies of the cultivator, and of all cultivators none is likely to be more successful in furthering this national scheme than the trained gardener. Even such generally unlikely weeds as Hemlock and Burdock, when grown in cultivated ground, assume majestic proportions, and are worthy a place in wild gardening. The Henbane, though in its native haunts a weed of no great beauty, has been grown to dimensions of 5 feet in height and as much through—a handsome object. Anyone who has given the Fox-glove proper attention knows that it is only second to the Hollyhock in stateliness and effect, while it sheds its biennial character to assume

ridiculous enough, "trémière" being the proper word, and interesting as indicating how a name changes, the original form being "Rose d'outremer."

The volume may be said to cover the whole field of British herbal medicine, including not only officinal herbs, but the many outside the Pharmacopoeias which have been, or still are, employed by homoeopaths and herbal "doctors." It is therefore patent how indispensable it will be to the thousands who have combined to assist in securing full supplies of herbal medicaments for the wants of the community. The authoress has been assisted by first-class authorities, which fact does not lessen the cause for praise to herself for producing so admirable a manual. The want of an index is a serious omission. B.

Owing to the earlier dispatch of the morning trains from London the hour of going to press has again been advanced, and in future communications received after 5 p.m. on Wednesday will be held over till the following week.

* Profitable Herb Growing and Collecting. By Ada B. Teetgen. (The Country Life Library.) Price 3s. 6d. net.

when growth ceases in autumn a rhizome which is going to flower in the following spring has reached the point at which it will flower, and has formed all the roots that it ever will form on that axis, and that the new root-activity in spring is devoted to the extension of the lateral growths which are to carry on the life of the plant after the death of the flower-stem.

Obviously then, if we move our plants in March we sacrifice the first flowering season. I think Mr. Jenkins must admit this. The question then arises, if we prefer not to make this sacrifice, shall we transplant immediately the flowers fade, or shall we wait till July or August? This year I had occasion in August to lift a number of Irises, and I found that each rhizome then possessed a number of stout roots, which were still unbranched, and that it also showed obviously that yet other roots were still to emerge. At the flowering season the new roots are immature and exceedingly brittle, so that there is considerable danger of injury unless the plants have only to be moved a short distance, and need not remain out of the ground for any length of time. Under these conditions it has certainly been my experience that Irises moved in June suffer in no way, especially if in dry weather some water be poured into the bottom of the hole before the roots are put in.

If the plants have a journey to face, I am inclined to think that there is less danger of damage when the majority of the primary roots are mature and as yet unbranched early in August, and that this is, then, the best period at which to transplant them, always provided that they get a liberal allowance of water at the roots if the soil is at all dry. Both in June and in August there is always a danger that even with great care the tender points of roots which have hardly emerged from the rhizome will be damaged; but whereas in June those roots which have pushed out are only partially developed, and therefore easily broken or withered by exposure, in August a fair number are mature, and therefore able to withstand handling and packing with less risk of injury. Moreover, the soil is warm, and there is still time for the secondary lateral fibres to develop, and for a few more main roots to push into the ground before growth ceases for the year. *W. R. Dykes, Charterhouse, Godalming.*

THE DISAS OF THE CAPE.

(Concluded from p. 271.)

BESIDES *grandiflora* there are several brightly-coloured Disas known in our gardens. *Sagittalis* (see fig. 117), a short growing thing with a twisted sepal has been exhibited by Messrs. Veitch, and so has the nearly allied, though perhaps more effective, *caulescens*, which gained a Botanical Certificate in 1890. The pink form of *tripetaloides* (see fig. 118) has long been cultivated at Kew, and was figured in the *Botanical Magazine*, No. 7,206, but a far more lovely bright gold form, called *auræa*, is less common. *Racemosa* is considered one of the prettiest species and easiest to grow; the stems have a decided grace, and the flowers of crimson and tender rose are charming. Now let us come to some plants which are suitable to our gardens, yet are almost unknown. *Gladioliflora* is a pretty medium-sized plant, suggestive of a *Gladiolus*, with flowers of pale pink, shaded and spotted with a darker tint. *Pulchra* has also a grassy growth, and the flower is also bright pink and quite lovely. An effective tall plant is *chrysostachya*, with fiery blossoms, small and numerous. *Bivalvata* pleases me; it has a rather remarkable white flower, with heavy black blotches on the lip. *D. lugens*, too, is striking, having a purplish-black hood, much veined, with a heavily bearded green lip. The stems carry about a dozen blossoms; the growth is rushy. The suitably named *elegans* must not be forgot-

ten. It is a lover of damp, peaty soil, the flowers of which are creamy, tipped with vivid orange, and bearing deep maroon blotches. Besides these large plants there are many charming small ones, bright and effective, such as *rosea* (pink, with the leaves crimson below), *filicornis* (bright rose), *clavigera* (blac, smallest of all), and *obtusata* (white, the commonest of the small species). The reason why these plants have been neglected is their difficulty of cultivation; they are looked upon by gardeners as the most difficult Orchids to grow. If we knew more about the likes and dislikes of plants in their native haunts their cultivation would be far easier. Most of the Cape Disas grow at home in light and even sandy soil, but the quaint, not ineffective, *unicinata*, insists on stiff grey clay, while the handsome blue *graminifolia* (its near relation, *purpureusces*, is even handsomer) can obtain no water at all during the growing season. As many Cape bulbs are hardy in parts of our isles it would be interesting to know if the Disas have ever been tried outside. Success can hardly be hoped for, yet those

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 5.—The meeting which took place on Tuesday last in the Vincent Square Hall, Westminster, brought to a close a successful year's programme. The attendance was surprisingly good, the visitors including many provincial members, who were doubtless tempted by the extra attraction at Islington, the Cattle Show, to avail themselves of the last opportunity before the New Year for meeting their friends in London. The exhibition was mainly of Perpetual-flowering Carnations, the Perpetual-flowering Carnation Society's exhibition being arranged for the following day in the same building, so that most of the groups did duty for the two events.

The Floral Committee recommended two Awards of Merit to novelties, and six medals to collections.

The Orchid Committee awarded one First-class Certificate, three Awards of Merit to novelties, two Preliminary Commendations, and five Medals to collections.



FIG. 117.—DISA SAGITTALIS: FLOWERS PALE LILAC.

who have gardens on the Riviera would do well to attempt the acclimatisation. In glancing through the handbook of La Mortola I was surprised to note that no Disas were grown in those famous gardens, for surely that Mediterranean region should suit them splendidly. *W. Herbert Cox.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

GARRYA ELLIPTICA IN FRUIT (see p. 254) — Although I have never seen such fine clusters of fruits as those illustrated in *Gard. Chron.*, fig. 102, p. 254, it may be of interest to record that a plant of this shrub covering a low pillar of a gateway separating the garden proper from the wilderness at Aldenham has fruited on several occasions. On the opposite side of the pillar is a male plant, and both have, of necessity, to be pruned rather severely, and the trimming it received may have been the means of causing it to fruit in such an unfavourable locality. *E. Beckett, Fota Island Gardens, Ireland.*

The Fruit and Vegetable Committee found very little for their deliberations, and made no award.

Floral Committee.

Present: Messrs. H. B. May (chairman), J. Green, J. Heal, G. Renthe, Geo. Harrow, W. J. Bean, Sydney Morris, E. A. Bowles, R. C. Notcutt, J. W. Moorman, T. Stevenson, J. Hudson, R. Hooper Pearson, John Jennings, H. Cowley, J. Dickson, C. Dixon, H. J. Jones, C. E. Pearson, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, W. G. Baker, G. Paul, and R. W. Wallace.

AWARDS OF MERIT.

Chrysanthemum Joan Maitland.—A medium sized Japanese variety, of chestnut-bronze colour, heavily shaded with crimson, this tone being accentuated in the centre, giving a glowing appearance. The reverse of the floret is a clear gold colour. Shown by Mr. G. CARPENTER, West Hall, Byfleet.

Cupressus Lawsoniana Pottensii.—A seedling variety of the gracilis type. The plant was about 6 feet high, and made a perfect column, the closely developed branches arising from a stout, central axis. The whole plant had a glaucous hue, and its beauty was further en-

hanced by a slight recurving of the tips of the branches. The plant is a notable acquisition amongst the numerous varieties of Lawson's Cypress, and of Conifers generally. It is admirably adapted for planting as an isolated speci-

Lawsoniana Fletcheri, that resembled a Juniper in growth and habit; small pot plants of their pigmy form of Abies Douglasii named Fletcheri, and a form of Aucuba japonica longifolia, as fruiting specimens for decorations in small pots.

Mr. R. F. FELTON, Hanover Square, London, made a pretty exhibit with sprays of ornamental shrubs suitable for indoor decorations. Besides the imported sprays of Eucalyptus and Hakea he has exhibited at recent meetings, the collection included Pittosporum Tobira in fruit, Trachelospermum (Rhynchospermum) jasminoides, with foliage red from autumn tinting; Ligustrum japonicum aureo-variegatum, fruiting sprays of L. latifolium robustum, that made a charming decoration in a small wicker-pot; sprays of Cotoneaster microphylla in fruit, and shoots of Perneytia in berry.

GROUPS

The following medals were awarded for collections:—

Gold Medal to Messrs. ALLWOOD BROS., Wivelsfield, for Perpetual-flowering Carnations. This fine collection occupied the whole of a long table, and included most of the best varieties in cultivation, very attractively staged.

Silver-gilt Banksian Medal to Messrs. W. WELLS AND Co., LTD., Merstham, for Chrysanthemums. The fine late Japanese varieties, J. Bryant, with long, white florets; W. Rigby, a big, globular bloom of butter-yellow; Louisa Pockett, a globular, white, incurved Japanese variety, sometimes faintly tinged with a blush; and Edward Stanton, a new pink variety, were all well displayed.

Silver Flora Medals to Messrs. STUART LOW AND Co., Enfield, for Carnations and Begonias, the latter including the new dark-foliaged Mrs. Peterson variety. Mr. J. C. JENNER, Rayleigh, Essex, for Perpetual-flowering Carnations.

Silver Banksian Medals to Messrs. W. CUTBUSH AND SONS, Highgate, for Perpetual-flowering Carnations, and Messrs. H. B. MAY AND SONS, Edmonton, for hardy and indoor Ferns and flowering greenhouse plants.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Sir Harry Veitch, Messrs. Jas. O'Brien (hon. sec.), W. Bolton, S. W. Flory, C. J. Lucas, W. H. White, A. Dye, C. H. Curtis, J. E. Shill, J. Cypher, Walter Cobb, T. Armstrong, Pantia Ralli, J. Wilson Potter R. Brooman White, Frederick J. Hanbury and R. A. Rolfe.

AWARDS.

FIRST-CLASS CERTIFICATE.

Brasso-Laelio-Cattleya The Baroness Orchidhurst variety (see fig. 119) (B.-C. Mrs. J. Leemann \times L.-C. Ophir), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells.—A superb variety of The Baroness, for which Baron Schröder received a First-class Certificate on August 26, 1913. In its beautiful form and clear yellow colouring this variety stands far above all other Brassavola Digbyana crosses. The Orchidhurst variety has flowers of perfect form and fine substance, clear citron-yellow in colour, with lighter margin to the lip and rose lines at the base. Unlike some wide crosses, this hybrid seems to be a remarkably free grower and bloomer.

AWARDS OF MERIT.

Cypripedium John Cypher (Fairricanum \times aureum Surprise), from R. WINDSOR RICKARDS, Esq., Usk Priory, Monmouthshire.—A distinct Cypripedium of the yellow-flowered class, possessing good shape and substance. The flowers are cowslip-yellow with a slight rose shade, and there are pale green lines on the dorsal sepal, the upper part of which is pure white.

Cypripedium Chardwar (Hera Euryades \times ?), from R. WINDSOR RICKARDS, Esq.—A choice Cypripedium with the features of the best form of C. Hera Euryades well shown, and without sufficient change to disclose the other parent, which was not recorded. The dorsal sepal is large, white with a green base, and heavily spotted with chocolate-purple colour; the petals and lip are broad, coloured purplish-brown on a honey-yellow ground colour.

Laelio-Cattleya Lorna (L.-C. Wrigleyi \times C. labiata), from Messrs. FLORY AND BLACK, Orchid Nursery, Slough.—In this variety the L.-C. Wrigleyi of Messrs. Veitch (C. Bowringiana \times L. anceps) gives the form, but the size is increased on a plant of dwarfier growth, while there is evidence of L. anceps. The scape bore three flowers of good size with pale, rosy



FIG. 118—DISA TRIPETALOIDES. FLOWERS WHITE OR BLUSH SPOTTED WITH ROSE.

(See p. 283.)

men on lawns or terraces. Shown by Messrs. FLETCHER BROS.

OTHER NOVELTIES.

Messrs. FLETCHER BROS., Ottershaw Nurseries, Chertsey, showed small plants of Cupressus

Mr. ELISHA J. HICKS exhibited his new pink Rose, C. E. Shea, to show its suitability for forcing. The shell-pink blooms are long and of exquisite shape, whilst the stems are stout and of considerable length.

lilac coloured sepals and petals, the front of the expanded lip being mauve-purple.

PRELIMINARY COMMENDATION.

Odontioda Madeline var. *Black Prince* (*Oda. Charlesworthi* × *Odm. crispum*), from Messrs. ARMSTRONG AND BROWN.—One of the darkest and richest in colour of this variable cross, the flowers being of excellent form. The colour is deep chocolate-red, with a lighter red glow at the bases of the segments.

Odontoglossum Doris Orchidhurst variety (*Ossulstonii* × *crispum*), from Messrs. ARMSTRONG AND BROWN.—The second form of this fine cross which has secured the Preliminary Commendation with its first flower, which is of model shape, very darkly coloured at the back, and heavily blotched with claret-red on the inner two-thirds, the margins being white.

GROUPS.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tumbridge Wells, were awarded a Gold Medal for one of the finest collections of Orchids shown in December. The group had a frontage of about 40 feet. The main feature of the collection was a large number of specimens of the Orchidhurst type of *Cattleya Maggie Raphael* alba. All had white sepals and petals, but the rose and purple colour, with gold lines in the lip, varied in the different specimens. The best plants included the variety *magnifica*, which had already secured an award; *Dreadnought*, a fine, bold flower, and *Brilliantissima*, the labellum of which has a centre of orange colour with gold lines. In the centre of the group were new *Odontiodas* and *Odontoglossums* flowering for the first time; and at either end were *Cypripediums* and *Odontoglossums*. *Cattleya Venus Queen of Yellows* gave bright colour among the *Cattleyas*.

R. WINDSOR RICKARDS, Esq., Usk Priory, Monmouth, was awarded a Silver Flora Medal for a group of *Cypripediums*, all of good quality: *C. Swallowtail* var. *Bassano* (*Mons. de Curte* × *Fairrieianum*), one of the darkest of *Fairrieianum* crosses; *C. Pyramus splendens*, with a very showy dorsal sepal, *C. Cyclops*, *C. Antinous*, *C. Lord Wolmer Westombirt* variety, *C. elatior* *Shrubbery* variety, *C. Ernest Read*, the large *Brackenhurst* variety, of fine shape, but deficient in colour; *C. Arthurianum* *Usk Priory* variety; and many other fine *Cypripediums* were included in the collection.

Messrs. CHARLESWORTH AND Co., Hayward's Heath, were awarded a Silver Flora Medal for a group of hybrid *Cattleyas*, *Laelio-Cattleyas*, *Odontoglossums* and *Odontiodas*. Especially fine were the new *Laelio-Cattleya Athene* (*callistoglossa* × *St. Gothard*), a beautiful flower of fine colour; *Cattleya Thora* (*Empress Frederick* × *Mrs. Pitt*), shaped like *Empress Frederick*, but of finer substance and richer rosy-mauve colour, and having much yellow in the lip; and *Brasso-Cattleya Pocahontas alba* (*C. Eldorado Wallisii* × *B. Digbyana*), a pure white, fragrant flower.

Messrs. CYPHER AND SONS, Cheltenham, were awarded a Silver Banksian Medal for a representative group of *Cypripediums* which included some of the best forms of *C. Lceanum*, *C. Priam*, *C. Troilus*, *C. Thalia*, *C. Mrs. Francis Wellesley*, *C. Eudora*, *C. Rossettii*, *C. Cyclops*, *C. Tityus*, and *C. Plumptonense*.

Messrs. HASSALL AND Co., Southgate, were awarded a Silver Banksian Medal for a group that comprised a selection of *Cymbidium* and good *Cypripediums*, including their fine, darkly coloured *C. Moira*, *C. Earl of Tankerville*, and varieties of *C. Lceanum*, *C. Thalia* and *C. Priam*.

Baron BRUNO SCHRODER, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed flowers of three fine hybrids raised at The Dell. *Cypripedium Mrs. de Laszlo* (*Beeckmannii* × *Germaine Opaix*) is one of the finest of its section, with the features of *S.-C. Beeckmannii* improved while retaining the rich dark colour of that hybrid, whose petals and lip are well shown. The dorsal sepal is emerald green at the base, white above and densely spotted with dark purple and rose; *C. Vesuvius* (*fulshawense* × *Beeckmannii*), also a fine flower, and *Sophro-Cattleya Delta* (*C. Fabia* × *S.-C. Doris*), a worthy acquisition.

Messrs. FLORY AND BLACK, Slough, showed *Cypripedium Glorita* (*actaeus Langleyense* ×

Golden Glory), a distinct yellow flower with white upper half to the dorsal sepal, *C. Primrose Dame* (*Fairrieianum* × unknown), a good and distinct hybrid of lemon-yellow colour with white upper part to the dorsal sepal, also the remarkable and richly coloured *C. Little Gem*.

Messrs. SANDER AND SONS, St. Albans, staged an interesting group of showy hybrids with some uncommon species, including *Arachnanthe Clarkei*, *Cirrhopetalum Thouarsii* and *Dendrobium elongatum*.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, showed *Cattleya Katie* var. *Rayon d'Or* (*anrea* × *fulvescens*), an attractive flower of good colour, *Sophro-Cattleya Queen-Empress* *Low's* variety, and *Cattleya maxima alba* *Low's* variety.

Dr. MIGUEL LACROZE, Roehampton, showed *Laelio-Cattleya Serbia* *Byrindir* variety, a very handsome form.

ERNEST G. MOCATTA, Esq., Woburn Place, showed *Laelio-Cattleya Thyone* var. *Goldone*.

Horticulture After the War.

ON Tuesday last a well-attended meeting of members of the horticultural trades was held under the auspices of the Royal Horticultural Society, "to consider the interests of the horticultural trade and the best means of safeguarding its interests after the war" (see *Gard. Chron.* Nov. 25, p. 255).

Lt. Col. the Rt. Hon. Mark Lockwood presided. He explained the objects of the meeting, and begged those present to do their utmost to arrive at conclusions that would meet with unanimous support. He referred to the resolution before the meeting, and the long list of amendments proposed, and said that if all these were to be debated and divided upon the discussion would last for days. Mr. Charles E. Pearson spoke on the general effects of the war on the horticultural trades, and expressed the opinion that it was highly desirable that no time should be lost in placing the case before the

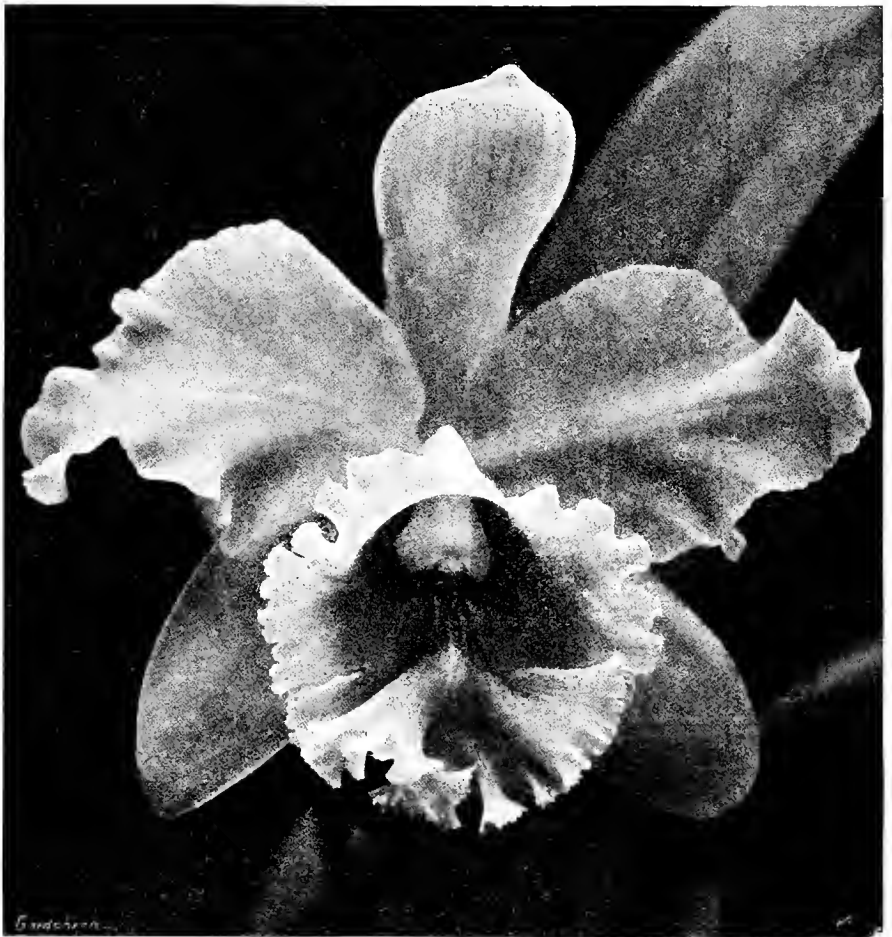


FIG. 119.—BRASSO-LAELIO-CATTELEYA THE BARONESS ORCHIDHURST VARIETY (NAT. SIZE). COLOUR OF FLOWER BRIGHT CITRON-YELLOW.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (vice-chairman), W. Wilks, E. A. Bunyard, P. C. M. Veitch, Owen Thomas, W. Poupard, A. Bullock, E. J. Harrison, and F. Jordan.

The Fruit and Vegetable Committee had no collections to inspect on this occasion, the only exhibit consisting of fruits of a late Apple. This Apple was shown by J. T. CHARLESWORTH, Esq. (gr. Mr. T. W. Herbert), Nutfield Court, near Redhill, Surrey, under the provisional name *Nutfield Beauty*. The variety is probably a local seedling. The fruits are large, pale yellow in colour, with heavy flush of red on the side next the sun, and are said to be of excellent culinary quality, whilst the small specimens may be eaten as dessert. The eye resembles *Blenheim Pippin*: the stalk is very short, thick, and irregular.

Government in order that horticulture should not be passed over in the event of fiscal changes being adopted after peace is restored. He concluded by moving the following resolution:—

"In the event of a general commercial import tariff being adopted in this country at the close of the war, this meeting of representatives of all branches of the horticultural trade requests the President and Council of the Royal Horticultural Society to urge upon the Government the necessity of taking steps to promote British horticulture, and to safeguard it from being undersold with produce of foreign origin, such steps being (a) the prohibition of horticultural imports from the enemy nations; (b) the establishment of a reasonable customs duty with neutral countries; and (c) the granting of 'most favoured nation' terms and conditions, to the produce of all allied countries."

Dr. Keeble said he spoke as one not directly

concerned in trade, therefore it lay outside his province to advise the meeting, either to accept or reject the resolution, but he would recommend the traders to study with increased earnestness their business methods and the details of cultivation, for he felt sure that in the absence of progression in these matters nurserymen would fail to reap the harvest they expected in the event of this country accepting the proposed tariffs. Mr. William Cuthbertson explained his position as president of the Horticultural Trades' Association, and why he was unable to second the resolution before the meeting. He proposed that an addition be made to the resolution praying that legislation may be introduced on the subject of land tenure. Reform in regard to fixity of tenure was absolutely essential if their hopes in regard to the development of the land were to be realised. Mr. R. W. Wallace supported the resolution, as did Mr. Slade (of Messrs. Protheroe and Morris) and Mr. H. Morgan Veitch, whilst Mr. Lobjoit, market gardener, another market gardener from Edinburgh, and Mr. George Barr opposed it, Mr. Barr proposing a series of amendments.

After nearly two hours' discussion the resolution was adopted by a very large majority, and Mr. Cuthbertson's proposed addition was rejected. It was, however, agreed to ask the R.H.S. to convene a meeting to consider and make proposals with respect to land tenure in its bearings on the horticultural industries.

NATIONAL CHRYSANTHEMUM.

DECEMBER 4.—The members of the Floral Committee of the above Society held their last meeting for the season on the 4th inst. in the Horticultural Hall, Westminster.

FIRST-CLASS CERTIFICATE.

Chrysanthemum W. Newton.—An incurved Japanese variety of exhibition form and size, which may be termed a glorified G. C. Kelly. The broad, flattish florets are of attractive rosy-amaranth colour, which is relieved by a silvery-rose reverse. (Shown by Messrs. W. WELLS AND Co.)

OTHER NOVELTIES.

The committee asked to see on some future occasion the variety Miss Elsie Bell, an attractive, small, market Japanese variety of Victoria type, shown by Mr. J. GODBER. The colour is deep yellow splashed with crimson, but the overlying colour is rather variable. The variety Mr. Charles Chichester, shown by Mr. A. W. HALL, a Japanese variety of F. S. Vallis type, is of more than average merit. The florets are shorter than in the older variety, and are coloured golden-yellow; occasional florets have faint crimson-coloured margins.

PERPETUAL-FLOWERING CARNATION.

DECEMBER 6.—The twenty-first exhibition of the Perpetual-flowering Carnation Society was held in the Royal Horticultural Hall, Westminster, on Wednesday last. The show was one of the smallest of the series, the number of entries being not more than one-half of those of the December show in 1915. Notwithstanding this, many excellent vases of flowers were staged, and the groups from the larger trade growers of the Hampton district were particularly good. The greatest falling off was noticed in the Amateurs' classes, where the blooms were of only moderate quality.

Much the finest exhibit in the Hall was the magnificent non-competitive collection staged by Messrs. ALLWOOD BROS., Wivelsfield, for which a Large Gold Medal was awarded. A Gold Medal was awarded to Messrs. STUART LOW AND Co. for a non-competitive collection. Mr. J. C. JENNER, Rayleigh, was awarded a Silver-gilt Medal and Messrs. W. CUTBUSH AND SONS, Highgate, a Silver Medal for trade exhibits.

AWARDS OF MERIT.

Carnation Red Ensign.—A large bloom of reddish-carmine colour, with entire calyx and long, stiff stem. The plant is of good habit and very free in blooming.

Countess of Wilton.—A medium-size bloom of not very regular outline. The colour is somewhat uncommon, a sort of cloudy crimson.

Both these varieties were shown by Messrs. STUART LOW AND Co.

Edward Page.—A deep, glowing, cerise-coloured variety of small size. From Mr. T. PAGE, Hampton.

COMPETITIVE CLASSES.

MESSRS. W. WELLS, LTD., Merstham, were the only exhibitors in the class for three vases containing twelve blooms each, of American novelties, distributed since January, 1913. They staged Peerless, deep cerise, Aviator, scarlet, and Echantress Supreme, and were awarded the 1st prize. Two exhibits were forthcoming in the class for five vases of five varieties, twenty-five blooms of each sort. Mr. W. SHERWOOD, Hampton Hill, was placed 1st for an admirable exhibit, the varieties being Beacon, scarlet, Echantress Supreme, Mrs. C. W. Ward, cerise, White Echantress, and Triumph, crimson. 2nd, Mr. H. T. MASON, Rectory Farm, Hampton.

Two competed in the similar class for three vases. Mr. W. H. PAGE, Tangley Nurseries, Hampton, excelled with May Day, Philadelphia and White Wonder, which was awarded the Silver-gilt Medal offered for the best vase in Classes 4 to 10. 2nd, Messrs. W. WELLS, LTD., with White Wonder, Aviator and Lord Kitchener.

For one vase of white Carnations Mr. W. H. MASON, Rectory Farm, Hampton, was placed 1st with good blooms of White Perfection. Messrs. WELLS were the only exhibitors in the class for scarlet varieties, staging Aviator, and were awarded the 1st prize. Mr. H. T. MASON won the 1st prize in the class for a crimson variety with Warrior, and Messrs. W. WELLS were placed 1st for a pink variety with Pink Perfection.

For six vases of Carnations in six varieties, six blooms of each sort, Sir DANIEL GOOCH, Bart. (gr. Mr. W. Heath), Chelmsford, was awarded the 1st prize for excellent flowers of Echantress Supreme, Triumph, C. F. Raphael, Gorgeous, and others. 2nd, Mr. G. LLOYD WIGG, Esq., Merstham, Surrey. Mr. W. HEATH was also placed 1st in the classes for three vases of Carnations, eight blooms of each, and for three vases, each containing six blooms.

Mr. T. PATEMAN won 1st prizes for (a) one vase of 12 blooms and (b) one vase of 9 blooms. Mr. G. LLOYD WIGG, Merstham, excelled in the classes for (a) one vase of 9 blooms in three varieties, (b) one vase of 6 blooms in one variety and in Messrs. Wells and Co.'s class for a vase of their novelties.

LINNEAN.

NOVEMBER 30.—Mr. T. A. Dymes contributed "A note on the Seed of *Iris Pseudacorus*, Linn.," in which he stated that

There are two forms of seed in each capsule:—

- (1) Flat seeds in the straight portion.
- (2) More or less rounded seeds at the curved top and bottom of the capsule.

The seeds drop or are blown from the placenta after the capsule dehisces. They lie over until the late spring. Those that fall on to the mud and remain there appear to perish from decay.

The loose light testa enable the seeds to float for a period of at least four months. Seeds that have not sunk germinate on or near the surface of the water in the latter half of May. The flat seeds germinate before the rounded ones. The cotyledon remains within the endosperm.

The radicle elongates and branches freely; it does not curve downwards but grows along the surface of the water. Adventitious roots are formed close up against the seed, and they also branch freely. The unbranched upper portion of the radicle secretes chlorophyll.

The plumule grows slowly; it, too, lies along the surface of the water.

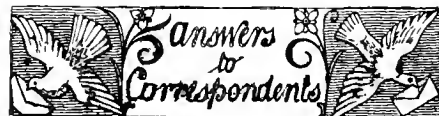
When the root system is well developed the leaves begin to curve upwards and the seedling gradually assumes a vertical position, after which the leaves grow much more rapidly.

The fate of those seeds, if any, that sink before germination has not yet been determined.

The dispersal agents are, in the first instance, the wind, and subsequently water. Even on a slow stream the seeds may drift many miles during the four months of the floating period.

Obituary.

