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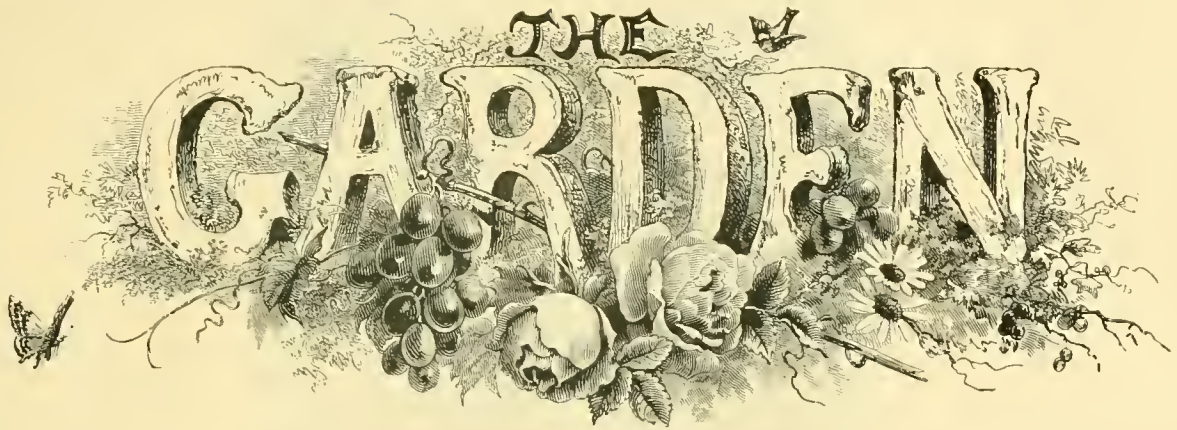
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JULY 2, 1898.

THE GARDEN



M. Foster.



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of the "English Flower Garden."

" You see, sweet maid, we marry
A gentler scion to the wildest stock ;
And make conceive a bark of baser kind
By bud of nobler race : This is an art
Which does mend Nature,—change it rather : but
The art itself is nature."

Shakespeare.

VOL. LIII. - MIDSUMMER, 1898.

LONDON :

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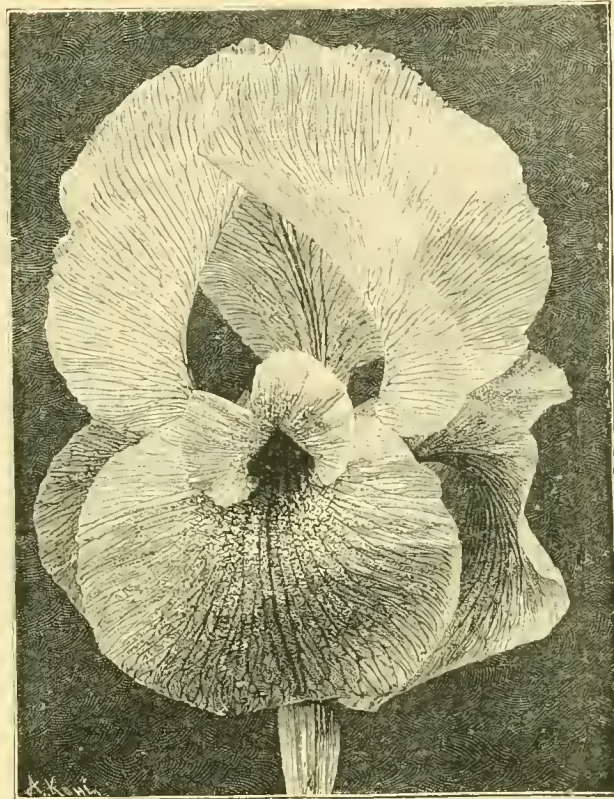


TO

PROFESSOR MICHAEL FOSTER

THE FIFTY-THIRD VOLUME OF "THE GARDEN"

Is dedicated,



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MICHAEL FOSTER.