WILLIAM SIM.—The death is announced, after a long illness, of Mr. William Sim, Slack o' Causeway, Fyvie, Aberdeenshire. Mr. Sim raised new varieties of Turnips, Peas, and Potatoes, which have been placed in commerce by leading seed merchants. He studied the life histories of many insect pests of farms and gardens, and was for long a correspondent of the late Miss Ormerod. Many years ago, Mr. Sim, in conjunction with his brother, formed a collection which included not only most of the birds and insects indigenous to the parish of Fyvie, but also examples of the rarer visitors.



NAMES OF PLANTS: *Revinat*. 1, *Santolina incana* (Lavender Cotton); 2, *Cineraria maritima*; 3, *Phillyrea angustifolia*; 4, *Arbutus Unedo*; 5, *Olearia stellulata*; 6, *Ceanothus azureus*; 7, Rose not recognised; 8, *Megasea (Saxifraga) cordifolia*; 9, not recognised; 10, *Buddleia globosa*; 11, *Grevillea robusta*; 12, *Begonia fuchsoides*; 13, *Juniperus chinensis*; 14, *Helxine Soleirolii*; 15, *Phoenix rupicola*; 16, *Euphorbia (Poinsettia) pulcherrima*; 17, *Codiaeum (Croton) trilobum*; 18, *Hibiscus Cooperi*; 19, *Acalypha Macfeeana*; 20, *Eucharis species*; 21, *Codiaeum (Croton) Johannis*; 22, *Nephrolepis todaeoides*; 23, *Hibiscus rosa-sinensis*.—C. W. P. 1, *Cypripedium Arthurianum* (Fairieanum × insigne!); 2, *Cypripedium Rosita* (Charlesworthii × callosum!); 3, *Cypripedium Longwoodense* (Leeanum × Charlesworthii!); 4, *Cypripedium Rossianum* (barbatum × tonsum!); 5, *Cypripedium Iphis* (tonsum × Argus!); 6, *Cypripedium albanense* (Masterianum × insigne!).—Mrs. S. Gristead. 1 and 2, not found; 3, *Bougainvillea glabra*; 4, *Lasiandra macrantha*; 5, *Hoya carnosia*; 6, *Cassia species*; 7, *Karatas fulgens*, often called *Guzmania picta* in gardens; 8, *Helxine Soleirolii*; 9, *Streptosolen Jamesonii*; 10, *Begonia*, probably *fuchsoides*, so far as can be determined without flowers.—*Dublin*. (Next week.)

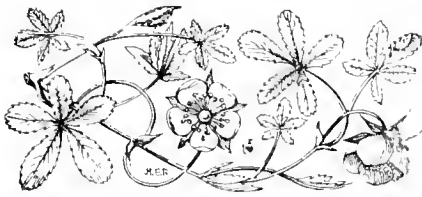
NARCISSUS BULBS: *T. H.* Small offsets of Narcissus bulbs will grow into flowering size in about three years. The time varies, however, according to the size of the offsets.

RASPBERRIES DISEASED: *J. D. A.* The canes have been killed by the fungus *Botrytis*. The fungus lives in the stumps of old canes, which should be cut close to the ground and burned. The disease spreads from the old stools to the young shoots.

SHANKING IN GRAPES: *X. Y. Z.* Shanking in Grapes results from a check to the vines, and it is most commonly due to trouble at the roots. After vineries have been planted for some years the border is apt to get into an unsatisfactory condition, mainly through the drainage becoming choked, causing the soil to become sour and inert. The vines are apt to send their roots beyond the border, and thus get out of control. The present season offers a favourable time to overhaul the border and put it in a state of efficiency. Endeavour to keep the roots at home by affording them fresh, sweet soil, and do everything to encourage the formation of a fibrous root system, by top-dressing the border with stimulating material, taking care to remove the latter at the end of the season, to enable the border to be lightly forked on the surface, so that the soil may be aerated and kept sweet.

TOMATOES UNHEALTHY: *Lintonian*. There is no organic disease present to account for the unhealthy condition of the plants or fruits. The failure is due either to some error in cultivation or to the use of unsuitable manure.

Communications Received.—E. C. P.—W. P. G.—A. D. W.—C. J. W.—Amateur—G. E.—C. M.—Newport—G. M.—W. E. B.—M. S. A.—E. H. J.—J. B.—W. T.—A. Dee Bee—J. H. Kew—W. H.—W. J. G.—W. H. D.—W. J. T. Hong Kong—Dublin.



THE
Gardeners' Chronicle

No. 1564.—SATURDAY, DECEMBER 16, 1916.

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THE BEDDING TEA ROSES.

EXCELLENT and full of flower as are the bedding Tea Roses throughout the season, perhaps we appreciate their value most in the late autumn as the days approach their shortest.

For some reason we have had very few new Roses that have proved an accession to this group, which is by no means a large one, and it is among some of the older varieties that the best in habit and hardiness will still be found. Many of these are practically evergreen, and retain their foliage throughout the winter until it is cut away at pruning time in April.

Few Tea Roses make a better bed than Marie van Houtte. It has fine, strong growth and readily adapts itself to circumstances, so that the plants may be placed about 1 foot 9 inches apart and pruned fairly closely, or allowed a little more room and permitted to grow rather more freely. Whichever course is adopted the flowers are produced in quantity whenever the weather permits. They are not, it is true, ball perfect in form, being rather too flat and cup-shaped, but they are seldom unpleasing. They are lemon-yellow in colour with a rose edge.

Almost equally good in habit, and even more beautiful in foliage and flower, is Mme. Antoine Mari; the leaves are a fine dark shiny-green when old, very ruddy when young, and the plant has good branching growth. The flowers are produced very freely and continuously, beautifully formed with a pointed centre, and are of a soft creamy pink. It will usually hold its foliage as long as any bedding Rose we have, and though I have occasionally noticed traces of black spot, it is comparatively easy to keep free even

from this troublesome malady. This Rose may either be closely pruned or allowed to grow with some freedom.

Mme. Lambert is another good old Rose quite in the first rank for bedding, but unlike the last two Roses, I have found it best when hard-pruned, and have usually repented my indulgence if I have left the shoots long. The reason for this is easy to see. Both the first two Roses I have mentioned have very branching growth and throw up strong shoots from the base even when the growth of the previous year is left somewhat long, while Mme. Lambert has a more erect habit; and if the shoots are not reduced in spring, the growth will take place too much from the top and the plants will not break so well from the base. The flowers are variable in colour, being slightly different shades of pink and rose-shaded on a creamy ground. They are often nicely shaped but seldom perfect, and are therefore usually best when opening from the bud.

Alexander Hill Gray (see fig. 120) is one of the few Teas of recent date that appears to be in the first rank for bedding purposes. It has very beautiful foliage and provides a fair quantity of flowers through the season. These are a deep lemon-yellow and well formed, and, though full, do not rot in wet weather like some varieties of Teas—White Maman Cochet, for instance.

Sulphurea is another good free-flowering yellow Tea Rose; the foliage is brilliantly ruddy when young, passing through green to a bronzed appearance, which shows up the sulphur yellow flowers well. These flowers are much less full than in A. Hill Gray, having scarcely more than two rows of petals, but they look well in the bud stage.

Corallina is an excellent bedder, free and vigorous in growth, hardy and free-flowering. The coral flowers always look well, but I prefer the shades that come in autumn. The blossoms are rather flat and cup-shaped, but look well when several are arranged in a vase. The foliage is well retained.

Anna Olivier, and its more orange-sport Lady Roberts, are also good bedding Teas. In both the foliage is good and persistent, but perhaps not so brilliantly red as some of the foregoing in its early stages. The flowers are well formed and not very full, so that they will stand a certain amount of rain without balling, but they are injured by long-continued wet weather. Moreover, the autumn, though it does not stop their flowering, takes away much of the orange colour to be found in the summer flowers of these Roses. The flowers are carried in a half-pendent position, which throws off a good deal of rain, and seldom bolt-upright except at shows, where, by means of wires, their heads are made to assume a quite unnatural position, and that in classes which direct the exhibitor to show as far as possible the habit of growth! Pruning should be rather hard.

Auguste Comte is another Tea Rose of fine foliage; the colour is rose on a ground of cream, deeper at the edges, and the flowers are pointed and tightly packed with petals. It is decidedly later in com-

ing into flower than are most of the Tea Roses, and its flowers, which are suitable for exhibition both in boxes and vases, are frequently found useful at the late shows.

Mme. Henri Berger is a Rose I am very fond of, and, like the last, is useful for exhibition alike in boxes and in the decorative classes. The colour is a pretty shade of pink, with yellow at the base of the petal, and the flower is well formed. The habit is branching, so that it may be pruned hard or otherwise as desired, and it will also do well on a low wall.

If this concludes the bedding Teas of the first class, Lady Hillingdon must come very near the head of the second class. The flowers in their deep orange-gold are charming, but being very thin must be picked young to display them at their best.

The foliage is a fine dark bronzy-green, and fairly well retained. The flower-stalks are rather slender, and the foliage not quite so copious as may be desired. But for these two slight defects it would take a higher place as a bedding Tea.

Mme. Jean Dupuy is another good Tea, well up in the second class. It is specially good in autumn if the weather be fine, but it is not of much account in bad weather; the flowers, which are of a creamy-yellow ground with soft rose-coloured edges, soon become battered and dingy in the rain, and there are distinct gaps in its flowering. These defects must keep it in the second class. It is of branching habit, so that some latitude in pruning is allowable. The foliage is good and well retained, but not specially beautiful.

The Hon. Edith Gifford is a nice dwarf bedding variety with ruddy foliage and neatly formed creamy-white flowers. The habit is branching, and its only defects are that the flowers are produced in too great profusion, necessitating some disbudding, and that they are rather easily spoiled by rain.

G. Nabonnand is another good bedder which always provides some autumnal flowers. The foliage is fairly profuse and good, and the habit leaves little to be desired, while the creamy-pink flowers are carried well and quite pleasing. Their shape, however, is not of the first class, and the bed has noticeable gaps between its periods of flowering.

Souvenir de Pierre Notting leaves little wanting in foliage and habit of growth, while the deep yellow colouring of the flowers is excellent—when one gets it. The outside petals, however, are always rough, and the flowers are seldom of much value till these are hidden or removed. They are very full and will not open well in bad weather, and for this reason this Rose can be accorded no very high place as a bedder.

Comtesse Festetics Hamilton makes good growth and the flowers are often attractive. They are well formed, and coral-rose in colour, the yellow at the base of the petal extending somewhat into the limb. The foliage is fair, but not so profuse as in some others, or it would take a higher place. Save A. Hill Gray and Lady Hillingdon, all the Roses I have named date prior

to 1903, and we seem to be getting few of this type of Rose among the new arrivals. There are two, however, of more recent introduction which I have grown, but not as bedders, and I am trying them in this way for the first time. These are Lady Plymouth and Rosomane Narcisse Thomas. In both the foliage is tolerably profuse and well retained, and it is this quality that has chiefly attracted me. Since their merits as bedding plants are for me at present *sub judice* I will leave the discussion of them to another occasion.

In selecting a position for bedding Teas the highest parts of the garden with the lightest soil

into the bed, losses are of rare occurrence, and I cannot recall a single case of the loss of an established plant of one of these bedding Teas during the past ten years. *White Rose*.

CLIMBING ROSES.

The following selection of Climbing Roses I have compiled from the large numbers in cultivation:—

AMERICAN PILLAR.—This variety was introduced by Conrad in 1909. The flowers are a charming shade of deep pink, with a clear white eye, set off by bright yellow stamens. The flowers are single, and are produced in large

base of the petals. The flowering commences at the end of June, and continues until the middle of August. The habit of growth is all that could be desired.

BLUSH RAMBLER (B. Cant, 1905).—Belonging to the Polyantha section, this variety produces exceptionally strong basal shoots, which often grow 14 feet long. The shoots are thickly clothed with large green leaves. The blush flowers, with a lighter centre, are scented, semi-double, and produced in big clusters.

EXCELSA (Walsh, 1909).—This variety is commonly known as the Crimson Dorothy Perkins. It is the finest of all the richly coloured sorts, the colour being scarlet crimson. The large trusses are freely produced from base to summit, on plants that attain to a height of 12 feet.

SODENIA (Weigand, 1912).—A vigorously growing Wichuraiana variety that flowers freely. The petals are coloured brilliant carmine, the tone approaching scarlet, and both trusses and flowers are large.

GARDENIA (Souper et Notting, 1900).—This Rose is the first of the Rambler type to open its flowers, and the last in bloom, for it produces several crops of blossom in the one season. The flower-buds are deep yellow, the petals changing to pure white as they advance in age.

PAUL'S SCARLET CLIMBER (W. Paul and Son, 1916).—This new Rose is destined to take a high position in the garden. The vivid scarlet blossoms, shaded bright crimson, make a conspicuous display, being produced in profusion. The growth is strong, with ample foliage.

TAUSENSCHÖN (A. Schwartz, 1906).—This strong-growing variety flowers freely, the blooms being produced in large, loose trusses, the colour pink, deepening to rosy carmine with age. The flowers last for a long time in a fresh condition on the plant.

LADY GODIVA.—A pink-coloured sport from Dorothy Perkins, supposed to be identical with Dorothy Dennison and Christian Curle, all of which appeared as sports in different parts. The colouring in Lady Godiva is deeper than in the others, and for this reason it is preferred.

LADY GAY (Walsh, 1905).—This popular Rose is to be distinguished from Dorothy Perkins by its larger blooms, set wider apart, and by the deeper tone, which is cherry-pink. In growth and freedom of flower this variety leaves little to be desired.

DOROTHY PERKINS (Perkins, 1902).—This is the most popular of all Rambling Roses. It has all the attributes desired in growth, freedom of flowers, hardiness, and general adaptability to all forms of training.

MINNEHABA (Walsh, 1905).—A late-flowering variety, producing large raceme-like flower trusses, the colour being dark rose. The plant is a good grower and flowers with freedom.

CLAIRE JACQUIER.—This Rose produces small blooms of a nankeen colour, in large clusters, and blooms early in the season. It is useful for extending the flowering season.

SWEETHEART (M. H. Walsh, 1903).—The flowering season of this variety extends over a long period, and the blooms last a long time in a fresh condition. The opening buds are pink, changing to pure white with age.

MADAME ALFRED CARRIÈRE (A. Schwartz, 1879).—I add this variety because it commences to flower in June. The buds are pink, developing to pure white, and are freely produced. The growth is strong and clean.

HIAWATHA (Walsh, 1905).—A single-flowered Wichuraiana of a brilliant scarlet colour. The blooms of this Rose last in good condition perhaps longer than any other variety. The habit of growth is strong, yet graceful in character.

EVANGELINE (Walsh, 1907).—This single-flowered Wichuraiana variety produces large panicles of fine blooms, which are white, with carmine-tipped petals. *E. Molyneux*



FIG. 120.—TEA ROSE ALEXANDER HILL GRAY: COLOUR DEEP LEMON-YELLOW.
(See p. 287.)

are the best. If the soil is really heavy clay it may be much improved for these Roses by burning part of it and adding the burnt clay in tolerable quantity to each bed. About Christmas time a little mound of burnt clay may usefully be heaped round each plant, to be removed and mixed with the soil at pruning time. If these precautions be taken, and only good, well-rooted plants used in the beds, but little fear of their ability to stand the winter need be entertained, while their glossy foliage makes them, with only moderate attention, proof against mildew. In the absence of some accident, such as fungus getting

clusters. The growth is exceptionally strong, with robust foliage of a deep green colour and shiny surface.

SANDER'S WHITE.—This Rose is of recent introduction, and may be classed as the best white Rambler flowering in July and August. The blooms are borne in large masses, almost as panicles, and are pure white. The growth is strong, with true Wichuraiana foliage.

FRANÇOIS JURANVILLE.—A Wichuraiana of the true form, introduced by Barbier in 1906. The blossoms are large for a Rambler, and bright salmon-pink in colour, with orange-yellow at the

INTENSIVE PROPAGATION OF POTATOS.

METHODS EMPLOYED DURING THE BOOM OF 1903.

THE very meagre supply of Potato seed tubers for next season has led those interested in the subject to put forward a great number of enquiries and suggestions which are intended to lessen the inconvenience and loss that the shortage is likely to bring about. Amongst the enquiries are some relating to intensive propagation in order to increase the stock before planting time arrives at the end of May. Everyone knows that given a single root of Dahlia in December, experienced propagators can raise a very large number of plants from cuttings before it is safe to plant them in the open. The same methods of propagation are just as successful, so far as immediate effects are concerned, in the case of Potatos.

The following remarks upon the quickest methods of propagation are made with a view to informing readers what is possible in this direction, rather than to recommend them for adoption. If a cultivator desires to increase his stock of seed-tubers of a particular variety that has proved to be suitable to his locality and soil, he will generally find the old systems of

(fig. 122). The plant from which the cutting has been taken will produce side-shoots, which may also be removed and rooted in just the same way; bearing in mind, however, that it is necessary to have all the plants established in pots



FIG. 122.—ROOT CUTTING OF POTATO.

ready for planting into the open ground as soon as there is no longer fear of late spring frosts. If such plants are not put out too late, there need be no fear that they will fail to crop well. It has been proved that a Potato-plant raised from a cutting will, under favourable conditions, produce a crop of tubers equal to that obtained from an undivided "set" or tuber.

Another method of propagation is shown in fig. 123, where the tuber having been permitted to sprout, each little sprout is taken off and treated as a cutting. Each eye usually affords several such cuttings. In fig. 124 is illustrated a tuber that has commenced to "run" in the clamp. If such growths be cut into little pieces, each will grow and make a plant.

In these ways may expert cultivators work, and by so doing some have raised crops of nearly 450 pounds of Potatos from two pounds of tubers. If the propagation is not to be pushed beyond the single-eye system, an improvised frame is all the protection required. It should be erected on the south side of a thick hedge or wall, and be provided with canvas blinds to be drawn over the plants at night, if there is no glass covering.



FIG. 123.—A SPROUTED TUBER.

We have witnessed a heavy yield of Potatos upon land that was previously manured as follows:—To each quarter of an acre, 3½ loads of farmyard manure, ¼ cwt. of sulphate of ammonia, ¼ cwt. of muriate of potash, and 1¼ cwt. of superphosphate. Unfortunately, potash man-

ures are hard to come by. A point not to be overlooked is the possibility that varieties intensively propagated may deteriorate as a result of this treatment. Thus it is a general opinion among Potato growers that the constitution of Northern Star, one of the most promising of Potatos, was ruined by the intensive propagation to which it was subjected during the Potato boom of some years ago. On the other hand, it is evident that if the prospect of shortage is indeed very great, this risk ought to be run and also provided against.

NEW OR NOTEWORTHY PLANTS.

(Concluded from page 228.)

PIPTANTHUS CONCOLOR, HARROW, SP. NOV.

Ramuli juvenute angulati, adpresse albo-pubescentes, fusco-corticati, mox teretes, glabri, parce et vix conspicue lenticellati, cortice viridi vel olivaceo-viridi obtecti. *Folia* alterna, digitatim trifoliolata, petiolo communi usque ad 2.5 cm. longo supra late haud alte canaliculato subtus convexo parcius plus minusve adpresse albo-pubescente suffulta; stipulae 9-11 mm. longae, in



FIG. 121. — POTATO PLANT PROPAGATED FROM A SINGLE EYE, AND AFTERWARDS "TOPPED" TO SUPPLY CUTTING SHOWN IN THE NEXT FIGURE.

employing tubers only, best and safest. He can utilise the whole of the tubers as sets, and he may cut into two or more sets any tubers that are unnecessarily large.

In cases, however, where the amateur is obliged to content himself with a pound or so of tubers, or in a season when sufficient seed-tubers cannot be procured, he may quickly raise a stock by using each "eye" or bud in a tuber to produce a distinct plant. Cut out each eye from the tuber with a sharp knife, keeping to each eye as much of the substance of the tuber as possible. Then insert each eye in a separate pot, three inches in diameter, containing suitable soil, and get the plants established in these pots before planting them out into the open ground. A warm house is necessary for rooting the eyes, but not an excessive amount of heat or the shoots will be drawn and weakened. If the eyes are started sufficiently early in the season—say February—and there exist the necessary means of cultivating them until the plants can be put into the ground, the first shoot that is made may be cut off a little above the collar (Fig. 121) when several inches high, and inserted in a pot filled with sandy soil, in which it will make roots as easily as would a cutting of Pelargonium

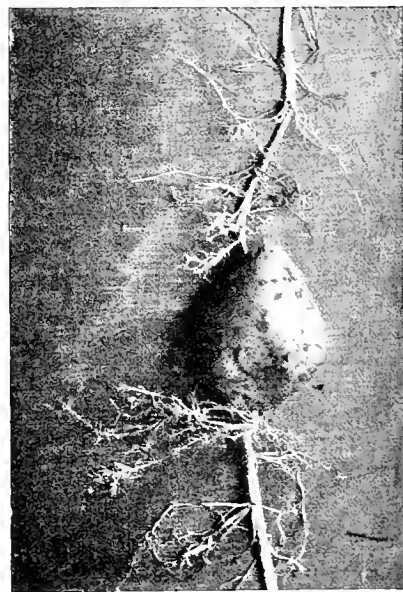


FIG. 124.—A POTATO TUBER THAT HAS BEGUN TO RUN.

nam apice bilobam lobis deltoideis acutis 3-5 mm. longis mox recurvis connatae, extra subsericeae, ciliatae, virides, persistentes; foliola saepissime oblanceolata vel oblongo-oblanceolata, lateralibus parum inaequilateralibus, omnia apice brevissime acuminata, acuta, basi cuneata, usque ad 6.7 cm. longa et 2.7 cm. lata, chartacea vel tenuiter coriacea, pagina superiore juvenute nitida, mox subnitida vel saepius vix nitida, omnino glabra vel plerumque pilis paucis albis ad costam et inferne costam versus instructa, inferiore parum pallidiora, parce adpresso pubescentia et praeterea squamulis satis numerosis instructa, nervis lateralibus utrinque 6-8 intra marginem arcuatum conjunctis supra subconspicuis vel fere obscuris subtus prominulis, nervis transversis paucis subtus conspicuis, margine conspicue densius albo-ciliata. *Inflorescentia* generis, internodiis angulatis superne incrassatis tenuiter albo-pilosis, bracteis deciduis; pedicelli recurvi, 15-18 mm. longi, longius albo-pubescentes, pilis inferioribus magis minusve adpressis superioribus saepius intertextis. *Calyx* extra subsericeus, circa 1 cm. longus; tubus intro glaber; lobi intra superne tomentelli, circa 5 mm. longi, duo supremi in unum apice acute bilobum connati, duo laterales et infimus liberi, acuti, basi 2.25 mm. lati. *Corolla* lutea, vexillo medio maculato; vexillum reflexum, apice emarginatum,

dorso medio carinatum, transverse oblongo-orbiculare, circa 13.5 mm. longum, 16-17.5 mm. latum, ungui cuneato 5 mm. longo apice 4 mm. lato suffultum; alae 12-12.5 mm. longae, 6.5-7 mm. latae, apice rotundatae, ungui 6.6-5 mm. longo suffultae; carina 15-16 mm. longa, 7-8 mm. lata, ungui 6.5 mm. longo suffulta. *Stamina* libera, circa 2 cm. longa. *Ovarium* 6 mm. altum, suturis sericeum, lateribus tenuiter sericeum 8-ovulatum, stipite ioferne glabro 4 mm. longo suffultum, stylo glabro 5-6 mm. longo.

China. *Wilson*, 885—cult. Hort. Bot. Reg. Edin. (*type*). Mengtze, N. Mts., 7,000 ft., *Henry*, 10,230 A and Tachienlu, *Pratt*, 707 probably are referable here.

PIPTANTHUS FORRESTII, CRAIB,
SP. NOV.

Frutex 9-13-pedalis (ex *Forrest*); ramuli primo adpresse albo-pubescentes, angulati, demum glabri, teretiss. *Folia* alterna, trifoliolata, petiolo communi 6-13 mm. longo supra canaliculato adpresse pubescente suffulta; stipulae 5-8 mm. longae, in unam apice plus minusve bilobatam lobulis acutis connatae: foliola lanceolata vel oblanceolata, apice acuta vel brevissime acute acuminata, basi cuneata, lateralia parum inaequaliter, 3.4-2 cm. longa, 8-11 mm. lata, chartacea vel subcoriacea, pagina utraque pilis brevibus adpressis vix conspicuis instructa, nervis lateralibus gracilibus utrinque circiter 10 intra marginem arcuatum conjunctis supra subconspicuis vel saepissime fere obscuris subtus plerumque conspicuis, costa subtus prominente, nervulis fere omnino obscuris, margine ciliata. *Inflorescentia* generis, rhachi pubescente vel pilosa, internodiis 10-17 mm. longis; bractaeae 10-12 mm. longae, extra sparse sericeae, intra praesertim superne adpresse pubescentes; pedicelli 12-16 mm. longi, albo-pilosi, apicem versus articulati. *Calyx* 15 mm. longus, extra sericeus, tubo intra glaber; lobi 8 mm. longi, duo supremi in unum apice acute bilobatum connati, laterales cum infimo mox reflexi, basi 3-3.5 mm. lati, apice acuti. *Corolla* aureo-lutea; vexillum reflexum, dorso medio carinatum, orbiculare, apice emarginatum, 2 cm. diametro, ungui 5 mm. longo suffultum; alae 22 mm. longae, 12 mm. latae, ungui 8 mm. longo suffultae; carina 26 mm. longa (auricula basali 3 mm. longa inclusa), ungui 7 mm. longo suffulta. *Ovarium* sericeum, 12 mm. longum, stipite 9 mm. longo superne puberulo suffultum.

Yunnan, mountains west of Fenkou Valley, forming large masses on alpine meadows, 11-12,000 ft., flowers bright golden yellow, *Forrest*, 12,577 (*Herb. Edin.*). *W. G. Craib*.

TREES AND SHRUBS.

PYRUS ARIA MAJESTICA.

WISHING to ascertain to what extent *Pyrus Aria*, the White Beam Tree, varied in a state of nature, I examined a large number of trees on the North Downs, from Titsey to Shere, in Surrey, during the past summer, and found a considerable range of variation. Amongst others I discovered what I consider to be *P. Aria majestica*, the finest of all the varieties of this beautiful tree. Mr. Bean, in *Trees and Shrubs*, states that the leaves of this variety are sometimes 7 inches long and 3 inches to 4 inches wide. The leaves I gathered were $5\frac{1}{4}$ by $3\frac{3}{8}$ inches, exclusive of the stalk. The specimen was collected for the shape of the leaves rather than their size, and the tree was growing on a steep chalk bank, where the soil must have been dry and poor rather than rich. In another district I gathered the form with incised leaves. These were even larger, namely, $6\frac{1}{4}$ to $6\frac{3}{8}$ by $3\frac{1}{2}$ to $4\frac{1}{8}$ inches, exclusive of the stalk. I have seen both these forms of leaf on different trees in Kew Gardens, and also the plate in the *Botanical Magazine*, t. 8184, and can find no difference between them and the wild trees. Mr. Bean supposes *P. Aria majestica* to have originated as a chance seedling in cultivation, and this is likely, because nurserymen are always keen to select promising trees from

their seed beds. I have seen three trees with these large leaves, and have a specimen of a fourth with rather smaller leaves, but similar in shape. Judging from these specimens, and others I collected, *P. Aria* is almost or quite as variable in the wild as the cultivated state. In Surrey, Kent, Berkshire and Wiltshire it is a tree of the chalk downs; seeds in abundance in certain years and seedlings germinate freely the following spring, as I have had evidence last year and this. The leaves of *P. Aria majestica* vary from oval to oblong. Those of the type vary between oval and ovate, sometimes almost orbicular, especially those of the incised form, which is fairly frequent on the area of the North Downs which I have examined. *J. F.*

ARTEMISIA JUDAICA.

A PLANT of *Artemisia judaica* has survived the past two winters here without protection, although in some previous years other plants failed to do so. The species would probably not be harmed by cold in the warmer parts of the British Isles, such as Cornwall and the South of Ireland. I know of no other grey foliaged plant which is so effective as this *Artemisia*, and have made a practice of using young specimens amongst summer bedding plants, such as Begonias, for several years. Cuttings inserted in the autumn in a cool pit in the same manner as *Penstemons* and *Calceolarias*, root freely, and the stock may also be increased by means of seeds sown in heat in February.

I do not know the origin of this plant. *Nicholson* does not mention it in his valuable dictionary, and I therefore infer that it is of comparatively recent introduction. *W. H. Divers*, *Belvoir Castle Gardens, Grantham*. [The plant is a native of Egypt and Arabia.—Eds.]

FRUIT REGISTER.

CULINARY APPLES

Of the newer varieties of culinary Apples *Edward VII.* should be given a trial, as it is a free setter and heavy cropper, producing good sized fruits that cook splendidly and keep well. *Royal Jubilee* is also a good setter and cropper, but the fruits do not keep so long as those of the former variety, although they cook well. Our trees are horizontally trained, as are those of *Lord Derby*, *Bismarck*, *Lane's Prince Albert*, *Stirling Castle*, *Grenadier* and *Sandringham*, as ground is limited and trees planted by the sides of paths require less room than standards. *Cordon* trees trained as an archway over a path will furnish plenty of fruit. Trees of *Blenheim Pippin*, *Newton Wonder*, and *King of Tompkins County*, trained on both these systems, gave us good returns this season. For such trees close winter pruning is not to be recommended. Old standard trees of *Keswick Codlin*, *The Queen*, *Peasgood's Nonesuch*, *Lane's Prince Albert*, *Dumelow's Seedling* (*Wellington*) and *Waltham Abbey Seedling* do well here. The last is a sure cropper, but the fruits are leathery in texture. *Frogmore Prolific* and *Potts's Seedling* both develop spot disease, and will be discarded. Young standard trees of *Lord Derby*, *Annie Elizabeth*, *Bramley's Seedling*, *Blenheim Pippin*, *Newton Wonder*, *Dumelow's Seedling* (*Wellington*), and *Lane's Prince Albert* have recently been planted by the paths in the kitchen garden. For planting as standards in this district we prefer *Lord Derby*, *The Queen*, *Peasgood's Nonesuch*, *Blenheim Pippin*, *Bismarck*, *Bramley's Seedling*, *Annie Elizabeth*, *Newton Wonder*, *Dumelow's Seedling* (*Wellington*), *King of Tompkins' County*, and *Striped Beefing*. Our best late-keeping Apples are *Bramley's Seedling*, *Newton Wonder*, *Striped Beefing* and *Dumelow's Seedling*. The last named does not always give a good crop. *A. B. Wadds*, *Englefield, Reading*.



The Week's Work.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent,
University College, Reading.

HORSERADISH.—The roots of *Horseradish* may be lifted and stored in sand or soil until they are required for use. The plant may be propagated from portions of the roots in a similar manner to *Seakale*. The ground for planting should be trenched in winter and the planting done in the following spring.

LETTUCE.—Make a sowing of *Lettuce* in boxes, choosing an early maturing Cabbage variety. Fill the boxes with old potting soil that has been passed through a fine sieve. Germinate the seeds in a little warmth, a fruit-house which has just been started being a suitable place. As soon as the seedlings are large enough to handle, prick them out into boxes filled with rich soil, allowing a distance of 2 inches in each direction between the seedlings. Remove the alternate plants when they are large enough for use, and allow those that remain to mature.

ASPARAGUS.—Make preparations for forcing *Asparagus* in brick pits. A deep hotbed that will retain its heat for a long time should be placed in the pit: the bed should be made of equal parts Oak or Beech leaves and stable manure. When the heat from fermentation has declined to a suitable degree, pack the crowns closely together on the bed, and shake fine soil between the roots. Cover the crowns with the soil to a depth of about 4 inches. Well water the plants, and afterwards maintain the bed in an uniformly moist condition. Unlike such roots as *Seakale* and *Rhubarb*, the roots of *Asparagus* are harmed by atmospheric exposure. The frames in which the crowns are forced should be protected with mats or litter during severe weather.

MANURES.—Farmyard manure should be stacked carefully, if possible under cover, in a pit provided with a concrete floor, a drain, and a tank in which the liquid drainage may be stored. The liquid portion constitutes a valuable plant-food, and should not be allowed to drain wastefully into the soil. The longer portions of stable manure may be dried in a shed for use as protective material during times of severe weather. *Fowls' dung* should not be exposed to the rains, but dried and stored in a dry shed. *Pigeons' dung* should be collected at weekly intervals, thoroughly dried, and stored in a dry place. *Green garden refuse* which cannot conveniently be dug into the soil should be placed into a heap to decay: it will provide a valuable source of *Humus*. Carefully collect all ashes from the garden fire and store them in a dry place.

THE FLOWER GARDEN

By W. J. GRISSE, Gardener to Mrs. DEMPSTER, Keele Hall, Staffordshire.

PROTECTING PLANTS, TREES, AND SHRUBS.—Certain plants, including tender *Roses* and shrubs, need a little protection from severe frosts, and in most cases very slight coverings will suffice. *Dry Bracken Fern*, branches of *Yew*, or *Spruce* shoots are suitable for the purpose, and they should be inserted in the soil about *Eupatorium Weinmannianum*, *Escallonia*, *Elaeocarpus reticulatus*, *Teucrium betonicum*, *Buddleia madagascariensis*, *Andromeda*, and *Olearias*. Mats, or, better still, tiffany, should be in readiness to place over such wall plants as *Lapageria*, *Cassia corymbosa*, *Camellia reticulata*, *Callistemon*, *Fabiana imbricata*, *Clematis* and *Magnolia*. Tea and other tender *Roses* in beds may be protected by inserting branches of *Yew* on the outside of the beds, or, in the case of large beds, amongst the plants themselves. *Yew* keeps green for a long time after it is cut, and is especially effective in screening the plants from cold winds, which are sometimes more injurious to plants than frosts. Climbing and standard *Roses* growing in cold districts may be protected by placing tufts of *Bracken Fern* amongst the branches. Most herbaceous and Alpine plants will pass

safely through the winter if covered with half-decayed leaves or dry Bracken. Sifted ashes will afford sufficient protection, both from frost and slugs, to Delphiniums, Phloxes, Hollyhocks, and similar plants.

STANDARD ORNAMENTAL TREES.—Trees of this nature need a little trimming at this season, such as shortening of irregular growths and removing dead branches, to ensure well-balanced heads and clean, straight stems. I refer to such trees as Beech, Hornbeam, Sycamore, Ash, Lime, Poplar, Thorns (Crataegus), and the Norwegian Maples.

DAPHNE.—*Daphne Cneorum*, rosy-pink; *D. alpina*, white; *D. blagayana*, pale yellow; and *D. Mezereum*, reddish-purple, are excellent subjects for the rock garden. All these species have sweetly-scented flowers. The plants grow best in a compost of loam, peat, sand, and stone chippings. Established specimens in pots should be procured for planting, as these will not receive so great a check as those lifted from the ground.

HARDY FERNS.—The hardy fernery should receive attention. Remove dead fronds, which may be utilised as protective material for semi-hardy plants. The evergreen species of *Aspidium*, *Polystichum*, *Polypodium*, and *Scelopendrium*, which remain in good condition throughout the winter, need a little trimming occasionally. Fork the soil lightly between the roots, and apply a heavy dressing of leaf-mould mixed with sand. This material will afford ample protection to the more tender species, apart from its beneficial effects to the roots.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to the Hon. Mrs. SPENDER CLAY, Ford Manor, Lingfield, Surrey.

CUCUMBERS.—It is very important to guard against overcropping Cucumbers in winter, and equally necessary to keep down attacks of thrips and aphids. No matter how good the inside management, a circulation of fresh air is always necessary when outside conditions will permit to have the ventilators open in more or less degree. Plants in full bearing that will be diseased when young Melons or more Cucumbers are ready to take their places may be given a temperature varying from 65° to 70° at night, and proportionately more heat by day. The syringe will scarcely be needed, but moisture must be supplied regularly, and the roots top-dressed frequently with rich compost, kept in a warm corner for the purpose.

THE ORCHARD HOUSE.—When the buds on the earliest trees become prominent, the period of casting the buds will have passed, and the temperature of the house may be raised a little, especially during the early part of the day. Trees in pots seldom cast their buds when grown in a free circulation of air and a moderate temperature in the early stages. Syringe the trees lightly with tepid water, and damp the walls and other bare spaces freely, but where fermenting material is used this is not so necessary, as the hot-bed will provide much atmospheric moisture. Let the night temperature be 45° in cold weather and 50° when it is mild. Guard against attacks of aphid by fumigating the house lightly on two occasions before the trees come into flower. Other pot trees, such as Cherries, may be taken inside, but in mild weather all the ventilation possible should be afforded, both night and day, to prevent the buds from becoming too forward. Trees planted in inside borders also require an abundance of fresh air. The soil of the border should be kept moderately moist. If a few early Cherries are desired, force some of the more forward varieties, such as Early Rivers and Bigarreau de Schreken, in gentle warmth. Keep the atmosphere moist, and let the temperature range from 40° to 45° at night, and 50° to 55° by day. Water the roots freely with tepid water, and especially those that are pot-bound. As the buds swell and show signs of expanding, watch carefully for infestations of grubs and green fly. Take measures to check the pests directly they are detected. Pot trees of Plum, Apple, and Pear may remain plunged in sheltered positions out-of-doors, and protected by Bracken or other suitable material. The pruning and top dressing of these trees will provide suitable work under cover for the staff in bad weather. It is a common

error in the cultivation of pot fruit trees to retain too much growth, not only in winter, but also in summer. No matter how careful other details are carried out, the crop will be unsatisfactory when the shoots are crowded and weak.

THE ORCHID HOUSES.

By T. W. BUSCOE, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

STENOLOTTIS.—The terrestrial Orchids included in the small genus *Stenoglottis* are natives of South Africa, and, as a rule, bloom during the autumn and winter. The principal garden species is *S. longifolia*, with its varieties *alba* and *splendens*, but the dwarfier *S. fimbriata* is also worthy the attention of growers. They should be grown in a cool house within a reasonable distance of the roof-glass. When the flower-spikes are removed, the plants gradually lose most of their leaves, and during this stage they do not require much water, but at no time must the roots become really dry. Repotting should be done when fresh growth has developed well above the surface of the pot. Pans without side holes are the most suitable receptacles, and should be filled one-third of their depth with drainage material. Several growths should be placed in one pan, to make a compact specimen, which is preferable to one growth in a single pot. The compost should consist of two parts best fibrous loam and one part partly-decayed Oak leaves, with a moderate sprinkling of coarse sand and crushed crocks. For a few weeks after potting water the roots sparingly, but when growth is more vigorous give more copious supplies of moisture. If aphid is present on the plants vapour the house lightly, but when the house receives a general fumigation, to destroy thrips on the other Orchids, remove the plants of *Stenoglottis* during the operation.

DENDROBIUM. Plants of *Dendrobium Wardianum*, *D. crassinode*, *D. nobile*, *D. aureum*, *D. Ainsworthii*, and many others of hybrid origin that are developing flower-buds should be removed from their resting quarters. Do not place them in a warm house immediately, but accustom them gradually to a higher temperature. If no other house is available, the Cattleya house will suffice until the buds are nearly developed, when they may be given the lightest position in the warmest house. At present only enough water should be given to the roots to keep the pseudo-bulbs in a plump condition. Growth will be very slow at this season, and the object should be to encourage the buds to develop without exciting any growth at the base. With early flowering plants there is a tendency for the buds to drop off prematurely, and instead of the flowers, side growths will be produced. Over-watering, a moist atmosphere, and a high temperature are conducive to irregular flowering. *D. Wardianum*, *D. Falconeri*, and some of their hybrids, often begin to grow again from the base, almost before the current pseudo-bulb is completed, but such growths may be left out of consideration for the time being, as they will make up some tolerably useful pseudo-bulbs when more generous treatment is given. All *Dendrobiums* should be given the maximum amount of light during the winter months. *D. nobile*, with its several varieties, is always a favourite, and by judicious treatment the flowering period may be prolonged over several months. This is done by bringing a few plants into a warmer house at intervals. The bulk of the *Dendrobiums* will flower in the spring, and these should remain in the resting house until their flower-buds are noticed. Such plants as *D. albosanguineum*, *D. superbum*, *D. Bensonsii*, and *D. MacCathinae* are best suspended from the roof-rafters of the Cattleya house where they will bloom in due season. They should only be given water at rare intervals. The *Thysaniflorum* group should now be resting in a temperature of 50°; they should be kept comparatively dry at the roots.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

VIOLETS.—Admit an abundance of air to cold frames in which Violets are growing whenever the weather is suitable. In very mild weather the lights should be removed entirely. In the event of severe frost at night, cover the glass

with protecting material. Examine the plants once a week and remove decayed leaves and flowers, also lift the flower-buds above the leaves where they will open quicker. Stir the soil between the plants occasionally with a pointed stick. Watering should be done on the morning of a fine day; the plants will not require much moisture at this time of the year.

GARDENIA.—Mealy bug is a great pest of the *Gardenia*, and unless measures are taken to thoroughly clear the plants of this insect before the flower-buds begin to expand many of the trusses will be spoilt. The simplest way of ridding the plants of mealy bug is to place the pots on their sides and vigorously syringe the plants with an insecticide. This should be done every week till the plants come into flower. Afford stimulants to the roots to assist the flower-buds to develop; the pots are well filled with roots and will be benefited by feeding.

HIPPEASTRUM (AMARYLLIS).—A few of the earliest plants of *Hippeastrum* may be placed in heat. Select bulbs which give promise of flowering. Before placing the plants in the forcing-house remove an inch or two of the surface soil and replace this with a mixture of loam, leaf-mould, crushed bones and coarse sand. See that the drainage is clear.

BEGONIA GLOIRE DE LORRAINE.—This useful *Begonia* will flower during the greater part of the winter, but it should not be grown in much fire-heat. A minimum temperature of 50° is suitable, and even less warmth will suffice during very cold weather. Water and feed the roots with care. When the earliest plants are too shabby for further use they may be partly cut back, placed closely together in a greenhouse, and rested for a few weeks. By this treatment they will produce cuttings more freely later.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PROPAGATING BUSH FRUITS.—Cuttings of Red and White Currants and Gooseberries should be made from strong, healthy shoots of the current year's growth, 12 to 18 inches being a suitable length. Remove the weak tips of the shoots and make a clean cut at the bottom part, directly under a bud. All buds with the exception of five or six at the top should be removed. Insert the cuttings on the shady side of a wall or hedge; if the soil is on the damp side, so much the better. Mark out a row with the garden line, open the soil with the spade, and place the cuttings neatly in their places, treading the soil very firm. Make the rows 15 inches apart, and allow a space of 9 to 12 inches between the cuttings in the rows. Examine the cuttings after severe frosts, and if any are loosened in the soil, make the ground about them firm again. The base of the cutting becomes dry in loose soil and roots will not develop in the absence of moisture.

PROPAGATING THE BLACK CURRANT.—Cuttings of the lower buds, for basal shoots are necessary to furnish the plants with strong, young shoots annually. The cuttings need not be quite so long as in the case of Gooseberries and Red Currants, for no "leg" is required to carry the branches above the ground.

ONE- AND TWO-YEAR-OLD BUSH FRUITS.—Where the propagation of bush fruits is done annually, the young bushes require transplanting each season, and the present time is suitable for doing this work. Allow the bushes ample room for their development. One-year-old Black Currants should be cut down almost to the ground level, to lay the foundation for a dwarf, sturdy plant. Red and White Currants and Gooseberries should be pruned severely the first season or two, in order to obtain firm, well-balanced bushes.

THE PROTECTION OF FIGS.—In cold districts Fig trees need protection in winter, and the material should be at hand ready for use as occasion arises. Trees that have been thinned and stopped are the more likely to have well-ripened shoots, which withstand a considerable amount of frost. Mats or canvas may be used as protective material, and these are easily removed in mild weather. It is a mistake to cover the trees permanently for the winter.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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

Letters for Publication.—as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY of the PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.7°.

ACTUAL TEMPERATURE—
Gardener's Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, December 14, (10.0 a.m.): Bar. 28.8"; temp. 35°. Weather—Dull.

SALES FOR THE ENSUING WEEK.

TUESDAY—Orchids and Japanese Dwarf Trees, at 67 and 68, Cheapside, by Protheroe and Morris, at 1 o'clock.

WEDNESDAY—Bulbs, Herbaceous Plants, Fruit Trees, Rhododendrons, Rose Trees etc., at 12 o'clock.
Japanese Lilies and Spring-flowering Bulbs, at 3 o'clock, by Protheroe and Morris, as above.

The Board of Agriculture and Potatoes Committee.

The establishment of a Committee to advise and co-operate with the Board of Agriculture on the various aspects of Potato cultivation should result in benefits to all those concerned with the Potato industry, whether as gardeners, farmers, merchants or raisers. There are many subjects which will demand the attention of this Committee. Few will dissent from the views that there are too many varieties of Potato in cultivation, and that there are varieties which so closely resemble one another as to be identical for all practical purposes. If all of these numerous varieties and each of these approximately identical sorts were of high and equal cropping capacity no great harm would be done by leaving things as they are. But in point of fact they are by no means all of equal value, and hence those who grow Potatoes cannot but benefit by an authoritative pronouncement on the subject of which are the best varieties. Needless to say, many growers have satisfied themselves already as to the varieties which do best on their land, and on the principle that the whole have no need of the physician, they do not require guidance; but there are also many others who will welcome and benefit by advice. To draw up lists of the best varieties is, however, by no means an easy

or speedy task. For example, what is best in one set of conditions is by no means best in other conditions of soil and climate. Again, it by no means follows that because two varieties are almost identical in general characters—colour of skin and flesh, shape of tuber, depth of eye, colour of flower and other morphological characters—they are also identical in cropping powers. Comparative and properly devised trials can alone determine such questions as this. To illustrate the point: we are assured by growers of experience that the variety King Edward—or certain stocks of that variety—occasionally throws tubers the colour of which is not confined to the region of the eye, as is the case with the typical tubers, but is deeply suffused over the whole surface; and it is averred that the yield from these latter "sports" is considerably less than that from the type form. Similar differences in the all-important character of yield are doubtless to be found among different stocks of one and the same variety, and among varieties which in other respects are almost identical with one another.

A natural and very valuable outcome of the work of the Committee on the subject of synonyms will be a classification of varieties. Such a classification will undoubtedly be of great practical value, for in the first place, it will enable anyone who cares to consult it to discover whether the Potatoes on a given plot are or are not true to name. In the second place, it will render it easy to ascertain at once whether a new variety is or is not new with respect to its general characters. If it is not, and if, after comparative trial, it shows no superiority as to yield over other varieties which it resembles, there will be no place for it in any list of approved varieties which the Committee may from time to time draw up. It is not necessary to point out that there are other and no less important directions in which the Committee may pursue its activities with benefit to the community. The excellent work which has been done already by the Board's officers and by the farmers in Lancashire and elsewhere with respect to varieties immune from wart disease (black scab) will no doubt be continued by the Ormskirk Committee in co-operation with Mr. Snell, the officer of the Board in charge of this work. In view of the spread of this disease, all efforts to control and circumscribe it are sure to have the approval and support of Potato growers throughout the country. We therefore wish the Committee every success in the important work which it is undertaking, and hope that it will have the support of all sections of the trade and of all others interested in the cultivation of the Potato.

R.H.S. EXHIBITIONS TO TAKE PLACE AT THE LONDON SCOTTISH DRILL HALL.—The Royal Horticultural Hall having been offered by the Council to the War Office for military purposes, and having been accepted for the use of the Australian Imperial Force, the Government, recognising the national importance of the work being done by the Society,

have been pleased to place at its disposal the Drill Hall of the London Scottish for such period as the Vincent Square premises remain at the disposal of the War Office. The Drill Hall is in Buckingham Gate, Victoria Street, opposite the Army and Navy Stores. It will be remembered that the meetings of the Society were held there for a number of years before the Society built its magnificent premises in Vincent Square. There will be no further meetings and exhibitions of the Royal Horticultural Society in 1916. The first meeting in the New Year is fixed for Tuesday, January 16, and this and subsequent meetings will be held in the Drill Hall. The Society's offices and library remain at Vincent Square as heretofore. *W. Wilks, Secretary.*

— We give in fig. 125 an illustration of one of the last of the exhibitions held in the Drill Hall, which was published in our issue of July 23, 1904, with the following note:—
"In passing from the Drill Hall . . . it may be placed on record that, in spite of many inconveniences, it has provided an accessible site for the holding of the fortnightly exhibitions, and having been originally recommended for temporary use only, until the Society could obtain a home of its own, it has on the whole satisfactorily fulfilled its purpose. That excellent exhibitions have been held in the building is well known to most of our readers, and the illustration . . . will serve to perpetuate its memory."

NATIONAL SWEET PEA SOCIETY.—The National Sweet Pea Society's Annual Show will be held at Manchester on Friday and Saturday, July 20 and 21, 1917, under the auspices of the Botanical and Horticultural Society of Manchester. The schedule includes classes for most sections of the flower, and there are special classes for growers in the Manchester district.

MR. F. JORDAN.—We understand that our valued contributor, Mr. F. JORDAN, late of Warter Priory Gardens, Yorkshire, has been appointed gardener to the Hon. Mrs. SPENDER-CLAY, Ford Manor, Lingfield, Surrey. Mr. JORDAN quite transformed the gardens at Warter Priory during the ten or twelve years he was there, magnificent ranges of fruit and plant houses were built to his design, and every provision made for first-class gardening. Those who visited the place during the past few years must have been greatly impressed with the splendid use to which these houses were put, the amount of produce raised being extraordinary. We congratulate Mr. JORDAN on his appointment.

THE SMITHFIELD SHOW.—Visitors to the Fat Cattle Show, which took place last week in the Royal Agricultural Hall, Islington, found very little indeed that could remind them of the war. The cattle appeared as heavy and sleepy as usual; they at least showed no knowledge of any shortage of food, nor, for the matter of that, did the owners and feeders look as if the country districts have become less hospitable than formerly. As we joined the little crowd that always indicates the whereabouts of the "best beast in the show," we were surprised to read that the premier beast had been purchased for a stud farm in the United States. It is surely unusual to allow so distinguished a beast to emigrate. In the gallery the seedmen were to be seen in their accustomed places, each trying to show the biggest roots and seeds of the most renowned pedigree. But the most numerous of any one class were the Potato growers and merchants. Some were represented by a very few seed tubers of the most unattractive appearance, whilst others had taken the trouble to put up good stands and display collections of selected tubers. In conversation, the remarks of all were based on the shortage of seed, and few would confess to having many tubers for sale, especially of early varieties, such as Midlothian Early. They hinted that in the spring prices might be anything the merchants liked, although when we suggested that planters had pur-

chased earlier this season than was their wont, they agreed that this was certainly true in many cases. There are always fine displays of garden and farm implements and machines at these shows, and on this occasion many interesting devices for the saving of labour were noticed, but the heavier machinery was lacking owing to the difficulties attending transport.

PREPARATIONS FOR SPRING SEVENTY YEARS AGO.—It may appear somewhat early to offer admonitions on this head (preparations for spring), but such is the pressure of business soon after Christmas has passed that no amount of precaution can be considered too great where general gardening has to be carried out through the ensuing year according to the high practice of the present day. The first point of advice I would offer is to let no alterations, planting, etc., trench on the routine business of the garden affairs. It is undoubtedly right to plant all that can be planted in the autumn, but it is equally

RUBBER.—An interesting review of the history of Rubber-planting is published by Sir FRANK SWETTENHAM in the Trade Supplement of the *Times*. In it the author refers to the part played by Kew in establishing this gigantic industry by commissioning Mr. H. A. WICKHAM to collect seed in Central America. Of the 70,000 seeds which Mr. WICKHAM sent home only 4 per cent. germinated; 2,000 seedlings were sent to Ceylon and others to Singapore—of which consignment all the seedlings died *en route*—and to Perak, where seven plants arrived safely. At the latter place Sir HUGH LOW, a keen botanist, was British Resident, and thanks to his care and interest the plants became so well-established there that they provided seed for distribution to other countries in the East and for further planting in the Residency grounds at Kuala Kangsar. From these small beginnings in 1876 the rubber industry has grown, till now it engages 89 million pounds of British capital. Among other articles of interest in the Supplement is one by

the former are die-back, caused by *Botryodiplodia theobromae* alone or in sequence to other fungous parasites, and pink disease, due to *Corticium salmonicolor*, a malady which is a constant cause of anxiety to the planter. In addition to these stem diseases are root diseases, of which that caused by *Fomes lignosus* has attracted much attention.

MR. HUGH F. MACMILLAN.—Old Kew men and others will hear with regret that Mr. HUGH F. MACMILLAN, Director of Botanic Gardens, Ceylon, is at present in Guy's Hospital, where he has undergone an operation for appendicitis. We are glad to say that inquiries at the hospital have elicited the information that the patient is progressing satisfactorily. Mr. MACMILLAN, who until his recent well-earned promotion was Director of the Peradeniya Botanic Garden, has served in Ceylon for the past twenty-one years. During the past few months he has been enjoying a holiday at home.



FIG. 125.—ONE OF THE LAST EXHIBITIONS HELD IN THE DRILL HALL, BUCKINGHAM GATE, WESTMINSTER, IN 1904.
(See p. 292.)

urgent to carry on the matters of the kitchen garden and orchard. When these things are of necessity delayed until the spring, there is sure to be a sacrifice of some importance. All the pruning, excepting Figs and Apricots, and most of the nailing, of wall trees, as well as the training of espaliers, should be finished, if possible, by New Year's Day, and the same may be said of bush fruit. The making of borders or stations for fruit trees, too, should be autumn business; indeed, when new soil has to be introduced, September or October is the most fitting time, as the best of soils may be seriously injured by moving them in a wet state. No time should be lost, when the weather is foul, in getting on with the indoors work. All matting or bast required for the ensuing year should be cut, sorted, and hung up ready for use, besoms and baskets also prepared. The tool-house should be examined and put in an efficient state; and, in fact, everything of this kind done that is possible.—*Gardeners' Chronicle*, December 19, 1846.

Professor BRETLAND FARMER, F.R.S., on the importance of scientific assistance in Rubber plantations. Professor FARMER shows how necessary is constant vigilance if plantations are to be maintained in a healthy and productive state. Incidentally he provides an illustration of the extent to which practice out-distances science by his remark that "we do not know how or why the plant produces rubber at all." Professor FARMER insists—rightly—on the importance of attention being given to the breeding of high-yielding trees, and urges the need for more co-operation between the growers, and also between them and scientific experts, particularly with the object of promoting research in problems bearing on rubber production. Mr. MITCHELL'S contribution on Diseases and Pests serves to emphasise these recommendations. The list of enemies of the Rubber tree is already a formidable one, and includes fungi and insects. Among

* *The Times Trade Supplement*, Plantation Rubber Section, December, 1916.

THE FENCING OF UNOCCUPIED LAND.—The powers taken by the Board of Agriculture under the Defence of the Realm Regulations (see p. 296) admit of municipal and other authorities entering on unoccupied land and facilitating its cultivation. This should doubtless set free a considerable area of ground at present unused. We would, however, urge on the Board the paramount necessity of allowing the authorities in semi-rural residential districts the power to incur expense in putting up wire netting as a means of enclosure. In urban districts such netting may not be necessary, for there the rabbit and the hare do not abound; but it is to throw money and energy away to attempt to cultivate garden crops in some semi-rural districts without first making sure of the exclusion of ground game. To ensure that the new regulations have their full effect on the increase of food production the Board would do well to arrange at once for a considerable supply of wire

netting for this purpose. Within our own experience in country districts cottagers, once assured of the fruits of their labours by the provision of netting, were only too willing to increase the area of their gardens; whereas before this was done they exhibited the utmost reluctance to do so, and with the inarticulateness of their class they offered no explanation, letting it be supposed—quite erroneously—that they were indifferent.

NEW NAMES FOR OLD.—The column in the *Florists' Exchange* headed "From a Ninth-Storey Window"—a situation whence a bird's-eye view of American horticulture is obtained—records the fact that certain seedsman in America have changed the name of the Tulip



FIG. 126.—FLOWER OF *ARAUJA SERICIFERA*: SHOWING MODE OF CAPTURE OF MOTH.
A. Pollen masses. B. Their stalks. C. Proboscis of moth. D. Head of moth. E. Portion of antenna.

Kaiser-Kron to Grand Duc. In defence of this change it is claimed that Grand Duc is the original name of the variety, and that it is still often catalogued by Dutch growers under this name. In Canada they have gone a step further, and, according to the column already cited, Kaiser-Kron has become Lord Kitchener. In our own view the line which should be taken on this much-discussed subject is to render unto CAESAR the things that are CAESAR'S, but not those which are not. An amusing example of unintentional Anglicisation of a German name has recently come to our notice. A keen professional gardener and an old soldier recommended his employer to plant Rose "Tention." It transpired that he was referring to Tausendschon.

HARDY CLIMBERS IN HANTS.—Mr. W HONEST sends us from Lord ST. CYRES' gardens at Walthampton, Lymington, abundantly flowered shoots

of *Arauja sericifera* and a flower of *Clematis Wilsonii*, gathered a few days after a frost of 11° Fahr., whilst *Grevillea rosmarinifolia* and the naked Jasmine, amongst others, are showing for bloom. *A. sericifera* is interesting owing to the construction of its flowers and the fact that the pollen masses are so situated that they entrap certain moths that push the proboscis past these bodies in search of nectar and are unable to withdraw it. The sketch reproduced in fig. 126 was made by a correspondent in the Riviera. A shows the two pollen masses which are attached by B, two glandular bodies in the form of a caudicle, or tail, to the stigma; and C represents the proboscis of the moth entrapped. The pollen masses, being glutinous, adhere to the proboscis, and by their peculiar arrangement and connection to the caudicles (B), a strong leverage or resistance is produced by the exertion of the moth to withdraw its proboscis. The proboscis, which is thrust beyond the pollen-masses, is caught a slight distance from the point, and the moth, finding itself caught, rolls the end, which becomes wedged against the appendage which forms the corona. Amongst the moths entrapped were found the Privet Hawk moth and the Pot-herb moth, whilst the Humming Bird moth (which flies in the daytime) appeared able to thrust in its proboscis and withdraw it at pleasure. It was further observed that during the day some of the moths that had escaped the little lizards that searched for them every morning were able to get away; consequently it was assumed that the sun had some influence, probably by causing an expansion of the flower. We have given the proper name of this climbing plant (*Arauja sericifera*), but it is known in gardens as *Physanthus albus*.

WAR ITEMS.—In order to encourage the cultivation of vegetables, the Croydon Horticultural Society will offer at their summer exhibition a large number of extra prizes to exhibitors of vegetables grown on building sites in the borough.

Private E. DUFFIN, Post Office Rifles, was accidentally killed in the field on November 25. Deceased was for nine years employed as Park Keeper in the Richardson Dees Park, Wall-end. He was a native of Stockton-on-Tees, and was previously Foreman at Jesmond Towers, Newcastle-on-Tyne. He leaves a widow and two children.

PUBLICATIONS RECEIVED.—*The Systematic Cropping of Vegetable Gardens and Allotments.* Issued by the Agricultural Committee of the County Council of Durham, Shire Hall, Durham. Price 2d.

APHIDES AND THEIR EGGS.

(Concluded from p. 276.)
PLUM (CULTIVATED).

I FOUND a good many eggs on Plums, but they are always more difficult to find than are the eggs on the Apple. They are always at the base of buds, and are covered with a silvery-looking substance, which, when examined with the microscope, is found to be composed of numerous almost transparent rodlets.

I found a mother queen with five young on April 17. Females from this progeny began to breed on May 11. The females are rosy red, with eight darker bars across the body. This is distinctly the leaf-curling species. I found them on Damsons and Plums (Victoria); they are wingless in the first generation.

On May 16 I found three wingless females with one, four and twelve young respectively. These, I noted, were a different species from that referred to above—light green with darker bars. I followed these for a long period, found them to be the mealy Plum aphid, and observed that they were the beginning of a bad attack. In the various accounts of this

aphid it is said to make its appearance usually at the end of July; the above must have been hatched about the time of many other species, and from eggs on or near the tree, as wingless females could not come by means other than crawling. I hope to be on the look-out for this species earlier next season. It is wingless in the first generation.

SPINDLE TREE (EUNYMUS).

During February and March I found numerous eggs on *Eunymus*, mostly at the base of young



(Photograph by J. G. Blakey.)
FIG. 127.—SPIDER THAT DESTROYS APHIDES. (Mag. 10.)

shoots. I found the first larva on April 9. This progeny began to breed again on May 10. Wingless in first generation. This is distinctly the Bean aphid. Many were destroyed by spiders and a small parasitic fly.

BIRCH.

On the Birch I found two species. The eggs of one are the largest of any I have yet found, and always deposited at the base of the buds. Larvae of this species had hatched on April 14. At first they are bright yellow; later they are beautifully spotted. At first they crouch in the axils of the buds, and remain there until they reach the winged stage. Winged specimens were seen on May 4. Many had migrated by May 25. Birds were very busy with these, mostly the fly-catcher. Winged in first generation.

The other species on Birch is quite different from above. The eggs are small, not so black as above, and scattered along the shoots. The larvae hatch later than above. Larva studded with capitate, bristle-like hairs. Ground colour,



(Photograph by J. G. Blakey.)
FIG. 128.—EGG OF LEAF-CURLING APHIS IN THE AXIL OF A BUD ON PLUM TREE. (Enlarged.)

yellow; wings with very dark veins; antennae very long, with dark bars; eyes red. Winged in first generation. Many migrated by end of May.

HAZEL.