PROFESSOR MICHAEL FOSTER, whose portrait accompanies these remarks, is known wherever science is cultivated and horticulture practised in the world. The distinguished Professor of Physiology in the University of Cambridge, Fellow of Trinity College, and Fellow and Secretary of the Royal Society, has now a host of followers and adherents in the country, and he has written a book ("A Manual of Physiology") which is likely to be a text-book for all time about the subject of which it treats. But happily for those who move in a region which is less lofty than the above, Professor Foster has very wide interests of his own, and gardening has been assigned as the recreation to which he is devoted more than anything else. The readers of THE GARDEN have for long had the benefit of this, and "M. F." represents a name to which great attention is invariably paid. Nor is it only by these far too infrequent communications that we are all laid under tribute to him. Professor Foster has been active as an adviser and a helper in the comparative rise and prosperity of the Royal Horticultural Society, and the better days which have now come upon it owe something to him. But his especial line is in the classification and cultivation of Irises, and to this he has given great attention for a very long time. That it has not been an easy matter to take up may be judged from his own words. He described himself in the year 1889 (see p. 149 of vol. xi. of the "Journal of the Royal Horticultural Society") as being in that stage of the process which is called the "slough of despond," and he told us at the same time that he is engaged in making as many as possible of the two hundred or so of the Irises which are scattered over the temperate zone live huddled together in a little spot in Cambridgeshire. Those who have had the pleasure of visiting his garden from year to year in the joyous month of May, and who use his "Treatise on Bulbous Irises" as a *valet mecum* of inestimable worth, would like always to be in a "slough of despond" if such lucidity as his is to be called worthy of the name, and they wonder sometimes that on the top of his cold, bleak hill—wind-swept at most seasons of the year—the denizens of some of the brightest regions of the earth can be prevailed on to prosper as they do. But luckily the garden, lying as it does upon the chalk, suits many Irises very well, and they seem to know that they are in a master's hands, and the great heat in summer-time and the intense cold of winter are alike accepted with thankfulness. Professor Foster is now the recipient of Irises from those who come across them in out-of-the-way parts of the world, and his treasure grows by contributions from soldiers, travellers, missionaries, and others who have anything new to impart. Most of all he loves—and who that is acquainted with them at all but must do the same?—the *Onocyclus* and *Regelia* groups. In complete accord with the magician of Baden-Baden on this head, he has more than once given us the *rationale* of what their proper treatment is, and though, perhaps, methods may differ from one another in different places and under different hands, they must be, if they are to succeed, from the very nature of the case exponents of his remarks, and they are certain to illustrate what he has laid down.

Professor Foster has successfully interested himself in the hybridisation of Irises, and *suspallida* and *ib lup* and several others have rewarded him for his trouble. It is a good plan which he adopts of letting the names speak for themselves, and the parentage of any particular plant can thus be read off on the spot. It may be that the type in the case of his greatest favourites can scarcely be improved upon, so supremely beautiful these flowers always are, but it is nevertheless certain that their shyness in blossoming is a good deal overcome, and, what is still more important, the hybrids have a stronger constitution and are more hardy than any others of the same class. Professor Foster was presented with the Victoria Medal by the Royal Horticultural Society last year on the occasion of the Queen's Jubilee.

This brief notice of the horticultural work of one of the chief scientists of the day would really not be complete without a word of recognition of the great affability which Professor Foster always displays. Immersed, as we know him to be, in the most exacting of studies, and occupied with engagements both in Cambridge and London, he is always the same kind friend and willing helper of those who enjoy his confidence at all, and humble gardeners and those who only love flowers for their own sake could be mentioned in great number who would express their deep sense of obligation to him.



The GARDEN.

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FLOWER GARDEN.

CALIFORNIAN IRISES.

WHEN a year ago (December 5, 1896) I gave you some notes on Californian Irises I hardly expected to so soon have to correct my names for them. I had accepted without question the names by which the species I knew had been identified by all our prominent botanists, taking it for granted that so showy and common a flower as the Iris would be well known. During the past year considerable attention has been given to our Pacific coast Irises by several botanists, including myself, and instead of the eight species recognised a year ago there are now at least thirteen, with unlimited possibilities in the way of unexplored or half-explored regions, and several kinds under consideration which promise to prove distinct. Mr. Ley was quite right in supposing (THE GARDEN, December 19, 1896) that the nomenclature of Californian Irises was very hazy.

I find that I have opened up a broad field for research and comparison, and it will be years before it can be said that our Irises are all known. In the meantime, possibly some of your readers may be interested in some notes of progress in both names and culture. A year ago I secured plants of Irises from as many localities as possible for study and comparison, and a number of these flowered last spring. During the flowering season I had fresh flowers sent to me from several out-of-the-way localities, and I have given careful attention to the herbarium material accessible in San Francisco. Taking the species in the same order as a year ago, I will first speak of

IRIS LONGIPETALA.—The type of this species was found at San Francisco, and it is abundant there now as well as at other points along the bay. This is well known in cultivation. In my notes I made its range extend up the coast for 200 miles, but I find that the Iris found along the coast from a little north of San Francisco Bay, and which has been referred by all botanists to

I. longipetala, is quite a distinct thing, resembling in some degree *I. longipetala* in leaf and heavy rhizome, but an altogether different thing in flower. This new species, which I am publishing as

I. WATSONIANA, has a tall two or three-headed stem, with flowers much like those of the true *I. Douglasiana*, as many as nine to a stem and usually purple. *I. Watsoniana* is unknown to cultivation.