Eggs very small, more pointed than some. Colour dark brown. Distributed on shoots. Hatched April 21. Young produced from first generation, May 25. Winged specimens sulphur-

yellow. Winged in first generation. Spiders seem to be the greatest enemy of this species.

LIME.

Eggs similar to those on the Plum, deposited at the base of the buds. Sometimes single, sometimes two or three together. Hatched April 21. Larvae almost clear yellow. Wings of adult specimens, beautifully marked, dark spots along each side of body, also on back. First generation producing young towards end of May. Winged in first generation.

SPANISH CHESTNUT.

Eggs numerous, deposited in rings at the base of last year's shoots. Larvae hatched April 26. Sulphur-yellow. Winged specimens May 25. Ground colour yellow, with darker markings on body. Some second generation specimens found May 26. Winged in first generation.

BEECH.

Eggs similar to Plums, deposited at base of buds, also on older shoots in groups. Larvae hatched April 25. First generation began to breed again May 15. On May 21 I found winged specimens. The greatest enemy of this species I found to be the larvae of hover flies, also amongst them I found eggs of the ladybird.

NATURAL ENEMIES OF APHIDES.

Amongst the natural enemies there is one very rarely referred to either by the entomologists or other observers—the spider. My own extended and, I hope, careful observation prompts me to place the spider at the head of the list of natural destroyers of aphides. On all the host-plants referred to I have found spiders devouring not only aphides, but leaf hoppers, Apple suckers, and numerous other pests. Generally speaking, these spiders are very small, an almost microscopic species; at any rate not larger than the aphides themselves. At the present they are busy destroying the Apple leaf curl aphides. They seem to prefer the winged forms. At the top of a window in a shed in the gardens here there are several webs, in which are caught hundreds of winged aphides. Next to the spiders as destroyers I would place in the order given parasitic flies of the ichneumon type, larvae of hover flies, lace wings, and the ladybird. Of birds, I would place the flycatcher at the top.

I have preserved a number of the spiders referred to, also males and oviparous females of the Apple leaf curl aphids, which I should be glad to send on loan to any entomologist thoroughly interested in aphides. I have written the above mainly for my fellow gardeners, and I hope it is a faithful record of my observations. The photographs were taken by myself from specimens under observation. *J. G. Blakey, Redditch.*

MESSRS. WATKINS & SIMPSON'S NEW PREMISES.

If it be true that in the making of books there is no end, then perhaps some day a scribe possessing a penchant for note-taking will give us an account of the history of the horticultural trade of this country. At present garden literature, voluminous and instructive though it undoubtedly is, lacks a most interesting volume that would relate the rise and fall of the trade firms of the past, and the influence of each on the progress of gardening. *Hortus Veitchii*, a useful compilation that gardeners owe to the late James H. Veitch, records the history of the great firm of Veitch, now unhappily defunct, but this book is unique.

Thoughts such as these occurred to us the other day when Messrs. Watkins and Simpson sent us an invitation to inspect the fine new premises the firm has built for itself in Drury Lane. Until recently the business premises included areas in Exeter Street, Tavistock Street, and Neal Street,

Covent Garden, one after another having been acquired as the trade increased. Further development in recent years has rendered all these areas insufficient, consequently a large freehold



MR. ALFRED WATKINS.

site in Drury Lane was acquired some time previous to the war for the purpose of erecting a commodious building of greater area than the others combined. The building is entirely of steel and cement (concrete), and the doors and other woodwork are of "fireproof wood," namely, teak. Including the basement there are five floors, and the total area they afford is approximately one acre. There is a lift from bottom to top, and a shoot from top to bottom. On the ground floor (Drury Lane frontage) are the vegetable and flower-seed shops, and packing department; the first floor provides the general, secretarial, and directors' offices; the second floor, the flower-seed warehouse; third, seed store and staff accommodation. Facing Arne Street (in rear) the ground floor is the draw-in for goods warehouse and despatch floor; the next above, the warehouse; the second floor, warehouse, cleaning machinery, and pea-picking department; third floor, warehouse; and above is a flat roof, covering the entire building, which



MR. J. M. BRIDGEFORD.

provides drying space and an efficient seed testing house. The basement covers the entire area, and will be used as a bulb and general warehouse. Electricity provides for the lighting and the

working of the lifts and shoots, and the whole building is heated by radiators. It is easy to see that everything has been done to secure the comfort and convenience of the employees, even to the provision of tea-rooms for the different sections.

As the seeds come in they will be taken first to the top of the building, where their cleansing will commence. During this process and that of putting them into bags and packets they will gradually take a lower position until, reaching the ground floor, they are ready for despatch.

The trial grounds for vegetable and flower-seeds and bulbs are situated at Feltham and Twickenham, and they cover areas amounting to about 100 acres. Messrs. Watkins and Simpson are renowned for certain prize strains of vegetables, but their strains of flower-seeds, especially of annuals, are of even higher reputation. Our readers may remember that the firm contributed a most excellent exhibit of annuals at the great International Show of 1912, probably the best that has been seen in this country.

The business of wholesale seed-growers and merchants was established in Savoy Street, Strand, in 1876, by Mr. Alfred Watkins, who was formerly with Messrs. Hurst and Son, of Houndsditch, and Mr. James Simpson. It moved into larger premises in Exeter Street in 1882. In 1910 the business was converted into a private limited company, with Mr. Alfred Watkins as governing director and Mr. J. M. Bridgeford as managing director. In 1876, Mr. Watkins' own ground of 6½ acres provided the only trial grounds, and these have been since extended, as we have said, to 100 acres. Thus has the firm prospered in every direction; a proof of the business ability and high personal qualities of Mr. Watkins, who alone has been concerned with its management from the beginning. May its prosperity still further increase in the excellent premises that have been built with much unavoidable delay and great expense during the first two years of war.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE POTATO SUPPLY.—There appears to have been a mistake in the otherwise excellent and instructive summary of "The World's Potato Supply," issued by the Ontario Agricultural College (see p. 257). Half a ton of produce is given as 26 bushels; here, in the south, 1 gallon is expected to weigh 7lb., and as a rule in measuring out 1 cwt. great care must be exercised not to go beyond the level at the top of the gallon measure if the cwt. is to give 2 bushels. Without this care, buying wholesale by the cwt. and selling, as so many do, by the gallon, would mean a difference of approximately half a gallon. If Potatoes could be sold by weight, all round, it would be a distinct advantage. *Charles Martin, County Horticultural Instructor, Newport, I.W.*

THE PLANTING OF IRISES.—In Mr. Dykes' criticism of the numbers of flower spikes produced by the three varieties of Iris in the experiment on March versus June planting suggested by Mr. Jenkins, he justly notes that in the case of two of the varieties, Argus and Gracchus, the figures may equally well be used as an argument against March planting, and in the case of the third, Queen of May, the figures pointed rather to something wrong with the plants chosen or other circumstances, than to any effect due to the time of planting. This is all the more likely, since Queen of May, though it apparently does flower freely in some situations, is notoriously a very uncertain flowerer. For that reason it is not a good variety to choose; moreover, it is rather susceptible to disease. For such an experiment only regular and free-flowering varieties should be chosen. Of the Pallidas, I have found Leonidas and Albert Victor, and, if a Red Pallida is chosen, Assurez, the most certain and regular in flowering. In the other sections, the standard varieties Flavescens, Minc, Chereau, Perfection and Mrs. H. Darwin (the latter two are exceptionally free), Monsieur, Sybil and Jacquimiana (these two are less certain than the others, but they are representa-

(tive), Gracchus, Maori King, and Innocenza flower regularly and freely every year, and are all comparatively unsusceptible to disease or adverse influences. With regard to the autumn period of rooting, Mr. Dykes states the case, I think, with undue moderation, in pointing out to Mr. Jenkins that "new main roots are pushing out from the rhizomes certainly as late as August, and often into September." Unmoved plants may cease rooting earlier, but with plants moved in August the rhizomes continue to put out new main roots quite to the end of September, and sometimes in October. The chief period—when the roots are being most freely produced—is, however, in August, especially the latter part, or immediately after rain following a period of dry weather in that month. *A. J. Bliss.*

— In his reply to my note on this subject Mr. Dykes (see p. 282) introduces the Tulip and Crocus, observing that I wish it to be believed "that the Iris behaves" like these in their rooting. Nothing, indeed, was farther from my thoughts: on the contrary, I regard these plants as irrelevant. That Mr. Dykes is not converted to my view of March planting is not at this juncture very material, though it must come to this eventually unless he is prepared unreservedly to withdraw the dictum laid down by him in *Iris*es (Present-day Gardening Series), Chap. XIV—and with which I am in full accord—"that to insure success in transplanting *Iris*es they should be shifted in time for the main roots to go down uninjured into the soil." At no other period than that immediately prior to the emission of these main roots—i.e., March or thereabouts—is such work possible. Of far greater importance is the recognition and admission by Mr. Dykes that the planting of these *Iris*es at or about flowering time, as hitherto adopted and prescribed by him, is sufficiently wrong to require "certain modifications of the rule." Unfortunately, the planting of the *Iris* at flower-time has during recent years been spreading like an infection, and it will be small satisfaction to unthinking gardeners and amateurs who have adopted it with little success to discover now that they have been misdirected. Realising that "certain modifications" are necessary, Mr. Dykes finds himself to-day in a transition stage, not quite knowing where to turn for the best planting season. That being so, I may be permitted to put my case clearly. Firstly, I place March as the best planting season of the whole year, with August-September as an excellent second. March is best because it finds the plant in a condition of comparative inactivity, together with the immediate prospect of an all-round activity and all the advantages derivable from the unchecked production of root-fibres, rhizome, and leaf development in the position where, fourteen months later, we hope to see the plant flowering. March planting, indeed, is virtually in the same relation to the *Iris* as is the dormant period in bulbous plants, and the advantages of planting the latter prior to main-root production is known to all. June, or, as I may for convenience call it, the flowering period, or thereabouts, of the plant, is bad and wrong because everything—main roots, leaf growth, and rhizome—is at that time soft and immature; the injury and check inflicted by planting at such a time is directly responsible for the non-flowering of the plants a year hence. "Twixt June and July is but a question of degree. It was the last-named month that I first took exception to in respect of the 1913 Wisley trial, and what I then predicted as to the future conduct of the plant was fulfilled to the letter. August-September constitutes an "excellent second" planting period, because at that time leaf and rhizome are fully developed and practically mature, and, with the germ of the ensuing year's flowering already laid, division and transplanting may then be carried out with impunity. It is not correct, as Mr. Dykes states, to say that it has been my "invariable practice for thirty years never to transplant *Iris*es except in early spring," and I have never hinted, much less said so. On the contrary, I have planted them at almost all seasons of the year, and the knowledge so gained, coupled with experiments purposely conducted years ago, constitute an excellent backing to a somewhat extended experience. So recently, indeed, as November-December, 1915, found me planting *Iris*es on a considerable scale in a Berkshire garden, not from choice, but be-

cause it was a part of some work then in hand. I knew, too, that if I could get the material I wanted I should be sure of a good flowering in 1916. As a matter of fact, the whole—save two or three dozen plants the product of divisions and planting in the previous July, and supplied by a specialist—flowered well. What one loses in such a case—it affects the August-September plants also, to some extent—is somewhat of vigour, stature, and fineness of bloom, things that appeal more forcibly to the specialist than the amateur. Mr. Dykes further suggests that I have "doubtless forgotten that new main roots are pushing out from the rhizomes as late as August and September." I have not forgotten, and it is quite true. Those new main roots are, however, chiefly from the lateral branches, and not in any marked degree from the primary rhizome. They come naturally, too, at any season, with new growth, and in this way confirm and strengthen my view as to March planting. Mr. Dykes further asks me to admit that "if we move our plants in March we sacrifice the first flowering season." As I am out only for elucidating facts and not for straw-splitting, I answer: "Yes! Virtually that is so." It is not, however, an absolute fact, and is dependent on the type of specimen planted: a fully developed rhizome of the previous year flowering as surely as if planted in the previous autumn. The flowering, however, is usually but a caricature of what an *Iris* should be: only interesting as showing the long-suffering nature of its tribe. Two years ago, late in March, I planted some roots of Gracchus sent me in a diseased state in the previous October. For three weeks they were exposed in a warm room. For the next three months they lay absolutely exposed in the open on a little grass plot, subject to the weather, at the end of which time I decided to plant them, to see what would happen. To my surprise, every plant flowered, four flowers being the most on any spike, and 14 inches the fullest height. Moreover, they flowered representatively well the following year, and are now normal. The reason of the first flowering is clear: the rhizomes contained the embryo bud, and, despite the long exposure and hardship inflicted, the flowers appeared because of it—a remarkable tribute to the plants' powers of endurance and complete hardiness. Indeed, I have never known an *Iris* of the Bearded set to suffer from March planting, much less east winds. Referring to the statistics resulting from the Wisley private trial, Mr. Dykes remarks that they may be "equally well used as an argument against my view," proceeding by a rather ingenious process of reckoning to show it. It does not, however, dispose of the broad facts, which are these: March-planted Argus in two years gave 74 spikes. June-planted in the same period gave 35 spikes. March-planted Gracchus in two years gave 121 spikes. June-planted in the same period gave 65 spikes. March-planted Queen of May in two years gave 35 spikes. June-planted in the same period gave 7 spikes. Ignoring the latter as out of all proportion to anticipated results, does Mr. Dykes wish for anything more conclusively favouring March planting than the remainder? If he does, I hope he will decide upon a like experiment in his own garden with an invitation to myself, among others, to participate and share in the information all such experiments give. *E. H. Jenkins.*

ACQUISITION OF LAND FOR CROPS.

THE following circular letter has been sent to the London County Council and the Councils of Boroughs and Urban Districts in England and Wales by Sir Sydney Olivier, Secretary to the Board of Agriculture and Fisheries:—

1. I am directed by the President of the Board of Agriculture and Fisheries to inform you that a Regulation has been made by Order in Council under the Defence of the Realm Consolidation Act, 1914, with the object of increasing the food supplies of the country by extending the existing powers of providing land for cultivation.

2. Acting under this Regulation the Board have made the enclosed Order, in which the Regulation is embodied, empowering allotment authorities in urban areas to exercise on behalf

of the Board the powers conferred by the Regulation.

3. The principal object of the Regulation and the Board's Order is to secure the cultivation of unoccupied land in districts where labour for such cultivation is available by authorising Local Authorities to take possession of such land without the necessity of obtaining any consents, but power is also given to take possession of occupied land by agreement with the owner and occupier and to take possession of common land with the consent of the Board.

4. I am to make the following observations for the information and guidance of your Council on the principal points arising under the Regulation and Order.

ACQUISITION OF LAND.—5. Land may be taken either within the area of the Council or outside its area if it can conveniently be cultivated by persons residing within the area. It falls into three classes:—

- (a) Unoccupied land. The Councils named in the Order may enter forthwith on any unoccupied land, with the exception of gardens or pleasure grounds usually occupied together with dwelling houses. Notice of entry must be given to the owner. (See paragraph 6 of the Regulation as to definition of "unoccupied.")
- (b) Occupied land may be taken by agreement with the owner and occupier.
- (c) Common land may be taken subject to the consent of the Board in each case, but consent will not be given to any scheme which would damage materially the natural beauty or amenities of a common or which would seriously prejudice the interests of the commoners or the public. Moreover, the Board will not consent to schemes for the taking of parts of commons unless they are satisfied that the local demand cannot reasonably be met from the other classes of land.

TENURE OF LAND TAKEN.—6. The Order in Council has effect only during the war, and accordingly the right of the Board, and of those claiming under them, to retain possession of land under the authority of the Regulation terminates at the end of the war, but under the Defence of the Realm (Acquisition of Land) Bill of this Session it is proposed that the Board shall have power to extend the period of occupation under this Regulation for such period as may be necessary for securing any annual crop growing at the end of the war.

7. Though cultivators cannot, therefore, count with certainty on more than one year's crops from the land, this should repay the labour expended in preparing the land and the cost of seed and manure.

8. The Board or a Council can give up possession of the land at any time, and this should be done whenever they are satisfied that the land is required by the owner for immediate use for building or other exceptional purposes.

RENT PAYABLE FOR LAND TAKEN.—9. No rent will be payable by a Council for any unoccupied or common land taken under the Order. For occupied land such rent will be paid as may be agreed with the owner and occupier, provided that it does not exceed the limit imposed by article 3 of the Board's Order.

LETTING OF LAND TAKEN.—10. Land taken under the Order may be let by the Local Authority for cultivation in small allotments either to a society or to individual cultivators. Councils are advised where possible to arrange for the letting to or through the agency of any existing society operating in its district or to one formed for the purpose, and power is given by the Order to delegate to such society all the powers of the Council except the actual taking of the land. In the case of land let to individual cultivators it has been found by experience that as a general rule 10 rods is sufficient for each cultivator.

RENT PAYABLE BY CULTIVATORS.—11. Councils should arrange as far as possible that the expenses of providing land should be recouped by payments made by the cultivators. In the case of unoccupied or common land, where no rent is paid by the Council, it may not be necessary to charge more than a nominal rent to the cultivators, but if rent is paid by the Council for

occupied land the rents charged should be sufficient to cover the payments.

ADAPTATION OF LAND FOR CULTIVATION.—12. Councils are authorised to do all things which are necessary or desirable to adapt any land taken for cultivation, including fencing, but it would obviously be unprofitable to incur any considerable expense on land held for a short and uncertain period. In some cases it may be essential to provide fencing, but, as a general rule, the responsibility of protecting the plots from trespass or pilfering should be placed on the cultivators themselves. Notices might be posted asking the public not to trespass or to damage the plots. Councils who have horses and the necessary implements available can render valuable assistance by breaking up the land in the first instance.

PROVISION OF SEED, MANURES OR IMPLEMENTS.—13. The Order authorises Councils to provide seed, manures or implements at cost price to the cultivators. It will therefore be possible to arrange for the purchase in bulk of seed Potatoes, for instance, a form of assistance which would be of the greatest possible value. If there is a military camp in the neighbourhood it will often be possible to obtain manure at very reasonable rates.

RESTRICTIONS ON USE OF LAND TAKEN.—14. Land taken under the Order may not be used for the production of fruit or vegetable crops which remain productive for more than one year, or for grazing. The limited period of occupation makes it undesirable to allow such crops as rhubarb or asparagus, which can be grown profitably only when several crops can be taken, and the principal object of the scheme is to stimulate the growth of substantial foodstuffs, such as Potatoes, rather than luxury crops. The use of land for grazing is prohibited in order to secure the greatest possible production from the land. It is not, however, intended to prohibit the keeping of poultry, rabbits, etc., if a Council thinks this is desirable in combination with the cultivation of the land.

EXPERT ADVICE TO CULTIVATORS.—15. The Board hope that Councils will endeavour to arrange for expert assistance to the cultivators in the preparation and cultivation of their plots. The Royal Horticultural Society, Vincent Square, S.W., has readily promised its active help, through the agency of its members, who are scattered all over the country, and the co-operation of professional gardeners and nurserymen should be invited. A list of the leaflets issued by the Board is enclosed, many of which should be of considerable assistance to the cultivators. Copies of any of the leaflets will be sent on application.

COMPENSATION ON QUITTING.—16. Owners of land taken under the Order will be entitled, when the occupation of a Council under the Regulation terminates, to compensation for the deterioration (if any) of the land caused by its use, the compensation being determined, in default of agreement, by arbitration in accordance with the procedure of the Agricultural Holdings Act, 1908.

17. Cultivators of land taken under the Order will not, in normal circumstances, be entitled to any compensation on quitting, as the possibility of retaining possession after the end of the war until the growing crop is secured should allow of arrangements being made so that the land should be vacated at a time of year and with sufficient notice to obviate any loss to the cultivators. But the Order provides that if in any case the tenancy of an allotment is terminated prior to January 1, 1918, compensation may be paid in accordance with paragraph (3) of the Regulation and article 7 of the Order.

18. Any compensation payable as above, either to owners or cultivators, will be defrayed by the Board.

FINANCE.—19. In exercising their powers under the Order, Councils will be acting on behalf of the Board, and no charge will fall on the local rates. It is hoped, as stated above, that in most cases the expenses of providing land will be recouped by the payments from the cultivators, but any deficiency will be met by the Board, provided that, apart from the compensation referred to in the preceding paragraph, it does not exceed a total sum of £2 for each acre taken by the Council. Within this limit Councils are authorised to incur expense in carrying out their powers

under the Order. A separate account must be kept of all receipts and expenditure under the Order, which will be open to inspection at any time by an officer of the Board, and the Board will settle any claim by a Council as soon as the occupation of the land terminates.

LOCAL CONTROL.—20. The powers of Councils under the Order have been set out in some detail in order to avoid as far as possible the need for correspondence with the Board on the subject. The President is most anxious that local authorities who are familiar with local conditions, should be free to use their own discretion to the fullest extent, and that they should be as little fettered as possible by departmental control. Moreover, the heavy pressure of work on the depleted staff of the Board makes it impossible for them to deal with a mass of additional correspondence on the subject. It is hoped, therefore, that, with the information given in this letter, Councils will be able to administer the Order without reference to the Board.

APPEAL TO OWNERS AND OCCUPIERS OF LAND.—21. In many parts of the country there are considerable areas of land which, though technically occupied, are not fully cultivated owing to shortage of labour or other causes. Such land, especially if it is close to urban areas where spare-time labour for more intensive cultivation is available, might with great advantage be used temporarily for the purposes of the Order. The Board feel sure that owners and occupiers will be ready to assist Councils by placing suitable portions of such land at their disposal, and that many of them will be willing in addition to give materials for fencing and help in laying out the plots and preparing the soil.

GENERAL OBSERVATIONS.—22. The President desires me in conclusion to commend the matter to the earnest consideration of your Council, and to ask that no time may be lost in putting into operation the powers conferred by the Order. Public notices should be issued at once inviting applications from societies or persons who are willing to undertake the cultivation of land which can be acquired under the Order. The matter is urgent, as, if land is to be in the best condition for putting in spring crops, it is desirable that it should be broken up before the winter is over. The President realises that local authorities are already seriously overburdened with work, but the urgency of increasing the food supply by all possible means is such that he feels sure he can rely on the active co-operation and assistance of your Council. The work which has been done in London by the Vacant Land Cultivation Society, 14, Buckingham Street, Strand, W.C., and by similar societies elsewhere, has proved that excellent crops of Potatoes and other vegetables can be grown on most unpromising sites, and if similar efforts are made in other urban areas a very substantial addition will be made to the food supplies of the nation. The success of the scheme will depend upon cordial co-operation among all those who desire to increase our food production, and the President feels sure that there will be no lack of goodwill on the part either of local authorities or of land owners and occupiers, and that men and women of all classes will come forward and give all the time and labour they can spare so as to secure that every available acre should be making its contribution to our home-grown supplies of food. *Sydney Olivier, Secretary.*

GARDENING APPOINTMENTS.

Mr. A. H. Casey, for 4 years General Foreman at Boldersby Park, Thirsk, Yorkshire, as Gardener to E. A. LE GENDRE STARKIE, Esq., Huntroyde, Padiham, Burnley, Lancashire.

Mr. D. Moyes, for the past 15 years with the late C. G. TINDAL, Esq., and Miss TINDAL, at Fir Grove, Eversley, as Gardener to the Earl of JERSEY, Osterley Park, Isleworth.

Mr. F. H. Feakins, late Foreman at Welbeck Abbey, as Gardener to Lady NUNBURNSHOLME, Warner Priory, York.

Mr. F. Jordan, recently Gardener to Lady NUNBURNSHOLME, Warner Priory, York, as Gardener to the Hon. Mrs. SPENDER CLAY, Ford Manor, Lingfield, Surrey.

Mr. H. Stanley, for the past 12 years Gardener to H. M. COBB, Esq., Hitcham, Rochester, Kent, as Gardener to E. STURTON, Esq., Barham Court, near Canterbury, Kent.

Mr. J. W. Perry, late of Woodstock Park, Co. Kilkenny, Ireland, as Gardener to Col. HORWOOD, J.P., Hopwood Hall, Middleton, Lancashire.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

DECEMBER 5.—*Present*: Mr. E. A. Bowles, M.A. (in the chair), Sir Everard im Thurn, Messrs. H. J. Elwes, J. S. Arkwright, W. Hales, J. Ramsbottom, J. Fraser, W. C. Worsdell, and F. J. Chittenden (hon. sec.).

Terrestrial Orchid from New Zealand.—Mr. H. J. Elwes referred to a terrestrial Orchid from New Zealand, grown from tubers received from a correspondent in Shropshire, which he had exhibited on this occasion. He remarked upon its great likeness to an *Arisaema*, and thought it might possibly be *Pterostylis reflexa*. Sir Everard im Thurn said he had seen a very similar plant growing in considerable numbers in Australia.

Crocus from Salonika.—Mr. Bowles showed corms of a Crocus which he took to be *Crocus sativus* var. *Cartwrightianus*, from Salonika, in which the tunic was extended for 2 inches or more above the corm, forming a sort of cap. He thought this might be the result of soil conditions.

The Wild Morello Cherry.—Mr. J. Fraser exhibited a fruiting specimen of *Prunus Cerasus* or Dwarf Cherry, from a Surrey wood, which he considered to be the origin of the cultivated Morello, because the wild and cultivated trees agree in their botanical characters. *P. Cerasus* may be recognised by its dwarf habit (3 to 8 feet) in the wild state, its small, leathery, glabrous leaves on a level with the branches (not drooping), and in being green at all stages of growth. The fruit is round, red, with a globular stone, and the acid juice does not stain. He also showed specimens of *P. Avium* for comparison. It makes a tree 20 to 60 feet high, with large, flaccid, drooping leaves, hairy on the veins beneath, and much tinted with red in their early stages. The fruit is heart-shaped, black or red, with a sweet or bitter (not acid) juice, that stains the hands. This he considered the origin of many of the sweet Cherries of gardens.

PERPETUAL-FLOWERING CARNATION.

ANNUAL MEETING.

DECEMBER 6.—The annual general meeting of this society was held at the Royal Horticultural Hall, Westminster, on the 6th inst.

Mr. J. S. Brunton presided. The committee's report for 1916 was unanimously adopted. The report shows a very satisfactory state of affairs. There are 293 subscribing members, which is an increase of 83 during the current year, and the statement of accounts shows a balance at the bank of nearly £50.

Although the prizes were smaller than in previous times the committee considers the shows of December 8, 1915, and March 29, 1916, to have been highly satisfactory. Nineteen new seedlings and sports were registered with the society last year. On the proposal of Mr. M. Allwood it was agreed that future editions of the society's Year-book should contain a greater amount of cultural matter.

Alterations were made to Rules 1 and 8 in order to give the executive committee more freedom in the choice of dates for the shows, so that, when necessary, exhibitions demonstrating the value of the Perpetual-flowering Carnation for other than the winter season may be held.

Lord Howard de Walden, the vice-president, and officers were all re-elected. Mrs. T. A. Weston, who, during her husband's absence on military service, has carried on the duties of honorary secretary with conspicuous success, was accorded a vote of thanks.

Mr. H. Mount was elected to fill a vacancy on the list of the committee to retire in 1917, while Messrs. C. H. Curtis, A. F. Dutton, C. Engelmann, W. Holder, P. Mount, P. M. Patterson, W. A. Sherwood, A. Smith and C. H. Taudevin were also elected members of the committee.

Owing to the earlier dispatch of the morning trains from London the hour of going to press has again been advanced, and in future communications received after 5 p.m. on Wednesday will be held over till the following week.



THE

Gardeners' Chronicle

No. 1565.—SATURDAY, DECEMBER 23, 1916.

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SOME OLD SEED AND PLANT CATALOGUES.

AN accomplished botanist has told the story, and told it well, of the history of English botany, and some day an equally skilled student will trace the origin and development of horticulture in these islands. Seeing how very much more intimately horticulture enters into our everyday life than the science of botany, its history would be of even more general interest. Much of that history, so far as the 18th and early 19th centuries are concerned, will have to be searched for in such out-of-the-way quarters as trade catalogues and advertisements, in neither case numerous, and now almost as unprocurable as early printed books. The good fortune which sometimes comes to the inveterate prowler among bookstalls and in book shops has recently put me in possession of a large number of such catalogues and advertisements of London and provincial seedsmen and nurserymen of three-quarters of a century ago.

These "documents" appeared at a time when horticulture was on the threshold of its modern development. Gardening books by the hundred had followed Gerarde's *Herball* of 1633; and throughout the 18th century a large number of skilled amateur and professional gardeners had published the results of their investigations and experiments. But there were few, if any, horticultural societies and public exhibitions to bring together men of the same tastes, and gardening periodical literature was practically unknown. It was not until well into the 19th century that the seedsman had evolved himself from the corn chandler,

and even to-day in London and elsewhere the two are found combined. But the business of the seedsman is a scientific one, almost as much so as that of the chemist, requiring a long and exacting apprenticeship. One of the greatest of such firms in the world to-day—that of Messrs. Sutton and Sons, of Reading—was an offshoot from that of a corn factor and miller; and another great concern—James Carter and Co., of High Holborn and Raynes Park—had its origin in a little shop in Drury Lane.

The thirties and forties of the last century were a period of florists' flowers—of Auriculas, Dahlias, Pansies, Tulips, Hyacinths, and so forth, when flowers were judged by "rules" and minutiae which we now see applied to rare postage stamps. It was also a period of costly travelling, when tradesmen could only make their wares known, not as now by travellers in all parts of the Empire, but by seed catalogues and advertisements in the few horticultural journals issued almost exclusively in London. As few people kept these catalogues or bound up the advertisements with their periodicals they have become exceedingly scarce. It was not until well into the 19th century that tradesmen had a suitable means open to them of extensively advertising their wares by way of gardening periodicals; and when in 1832 Joseph Harrison, a nurseryman of Downham, Norfolk, started the *Floricultural Cabinet*, a monthly with coloured plates of new flowers, the seedsmen and nurserymen of the time readily availed themselves of the opportunity of having advertisements inserted and catalogues issued with this periodical, which in a few years had a circulation of 10,000 copies. The *Gardeners' Gazette*, which soon afterwards came out as a weekly, and attained a circulation of 41,000 copies, still further aided in the spread of horticultural knowledge, and in the diffusion of trade circulars and advertisements.

In spite of the extent and evident prosperity of many of the firms whose announcements appeared at this period, very few of them are existing to-day, even under other names. In London this is not surprising, so far as nurserymen are concerned; for land is essential to their business, and the rapid growth of London in all directions rendered land too valuable for anything but building purposes. Some of these nurseries must have covered acres of ground, and market and nursery gardens completely circled the city. Camberwell, New Cross, Walworth, Vauxhall, Chelsea, Battersea, Kensington, Hammersmith, Ealing, Twickenham, Islington, Bethnal Green, and Clapton were all villages near London, given up to a few cottages and extensive market and other gardens.

It is quite evident from the catalogues that eighty years ago the Dahlia was the king of florists' flowers, and the suburbs of London must have contained many acres of these plants. The varieties offered are innumerable, and the craze for them can only have been rivalled by the famous Tulipomania in Holland in the

17th century. In the provinces as well as in London the Dahlia was prime favourite, and among the many catalogues specially devoted to it mention may be made of those of Wood and Son, of Maresfield; Girling, of Stowmarket; Bates, of Oxford; Levick and others, of Sheffield; A. Paul and Sons, of Cheshunt; Hugh Low and Co., of Clapton (these two firms are still flourishing, but not on Dahlias); the Youngs, of Epsom; and Squibb, of Salisbury. The advertisements of other garden plants and seeds are entirely dominated by those of the Dahlia.

There are, it is true, advertisements and catalogues of other things. Colley and Hill, of Hammersmith, "near London," specialised in Pelargoniums, as well as Dahlias, and their list contains sixteen new varieties; H. Groom, of Wandsworth, devoted much attention to Tulips and Auriculas; Bunney, of Kingsland, also "near London," sold both Camellias and Pelargoniums; W. Catleugh, of New Road, Sloane Street, also grew Pelargoniums extensively, as did also W. Rendle, of Plymouth, some of his new varieties being offered at from two to three guineas each; whilst Chandler and Booth, of Vauxhall, not only grew Camellias for sale, but published a big book on the subject with beautifully coloured plates. Incidentally it may be added that their long Camellia house was one of the sights of London seventy years ago. Mr. Chandler himself lived to the great age of 93, dying in 1896.

One of the most interesting of the 1837 advertisements is the modest page of James Carter, of 238, High Holborn, which house is still occupied by his successors; and when Mr. Carter, to be more precise in indicating his shop, added "nearly opposite Day and Martin's," he little thought that three-quarters of a century later the whole of this extensive factory would be taken over by his successors. He was almost exclusively a seedsman, and was "sole agent for German seeds to Messrs. Rammann and Mohring, Gleichenthal." He lived for a time in Germany, teaching music, botany and English, and when he returned to London early in the 19th century he started as a seedsman at 5, Drury Lane, where he was in 1836. A year later he removed to 238, High Holborn, and found recreation as a musical critic on some of the London papers. By 1837 he must have built up a good business, for, in addition to this advertisement, we have also one of his catalogues for that year, a large sheet 20 inches by 13 inches, printed on both sides, with the botanical and popular names of some 900 sorts, their Linnean and natural classifications, and other details, set out in different columns; each Latin name is accented to indicate its correct pronunciation. It is a very remarkable catalogue indeed; obviously the work of a botanist. Mr. Carter probably found his sheet catalogue a trifle clumsy, and by 1846 it had taken the handy form of a little booklet of 32 pages, in which are enumerated 1,500 species and varieties of flower seeds. James Carter died about 1850, after having solidly laid the founda-

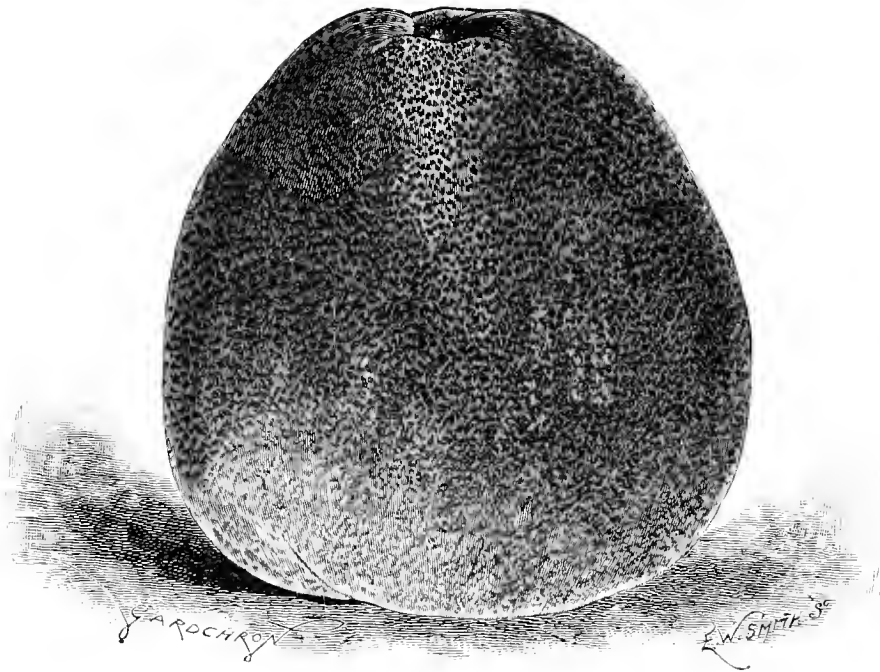


FIG. 129.—APPLE LORD HINDLIP.
(See p. 301.)

tion of a concern which has long since earned a world-wide reputation.

Another advertisement, a year later in date, is also of the highest historical interest from our point of view. It is a modestly-worded announcement of "new and choice flower seeds at 6d. per packet," offered by J. Sutton and Son, Reading Nursery, Berks. These seeds were of "their own growth," and "as this advertisement will probably not be repeated, J. S. and Son respectfully solicit their friends to make out their orders and favour them early, especially as some kinds are very scarce." The seeds are of annuals and perennials, and a small number are of vegetables. The interest of this advertisement will be appreciated when it is stated that John Sutton, the corn factor and miller, who had been established at Reading in 1807, was induced by his son, Martin Hope Sutton, to add seeds to their business in 1837. That the experiment was a success may be gathered from this advertisement of the year following, and here we have what may be described as the germ of one of the greatest seed houses in the world. Mr. Martin Hope Sutton remained in the business until 1888, and died in 1901 at the age of 87.

The name of another firm, less known to the general public than those of Sutton and Carter, but quite as familiar to horticulturists, is that of Protheroe and Morris, who were nurserymen, seedsmen and florists, with a City house at 74, Cornhill, and an "American Nursery" at Leytonstone. This firm, long since established at 67-68, Cheapside, was founded about 1830 by Alexander Protheroe, who lived until 1885, and Thomas Morris, descendants of whom still constitute the firm, now known chiefly as plant and bulb auctioneers, estate agents and valuers. In the early days they combined the trades of auctioneers and dealers, just as the early book auctioneers were also booksellers. Their advertisement of "superb Dahlias for 1839" is followed by one announcing the auction sale of the valuable collection of Tulips of the late Mr. W. Walker, of 7, Angel Terrace, Hammersmith, the collection including over 100 new varieties not in the possession of any other grower. There were other auctioneers; for instance, William May, of Tokenhouse Yard and Prospect Cottage, Islington, and John King, of Hackney Road, and among the various announcements is that of a sale of Tulips at the Red Lion Hotel, Hampton. W. Roberts.

(To be concluded.)

of the wavy-edged labellum of that species asserts itself, but the crossing with *C. labiata* and *C. Dowiana aurea* has given increased size and brighter colouring. The hybrid is nearest to *C. Armstrongiae* (Loddigesii × *Hardyana*), the component parts being similar, with the substitution of the *C. Warszewiczii* in *C. Hardyana* for the *C. labiata* of *C. Marstoniae*. The flowers are nearly as large as those of *C. labiata*, in colour bright rose, with darker lines following the veining; the lip, which is the only part in which the influence of *C. Dowiana* appears, being chrome-yellow, shading to primrose towards the margin and having orange-coloured lines on a purplish ground at the base.

CATLEYA MAXIMA ALBA.

THE flowering of this rare albino form of *Catleya maxima* by Messrs. Stuart Low and Co., Jarvisbrook, Sussex, is interesting, as presumably the plant originated from an importation of Orchids from Ecuador and Northern Peru many years ago, and it may prove a part of the fine *C. maxima alba* for which Hamar Buss, Esq., Byrkley, Burton-on-Trent, received a First-class Certificate at the Royal Horticultural Society's meeting on November 10, 1896. No important importation of the species has been made of late, and as it has again maintained its reputation of being a delicate subject by almost disappearing from gardens, and seeing that albinos are considered to be even more likely to decline than the coloured type, Messrs. Low are to be congratulated on their success. *C. maxima*, when successfully grown, is a profuse flowerer, and although the flowers are not so large and showy as those of the *labiata* section, it is highly attractive. *C. maxima* was collected by Hartweg for the Royal Horticultural Society in 1842, and it flowered in the Chiswick gardens in 1844. The first white form flowered with Messrs. Jas. Veitch and Sons.

HYBRID ORCHIDS.

(Continued from Nov. 25, p. 252.)

ORCHID NOTES AND CLEANINGS.

CATLEYA FLORINA.

AN inflorescence of this pretty new hybrid between *C. Marstoniae* (Loddigesii × *labiata*) and *C. Dowiana aurea* is sent by Mr. C. Kench, gardener to Sir Mervyn Buller, Bt., Broomhill, Spratton, Northants. As in all hybrids derived from *C. Loddigesii*, the firm substance and the form

Hybrid.	Parentage.	Exhibitor.
Brasso-Catleya Gattou Lily	B. C. Dighyano-Mendelii × C. Trianae alba	Sr. J. Colman, Bart.
Brasso-Catleya Schröder-Hye	B. C. Malame Hye × C. Schröderae	Duke of Marlborough.
Brasso-Laelio-Catleya Atalanta	B. L. Dighyano-purpurata × C. Atalanta	Flory and Black.
Brasso-Laelio-Catleya Risdene	B. L. C. Veitchii × L. C. Gottoiana	Alwyn Harrison, Esq.
Brasso-Laelio-Catleya The Baroness		
Orchidhurst variety	B. C. Mrs. J. Leemann × L. C. Ophir	Armstrong and Brown.
Catleya Capella	O'Brieniana alba × Mossiae Wageneri	Baron Bruno Schröder.
Catleya Enidson	Enid × Harrisoniana	Duke of Marlborough.
Catleya Fabianid	Fabla × Enid	Duke of Marlborough.
Catleya Monastir	Frey Mrs. Fred Sassoon × Dowiana aurea	Armstrong and Brown.
Catleya Mauretania	Mossiae × Prince Edward	Duke of Marlborough.
Catleya President Wilson	Fabla × labiata	Sir Jeremiah Colman, Bart.
Catleya Rainbow	Alfieae × Dowiana Rosita	Sander and Sons.
Catleya Slagan	Mrs. J. W. Whiteley × Lord Rothschild	Flory and Black.
Catleya Thora	Empress Frederick × Mrs. Pitt	Charlesworth and Co.
Cymbidium Moira	Fauwelsi × Tracyanum	Hassall and Co.
Cymbidium viridescens	Lady Colman × grandiflorum	Sir Jeremiah Colman, Bart.
Cypripedium Calypso	Roadicea × Calypso	Alwyn Harrison, Esq.
Cypripedium Chardwar	Hera Euryades × unknown	R. Windsor Rickards, Esq.
Cypripedium chrysoeum	Chrysoetoxum × nitens	R. Windsor Rickards, Esq.
Cypripedium Coren	Calypso var. Flamingo × Earl of Tankerville	Charlesworth and Co.
Cypripedium Cornelia	Fowlerianum × insigne Harefield Hall	Charlesworth and Co.
Cypripedium Dixie	areum Oedippe × Parkerianum	Alwyn Harrison, Esq.
Cypripedium Elfin	insigne Sanderianum × Moonbeam	Sander and Sons.
Cypripedium Elgar	Preadnought × Harrisianum	Sander and Sons.
Cypripedium Gilbert	Dante × Leander	Sander and Sons.
Cypripedium Glorita	Actaeus langleyense × Golden Glory	Flory and Black.
Cypripedium John Cypher	Fairricanum × aureum Surprise	R. Windsor Rickards, Esq.
Cypripedium Maggie	Leeannum giganteum × Eucharinianum	Sander and Sons.
Cypripedium Mrs. de Laszlo	Beckmanni × Germaine Opoix	Baron Schröder.
Cypripedium Mrs. Harry Finn	San-Actaeus × Moonbeam	Sander and Sons.
Cypripedium Mrs. Rickards	Earl of Tankerville × Mons. de Curte var. alportense	R. Windsor Rickards, Esq.
Cypripedium Primrose Dame	Fairricanum × unknown	Flory and Black.
Cypripedium Puritan	Victor Hugo × Lord Oseulton	R. Windsor Rickards, Esq.
Cypripedium Sullivan	Beryl × Mons. de Curte var. Bassano	Sander and Sons.
Cypripedium Vasvius	Beckmanni × fulshawense	Baron Schröder.
Laelio-Catleya Arles	L. C. Hy. Greenwood × C. Warszewiczii	Armstrong and Brown.
Laelio-Catleya Beaumont Hamel	L. C. Phoenix × C. Hardyana	Duke of Marlborough.
Laelio-Catleya Fazeana	C. Fabia × L. C. Schnizeana	Duke of Marlborough.
Laelio-Catleya Harclon	C. Harrisoniana × L. C. Clonia	Mr. C. F. Waters.
Laelio-Catleya Helice	L. C. Florentia × C. Dowiana aurea	W. H. St. Quintin, Esq.
Laelio-Catleya Lorna	L. C. Wrigley × C. labiata	Flory and Black.
Laelio-Catleya Monastir	L. C. callistoglossa × C. Pittiana	Flory and Black.
Laelio-Catleya Pallaglossa	Pallas × callistoglossa	Flory and Black.
Laelio-Catleya Patros	C. Patrocini × L. C. Colmaniana	Sir J. Colman, Bart.
Laelio-Catleya Phicomene	L. C. Lady Rothschild × C. Dowiana aurea	W. H. St. Quintin, Esq.
Laelio-Catleya Puritan	C. Purity × L. C. Dominiana langleyensis	Sir J. Colman, Bart.
Laelio-Catleya Rothmilmarin	C. Lord Rothschild × L. C. Miller Martin	Duke of Marlborough.
Odontoglossum Bronlei	Odin. Nathaniel × Oda. Jasper	C. J. Phillips, Esq.
Odontoglossum Brehurne	Vulturina × eximium	C. J. Phillips, Esq.
Oncidium Cora	Oncidium Schlimii × Cochiloda Noezliana	J. and A. McBean.
Sopbro-Catleya Cassiope	S. C. Chamberlainiana × C. Chamberlainiana	Armstrong and Brown.
Sopbro-Catleya Faboris	S. C. Doris × C. Fabia	Baron Schröder and P. Smith, Esq.
Sopbro-Laelio-Catleya Nada	C. fulvescens × S. L. C. Marathon	Sir Geo. L. Holford.

THE MARKET FRUIT GARDEN.

ADVERTISING THE APPLE.

THE author of a bulletin issued by the Massachusetts Agricultural College, considers that the merits of fruit, and particularly of Apples, are not sufficiently appreciated by the public at large, and this he attributes to the lack of advertising. If a firm or corporation with abundance of capital, he says, had command of a great stock of Apples, very extensive advertising, if well done, would yield handsome dividends. This is probably true, and it applies to the few great co-operative associations of fruit-growers in the United States, which have no counterparts in this country. Individual growers would hardly find it profitable to advertise in newspapers or on posters, unless they had a great organisation for selling by retail, a difficult operation with such variable commodities as Apples. The writer of the bulletin, however, notices other methods, the most important of which is the holding of shows in different parts of the country. This is a method of popularising our home-grown fruit which has been sadly neglected in this country. A score or two of annual shows like the Kent and Evesham Fruit Shows, in different parts of the United Kingdom, would do much to convince consumers of the transcendent merits of British fruit, and particularly our Apples, which it is the fashion of many public writers to disparage. But it is not enough to show the public that British Apples are the best in the world as exhibited at shows. They must also be sent to market well graded and packed. The number of good graders and packers has greatly increased in recent years, but the vast quantity of imperfectly graded and bruised Apples to be seen any day in Covent Garden Market is a disgrace to home growers. American and Canadian Apples in barrels, however, are more or less bruised, and often very badly. Yet they commonly make at least a shilling a bushel more than ordinary Bramley firsts packed in bushel baskets, although the latter are vastly superior in flavour and juiciness to the Baldwins and Greenings from across the Atlantic. We are told that retail fruiterers give the preference to American and Canadian Apples because they can get a constant supply of them while they are in season, as well as because they are more uniformly graded than the bulk of home-grown fruit. But they can get large supplies of well-graded Bramleys and Newton Wonders from November to February in an ordinary season, and it is time for the cessation of the unpatriotic preference referred to. An important part of any campaign for advertising our Apples would be an effort to induce retail fruiterers to impress upon their customers the superiority of home-grown Apples.

APPLE LORD HINDLIP.

So far as a short trial of the comparatively new dessert Apple Lord Hindlip (see fig. 129) enables me to judge, it seems to me to be well worth growing, at least in a private orchard. The Apple is shapely and of a fair size for dessert, juicy, and pleasant in flavour. It is described as a late keeper; but nearly half the small lots produced by me in two seasons failed to keep longer than to the end of November. Possibly, however, this was because it was gathered too soon. The variety is a weak grower, and may be planted thickly. At present I have not found any scab or canker upon it. Its flavour is superior to that of James Grieve, Worcester Pearmain, or King of the Pippins, but not equal to that of D'Arcy Spice Pippin or the unfortunately big and ugly Roundway Magnum Bonum. The last two are singularly alike in spicy flavour, but D'Arcy Pippin is much the better keeper. To my taste it comes next to Cox's Orange Pippin for flavour.

APHIS EGGS ON APPLE TREES.

Mr. J. G. Blakey's report on "Aphides and Their Eggs," on pp. 275, 294—the result of

painstaking research—is very interesting. If such work were as common as it is now rare, much information valuable to fruit-growers would be obtained. Mr. Blakey found plenty of aphid eggs on Apple and Plum trees in the eight orchards which he examined. In the past I have only rarely found any in my own orchards, and never sufficient to account for the tremendous infestations from which the trees have repeatedly suffered. This month I have found on one variety of Apple more eggs than I have ever found before. These are on some James Grieve Apple trees, planted in the autumn of 1911. But

which are always among the first to be infested with one of the leaf-curling species of aphides, every year more or less. The past season's growths up to their tips, fruit spurs, and the junctions of laterals with main branches, were carefully examined with a lens, and not a single aphid egg was found. Next ten trees of Mr. Gladstone on one side of the Beauty of Bath trees and ten of Lady Sudeley on the other were similarly examined, with the same negative result. Multitudes of sucker eggs were seen. Negative results have been obtained in the last two or three seasons, and yet aphid attack has occurred more or



FIG. 130.—AMERICAN BIRCH: *BETULA POPULIFOLIA*.

(See p. 302.)

they have been found at present on only a few trees dwarfed by a tremendous infestation of aphides in 1915. Large numbers of the trees in that season looked as if they were nearly ruined by the attack, which spraying failed to remedy. These were cut back severely in the autumn, and they made a wonderful recovery in the present season. On the free-growing trees I have not found any aphid eggs, though there are many sucker eggs. But on the dwarfed trees the infestation is tremendous, as there is a group of aphid eggs at the base of nearly every wood bud. After reading Mr. Blakey's article I made a careful examination of twenty Beauty of Bath trees,

less every spring. As to the hedge shrubs on which Mr. Blakey found aphid eggs, I understand him to say that the insects which hatched were not of the same species as Apple aphides, therefore they do not affect the question of the sources of Apple aphid attacks. But, out of curiosity, I examined a number of shrubs in a hedge close to the Apple trees referred to above. These include the Blackberry, Privet, Elder, and White-thorn. No egg of any kind was found. The only wild plant upon which in past seasons I have found aphides similar to those which attack the Plum or the Apple was the Wild Plum. *Southern Grower*.

THE AMERICAN BIRCHES.

There are Birches, I know, all through Central Europe. They sometimes form striking and picturesque masses. Their beauty in the landscape is sufficiently attested by the fact that the painters have frequently found and painted them. More rarely the landscape gardeners have made use of them; but according to the best of my observation in Continental Europe and the British Islands the Birches are not frequently employed in park work. If we make a fair exception for the horticultural varieties, like the Weeping Birch, which are not seldom used as single specimens, the Birch is a rare tree in park and garden planting.

very valuable to the lumbermen. Certain species, as the Yellow Birch, do indeed yield a very beautiful wood highly prized by the cabinet makers, but it is not in large supply in any region. Other minor commercial uses, such as the manufacture of spools and bobbins, have been found for some of the lumber. But generally the Birch is considered useful only for firewood, and unhappily great areas of it grow in regions so inaccessible as to make it unprofitable to cut firewood for market.

Campers and woodsmen, however, like the savage aborigines, prize the Birches highly. Nothing takes the place of Birchwood for the camp fire. The flexible bark strips easily from old trunks, and from it the woodsman manufac-

a small, yet persistent, weedy growth, making no timber of any value. But they do give a brilliant character to the landscape which the painter or the landscape gardener could never ignore. The photographs which I send you (see figs. 131, 132) were all taken within an hour on a dull November day in the corner of an old pasture, and show the characteristic natural groupings of the Gray Birch, *Betula populifolia*, the species most heartily despised by the hill farmers. It is very rare to see this species attain a greater size than that shown in the illustrations. Yet, however conspicuous its failure as a forest tree, no one can gainsay its beauty in the picture; and the landscape gardener, seeking clean-cut and fascinating effects, will naturally make the most of the Birches. His use of them will be most frequent and most effective in those regions where they are frequently offered ready growing to his hand and where they are a characteristic feature of the native landscape. Where they have to be imported into a park the effect is too obviously exotic. *Frank A. Waugh.*



FIG. 131.—GROUP OF AMERICAN BIRCHES.

In North America, on the contrary, the Birch is one of the most conspicuous figures in the landscape. In the Rocky Mountain region and on the Pacific Coast the Birches are seldom seen. But for hundreds—even thousands—of miles, from Nova Scotia to the mountains of Georgia and Tennessee, the native woods are everywhere cheered and brightened by the shining white bark of various species of *Betula*.

In general the Birches are held in low esteem by the foresters. They do not make large timber trees. Only occasionally are they

tures baskets, plates, beds and half the simple necessities of his daily life. The bark of the Birch—especially *Betula alba*—supplies the material for the original Indian canoe, a craft so thoroughly suited to the waters of the country as to be still in use by the most civilised visitors to the wilds of Maine and Canada.

As a picturesque feature in the landscape, however, the Birches are supreme. The commoner species, such as *Betula populifolia* and *B. lenta*, are regarded as weeds on many farms within their range. They crowd in everywhere with

The Week's Work.

PLANTS UNDER GLASS.

By E. HARRISS, Gardener to Lady WANTAGE, Lockinge House, Berkshire.

CYCLAMEN.—Seedling *Cyclamens* which were raised in the autumn should be either potted into 2½ in. pots or pricked out into boxes or pans. I prefer the latter method, as it entails the least trouble. See that the boxes are well drained. A compost, consisting of loam, leaf mould, and coarse sand or finely crushed brick-rubble, is suitable. Keep the young plants growing steadily near to the roof-glass in a moist atmosphere. Temperatures ranging from 55° to 60° are suitable. Spray the plants twice a day with lukewarm rain-water in bright weather. Aphis may attack the under-sides of the leaves and must be destroyed by means of light fumigations with a nicotine compound.

CHRYSANTHEMUMS.—Most of the plants have passed out of flower by this date, and cuttings should be inserted as soon as they are available, and the old stools discarded. Cuttings of varieties grown for decorative purposes may be inserted in well-drained boxes, filled with a light, sandy compost. Root the cuttings in a propagating-case and afterwards grow them in a position near to the roof-glass in a cool house.

ALLAMANDA.—Plants of *Allamanda* growing in permanent borders should be pruned; cut the shoots back to two or three buds, and in order to keep the plants dormant during the winter keep the roots dry. Specimens growing in pots may be pruned in a similar manner, and placed closely together in a cool house.

THE FLOWER GARDEN.

By W. J. GUISE, Gardener to Mrs. DEMPFSTER, Keele Hall, Staffordshire.

PLANTING CLEMATIS.—The ground for planting Clematises should be trenched deeply and well manured. The addition of mortar-rubble is beneficial, and good drainage is essential. Pruning is an important operation, and the method is different for those of the patens and Jackmanii sections. The shoots of Jackmanii and viticella varieties should be pruned hard back in winter, as they flower on the current year's growth; if late flowers are required the pruning may be deferred until the spring. Those of the lanuginosa type should be only moderately pruned; varieties of the patens and montana sections need but very little trimming, merely thinning out weak or unnecessary growths, as the plants flower on the shoots of the previous year. For training on pergolas, trellises, tree trunks, walls, or on archways or poles associated with Roses,

the Clematis is unrivalled; whilst some of the free-flowering varieties are especially effective planted in beds. The following varieties of the Jackmann section may be recommended—Mme. Edouard André, Rubella, Snow White, Star of India, magnifica, Jackmanni superba, Victoria Jackmanni, and Ilacina floribunda. The bed to be planted should have stakes 4 feet high in the centre, and others, connected with tarred cord, sloping gradually from these to two feet from the outside of the bed. Bamboo canes may be used instead of cord, but not galvanised wire. Set the plants about 3 feet apart each way, on the north side of the posts, to keep the main stem and roots as much in the shade as possible, but let the heads of the plants have all the sunshine available.

HARDY CLIMBERS.—The planting of most varieties of hardy Climbers may be done during the next two months, in mild weather. A good depth of soil is necessary, and it should be trenched at least 2 feet deep, adding a liberal supply of decayed manure, and, if available, rich old turf. If the borders are forked and manured annually, and the roots fed with liquid manure during the summer, the plants will keep in good condition for many years. Established plants in pots are much the best for planting, as they receive little or no check, and may be planted whenever the weather is favourable. During mild weather old established plants of Clematis, Bridgesia spicata, Berberidopsis corallina, Wistaria, Chimonanthus fragrans, and similar kinds, should be examined and pruned. Certain climbers bloom on the ripened wood of the previous year, and such shoots should be retained, except those that are weak or irregular in growth. Others need to be pruned to within a few eyes of the old wood.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcote, Eastwell Park, Kent.

AUTUMN-FRUITING RASPBERRIES.—Even in small gardens a portion of the fruit ground should be planted with autumn-fruiting Raspberries, which need treatment totally different from that given to the summer-fruiting kind. The fruit is produced principally on lateral shoots of the current year's canes, which should be cut to the ground-level as soon as the crop is cleared. The canes grow exceedingly strong, and the best results are obtained by replanting annually. The late shoots ripen late in the season, therefore a warm, sunny corner should be chosen for planting. Belle de Fontenay, November Abundance, and Queen Alexandra are standard varieties. The Hailsham Berry needs the same treatment as autumn-fruiting Raspberries.

SEASONABLE WORK IN THE ORCHARD.—Orchard trees are often neglected in such matters as pruning, spraying, and manuring; indeed, in many cases, the trees receive no attention of any kind. It is now all-important to obtain the fullest and best crops, as fruit is a valuable food. Besides being less profitable in themselves, neglected orchards are a danger to gardens in their vicinity, for they are harbourners of insect pests and fungous diseases. The present is a suitable time to undertake the work of pruning, winter spraying, and manuring orchard trees. Young standard trees should not be cropped heavily, but encouraged to form healthy, vigorous specimens. It will be found that young trees of certain varieties, of which Lord Grosvenor and Lane's Prince Albert are examples, will sometimes bear so heavily as to make no wood growth. Such trees should be thinned of their fruits to a very limited number. Where through a check of any kind the trees have expended all their energies in the formation of fruit buds, and become stunted in consequence, the head of the tree should be cut hard back, and all fruiting spurs removed. The tree will then start freely into growth again, and, with a little attention to the young shoots, will make a promising head the following season. There are conflicting opinions as to the wisdom of pruning or not pruning newly-planted fruit trees. Experience leads me to the conclusion that when planting is done early in the season, pruning fairly hard is distinctly advantageous, for

weak growth is eliminated at the commencement, and I have invariably found the results satisfactory. But the amount of shortening must be regulated by the habit of the particular variety. In pruning established trees that are making healthy growth, keep the centre of the head open, and do not retain too much wood. Trees in grass orchards should have the soil round the hole of the tree kept bare of turf; a space 6 feet in diameter is suitable at the time the trees are planted, and a little more turf may be removed as the trees get larger. When the trees come into full bearing the grass may be allowed to grow again, especially if the orchard is grazed by sheep or calves.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to the Hon. Mrs. SPENDER CLAY, Ford Manor, Lingfield, Surrey.

POT VINES.—The earliest pot Vines that were started some few weeks ago are swelling their buds, and some have already broke into growth. At this stage the fermenting material should be turned and renovated, not only to counteract the harmful effects of dry fire-heat, but also to favour root-action by affording bottom-heat. When all the buds are well on the move tie the shoots to the wires, but do not remove the superfluous shoots until it can be determined which have the best bunches. Raise the night temperature to 58° or 60°, and let the day temperature be 70° in fine weather. Water the roots with the utmost care, as an excess of moisture before the buds have broken fully will result in failure. Damp the walls and bare surface of the bed two or three times daily. Withhold stimulants until after the berries have set and commenced to swell. When the flowers commence to open raise the temperature to 65° at night and 75° by day, with a few degrees higher by sun heat. Reduce the amount of atmospheric moisture to keep the pollen dry, and pollinate the flowers when the maximum temperature is reached, which will be about noon. Where two or three varieties are being forced in the same house cross-fertilisation will result in a better set. When the berries have set and commenced to swell, reduce the number of bunches to six if large, and eight if rather small. When this stage is reached apply rich top-dressings to assist the Vines to mature the bunches. Stop all shoots at the first joint beyond the bunch.

PERMANENT VINES.—As soon as the buds on early Vines growing in borders commence to swell, the inside border may require watering. The temperatures at this stage should be the same as those recommended for pot Vines, with a few degrees higher by day, but do not be in a hurry to raise the night temperature. The atmosphere must be kept moist, regulating the amount of damping according to the outside conditions. Push forward the work of cleansing and pruning later Vines, and get them ready for starting, but keep theinery quite cool for the present, to ensure the Vines having as long a rest as possible.

THE ORCHID HOUSES.

By T. W. BRISCOE, Gardener to W. R. LYSIGHT, Esq., Castleford, Gloucestershire.

LAELIA ANCEPS.—This Orchid, with its varieties alba, Sanderiana, Stella, Amesiana, Williamsii, and Veitchii, are making a fine show, and the display of flowers will be continued by some of the varieties during next month. *L. autumnalis*, *L. alba*, and *L. Gouldiana* are also in bloom. It will be noticed that a gummy substance is often attached to the flower-buds, and it is advisable to wipe the buds occasionally with clean water, or the development of the flowers may be retarded. When these Mexican Laelias have finished flowering, the compost should be kept on the dry side, but the pseudo-bulbs ought not to be allowed to shrivel. A few plants may begin to root freely in a few weeks' time, and such examples may be reported if necessary, provided the work can be carried out without much root disturbance, otherwise it should be left until more congenial weather.

PLEUROTHALLIS ROEZLI.—Few of the Pleurothallis can lay any claim to horticultural merit, but *P. Roezli* is an interesting exception. It is a fine species, with large, deep blackish-purple flowers, which are usually produced during the spring. The plants may be grown in a cool house with the Masdevallias, and requires much the same treatment. Repotting should be done when the new growths are two or three inches high, using a mixture of Osmunda-fibre and Sphagnum moss, with a sprinkling of partly-decayed Oak leaves. Ample drainage must be provided. During active growth the roots require copious supplies of water, and although a less quantity will suffice when the plants are at rest, the roots must never become really dry.

ZYGOPETALUM.—The flower-spikes of *Zygopetalum Mackayi* are developing, and the plants need copious supplies of water. When the flowering is over the plants may be repotted. The receptacles should be filled one-fourth of their depth with drainage material, and this should be covered with a thin layer of turfy loam. The rooting medium should consist of rich, fibrous loam, mixed with a little Osmunda-fibre; a sprinkling of finely broken crocks may be added to render the compost porous. Make the soil firm. Grow the plants in a house having an intermediate temperature, or at the cooler end of the Cattleya house. *Z. Burkei* and *Z. Ballii* require similar treatment. Other species and hybrids that may be grown in the intermediate house are *Z. crinitum*, *Z. Sedenii*, *Z. intermedium*, *Z. brachypetalum*, *Z. Brewii*, *Z. Perreouidii*, and *Z. leucochilum*. Both thrips and mealy-bug are often troublesome; the former may be destroyed by vaporising the house, and the latter, individually, by means of a brush or pointed stick.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

POTATOS.—In view of a Potato shortage growers should make every effort to secure as many new tubers as possible early in the season. Those who are situated near woods and are able to secure large quantities of leaves should provide for the construction of hotbeds on which to force Potatos. The hotbeds may consist partly of stable manure, or they may consist wholly of leaves. In the latter case the leaves may be placed into position at the time of carting, which may often be done during hard weather when other work is impossible or inconvenient. Any sort of rough skeleton frame may be utilised in which to grow Potatos on hotbeds, so long as sufficient lights are available for protection, whilst in cases where planting is deferred to somewhat late in the season protection at night with mats only is necessary. A depth of from 9 inches to 1 foot of light, sandy soil is necessary in which to plant the sets, which should be well sprouted by being placed in trays at once with the eyes upwards, and the tray put in a heated structure. Every grower should make an attempt to produce more Potatos during the coming year than he is accustomed to grow, and to that end should provide himself at once with a plentiful supply of seed tubers. It is advisable to use seed from another district and quite essential that the sets should be well sprouted at planting time.

TOMATOS.—Seedlings sown in November in 3-inch pots as previously advised now require thinning, cautiously and gradually. These seedlings experience a critical period until the lengthening days provide them with more light. Take great precautions not to water them to excess, or to check them in any way. Place them as near the roof-glass as possible, to keep them sturdy, but cover the glass with mats at night to ensure that they are not checked by a sudden lowering of the temperature during frosty nights. At this time also fruiting plants will require much careful attention. Observe caution in watering and ventilating, or mildew will appear and will be found very difficult to check.

FRENCH BEANS.—Sow a successive batch of French Beans as advised in these notes for November 25. Seedlings resulting from these sowings should be watered with great care.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher.—Our correspondents would oblige by obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

AVERAGE MEAN TEMPERATURES for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.7°.

ACTUAL TEMPERATURE:—*Chronicle Office,* 41, Wellington Street, Covent Garden, London, Thursday, December 21, (10.6 a.m.); Bar, 29.2°; temp, 47°. Weather—Rain.

SALES FOR THE ENSUING WEEK.

FRIDAY, DECEMBER 29—

Bulls, at 67 and 68, Cheapside, by Protheroe and Morris.

Acquisition of Land for Food Crops.

The new Order in Council, which was printed last week, authorising the Board of Agriculture to utilise unoccupied land in the vicinity of towns and urban districts as allotment gardens, is certain to receive the approval of all who recognise the necessity of increasing the food supply next season. If Local Authorities make the most of the powers vested in them by this Order, they will, in addition to helping forward the present objective, meet (at least temporarily) a want that has long been felt in urban districts, namely, a quick and easy method of producing an ample supply of workmen's allotment gardens.

Those, however, who have had any experience in the working and management of public allotments, and are therefore in a position to judge, feel—as, no doubt, the Board of Agriculture itself feels—that the Order in question only touches the fringe of the problem facing the country at this moment. Even if the present scheme works out successfully, all that will have been done is to put within the reach of a greater number of workers the possibility of providing themselves with rather more vegetables than they have been used to. Although this will naturally set free a quantity of food for other consumers, it must be of necessity a very limited quantity, for the following reason. When garden allotments are conducted on the usual lines, the method of cultivation followed is, as a rule, extravagant, both in regard to the area of ground taken up as compared with the amount of produce raised, and the

quantity of seed sown as against the plants required. This being so, the fact that it is proposed to cultivate the land taken over by the new Order by the work of men who are inexperienced and unlikely to make even as much out of their plots as an experienced allotment holder, the margin of extra production may be small.

There is no doubt but that the scope of the Land Acquisition Order could have been further extended with advantage to the country, and without the Board of Agriculture being called upon to incur any greater financial liabilities than at present. Had Municipal Authorities been asked wherever possible to acquire land in their immediate vicinity and farm it themselves with all the available labour at their command without in any way entrenching on the farmers' labour supply, and had the Board undertaken—as it has in the present limited scheme—that the rates should be put to no charge in consequence of this action, then, instead of the movement being confined to what is, after all, a very limited section of the population, vast quantities of food could have been put on the market, thus increasing the food supply and to some slight extent affecting the prices to the advantage of the customer. Care would then be taken in the selection of sites and the choice of crops, and the Board would not be called upon to disburse a single penny, as the produce would be likely to more than pay the cost of production.

We learn that the authorities of an important city in the Midlands were prepared to farm a large area of their own land, and if necessary to acquire temporarily and cultivate suitable land outside their municipal area, if the Board undertook that the rates should not be called upon to make good any loss that might result from the undertaking. They went further, and offered to be responsible for the whole management of this scheme, and in due course hand over the entire crops at cost price for the Board to dispose of as they thought fit. It is well known that the Board has had submitted to it proposals for ensuring the increased cultivation of vegetable crops in every part of the country. The urgency of action has been urged again and again on the Board; but doubtless the change of Ministry is responsible for the regrettable delay in giving effect to these proposals. Now the situation is complicated by the inevitable rise in price of seed Potatoes. Every scheme to increase the area under cultivation will tend to help the price of Potatoes to rise yet higher, and this will, of course, discourage the planting of this crop. This vicious circle must be broken, and only resolute and prompt action by the authorities can break it. We hope and believe that this action will be forthcoming. Our dividend for this hope is based on the following observation made in the House of Commons by the Prime Minister:—

Every available square yard must be made to produce food. The labour available for tillage should not be turned to more ornamental purposes until the food

necessities of the country have been adequately safeguarded. The best use must be made of land and of labour to increase the food supplies of this country—Corn, Potatoes, all kinds of food products. All those who have got the opportunity must feel it is their duty to the State to assist in producing, and in contributing to the common stock upon which everybody can draw. If they do this, we shall get food without any privation, without any want, everybody having plenty of the best and healthiest food.

OUR ALMANAC.—We shall shortly issue a *Gardeners' Chronicle Almanac* for the year 1917. In order to make it as useful as possible for reference, we shall be obliged if secretaries of horticultural, botanical and allied societies, or any of our correspondents, will send us immediate information of all fixtures for the coming year.

SYMPHORICARPUS RACE 5 VAR. MACROCARPUS.—Amongst the most effective shrubs in the garden during the closing weeks of the year is *Symphoricarpus racemosus* var. *macrocarpus*. The large, pure white berries, so well shown in fig. 132, are exceedingly ornamental, and it is rare indeed that they are not produced in great profusion, as panicles at the ends of the shoots, their own weight making them pendulous. The plant received the R.H.S. Award of Merit in 1910, under the name of *occidentalis*.

AUTUMN SHOW IN PARIS.—This show, although on a smaller scale than in pre-war times, has been held in the Society's Hall, Rue de Glenelle. It was opened by M. MÉLINE, Minister of Agriculture, on the 3rd ult., and was closed on the 6th. The receipts at the door were devoted to War Charities. Chrysanthemums were to the fore, some fine exhibits being staged by Messrs. VILMORIN, ANDRIEU AND Co., PAUL LABBÉ, CHANTRIER, HÉRAUD, DURAND, and others. Standards and specimen plants were chiefly shown by Messrs. VILMORIN. M. DURAND had a fine lot of cut blooms, comprising twelve good blooms of Mrs. Gilbert Drabble. Fourteen certificates were awarded to M. CHANTRIER for his new seedlings; M. HÉRAUD received five and Messrs. VILMORIN four. Several other awards of Certificates of Merit were made. Orchids were shown by Messrs. MARON, of Brnoy, and Carnations by Messrs. LÉVEQUE. In the section for floral art, M. ED. DEBRIE staged several beautiful compositions. Fruit and vegetables were also exhibited, but in much smaller quantities than usual. We note that M. NOMBLOT, the Secretary-General of the Society, returned on leave from the front to take part in the show.

IRON IN PLANTS.—Experiments carried out by Messrs. GILL and CARRERO, of the Porto Rico Experiment Station,* indicate that, contrary to the prevailing view, the iron compounds located in one part of a plant are not mobile—for example, they do not pass from old, fading leaves to young, newly-formed leaves. The authors transferred Rice plants from an ordinary iron-containing water-solution of nutrient salts to one lacking iron. The old leaves remained green—the young were colourless and the plants died from the top.

RETIREMENT OF MR. DIVERS.—We are informed that Mr. W. H. DIVERS, V.M.H., will retire from the post of gardener at Belvoir Castle, Grantham, on February 1 next. It is twenty-three years since Mr. DIVERS left Ketton Hall, Rutlandshire, in order to remove to Belvoir, where he succeeded the late Mr. INGRAM, whose fame for spring gardening was general throughout the country. Before leaving Ketton Mr. DIVERS had made a

* *Journ. of Agric. Research*, VII, No. 2.

name for himself, and he was known chiefly for his first-class kitchen gardening and fruit cultivation. On going to Belvoir, however, whilst not neglecting such important branches of the garden, Mr. DIVERS entered into the spirit of the place and cared for and developed the schemes of INGRAM with the greatest enthusiasm. During his time many thousands have visited the Belvoir gardens, by the kind permission of the Duke of RUTLAND, and the visitors, including some from all parts of the world, were mainly interested in the spring flowers in the "Duchess" garden. A description, with illustrations, of the "Duchess" garden and other features at Belvoir was given in these columns on May 2, 1914.

Potatoes at convenient distributing centres in 1 cwt. bags. Not more than 5 cwt. may be supplied to each grower, and the range of varieties will necessarily be limited.

"WHITE" MEDAL AWARDED TO MR. WILLIAM ROBINSON.—The Trustees of the Massachusetts Horticultural Society have awarded the George Robert White Medal of Honour for the year 1916 to Mr. WILLIAM ROBINSON, of Gravetye Manor, Sussex. This is the eighth award of this medal made by the Society in recognition of eminent service in the advancement of horticulture. Mr. ROBINSON, to whom the medal is now awarded, has done much—especially through his writings in horticultural litera-

ture—Mlle. Berthe Lachaux, who has been on active service since the beginning of the war, has recently been awarded the Croix de Guerre. For many months he served as a telegraphist in the Engineers.

— We note that PAUL LOCHOT, son of M. JULES LOCHOT, the author of a well-known French treatise on the Chrysanthemum, has been mentioned in Army Corps Orders for bravery at Verdun between May 15 and June 17 last.

— M. OROIX, head gardener at the Luxembourg Palace, Paris, whom we last had the pleasure of meeting at Ghent in 1913, has had the honour of seeing his son-in-law's name, Lieut-



FIG. 132.—FRUITING SPRAY OF SYMPHODIACARPUS RACEMOSUS VAR. MACROCARPUS.

(See p. 304.)

[Photograph by C. P. Raffill.

After February 1 Mr. DIVERS' address will be West Dean, Hook, near Surbiton, Surrey. We trust that he will have good health in order that he may enjoy for many years the leisure he richly deserves.

GOVERNMENT DISTRIBUTION OF SEED POTATOS.—Arrangements have been made by the Board of Agriculture and Fisheries, with the Treasury, to finance a scheme for the distribution of seed Potatos. The President has invited the County War Agricultural Committees to request Borough and Urban Councils and Parish Councils to ascertain what quantity of seed Potatos is required in each village; to collect cash with orders, and to distribute seed. It is proposed that arrangements should be made to deliver the

ture—to popularise the natural style of flower gardening as opposed to the carpet bedding and ribbon borders of former years. He is the author of numerous volumes treating of many subjects of horticultural interest.

TRANSIT OF PLANTS BY RAIL.—The railway companies having announced that no plants will be despatched by rail between the 18th and 26th inst., provincial buyers made large purchases in Covent Garden market at the end of last week for their Christmas trade, causing great pressure of work in the market. Prices for plants are high, and promise to remain high over the New Year.

WAR ITEMS.—M. GASTON CLÉMENT, the Parisian Chrysanthemum grower, and raiser of the

tenant G. LY-ATEY, mentioned in the Army Corps Orders for bravery in attacking an enemy position with the machine guns under his command and also in resisting the enemy's counter-attack.

EMBANKMENT GARDEN TAKEN OVER.—On Tuesday last the Villiers Street section of the Embankment Gardens, near Charing Cross Station, was taken over by the Government, and already operations are in progress for building the familiar wooden huts. Readers will readily call to mind this Embankment garden, for it was one of the most attractive of the sections.

VEGETABLE PLOTS IN SCOTTISH TOWNS.—Glasgow Corporation has approved of a proposal to place at the disposal of the Special Committee

for the purpose on the same terms as those arranged for the present garden plots at Tollcross Park the following additional land—About 8½ acres at Mount Florida; about 15 acres at Newlands Park; 15 acres at Bellahouston; 6 acres at Tollcross Park; and 7 acres at Plantation Park, or nearly 50 acres in all. A remit has been made to the Lord Provost's Committee of Edinburgh Town Council to consider a proposal by Mr. ROSE that vacant land belonging to the city should be utilised for growing vegetables. At a meeting of the Committee of the Dumfries and District Horticultural Society, in pursuance of the remit made to them by the annual meeting, it was resolved to prepare a leaflet dealing with the cropping and cultivation of vegetables suitable for the climate and district. Committees were also appointed to endeavour to further the provision of allotments and the cultivation of vacant land in the towns of Dumfries and Maxwelltown. At a meeting of the Maxwelltown Town Council, held on December 11, a motion by Provost ARNOTT for the appointment of a Committee to take up the question of the provision of additional garden allotments was agreed to.

ARTIFICIAL MANURES FOR COTTAGE GARDENS AND ALLOTMENTS.—The Food Production Committee of the Eastern District of the Stewartry of Kirkcaldy, at a meeting held in Maxwelltown, considered the question of the increase of food production in cottage gardens and allotments, and agreed to take active steps to further the movement. Among other proposals favourably viewed was that of the provision of artificial manures. It is proposed that the committee should arrange for a quantity to be bought, and for distributing centres in the district for those who required supplies.

PEACE, PIGS, AND POTATOS.—It is perhaps scarcely worth while to endeavour to discover the significance of the German's sudden conversion to the cult of peace; but it is not impossible that his thoughts have been turned in that direction by failure of his Potato crop. If failure or partial failure there has been, it is a far more serious matter for the German than a similar failure would be to us; for the German Empire grows Potatos on a vast scale, producing in normal years about one-third of the world's total crop. In a famous passage Burke has reflected on the far-reaching effects of the apparently trivial: "A chance word, a common soldier, a girl at the door of an inn, have changed or almost changed the face of nations." Nor, indeed, if in this instance peace and Potatos prove to be thus intimately connected, would it be the first time that tuber has played a decisive part in modern history. It was the failure of the Potato crop in Ireland that led to the reversal of our fiscal policy, to the habit of emigration of the Irish, and so, at least in large measure, to the trouble and estrangement between that country and Great Britain. The strange phenomenon of a nation crying "Peace, peace, where there is no peace" may be susceptible of interpretation in the sense that it cries peace where there are no Potatos. Not only Potatos, however, but pigs also may count for something in the new propaganda. For if the caterpillar which defoliated the Oaks in many parts of this country was busy also among the Oaks of Germany, if in consequence of the defoliation of the trees the Acorn crop failed, a large and probably severe loss of food for the German pigs must have occurred. Prices of feeding stuffs, already high, would make the fattening of pigs costly or impossible, and there would result in Germany what is happening here—a large decrease in the number of those animals. Whilst, therefore, the subtle seek to expound the German peace manoeuvres in terms of psychology, we, more simple, incline to link together, as effect and cause, peace, pigs and Potatos. Whether or not we are right in inferring this from our own serious inconveniences, the mortal distress of our enemies is less important than that we should apply the moral for our own benefit. Our own

shortage of Potatos and the high price of Barley meal have made pig-keeping an extremely costly proposition. At present prices the only profit in the pig is in the manure he produces. It is certain that unless the price of feeding stuffs falls fewer pigs will be raised, for, curiously enough, economic law seems to have boycotted bacon, the price of which has not increased enough to compensate the pig-keeper for the increased price he has to pay for the Barley-meal or crammings.

NOTICES OF BOOKS.

THE LANGUAGE OF BOTANY.*

We welcome the appearance of the third edition of Dr. Daydon Jackson's excellent glossary, which has become a necessity to every one who has to deal with the terminology of botanical science, whether as botanist or as horticulturist. Although many of the technical words are not very commonly used, it is a great convenience to have a handy book of reference to act as interpreter whenever occasion may arise for discovering the exact meaning of an unfamiliar word.

Dr. Jackson's book is not a mere dictionary; it is a scholarly work, which not only gives the

derivations but often the authorities for the introduction of the terms. From the point of view of utility, the clear printing and the use of different fonts of type add to the ease with which the book can be used. It is seldom possible to recommend a work of this sort to all whom its subject-matter may concern, with such whole-hearted confidence and absence of mental reservation as we feel with regard to Dr. Jackson's admirable treatise. It is marked by the painstaking accuracy and thoroughness which all who know the author would expect to find in any work issuing from his pen. J. B. F.



MR. W. H. DIVERS, V.M.H.

(See p. 304)

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HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

APPLE FROGMORE PROLIFIC (see p. 290).—Mr. A. B. Wadds states that Apple Frogmore Prolific will be discarded at Englefield. Since this variety is one of the most richly flavoured of culinary Apples it is worth transplanting and spraying to overcome the black spot from which Mr. Wadds' trees suffer. Will Taylor, Hampton, Middlesex.

THE LOGANBERRY.—We note in the *Gardener's Chronicle* (see p. 260) your article on the origin of the Loganberry, with which we are

substantially in agreement. In the last paragraph you make reference to the Phenomenal-berry as being of undoubtedly hybrid origin. We are firmly of opinion that this is nothing more nor less than a seedling from the Loganberry, which it very closely resembles, although slightly larger and sweeter—in fact, the difference is so small to the eye that we do not think we could pick out the plants from the Loganberry unless they were in the fruiting stage. You also figure the Lowberry as being a hybrid between the Loganberry and the Blackberry. We do not think this is a fact. We ourselves have imported a variety under the name of Californian Mammoth Blackberry, from America, which we are unable to distinguish from the Lowberry. We draw your attention to these matters, as when your paper makes authoritative statements they are apt to be quoted in years to come. There are undoubtedly two *Rubus* hybrids in commerce, namely, the Mahdi (between a yellow Raspberry and the Loganberry) and the Laxtonberry. We have obtained *F₂* seedlings from the Mahdi—amongst them a *Rubus* similar to a yellow Raspberry—and the Laxtonberry is a cross between Superlative Raspberry and the Loganberry. Both these hybrids are more or less self-sterile, and require planting amongst other *Rubi*. We have purchased from Messrs. Veitch the stock of the Veitchberry, which is a hybrid between the Blackberry and the Loganberry. This is not at present in commerce. There have been many seedlings from crosses between the Loganberry and other *Rubi*, but in nearly all cases self-sterility has prevented them being of any commercial value. *Laxton Bros.*

POTATOS—Owing to heavy and continued rains last winter and spring, most soils, and particular loams, were not in a proper condition for planting in March and April. Although, as Mr. Molyneux proves (see p. 263), only 6½ inches of rain fell (in Hants) from April to mid-August, yet I think the smallness in size of the tubers was due more to the unusually dull weather and moist atmosphere prevailing during this period, owing to the absence of an average amount of bright sunshine. This kind of weather was not only conducive to the production of small Potatos, but also of disease, through a failure in the promotion of vigour and "bone" in the haulm. I have rarely noticed the haulm taller in this district than during the past summer, shoots of Arran Chief and Great Scott growing from 3 feet to 4 feet tall, quite upright, but with an absence of the desirable "timber" in the stems, carrying a big crop, but badly diseased. Would more rain have improved the crop? Suggestions have been made that earthing-up and slightly over the ridge from one side, so as to bring the haulm to the other side and away from over the ridge, is a remedy against disease, as it prevents the fungus from running down from the foliage on to the tubers. It is not suggested that there is some disconnection between the haulm and the tubers, nor that there is a break in the interchange of functions, but that the disease will miss its direction, through the loss of the correct address. This method stands self-condemned, as prostrate haulm strongly invites a visit of the disease. The deep earthing-up referred to by Mr. Molyneux is also a very doubtful check to disease. In its native habitat, S. America, the Potato crops near and on the surface of the soil. In our cultivation of the Potato we practise earthing-up to prevent "greening" solely, or for the same purpose as we earth up Celery and Leeks, in order to blanch them. In regard to Celery and Leeks, exhibitors resort to clover devices in earthing-up so as to avoid burying the roots deeper by the additions of soil on them, thus enabling the exhibitor still to cultivate the soil that is in possession of these roots, and also to feed them. The tender, semi-tropical Potato dislikes a heavy burden of soil, more especially as it is a lover of sun and air. My biggest cultural error was made about 13 years ago when growing 16 varieties in order to make a selection. I earthed-up Sutton's Discovery and Factor extra well and deep, because they carried such strong haulm. They did so badly, and the others so well, that this one lesson was enough for me. The best crop I have known this year was produced by a market gardener, who, I thought,

* A Glossary of Botanic Terms, with their derivation and accent. By Benjamin Daydon Jackson, Ph.D. 3rd ed., revised and enlarged. (London: Duckworth & Co. 1916.) Price 7s. 6d.

was going to ruin his crop, as he had no time to earth until the tubers had formed much bigger than Walnuts, when they received only a slight earthing, for fear of damaging them with the plough. He had a good, clean crop of Potatoes, to the surprise of his neighbours. As cultural aids for the prevention of disease, and the securing of a good crop, the plants should receive the greatest amount of sunlight and air. The following points should be observed:—(1) A rigorous selection of the sets, discarding suspicious and doubtful tubers. (2) Allowing a distance between drills and seed of 2½ to 3 feet, and 12 to 20 inches respectively to ensure a buoyant atmosphere in and around the haulm. (3) Removing sprouts, retaining only two or three most prominent shoots to prevent over-crowded plants. (4) Planting shallow, even if it entails a slight ridging over to cover the sets. (5) Cultivating the soil extra well between the rows preparatory to earthing, to allow the sun and air to enter. (6) Earthing-up later in the season, and only when the plants are strong and about 9 inches, giving the sun opportunity to help in warming the soil. (7) Earthing no deeper than 5 or 6 inches with this warm, fine soil, after a genial shower. The Potato should be dug when the haulm is turning yellow. If the skin rubs, harden the tubers on the ground for a few hours and store carefully. "A Dee Bee," Cardiff.

WOMEN GARDENERS.—Women gardeners will be interested to know that the United Horticultural Benefit and Provident Society is considering the advisability of accepting women members. The society is a very sound one. It has a State side, in connection with the National Insurance, and a private side, which gives benefits in proportion to the amount subscribed. Membership would not only be an advantage to women gardeners individually, it would also give them the chance of being organised in conjunction with men of their own profession. The society can, however, take no steps unless a sufficient number of subscribers is assured, and have given me leave to canvass women gardeners and report results to them. Will all those interested in the matter therefore kindly communicate with me? Miss L. Joshua, 58, Forest Road, Kew.

THE VALUE OF INTERCROPPING.—More use should be made of intercropping for the purpose of increasing the supply of vegetables. Intercropping often consists only in putting winter greens between Potatoes, but it may be practised in many other ways, as by putting out early Lettuces between Tripoli Onions; Spinach, Cauliflowers, Cabbages, Turnips and Lettuces between Strawberries; and Dwarf Beans between rows of Peas and Runner Beans. L. F. Bagg, Sunnyside Gardens, Holmwood.

—Early Potatoes sprouted in light, airy sheds in shallow boxes, and planted in deeply dug and well-manured ground the first week in April, will produce a heavy crop that will be ready for market at the end of June. The ground will then be ready for planting Strawberries that have been layered in turf or small pots. The Strawberries should be grown 1 foot apart each way, and treated as annuals, that is, allowed to crop once and then cleared in time for sowing Spring Cabbage, August Onions or Winter Spinach. An acre of Rye, sown in August, will produce £12 worth of green cattle food in April or May; the green stubble, dug or ploughed under as manure, will give a good autumn crop of Cabbages or Cauliflowers. After these crops the land will be clean and ready in the spring for planting early Potatoes, these in their turn to be followed by Leeks (which always command a ready sale after Christmas), set 9 inches apart each way. The first system gives three, the second four full crops in two years. John Butts, Meatfold, Stam.

SOCIETIES.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

DECEMBER 11. The monthly meeting of this Society was held at the R.H.S. Hall on the above date. Mr. C. H. Curtis in the chair. Three new members were elected. The sum of £4 17s. 6d. was passed for payment to the

nominee of a deceased member who had been killed in action. The sick pay for the month on the ordinary side amounted to £58 12s. 4d., on the State section to £21 3s. 4d., and maternity claims to £5. The committee hopes shortly to open a Juvenile Section. Application has also been received for the opening of a Female Section, but the committee have not at present sufficient evidence to proceed further with this.

NATIONAL CHRYSANTHEMUM.

DECEMBER 18.—The Executive Committee of this Society held a meeting at Carr's Restaurant, Strand, on the above date. Mr. Thomas Bexon presiding. It was announced that all the prize money awarded at the last show had been duly distributed. Owing to the Horticultural Hall having been taken over by the military the R.H.S. were not able to conclude arrangements with the N.C.S. for the holding of the 1917 show at the Hall. Other arrangements must therefore be made, and the place when decided upon will be announced. The Executive Committee meetings for next year were fixed as follows:—September 24, October 22, November 19, December 17, 1917, and January 21, 1918.

Upon the recommendation of the Floral Committee it was resolved that a new class in the



THE LATE MR. WILLIAM COLLETT.

schedule be instituted for undisbudded Pompons. It was further decided that in the Pompon classes in future blooms exceeding 2½ inches in diameter would not be admissible. The meetings of the Floral Committee for next year were fixed as under:—September 24, October 8, 22 and 29, November 6 (or the day of the show), November 19, and December 3. The place where these meetings will be held is to be decided upon later.

The question of educational meetings was mooted, but left over for future consideration.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 7.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, A. R. Handley, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (secretary).

AWARDS.

FIRST CLASS CERTIFICATES.

Cymbidium Davis magnificum (insignis var. *Tracyanum*), a flower of good size, beautifully veined with reddish-brown; *Odontoglossum crispum Craveni*, a full round flower, of port wine colour, with white margin; *Odontodia Mayoli Sander* (*Miltonia Warsceviczii* *alba* × *Odia Armainvilleirensis* Xanthotes), all from Dr. CRAVEN MOORE.

AWARDS OF MERIT.

Cypripedium Arthuriannum *Usk Priory* var. (insignis *Harefield Hall* × *Fairviewum*), C. *Cavaleri* *Usk Priory* var. (*Hera Eurymides* × *Eul Tankerville*), C. *Nydia Usk Priory* var., C. *John Cypher* (*Antinous* × *Lecanum*), C. *Chardway*, and C. *Mrs. Richards* (*Eul Tankerville* × *alportense*), all from R. WINDSOR RICHARDS, Esq.

Odontoglossum ardentissimum *Marjorie*, O. *crispum* *Princess Victoria Louise*, O. *crispum* *Etna*, and *Odontodia Dinna Conyngham* var., all from Dr. CRAVEN MOORE.

Laelia Cattleya luminosa curva var. *Canary* and *Cypripedium Lecanum Goliath* (L. *Gratizium* × *Prichard*), from R. ASHWORTH, Esq.

Sophio-Laelia Cattleya Fabinippe (C. *Fabia* × S. L. C. *Monippe*), from P. SMITH, Esq.

Cypripedium Baron Harefield Hall (insignis *Harefield Hall* × *The Baron*), and C. *Christopher* var. *Bisepale*, from Messrs. CYPHER AND SONS.

SCOTTISH HORTICULTURAL.

DECEMBER 5.—The monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. W. G. Pirie, the president, being in the chair.

A paper on Violets by Mr. R. Staward, Panshanger Gardens, Hertford, was read by the secretary.

The exhibits were:—Chrysanthemums and Perpetual flowering Carnations, from Messrs. Dobbie and Co., Edinburgh; and *Lindenbergia grandiflora*, from Mr. W. Smale, Blackford Park Gardens, Edinburgh.

Mr. John Phillips, Granton Road Nurseries, Edinburgh, was unanimously nominated as president for 1917.

LEA VALLEY AND DISTRICT NURSERYMEN.

DECEMBER 8.—A special general meeting of the Lea Valley and District Nurserymen's and Growers' Association, at which over sixty trade members attended, was held on Friday, the 8th inst., at the Falcon Hotel Assembly Room, Waltham Cross, under the presidency of Mr. H. O. Larsen, Waltham Abbey. The president gave an outline of the proceedings which took place at the conference between the Chief Horticultural Inspector of the Board and the Council of the Association at the Experimental and Research Station, Cheshunt, on December 7, when a proposal by the Government that nurserymen should devote a portion of their glasshouses this winter to the culture of early Potatoes was considered. After a discussion those present unanimously decided to grow Potatoes. A sub-committee was appointed to give effect to the recommendation of the meeting that all members of the Association with suitable soils and available houses should experiment in Potato growing, as desired by the Government. A pamphlet on the culture of early Potatoes under glass has been prepared by the Director of the Experimental and Research Station, and issued to all the growers in the Lea Valley District. Copies of these pamphlets are available for distribution to bona-fide nurserymen in other parts of the country who may be willing to grow Potatoes, and may be had post free on application to the Director.

Obituary.

WILLIAM COLLETT.—A gardener of the old school passed away on December 5 at Rendham, near Saxmundham, Suffolk, at the age of seventy-four. William Collett was for many years a successful fruit grower, and filled several important posts in private gardens. Apprenticed at Stanton Castle, he was afterwards employed as journeyman at Foxley Park, and later was foreman in the gardens of the late W. H. Smith, Esq. He was afterwards appointed gardener to the late John Bibby, Esq., of Allerton, Liverpool, where he remained for fourteen years, and later to Arthur Heywood, Esq., at Sudbourne Hall, Wickenham Market, Suffolk. Deceased remained with Mr. Heywood for fifteen years.

MARKETS.

COVENT GARDEN, December 20.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.

Cut Flowers, &c.: Average Wholesale Prices.

s.d.s.d.		s.d.s.d.	
Arums. per doz.	7 0-9 0	Lilium lancifolium rubrum, per doz.	2 6-3 0
Azalea, white, per doz. bun.	7 0-8 0	— short..	1 0-1 6
Bouvardia, white, per doz. bun.	8 0 —	Mimosa (Acacia) per doz. bun.	12 0 15 0
Camellias, white, per doz. blms.	3 6-4 0	Narcissus, paper white, per doz. bun.	2 6-3 0
Carnations, per doz. blooms, best American varieties ..	4 6-5 0	— Soliel d'Or, Guernsey, per doz. bun.	4 0-6 0
— Carola (crimson), ex. large ..	5 0 6 0	— French ..	2 6-3 0
— Malmaison, per dozen blooms ..	12 0-15 0	Orchids, per doz.: — Cattleya ..	10 0-12 0
Chrysanthemum, white per doz. blooms..	2 6-6 0	— Cattleya Harrisonii ..	4 0-5 0
— pink, per doz. blooms ..	2 6-4 0	— Cypripedium ..	2 0-3 0
— yellow, per doz. blooms..	2 6-3 0	— Odontoglossum crispum ..	3 0-4 0
— bronze, per doz. blooms ..	2 0-3 0	Pelargonium, per doz. bunches, doublescarlet ..	12 0-15 0
— white, per doz. bunches ..	10 0-15 0	— Poinsettias, per doz. blooms ..	15 0-18 0
— coloured, per doz. bunches ..	10 0-15 0	Roman Hyacinth per doz. bun.	30 0 36 0
Daffodils, single, per doz. bun.	24 0-27 0	Roses: per dozen blooms—	
Gardenia, per box of 12 and 18 blooms ..	5 0-6 0	— Liberty ..	4 0-5 0
Heather, white, per doz. bun.	12 0 —	— Madama A. ..	4 0-5 0
Lilium longiflorum, long ..	4 6-5 0	— Chateau ..	4 0-5 0
— short ..	5 0 —	— Melody ..	4 0-6 0
— lancifolium album, long..	2 6-3 0	— Niphetos ..	3 0 —
— short ..	3 0-3 6	— Sunburst ..	5 0-6 0
		Tuberose, per packet, 24 blooms ..	1 6-2 0
		Violets, single, ordinary ..	2 0-2 6
		— Parma ..	
		— French, per bunch..	6 0-7 0

REMARKS.—Chrysanthemums are fairly plentiful, but there is every prospect of good blooms running short before the week-end. The supply of Carnations is very limited, especially the red varieties, for which there is a great demand, partly owing to there being no scarlet Tubys this year. A few yellow and pink Roses may be procurable throughout this week, but reds are likely to be unobtainable, with the exception of a few French specimens of Ulrich Brunner, which are arriving in good condition. Richardias (Arums) are likely to be scarce. Small consignments of Lily-of-the-Valley are arriving daily, and also some fine blooms of Poinsettia. Very few cut Roman Hyacinths are obtainable. They are chiefly packed for market on bulbs, in boxes of 24. Cut single Daffodils are selling freely at high prices. So far regular consignments are being received from France, and all flowers are arriving in good condition. The consignments chiefly consist of pink Anemones, Mimosa yellow and white Narcissus, yellow Marguerites, Ranunculus (various sorts) Roses, single Violets, and large bunches of Parma Violets.

Vegetables: Average Wholesale Prices.

s.d.s.d.		s.d.s.d.	
Artichokes, Globe, per doz.	3 6-4 6	Lettuce, Cabbage and Cos, per doz.	2 0-8 0
— Jerusalem, per bus.	4 0 —	Mushrooms, per lb.	1 6-2 0
Asparagus, Paris Green, per bun.	4 6-5 0	Mustard and Cress, per doz. punnets	1 0 —
Beetroot, per bus.	4 0-6 0	Onions, per bag	18 0-20 0
Beans, Guernsey, per lb.	1 9-2 6	— sprang, per doz. bun.	6 0 —
Brussel Sprouts, per bus.	6 0 —	Parsnips, per bus.	6 0 —
Cabbage, per tally ..	3 0-8 0	Radishes, per doz. bun.	1 0-2 0
— Red, per doz.	5 0 —	Savoys, per tally	5 0-10 0
Carrots, per bag	9 0 —	Seakale, per doz. punnets	2 4 0 —
Cauliflowers, per tally ..	8 0 12 0	Shallots, per lb.	0 5-0 6
Celeriac, per doz.	3 6-4 0	Spinach, per bus.	6 0 —
Celery, per doz.	6 0 18 0	Swedes, per bag	5 6 —
Cucumbers, per doz.	8 0 12 0	Tomatoes, Tene-riffe, per bundle	32 0-34 0
Endive, per doz.	2 6 —	Turnips, new, per bag ..	5 0 —
Greens, per bag.	2 6 —	— Tops, per bag	4 0 —
Garlic, per cwt.	50 0 —	Watercress, per doz.	0 6-0 8
Herbs, per doz. bun.	2 0-6 0		
Horseradish, per doz.	42 0 —		
Leeks, per doz.	3 0-5 0		

Fruit: Average Wholesale Prices.

s.d.s.d.		s.d.s.d.	
Almonds, per cwt.	58 0-60 0	Grapes: English, Almeria, per brl.	18 0-22 0
Apples—		— Alicante ..	1 3-2 0
— Newfornian California, per case	12 0-12 6	— Gros Colman, per lb.	1 4-3 0
— English Cooking, per bus.	7 6-11 0	— Canon Hall, per lb.	3 0-6 0
— Dessert, per bus.	8 0-14 0	— Muscats, per lb.	4 0-6 0
— Nova Scotian barrels	29 0-35 0	Grape Fruit, per case ..	18 0-20 0
— Oregon, per case ..	14 0-15 0	Kent Cobs, per lb.	2 2 —
Bananas, bunch—		Lemons, per case	16 0-28 0
— Medium ..	11 0 —	— new, per cwt.	80 0-85 0
— X-medium ..	13 0 —	— Coconut, per 100 ..	25 0-31 0
— Extra ..	15 0 —	Oranges, per case	18 0-50 0
— Double X ..	17 6 —	Pears, English, per doz. size ..	7 9-9 0
— Red, per ton	25 0 —	— Californian (Blocks) ..	11 6-16 0
— Jamaica, per ton ..	£18 —	— Keifer, per barrel ..	36 0-38 0
Chestnuts, per bag ..	32 0-42 0	Tangerines, per box ..	1 5-2 0
Cranberries, per case ..	21 0-23 0	Walnuts, French, per bag ..	13 0-14 0
Dates, per doz. boxes ..	7 6-7 9		

REMARKS.—The market is well supplied with Apples from home growers and overseas. Pears are also plentiful, the bulk arriving from California. There are practically no Pines. Oranges include Brazilian, Denia, Jamaica, Valencia, and the popular Tangerines. There is a good selection of imported Nuts, but Cohnuts are scarce. Bananas are unusually scarce for the time of year. Gros Colman, Black Alicante, and Muscat of Alexandria Grapes are all fairly plentiful. Dried and bottled fruits are a much shorter supply than is usual at this season of the year. Well-berried Holly and Mistletoe are both very scarce. Tomatoes from Tenerife are a limited supply. Mushrooms are more numerous. Forced Beans, New Potatoes and Cucumbers are fairly plentiful. E. H. R., Covent Garden Market, December 20, 1916.

Potatoes.

s.d.s.d.		s.d.s.d.	
Bedford ..	10 6-11 6	Line In, c.n.	10 6-11 6
King Edward ..	10 6-11 6	B ackland ..	10 6-11 6
Arran Chief ..	11 0-12 0	Evergood ..	10 6-11 0
		King Edward ..	11 0-12 0
		Queen ..	11 0-12 0

REMARKS.—Trade is very good. Prices remain about the same as last week. Consignments from growers are only equal to the demand. Edward J. Newborn, Covent Garden and St. Pancras, December 21, 1916.

DEBATING SOCIETIES.

BATH GARDENERS'.—The annual meeting of the Bath Gardeners' Society was held at the local Foresters' Hall, Mr. T. Parrott presided. The hon. secretary (Mr. Sparey) presented the annual report. The chairman (Mr. T. Parrott) was declared the winner of the Silver Medal, with 115 points, the highest on record. He also won eight First-class Certificates and six Certificates of Merit. Mr. H. Roper was the winner of the Bronze Medal, with 111 points, with two First-class Certificates and four Certificates of Merit. The chairman announced that Mr. G. Garraway (vice-chairman) had offered £d for every prize point gained during the year. The total number of points was 553, so that Mr. Garraway would be giving a sum of £1 3s. 0d. The chairman stated that Mr. Griffin had offered the members 12 varieties of Potatoes, 1 lb. of each, and that three prizes would be given to those who produced the greatest yields. The officers were re-elected. In future the meetings will be held monthly instead of fortnightly.

WARGRAVE AND DISTRICT GARDENERS'.—At the meeting of this Association held on the 6th inst. a paper was given by Mr. W. Clarke, of Bear Hill Gardens, on "Four Primary Vegetables." He referred to Broccoli, Cauliflower, Celery and Peas and gave cultural directions respecting each, referring in detail to soil cultivation, seed sowing, pricking off, planting out, manuring, pests and remedies.

GARDENING APPOINTMENTS.

Mr. R. A. Donaldson, for the past six years Gardener at the Under-Secretary's Lodge, Dublin, as Gardener under H.M. Office of Public Works (Ireland), at the Chief Secretary's Lodge, Phoenix Park, Dublin.

Mr. Thomas Calthorpe, for the past 7 years Gardener to Lord TRIMLESTOWN, Bloomshbury, Kells, Co. Meath, as Gardener to T. W. BROWNING, Esq., Caras Court, Croom, Co. Limerick.

Mr. A. Edwards, for the past 41 years Gardener to W. K. DARRY, Esq., Polest-d Manor, Guildford, as Gardener to J. F. LESCHER, Esq., Boyles Court, Brentwood, Essex. [Thanks for Is. for R.G.O.F. box.—Eds.]

Mr. E. McDowall, as Gardener at Kettlewell Conventual Home, Swanley, Kent.

Mr. H. H. Jones, for several years Gardener to Lord MONTAGU OF BEAULIEU, Ditton Park, Slough, as Gardener (for duration of war) to H.S.H. Princess HATZFELDT, Folkeston Park, near Windsor.

Mr. D. Gibson, Duke Manor Gardens, Lingfield, as Gardener to the Duke of RUTLAND, Belvoir Castle.

Mr. H. Bean, at Spring Park House, Shirley, Croydon, as Gardener at The Rookery, Downe, Kent.

ANSWERS TO CORRESPONDENTS.

CYPRESS TREES: J. W. G. The browning is due to some root trouble, and probably the salt you mention is the cause.

FLEUR DE LIS DESIGN: J. W. P. Antirrhinums of the intermediate section would be quite suitable for your Fleur de Lis design. The best colours are Rich Apricot, Fire King, Orange King, Coral Red and Yellow. You could bed each figure out in one colour, or use a distinct colour for each part of the figure. For instance, the lower part of each figure could be Fire King, the band Yellow, the side wings Orange King, and the centre wing Coral Red. In using one colour for each figure yellow may be left out. We do not think it advisable to use other plants with the Antirrhinums. One important point to remember when using different kinds of annuals for permanent bedding is that oftentimes they do not flower together, which in your case would spoil the whole effect. By sowing seeds of Antirrhinums about the middle of February under glass you would have strong plants ready to put out early in June. These would flower from July till October. It would not improve your design to use dot plants.

FORMALIN AS A FUNGICIDE: Skerry. The ordinary commercial formalin has a strength of 40 per cent., and should be diluted, 1 oz. in 2 gallons of water. The liquid should be kept in a closely stoppered bottle. The fumes are irritating to the eyes, but otherwise the specific is perfectly safe to handle.

GUMMING IN MORELLO CHERRY: A. H. Gumming is detrimental to the trees, but it is not an easy matter to stop the complaint when it has developed to a considerable extent. The trouble may arise from more than one cause; indeed, anything that causes a check may set up gumming. Trees growing in ungenial, badly drained soils are prone to the complaint, and even very rich soils may contribute to the disease, for in rich soils the trees make very strong growths, necessitating severe pruning, which in itself causes a severe check to the tree. The best method of preventing an occurrence of the complaint is to preserve well-balanced growth, by practising summer pruning, so relieving the tree of excessively strong shoots, and rendering severe winter pruning unnecessary. Remove affected branches as far as it is practicable and burn them.

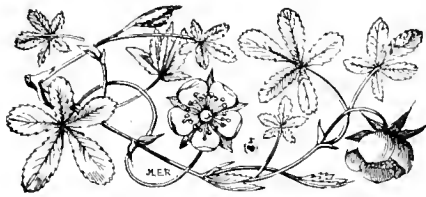
NAMES OF FRUITS: J. D. J. 1, Stirling Castle; 2, Lemon Pippin; 3, Roundway's Magnum Bonum.

PLANTS FOR A DRY, GRAVELLY BANK: Amateur. The best shrubs for a dry, gravelly bank are Broom, Gorse, Bladder Seuna (Colutea), St. John's Wort (Hypericum), and Tamarisk.

POTATOES FOR GROWING INDOORS: R. F. The best kidney-shaped varieties for this purpose are May Queen, Sharpe's Express and Ninety-fold.

TUBEROSES: Lancashire. We are at a loss to account for the failure of your Tuberozes, as the conditions you describe seem suitable for this stove bulb. Your suggestion that the bulbs may be inferior appears scarcely well based, seeing that they grow satisfactorily to the flowering stage. Of course, there are many circumstances that produce checks, but only those on the spot could determine which is the cause in this case. For instance, the plants may be too far from the roof-glass, or they may be too close, and at night suffer from cold; again, the manure-water may be stronger than the roots can take without suffering or, in avoiding too much water, it may be that you are giving scarcely enough. Tuberozes, at this stage, when the pots are well filled with roots, are very thirsty plants, and if they suffered drought would be sure to show the effect in the withering of the flower-buds. Place a few plants in another house and see if the trouble is thus abated. See that there is no escape of sulphur or other fumes from the stovehole.

Communications Received.—Tuberoze, Leadburn.—J. W.—C. P. R.—R. W. B.—D. W.—A. T. H.



THE
Gardeners' Chronicle

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TWO NEW PYRAEANTHAS FROM CHINA.

MORE than a year ago my attention was called by Mr. C. Coltman Rogers, of Stanage Park, to a Pyraeantha which he had raised from seed collected by Forrest in his recent expedition in China. Judged by herbarium material, the plant is obviously allied to the Himalayan *P. crenulata*, but in cultivation it is evidently quite different. Incidentally I was led to examine critically the handsome shrub introduced as *P. crenulata* from Western China by Wilson about 1907, which again proved to be different, at any rate in gardens, from the Indian plant formerly cultivated under that name.

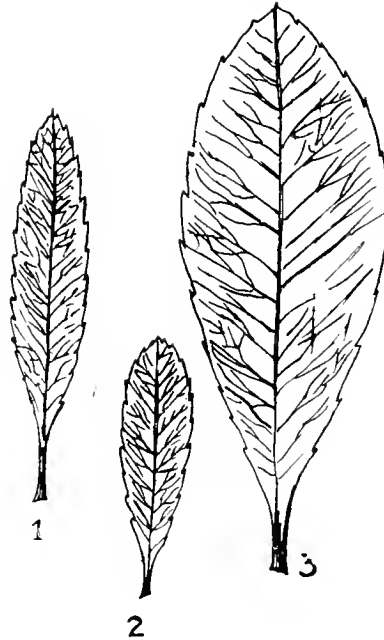
It will be well to give here the history of this plant, with which Wilson's more recent introduction has been confused. It was described by Roxburgh* in 1832 as *Crataegus crenulata*. In 1847 Roemer† separated this and three other species as a distinct genus, *Pyraeantha*, characterised chiefly by the evergreen entire leaves and distinctive ovules.

According to Hooker,‡ *P. crenulata* is a native of the temperate Himalaya, occurring in dry places from the Sirmor to Bhutan (exclusive of Sikkim) at altitudes varying from 2,500 to 8,000 feet. He describes it as "a large, woody, spinescent shrub, with leaves crowded on short lateral branchlets 1-2 inches long, shining, narrowed into the very short petiole, nerves in distinct, corymbs short, many-flowered, glabrous or puberulous, branches slender. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter, pedicels slender, calyx tube hemispheric, lobes obtuse; petals orbicular; . . . fruit globose, orange red. . . . Differs from the European *C. Pyraeantha* in the obtuse leaves and smaller fruit."

Lindley, who gives a description and figure of *Pyraeantha crenulata* in his *Botanical Register*, XX. t. 52 (1844), states that it was raised for the first time true in the garden of the Horticultural Society from seeds presented by Dr. Royle from

the north of India, and that it had survived several winters trained against a south wall. This would be in the early forties. He adds that most plants to be found in collections at that time under the name did not differ from the common *Pyraeantha*, indicating that the two were confused even in his day. Nowadays the Indian *Pyraeantha* is very seldom met with in cultivation, owing probably to its tender constitution. The only living plant I have seen is a small bush at Kew, which is very slow in growth and flowers and fruits very sparingly. This was raised from seed which came from Wurzburg in 1892. Schneider§ also says that *P. crenulata* is very seldom seen true in cultivation.

The case is quite different with Wilson's Chinese plant, which since its introduction has proved itself to possess a much stronger constitution, and I believe will prove a valuable addition to our ornamental shrubs. Plants about eight years from seed are growing vigorously, and are already



M.B.T. del.

FIG. 135.—TWO NEW PYRAEANTHAS.

1. *Pyraeantha crenulata*.
2. *P. crenulata* var. *Rogersiana*.
3. *P. Gibbsii*.

12-14 feet high at Kew, and one from Aldenham, where this shrub has done exceedingly well, obtained an Award of Merit from the Royal Horticultural Society last year. Striking features are the Hawthorn-like flowers succeeded in the autumn by clusters of scarlet berries, which contrast most effectively with the glossy dark-green foliage, and make it a very handsome and desirable shrub for a late autumn and winter display. It differs from *P. crenulata* in being almost or completely without spines, in its larger leaves, which vary much in degree of serration, being subentire, crenate or serrate, up to 3 inches long and 1 inch broad, obovate-oblong in outline. Flowers like those of *P. crenulata*, but slightly larger. Berries often produced in abundance, globose depressed, about 7 mm. in diameter.

* *Laubholzkunde*, I., 761 (1806).

† *See Gard. Chron.*, Feb. 20, 1915 (supplementary illustration), which shows well its decorative character.

‡ Seeding plants from Aldenham, which have grown rapidly in my garden this year, have lobed leaves, resembling those of a Hawthorn.

Wilson** says it is a very common shrub in Western Hupeh and Western Szechuan, varying much in the texture and size of its leaves, which are commonly used for tea.

I propose to name it *Pyraeantha Gibbsii*†† after my friend the Hon. Vicary Gibbs, whose remarkable collection of hardy shrubs at Aldenham bears striking testimony to his enthusiasm for this fascinating branch of horticulture.

I now come to the *Pyraeantha* introduced by Forrest from Western China, referred to at the beginning of this article. This comes near to the Himalayan *P. crenulata*, but has irregularly serrated leaves, which are oblanceolate and not oblong in outline. In its robust habit it resembles *P. Gibbsii*, but the leaves are much smaller and of a paler green. However, I am unable at present to separate this specifically from *P. crenulata*, and propose to call it var. *Rogersiana*‡‡ after Mr. C. Coltman Rogers, a keen student of trees and shrubs. Mr. Rogers tells me the plant in his garden flowers some three weeks later than *P. Gibbsii*, and is denser in growth. Plants raised from seed sent to Kew in 1911 by Mr. J. C. Williams are now 8 to 10 feet high, with widely spreading branches. They produce flowers and fruit in considerable abundance. The berries, which vary in colour from orange to scarlet, are soon taken by the birds. I saw a similar plant in cultivation at Wisley last summer, but this is prostrate in habit, and I was unable to find out its origin. With herbarium material it is not easy to separate this plant from the Himalayan *P. crenulata*, but in cultivation the two are conspicuously distinct. The illustration in fig. 133 shows how the three plants differ in foliage. A. Bruce Jackson.

SOME OLD SEED AND PLANT CATALOGUES.

(Concluded from p. 300.)

ANOTHER name doubly eminent in horticulture occurs in the two-page advertisement of William Masters, of the Exotic Nursery, 25, St. Peter's Street, Canterbury. He dealt extensively not only in florists' flowers, but in hardy shrubs and stove and greenhouse plants. He was an alderman of the city and the founder of the Canterbury Museum. He effected some remarkable hybridisations of Passion flowers, Aloes and Cacti; but beyond these claims to fame he was the father of a still more distinguished son, Dr. Maxwell T. Masters, F.R.S., who edited the *Gardeners' Chronicle* for forty-one years after Dr. Lindley, and who was a scientist of great accomplishments, a man of wide culture and an attractive personality. As William Masters was born in 1796, and his son lived until 1907, the father and son were connected with horticulture for nearly a century. William Malcolm's famous Kensington nursery is recalled by the advertisement of his successor Richard Forrest in 1857. Malcolm had published a "Catalogue of Plants" in

** *Plantae Wilsonianae*, II., 177 (1912).

†† *Pyraeantha Gibbsii*, sp. nov.

Frutex erectus, spinis saepissima destitutus, ramis cortice olivaceo-brunneo vel griseo-brunneo obtectis. Folia obovato-oblonga, integra vel crenato-serrulata, supra nitida, subtus opaca, breviter petiolata, basi cuneata apice mucronata vel obtusa nisi retusa, plerumque 4.5-6.5 cm longa, 2.2-5 cm lata. Flores ut *P. crenulatae* similes sed paulo majores, usque ad \pm 1 cm. diam. Fructus ruber, \pm 7 mm diam., nitidus, 5-spermius, depresso-globosus.

Western China, Patung, Wilson, 349; Mt. Omei, Wilson, 4,871a; Faber, 60. Western Hupeh, Wilson, 602, 2,984, 2,986. Central China, Ichang, Henry, 2,986.

‡‡ *Pyraeantha crenulata*, var. nov. *Rogersiana*

Frutex humilis vel erectus, spinosus, ramis patentibus, cortice flavo-brunneo obtectis, ramulis novellis pubescentibus, adultioribus glabris. Folia oblanceolata, superne nitida, subtus opaca, breviter petiolata, margine inequaliter serrata, 3.3-4.4 cm longa, 1.1-3 cm. lata. Flores typi. Fructus aurant acis vel flavis, 7.8 mm. diam.

Western China, Forrest, 5,984. Yunnan, Delavay, 1889 (Herb. Kew)

* *Fl. Ind.*, II., 569

† *Linn. Syst. Nat.*, III., 219 (1847).

‡ *Fl. B. India*, II., 384 (1878).

1778, and his name is commemorated by Brown in the genus *Malcolmia*. For a long series of years his nursery was one of the sights of London: there he cultivated all the leading kinds of ornamental and fruit trees, shrubs, exotic plants, and also carried on a seed business. His successor was also a landscape gardener, and, as he termed it, a "garden architect." The irresistible march of the builder has long since obliterated this famous horticultural resort.

Although the tyranny of the Dahlia mania was so pronounced during the late 'thirties and early 'forties of the last century, and although nurserymen had to supply what the public wanted, there were, as already indicated, those who were growers of other plants. For instance, one of the most extensive cultivators of Roses was the firm of W. Wood and Son, of Maresfield, near Uckfield, whose quaint trade sign was a "weep-

Lockhart, seedsmen, of 156, Cheapside. Another prize winner, but with the Fuchsia, was John Schofield, of Knostrop, near Leeds, who was successful in raising seedlings. The Pansy had also its special trade devotees. James May had a Pansy Nursery at Tottenham; T. Lake, of Bishopsgate Street, and Rogers, of Uttoxeter, were dealers in the same line, whilst Joseph Harrison's list of "New and Choice Panseys" for 1838 included over 100, which ranged from one to two shillings each. "Splendid New Lobelias," of which two were figured in the *Floricultural Magazine* for January, 1838, were advertised by F. Goodwin, of Collieroft, Ashbourne, Derbyshire. The Chrysanthemum was becoming a florist's flower, but the advertisements of it are few. The most notable is that (1838) of R. Freestone, of Watlington, near Downham, Norfolk, who raised twelve new varieties in one

filices (it should be filipes), a plant which was introduced from Teneriffe in 1838, at five guineas each.

Very few of the advertisers were seedsmen only. If they were not nurserymen as well they were seedsmen and florists. But few of the latter probably had very much ground beyond a garden. One of these was John Kernan, of 4, Great Russell Street, Covent Garden, who offered a large selection of flower seeds at from 4d. to 1s. per packet. T. and C. Lockhart, already mentioned, dealt largely in Dutch bulbs, and had a branch establishment at Haarlem. George Charlwood, of 14, Tavistock Row, Covent Garden, was another, and was one of the most extensive importers of the time of plants from the United States. Warner and Warner, of 28, Cornhill (I think this firm was existing until comparatively recent times), were solely seedsmen,



FIG. 134.—FLOWERING SPRAY OF PYRACANTHA GIBBOSA.
Two-thirds natural size. (See p. 309.)

ing" tree with the word "wool" inscribed over the improvised entrance. The firm is still at the same place; eighty years ago it had a branch establishment in Paris at the Barriere du Roule. The nursery at Maresfield extended to 40 acres, and their Roses numbered many thousands, a good many being obviously of French origin. It would be interesting to know if any of these are still in cultivation. Roses and fruit trees were the specialties of T. Rivers, of Sawbridgeworth, Herts, as they are to-day, and he was not only a skilled grower but also a voluminous writer of books on his special subjects.

Other popular plants had other growers. Of the Ranunculus, for example, we have an interesting advertisement by George Lighthody, of Falkirk, who was a great prize winner with his "superb Scotch Ranunculus" at the metropolitan shows, and whose London agents were T. and C.

season, one of which, "Norfolk Rival," a "fine, large tasselled pink," obtained the 1st prize at Lynn in November, 1837.

It is strange, perhaps, that the new plants which were being introduced into English gardens from all parts of the world in such great numbers during the first three or four decades of the last century should make such a poor show in these catalogues and advertisements. But the explanation is that these introductions were scarcely in commerce, and their relatively high cost prevented any considerable demand. Moreover, the method of their successful cultivation was not yet fully understood. One of the few exceptions to this rule may be observed in the advertisement of W. Young and G. Penny, of the "Milford Botanical and Floricultural Nursery," near Godalming, who offered plants of "their elegant and fragrant" *Cytisus*

and offered a large selection of flower and vegetable seeds at 6d. and 1s. "per paper," and did an extensive foreign business. Perhaps one of the most interesting advertisements of 1844 is that of Hurst and McMullen, who were then retail seedsmen at 6, Leadenhall Street. This firm, which is now established as Hurst and Son at 152, Houndsditch, and ranks as one of the largest exclusively wholesale seed houses in the world, was established in 1843 by W. Hurst and W. G. McMullen, and the business passed to William Hurst's son-in-law, Mr. N. N. Sherwood, whose recent death is so widely deplored.

There are so many other features suggested by these interesting old catalogues and advertisements that many more columns might be devoted to them and still leave much unwritten. W. Roberts.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C. Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.7°.

ACTUAL TEMPERATURE:—Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, Thursday, December 28, (10 a.m.); Bar. 29.8°; temp. 47°. Weather—Dull.

The Colours of Flowers.

There is no phenomenon of plant life that presents more fascinating problems than that of the colours of flowers. To botanists and gardeners alike the chemistry of plant-pigments is of great practical as well as theoretical importance. To what pigments are flower-colours due? What causes them to be absent from or ineffective in white varieties, and why are the pigments of flowers of the high Alps more brilliant than those of identical species which grow in the plains? How is it that the flower colour of some plants—of Tulips, Hyacinths, Iris and Crocus—develops in darkness as well as in light, whereas that of other plants—Antirrhinum, Pulmonaria, and many others—fails to appear in the dark? By what wonderfully meticulous process does Nature so contrive that the colour of a variety is kept rigidly true—that year after year unvaryingly and certainly a Crimson King Chinese Primrose produces its flowers of crimson, and no other colour? An unending series of questions may be asked, and, in spite of the fact that we are getting tantalisingly near—"warm," as the children say in their guessing games—we cannot give a positive, certain answer to any one of them.

How near we are getting to a solution of these and the many other problems of colour in plants may be gauged by a careful study of Miss Wheldale's recently published work*, which summarises our knowledge of that group of soluble plant pigments responsible for the major part of flower-coloration. No author is more fitted to deal with this difficult subject, for to Miss Wheldale we owe much of our knowledge both of the chemical and genetic aspect of the anthocyanin plant pigments. To this author particularly is due the discovery that the reds and blues and purples—the rainbow colours of the garden—are all produced by some secret chemical alchemy wrought on colourless or faintly yellow substances widely distributed throughout plants, and known as flavones. By what chemical touch these flavones are awakened from their dead colourlessness into brilliantly living colours we do not know with certainty. Some hold

that the change is one of oxidation; others that it is one of more complex nature; but this, at least, we know—that the change of flavone to anthocyan is only effected in the presence of a definite transforming agent. Thus, it follows that "as nothing in the earth is single," it takes two things to create colour—the presence of the mother of the pigment, the chromogen, which is the flavone, and the activity of the begetter of the pigment, the nature of which is at present unknown. So we are able to understand that from two white Sweet Peas or from a white and ivory Antirrhinum bred together a plant with coloured flowers may be produced. One provides the chromogen, the other the begetter—the agent which transforms flavone to chromogen, and so, when these complementary agents of pigment formation meet in the hybrid, flower-colour results.

Again, it is a well-known fact that anthocyan formation is most marked in those tissues in which sugar accumulates. Injure a leaf, and so interfere with the flow of sugar from it to other parts, and red pigment will often appear where otherwise green only would have been manifest. The fanciful might see therein a danger signal. This relation between accumulation of sugar and appearance of red anthocyan is strikingly illustrated in Alpine plants, and the explanation—partial, it is true—appears to be that such plants, growing relatively slowly, are unable to use all the sugar they make. Stocks of sugar accumulate in their tissues, and in consequence anthocyan pigments appear therein. The hoarding of sugar puts them to the blush!

It would require many pages to do full justice to Miss Wheldale's admirable account of our present knowledge of plant-pigmentation, but enough, perhaps, has been said to demonstrate that a study of this volume will well repay not only the Botanist, but also the scientific horticulturist. The latter must not expect either easy reading, assured information, or immediately useful facts; but he will obtain a clear presentation of a difficult subject, as well as here and there a hint which cannot but prove valuable in suggesting new meanings for old facts.

"BOTANICAL MAGAZINE."—The quarterly volume of the *Botanical Magazine*, comprising the monthly issues for October, November and December, contains illustrations and descriptions of the following plants:—

ROSA DAVIDII, tab. 8.679.—This is a Chinese species with small pink flowers borne in trusses, the flowers being succeeded by long ovoid pink hips. A character of the species is the number of large ovate bracts.

THURANTHOS MACRANTHUM, tab. 8.680.—This South African Squill has scaly bulbs, and scape that grows from 3½ feet to 6 feet high, with brownish-yellow flowers, the segments having a longitudinal central green band.

STAPELIA GETTLEFFII, tab. 8.681.—This handsome Stapelia is nearest to *S. hirsuta*. The flowers are about 6 inches in diameter and barred with transverse yellow and purple lines. It is a native of the Transvaal, and is named in honour of its discoverer, Mr. G. F. GETTLEFFI.

CALLICARPA GIRALDIANA, tab. 8.682.—A new species of Callicarpa having clusters of lilac-coloured fruits: it is described as one of the most beautiful fruiting shrubs of recent introduction.

DENDROBIUM PALPEBRÆ, tab. 8.683.—This Burmese Orchid is not new to gardeners, but it has never been common in cultivation. The flowers are white with a yellow or orange-coloured disc.

TELOPEA OREADES, tab. 8.684.—A handsome Proteaceous tree of New South Wales, where it is known as the Gippsland Waratah. The plant grows about 40 feet high and produces capitate racemes of crimson, tubular flowers.

CYTISUS MONSPESSULANTIS, tab. 8.685.—An old plant in gardens, its date of introduction being 1735. It has been grown under the names *C. sylvestris candicans* and *C. candicans*. The plant may be easily raised from seeds, but is not quite hardy. The flowers are produced in clusters, the colour being yellow, as in most of its congeners.

CLEMATIS AFOLIATA, tab. 8.686.—A New Zealand species, with long, intertwining stems, of a leafless appearance. The flowers are produced in whorls in the leafless petioles. The petals are greenish-white.

ARTANEMA LONGIFOLIUM, tab. 8.687.—A member of the Scrophulariaceae, with irregular lilac-violet or dark purple flowers. The genus is closely related to *Torenia*.

ROSA CERASOCARPA, tab. 8.688.—An exceedingly handsome Rose, obtained originally from China through the late Sir THOMAS HANBURY. It belongs to the Moschata group, and is very near to other Chinese species. The trusses of large white blooms are succeeded by deep red, globose fruits.

HUNTLEYA CITRINA, tab. 8.689.—This yellow-flowered Orchid was received at Kew from the collection of the late Sir TREVOR LAWRENCE, who grew the plant under the name *Chondrothyca*.

SANGUISORBA OBTUSA VAR. AMOENA, tab. 8.690.—A hardy perennial introduced to this country from Japan by Messrs. BARR AND SONS. It forms a bushy plant, grows some 3 or 4 feet high, and produces spikes of rose-purple flowers freely in summer.

ABIES CEPHALONICA, tab. 8.691.—The Greek Silver Fir, a somewhat unstable species. There are many notable specimens in this country, one at Burton, Suffolk, being 100 feet high.

WAR ITEM.—Lieut. JAMES O'BRIEN, the elder son of Mr. JAMES O'BRIEN, V.M.H., who has been on service abroad almost from the commencement of the war, has been awarded the Military Cross. Somewhere on the Germano-Bulgar front at a critical time he volunteered to take a message back to Brigade headquarters when other communication had failed, and, after an officer and an orderly had been shot in making the attempt, he succeeded in getting through, and by his experience was able to guide back the transport, stretcher-bearers, and other supports after dark, thus accomplishing an important duty satisfactorily. Second Lieut. JOHN O'BRIEN, who has been with his brother throughout, and was at the opening events on the same front, fell a victim to malaria and is now home on sick leave, but has nearly recovered.

"ILLUSTRATIONS OF THE BRITISH FLORA."—Messrs. L. REEVE AND Co. have issued a fourth edition of W. H. FITCH's *Illustrations of the British Flora*, with additions by W. G. SMITH. This edition is excellently printed on good paper, the elegant little woodcuts coming out almost as sharply as in the first edition. While retaining the original nomenclature of Bentham's *Handbook*, many of the more recently adopted names of other "Floras" are given, and the common English names are added, as well as the colours of the flowers, so that the illustrations may be profitably used with any other descriptive book. There is also a complete index to the popular

* *The Anthocyan Pigments of Plants*. (Cambridge University Press) 16s. net.

names and the botanical genera names. Apart from the critical developments of modern taxonomy, as exemplified in the genera *Rubus*, *Rosa*, *Hieracium* and some others, these figures will be found of great value by the beginner. We think their value would be further increased by giving the approximate relative size to nature.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE PLANTING OF IRISES (see pp. 264, 282 and 296).—The chief difference between Mr. Jenkins' views on transplanting Irises and my own seems to be this: It at the present moment he had a bed of Irises which for some reason he was obliged to transplant, he would proceed to move the plants in March, well knowing that he thereby sacrificed next year's flowers. If, on the other hand, the operation were left to me, I should allow the plants to flower and then im-

prove nothing. It is as surprising to see that in subsequent years the rate of increase was so much greater among the June-planted rhizomes as it is to find that these same rhizomes flowered so poorly in the first year after transplantation. I can only conclude that in some way or other the conditions of this single trial were abnormal. If when March and June come I can spare the time and find the space in my sorely congested garden, I will certainly try experiments in transplanting at different times, and give Mr. Jenkins and other readers the fullest information as to the results. *W. R. Dykes, Chartechnous, Godalming.*

APHIDES AND THEIR EGGS.—I wish to thank those who have so kindly sent letters of appreciation in regard to my article on "Aphides and their Eggs," and I hope to write them individually in due course. *Southern Grower* was not very successful in finding eggs. I wonder if he has had forty years' training in that direction! If infestation does not arise from eggs laid on the trees, then all the evidence of all our most

autumn mulchings, believing that both the soil and plants are benefited by exposure in the winter. Coddled Strawberry plants often die in winter, but although these gardens are situated in a very cold district our losses during winter are not 1 per cent. I strongly advise mulching of established Strawberry plants early in the spring with fresh and not very strawy manure. When applied during showery weather much of the fertilising properties of the manure is washed down to the roots, and the mulching further serves to keep the ground cool and moist, which, it is almost needless to add, are important factors in the perfecting of good crops. Where the ground is partially exhausted a surface dressing of guano, bone-meal, or other fertiliser, and, failing these, soot, should be applied prior to mulching, and the soil well stirred with a flat hoe. A sprinkling only of the concentrated manures should be given, but the ground may be coated freely with the soot. *James A. Paice, Aldenham Vicarage Gardens, Watford.*

VEGETABLES.

POTATO TRIALS IN EDINBURGH

In the potato trials carried out this year by my firm (Dobbie and Co.) at Edinburgh, we planted the first twenty tubers in each trial row in accordance with the Wisley standard, i.e., the sets were placed 18 inches apart, the drills being 30 inches apart. For the purpose of comparison I have taken the heaviest weights obtained by the Royal Horticultural Society in each case. In many instances there were two or three stocks in the Wisley trials, and the produce varied considerably. I give one instance: Midlothian Early, Lincolnshire seed. 56 lbs., Scotch seed. 59 lbs.

The similarity of the results in Surrey and Midlothian, in many cases, is most striking.

For a long time it has been recognised that the Wisley and all other trials of Potatoes are unsatisfactory because the seed planted comes from so many different sources—from Devonshire to Aberdeenshire. What is required is a station in Scotland where all the varieties would be grown for one year at least and then sent to Wisley and other trial grounds in England. Then all varieties would start level, and English-raised novelties would stand an equal chance with Scotch and Irish.

I am hopeful that the new committee appointed to co-operate with the Board of Agriculture will get trials conducted in this way.

A little start is being made in 1917 by tubers of twenty varieties, which were all grown in the same market garden in Scotland in 1916, being sent to five different centres to be grown and reported on.

The following are the weights obtained from nineteen sets at each station:—

Variety.	Wisley, Edinburgh.	
	lbs.	lbs.
Climax (coloured round)	49	55½
Exhibition Red Kidney	34	39½
Eightyfold (coloured round)	46	46½
Dobbie's Resistant Snowdrop	49	40
Midlothian Early	59	54½
Witch Hill	65	56
Sharpe's Express	66	32½
Sr John Llewelyn	63	62
Mr Bresse (coloured kidney)	50	55
British Queen	69	74
Conquest (white round)	51	48
Dobbie's Favourite	61	48
The Duchess	43	56
Windsor Castle	77	51
King George (white round)	41	71½
Great Scot (white round)	75	84½
Secundus (white round)	55	41
White City	43	44½
King Edward	47	56½
Total	1,043	1,015

NOTE.—Fifty six lbs. from twenty sets represents a crop of nearly fifteen tons per acre, as the result of high-class garden culture. *W. Cathbertson, Duddingston, Edinburgh.*



FIG. 135. PYRACANTHA CRENULATA VAR. ROGERSIANA.
Two-thirds natural size. (See page 303.)

mediately transplant them, provided that the plants could be carefully handled and immediately replanted. If I were sending them to another garden, I should be inclined to wait a little longer, though I am not sure that much would be gained by so doing. My experience here has certainly led me to be well satisfied with the results of transplanting as soon as possible after the flowers have faded. I am usually too busy to count flower-spikes, but two years ago I did count on a square yard of soil 82 spikes of the commonest form of *P. germanica*, which I had moved after flowering the previous year. Doubtless if an Iris rhizome is not going to flower, nothing is gained by waiting till June to move it, because a few root-fibres are certain to be broken, however carefully the plants are handled, but I am not yet convinced that the preservation of the few extra root fibres that are produced by the lateral growths before the flowering season is worth the sacrifice of the flowers on the central growth. As to Mr Jenkins' statistics my only object in showing that they could be read as favouring either view was to point out that they really

highly trained entomologists is negatived. Has *Southern Grower* any evidence as to any other mode of origin? It would be much valued by myself. He uses the term hedge shrubs, which is not mentioned in my article. A hedge that is cut would not be a place to find eggs. All the species that were found are quite distinct, therefore all those that were found apart from the Apple, for instance, would certainly not affect the Apple, and the Apple aphid was not found on any other host but the Apple; but that rule does not always hold good. The Bean aphid is a distinct exception. I might add, in my searches for aphid eggs I found very large numbers of Apple-sucker eggs on the Wild Crab, also on the Hawthorn, both on isolated bushes and in hedgerows. *J. G. Blakely, Bromsgrove Road, Redditch.*

TREATMENT OF STRAWBERRY BEDS (see p. 279).—I read with interest Mr. Weston's remarks on Strawberry beds. I dissent from his advice to apply a good dressing of manure to plants that have cropped freely; I never apply

The Week's Work.

THE HARDY FRUIT GARDEN.

By J. G. WESTON, Gardener to Lady Northcote, Eastwell Park, Kent.

SPRAYING ORCHARD TREES.—After the trees have been pruned and manured spray them on a still, mild day with a winter wash. For old trees that have not been sprayed regularly use a concentrated alkali wash in order to destroy lichens and mossy growth as well as insect pests. Spray every part of the tree, and see that the liquid penetrates any rough places and crevices in the bark where insects harbour. The operator should wear old clothes and rubber gloves when using alkali washes, or other strong spray fluids. The old-fashioned plan of dusting fruit trees with quicklime had much to recommend it. The lime should be thrown amongst the branches on a still day when the trees are damp. Lime has an excellent cleansing effect on the trees, and when it is washed off the branches by rains it is of benefit to the soil.

THE LOGANBERRY. If the old fruiting canes of Loganberry were not removed after the crop was gathered they should be cut out forthwith, and the new growths trained into their permanent places. Whichever system of training be adopted, allow the shoots plenty of space, as they grow exceedingly vigorously. Fork the ground lightly and apply a heavy dressing of manure. The Loganberry is perfectly hardy, and not fastidious as to soil or situation, flourishing in places where the Raspberry will not succeed. The ground for planting young canes should be well prepared and manured, as the plant is a gross feeder.

BLACKBERRIES.—The Blackberry is worth planting in a sunny corner. If the plants are grown on a trellis or fence in the garden proper, and the canes trained thinly, they will produce excellent fruit in abundance. A plan entailing the minimum of labour is to plant Blackberries on banks or odd corners in the outside garden or orchard, where they can ramble at will over rocks or heaps of stones. *Rubus laciniatus* and *Wilson Junior* are amongst the largest-fruited varieties of their kind; the latter is rather tender, and should be planted in sheltered spots in a warm district.

THE KITCHEN GARDEN.

By E. R. JAMES, Horticultural Superintendent, University College, Reading.

WINTER CROPS.—During mild spells, and if the soil is dry enough, stir the surface between the rows of Cabbages, Lettuces, Spinach, and other crops growing out-of-doors. It is important that they should be maintained free from weeds, which will grow on some light soils at any period of the year. If these are allowed to smother the plants decay is probable, as the weeds effectually prevent the surface soil from becoming dry.

SOIL PREPARATION.—Push forward the work of digging and trenching at every opportunity. It should be remembered that the postponement of winter soil cultivation results, as a rule, in disorganisation in spring, and consequently haphazard, hasty operations, which are not conducive to success. Those who have been unable to get the work done should concentrate their efforts to get ready ground that will be needed first. The early borders should have special attention, and if the soil is heavy in texture it may be improved by the abundant addition of leaves, old potting soil, road grit, and lime rubble. Success in obtaining early crops largely depends on efficient drainage, which has a great influence on the soil temperature.

FORCING.—Lift and expose roots of Rhubarb and Sea Kale, and introduce them into heat as required. It is better to force small quantities of these roots frequently than to in-

troduce large numbers into heat at long intervals, as this system results in periods of glut followed by scarcity. The provision for a regular supply of salads should also be systematically dealt with. An approximate estimate should be made of the date when young Lettuce plants will be needed in the spring, and the seed sowing regulated accordingly.

THE FLOWER GARDEN.

By W. J. GUISS, Gardener to Mrs. Dempster, Keele Hall, Staffordshire.

BEDDING PLANTS.—Pelargoniums, Verbenas and Ageratums should be grown in full exposure to sunlight, in a dry atmosphere, with plenty of ventilation. Use only sufficient fire heat to keep the frames dry. Iresines, Alternantheras and Coleuses should be grown near to the roof-glass in a house having a temperature of 55° to 60°. Afford water only when moisture is absolutely necessary; young Coleuses and Fuchsias in active growth may require frequent waterings. Keep all bedding plants free from decaying leaves and insects. *Salvias*, *Heliotropes*, *Lantanas*, *Fuchsias* and similar plants raised from cuttings in the autumn, to be trained as standards for bedding purposes, should be repotted directly they need more root room. The compost should consist of loam, leaf mould, sand, decayed manure and a little wood-ash. Grow the plants near the roof-glass in a house where the temperature ranges from 50° to 55°, and admit air on all favourable occasions. *Calceolarias*, *Penstemons*, *Marguerites* and *Violas* need plenty of ventilation in mild weather. Remove decayed leaves and stir the soil lightly in the pots with a pointed stick. During very severe frosts mats, bracken or straw may be placed over the lights to economise fire-heat.

ORNAMENTAL TREES.—Loose branches of Conifers should be made secure from injury by strong winds by the use of tarred cord. Certain Conifers, such as *Cupressus*, *Irish Yew*, *Thuja*, *Picea* and *Cedrus* are frequently damaged by heavy falls of snow, which should be gently knocked off the branches by means of a long pole or wooden rake. Evergreens of all descriptions should receive immediate attention after a heavy snowstorm. In suitable weather specimen trees or shrubs on lawns may receive attention at the roots. If the soil is exhausted open a trench around the tree 3 feet wide and 2 feet deep, and replace the exhausted soil by a mixture of old turf and well decayed manure, ramming the compost firmly before relaying the turf. The surface soil may also be removed inside the circle, and replaced by some of the fresh compost.

THE ORCHID HOUSES.

By T. W. BRISQOR, Gardener to W. R. LYSAGHT, Esq., Castleford, Gloucestershire.

CALANTHE.—Some growers, and especially beginners, remove their plants of *Calanthe* when in bloom to a cool house to prolong the life of the flowers, but this is not advisable, as it causes harm to the growth of next season. Keep the atmosphere drier and remove the plants to the Cattleya house during the flowering period, but a lower temperature than the Cattleya house is detrimental. Most of the pseudo-bulbs have lost their foliage, and the roots need but very little water. After the flower-spikes are removed rest the plants by withholding water from the roots entirely. They may be placed on a dry shelf in the Cattleya or warm house, where they will be exposed fully to the light, which will assist in thoroughly ripening the pseudo-bulbs. Care in the resting season is as important as at other periods. If shelf space is limited, the plants may be turned out of their pots, and after removing all the soil from the roots, placed in boxes with dry sand at the base. This method of storing the plants will give the grower an opportunity to cleanse the pseudo-bulbs of white or brown scale insects should they be present. *Calanthes* of the later flowering group, of which *C. Regeneri* is an example, are sending up their flower-spikes, which will open their flowers in February and March. The roots need a moderate supply of water, but directly the foliage falls less moisture will suffice.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to the Hon. Mrs. SPENDER CLAY, Ford Manor, Longfield, Surrey.

LATE VINERIES.—If the Grapes are still hanging in late vinerias keep the house cool, airy, and dry. The time is at hand when the Grapes should be cut and stored in the Grape-room. Cut the bunches on a dry, calm day. Place the stems in bottles of water in the Grape-room, kept at a temperature ranging from 45° to 50°. Sunlight is not a necessity, but it is a great convenience when examining the bunches for decayed berries. A close watch must be kept on the bottles to replenish waste of water, and especially during the first weeks of storing. The Vines may then be pruned and cleaned, the borders watered, and the Vines rested for at least three months.

EARLY PEACHES.—Spray and sprinkle the borders in early Peach houses with tepid water, to promote atmospheric moisture, and do the work sufficiently early for the buds to become dry again before night. As the blossoms expand increase the night temperature to 55°, and let them be perfectly dry in the middle of the day, when they should be pollinated with a brush.

SUCCESSIONAL PEACH HOUSES.—These houses should be got in readiness for starting. Let the necessary pruning and dressing of the trees be done in the later houses, using special means to cleanse the trees where red spider and scale insects have been troublesome.

FIGS.—Early Fig trees in pots which were plunged in a bed of fermenting leaves a month ago are unfolding their leaves, and the young fruits will soon make progress. Keep the bottom heat at about 80° and moisten the roots thoroughly, but do not keep the soil wet. Be guided by the state of the weather in the use of the syringe, as an excess of atmospheric moisture late in the day would cause the fruits to turn yellow and drop. Pot Figs are rarely a failure when they are grown in a steady bottom heat. As the days lengthen feed the plants and syringe them freely, taking care that the foliage is fairly dry again before nightfall.

PLANTS UNDER GLASS

By E. HARRISS, Gardener to Lady Wantage, Lockinge House, Berkshire.

GLOXINIA.—A few of the best matured *Gloxinia* tubers may be put into warmth. Remove the soil from the roots carefully, place the tubers in pans or boxes, and cover them with finely sifted leaf mould. When growth has started, transfer the plants to 5-inch or 6-inch pots in a compost of loam, peat, leaf-mould, and coarse sand. Afford water with extra care until the pots are filled with roots. Place them on a shelf near the roof-glass in the plant stove and allow them to remain there until they come into flower, when they should be grown in a cooler and drier atmosphere.

STREPTOCARPUS.—A few young plants of *Streptocarpus* may be forced into flower. Examine the plants carefully for the presence of mealy bug, as this pest multiplies rapidly in warm plant houses. Remove a little of the surface soil to admit of a top-dressing of loam, leaf-mould, a little manure from a spent Mushroom-bed, and sharp sand. Place the plants on a shelf in the plant stove and water them carefully until the roots are active. Some of the stronger plants may be shifted into larger pots when they have made sufficient roots.

CARNATIONS.—Remove cuttings of Carnations from the propagating case when they have rooted and grow them on a shelf near the roof-glass. For the first few days they must not be exposed to cold draughts. Transfer them to 2½ inch pots when ready for potting, and keep them growing slowly in a light position. Carnations need plenty of fresh air, but the ventilators must be opened on the side that will not create cold draughts. Old Carnation plants now are well rooted, and require more stimulants than hitherto. Carnations require a light available, therefore when dirt and soot settles on the roof-glass after fogs, the glass should be washed without delay.

THE POTATO SUPPLY.

REPORTS FROM YORKSHIRE.

THE farmers of Yorkshire and the surrounding counties are pegging away with all their might to keep pace with the ever-increasing calls, official and other, that are being made to them from many quarters. The census of Potato stocks and contracts which the Board of Agriculture is collecting on behalf of the Board of Trade is now believed to be nearing completion, and the results may be expected at an early date. It will be remembered that all cultivators of more than 10 acres of Potatos on any holding in Great Britain were to make returns on forms supplied to them not later than December 7. The Board of Agriculture is to compile these returns, and to assist the Board of Trade generally in taking such action as may be deemed advisable with a view to making the best possible use for the nation of the Potatos that will be available for the Army and for civilian purposes. Some authorities suggest that the ten-acre limit will exclude a considerable proportion of the stocks about which information is being obtained. On the other hand, the Government will be well able to ascertain from the census an approximate idea of what Potatos there will be left for the public when the military forces have been allowed 20,000 tons a month.

The resolve of the authorities to appoint an Advisory Committee of experts to help them in their efforts to ensure an adequate supply of Potatos for the civilian population, and a sufficiency of seed tubers for next season's crop, is giving satisfaction; though, of course, both growers and merchants who have large stocks yet to sell are naturally anxious as to what they may be able to sell them for. It is a case of soldiers first, at what Mr. Runciman calls "a reasonable price." In the meantime holders of stocks large enough to affect prices materially have long since taken a rough census for themselves, and are evidently convinced that the entire supply for all purposes is not likely to warrant the Government in fixing a maximum selling figure at a point much lower than the prices now current. For the week ended on Wednesday, December 6, the Board of Agriculture's Reports show that in most parts of the country good classes of tubers were fetching 10s. a ton more, or about the prices which started the scare—namely, from £9 10s. to £11 10s. or £12 a ton. The main points for the Board of Trade are—to what extent has the rise from ½d. to 1½d. per lb. checked consumption, and how many Potatos does the nation possess as compared with past years? That the poorer classes, to whom the Potato is one of the principal articles of food, are eating fewer is already abundantly evident, and that the better-to-do classes are moderating their appetites for this every-day vegetable is not so certain. County Councils, Chambers of Agricultural and other associations are interesting themselves and farmers in pressing upon all concerned the serious importance of securing adequate supplies of good seed for the next season, be the price what it may. A great many public bodies have been circularised from headquarters on this topic, and they again are communicating with smaller bodies and farmers' associations with the object of making distributions of seed as easy and cheap as possible.

With the laudable object of finding agreeable work for people of both sexes who can do little or nothing to otherwise help in the war, the West Riding County Council and several other important authorities in Yorkshire and the north are pushing forward with much energy schemes for extending the smallholding and allotment movements in the suburbs of large cities, as well as in the country. The West Riding scheme, which got a most excellent start at a great meeting of district councillors in Leeds, is making most satisfactory headway, and is likely to be followed up by further similar enterprises, great and small.

The labour problem on farms of all sizes and everywhere is said to be as acute as ever. The

substitution scheme works all right when the men who return from the front have been on the land before; but when they have not it sometimes works all wrong. Farmers are accepting more assistance from women and boys and girls, and initiating them as diligently as possible, lest the further calls for the Army in the New Year may leave them very few helpers but the new amateurs. W. L.

Obituary.

PROF. DANIEL OLIVER.—We announce with deep regret the death of Professor Daniel Oliver, F.R.S., who for thirty years was keeper of the herbarium and library of the Royal Gardens, Kew. Born in 1830 at Newcastle-on-Tyne, the late Professor Oliver evinced his bent for botany at an early age. So long ago as 1847 his first contributions were published in the *Phytologist*, and at the age of twenty, by the discovery of *Najas flexilis* in Connemara, he was able to add a new genus to the flora of the British Isles. As described in an admirable and sympathetic notice of Professor Oliver by his successor, W. H. B. (*Kew Guild Journal*, 1898), the rapid growth of the Kew herbarium led Sir William Hooker to invite Oliver to throw in his lot with the great national gardens. The work there begun in 1858 continued until his retirement in 1890. By 1861 Oliver had become librarian, and had issued the first edition of the *Guide* to the Kew Museums. Two years later he was elected to the fellowship of the Royal Society, and in 1864 he was appointed keeper of the herbarium and library, which post he held for twenty-six years. In addition to his work at Kew Professor Oliver held the post in succession to Dr. Lindley of Professor of Botany in University College, London, and his services in that position were so conspicuous that on his retirement from active teaching work he was appointed Emeritus Professor. Professor Oliver had a wide acquaintance with botany in all its branches, but he was principally distinguished by his knowledge of flowering plants, which was unrivalled. Of most modest and retiring disposition, he nevertheless gained by his zeal, knowledge and kindness the deep and lasting affection of all his colleagues, an affection which was expressed in the memorial addressed to him by the Kew staff on the occasion of his retirement (see *Gard. Chron.*, July 7, 1890). His services to botany were recognised by the conferment on him of the Royal Medal by the Royal Society (1884), and the Gold Medal by the Linnæan Society in 1893. After a quarter of a century of retirement from professional life, during which time he continued assiduously in his botanical work, this distinguished and single-minded man of science passed away quietly in his sleep. He set a fine example to those who follow him, and therein fulfilled the highest purpose of life—to work, to help others, and to inspire them to high endeavour.

A. J. SINCLAIR.—Mr. Alexander J. Sinclair, of the firm of Vilmorin, Andrieux et Cie., Paris, died suddenly on the 23rd inst., at New Barnet, Hertfordshire. Mr. Sinclair was a son of the late Mr. Magnus Sinclair, Aberdeen, and served his apprenticeship to the seed trade with Messrs. Smith and Son, Aberdeen. On leaving that city he was engaged in the seed trade in Dublin for several years. He then filled several situations in the seed and nursery trade in England before returning to Dublin, where he became manager for Messrs. Hogg and Robertson. A few years ago he left their employment on receiving the position of traveller in Great Britain and Ireland for Messrs. Vilmorin, Andrieux et Cie.

E. ROBERTSHAW.—Mr. E. Robertshaw died on the 14th inst., after a few days' illness, in his sixty-eighth year, at The Lodge, Holehird, Windermere. Mr. Robertshaw began his gardening career at Balderley Hall, Barnsley; from thence he went to Chatsworth House, where he spent several years under Mr. Walter Speed. Subsequently he was appointed gardener at

Bowdon, Cheshire, and later at Holehird, Windermere, where he served for nearly twenty-three years, and made many improvements. He was of a genial disposition, and beloved by all who knew him. Mrs. Robertshaw predeceased her husband by four days.

ALLAN MACDOUGALL.—Mr. Allan MacDougall, for over thirty years gardener at Sotterley Hall, Suffolk, the property of Major Barne, died suddenly on the 23rd inst. Mr. MacDougall's services were much sought after as a judge at local flower shows, and he was himself a successful competitor on many occasions.

CHARLES R. PANTER.—We learn from the *Florists' Exchange* that Mr. Charles R. Panter, florist, secretary of the New Orleans Horticultural Society for nearly thirty years, and inspector of city markets for the past two years, died suddenly at his residence, 2320, Calhoun Street, New Orleans, La., on Wednesday, October 25, aged fifty-four years. Mr. Panter was a native of Bedford, England.

PATRICK FOX.—The *Florists' Exchange* also records the death of Mr. Patrick Fox, a retired gardener, a native of Ireland. He died on Friday, November 10, at the home of his daughter, in Needham, Mass. Mr. Fox was said to be in his 103rd year.

GEORGE CARTWRIGHT.—Mr. George Cartwright, secretary and treasurer of the Boston Flower Exchange and well known in the cut flower trade of Boston for almost half a century, died at his home in Roxbury, Mass., on Thursday, November 2, at the age of seventy-one years. Mr. Cartwright was born in England; he settled in America with his parents as a boy, where his father, James Cartwright, conducted a florist business. *Horticulture* states that Mr. Cartwright "was a man of graciousness, unselfishness and fidelity."

ANSWERS TO CORRESPONDENTS.

"There are few gardeners, and still fewer amateurs, who do not on occasion require immediate information upon various points of practice. But either from an unwillingness to inquire, or from not knowing of whom to make the inquiry, they too often fail to obtain the information they are in want of. And let no one be alarmed lest his questions should appear trifling, or those of a person ignorant of that which he ought to know. He is the wisest man who is conscious of his ignorance; for how little do the wisest really know!—except that they know little. If no man is unacquainted with a fact, however common, it is probable that hundreds of others in the same position as himself are equally in want of similar information. To ask a question, then, is to consult the good of others as well as of one's self."—*Gardeners' Chronicle*, No. 1, Vol. 1, January 7, 1821.

BULB: Medos. The bulb is in all probability *Panacratium maritimum*. Planted moderately deeply in favoured situations it may be grown as a herby bulb, but it is more likely to be successful in a greenhouse or slightly warm frame. Pot the bulb in turfy loam, with a sprinkling of sand added. Keep the root dry after flowering is over and the leaves falling. The plant belongs to the N. O. Amaryllidæ.

NAME OF PLANT: Mill Hill. *Picea polita*.

OUTGROWTHS ON ROOT OF A TREE: Correspondent. The outgrowths on the roots are the toadstools of *Armillaria mellea* (Tree root rot), one of the parasitic Agarics, which attacks the roots of most orchard trees and forest trees, including Conifers. It attacks the roots first, but ultimately gets in the trunk of the tree and gradually destroys it. The fruit or toadstool is of a honey-yellow colour. This should be burned to prevent the fungus from spreading. Gasoline spread over the ground where nothing is growing would destroy it, and quicklime would probably help to check it. Cutting a trench one foot deep around an affected tree, and leaving it open, will prevent the fungus from reaching other trees.

Communications Received.—R. W. B.—P. C. C. L.—J. D. W.—W. H. C.—W. A. C.—E. G.—C. W. C. M. B.—E. B.—C. J. W.—O. H. P.—R. P. B.—J. O'B.—W. C., Edinburgh.—H. S. T.—F. J.—T. B. C. E., Pretoria, SA (many thanks)—E. M.—H. F. P.—W. R.—H. R. D.—H. B. M.—Wessex.