I. DOUGLASIANA.—The true *Iris Douglasiana* is the beautiful flower depicted in THE GARDEN, Oct. 3, 1896. It is found on the west side of San Francisco Bay, in the city of San Francisco itself and at least to Monterey. In colour it may be lilac, purple, or in creamy tints. I flowered many plants of this last spring, and a leaf sent me by Mr. Ley from the plant from which your plate was made clearly proved that the plate depicted the type of *I. Douglasiana*, and not the so-called Ukiah form.

I. PURDYI.—The form which has for many years been called *I. Douglasiana*, occurring in the Redwood region of Sonoma and Mendocino counties, proved to be a very distinct species (see Mr. Ley's letter, Dec. 19, 1896). It is being published by Miss Eastwood in Proc. Calif. Acad. Sciences as *I. Purdyi*, and a fine drawing accompanies it. In GARDEN of August 14, 1897, Herr Max Leichtlin described *Iris macrosiphon*, and an illustration of a fine plant in flower accompanies his notes. The plate and the plant described show *Iris Purdyi*, which is really very distinct. It can be recognised by its very broad and rather flat creamy flowers, lined with purple, shiny leaves, rosy at base, but still more readily by the fact that along the stem, instead of short leaves sheathing at the base, there are several brownish, short, closely sheathing bracts. Of the other Pacific coast Irises only *I. bracteata* possesses these.

I. MACROSIPHON, I find, was first described from specimens collected just across the bay from San Francisco. It is a low-stemmed (almost stemless) species with very slender rootstock and linear leaves, deep purple to lilac flowers, with very long tube. It blooms in early spring, and grows in light soil often among the brakes. It would appear to be confined to a narrow belt on the San Francisco Bay. The species which has always

been identified as *I. macrosiphon* I described in THE GARDEN, Dec. 5, 1896. It is taller, long-stemmed and larger leaved, and may run to cream or other colours. Herr Max Leichtlin has named this species *I. californica* (see his notes, August 14, 1897). In Southern California, in the San Bernardino Mountains, there is a species long referred to

I. MISSOURIENSIS.—This Professor Foster has named *Iris Parishii*. I believe that *I. Parishii* as it grows in the San Bernardino Mountains identical with a form from the Southern Sierras which I had decided was unnamed until I saw specimens of *I. Parishii*. In the Northern Sierras there are two Irises both long identified as

I. HARTWEGI.—In the type *I. Hartwegi* there is no tube, and the stem below the ovary is long. In *Iris* new species the tube is as long as in *Iris macrosiphon*, but the stem below the ovary is short. Otherwise the two might be readily confused, and the distinction has no value to the gardener. I secured a large number of an *Iris* from the Tillamette Valley, Oregon, which proved to be

I. TENAX, and flowered it splendidly the first season. It grows low in dense tufts usually in rather heavy land. The plants as they came to me were mixed with blue grass. The leaves were individually not over 4 inches long, although the finest herbarium specimens had leaves about 10 inches high. The one-flowered stem is 3 inches to 4 inches high, bearing a most charming little purple flower. I was delighted with it. Other plants from Central Oregon which may be the same, but the identification is imperfect, had flowers of a rich yellow, and I was informed the colour varied from purple to pure white.

I. BRACTEATA is a native of the extreme southwestern part of Oregon. Fresh flowers were sent to me which proved to be closely allied to those of *I. Purdyi* in flower and stem, except for the deep yellow colour. The leaves are very different, for in *I. bracteata* only a single leaf is borne in a tuft, this one leaf broad, stiff, and 1 foot or 2 feet long, of itself a clearly distinguishing feature.

CULTURE.

I secured a number of collected plants of various native Irises. *Iris californica* I secured while still dormant after the first rains, also

I. Purdyi. My soil was a rather heavy clay, but when they were planted it was warm and loose. They were planted in a cool, shaded position, and almost immediately began to put new roots down. In December the weather turned colder and the ground was saturated. By this time the little plants were quite well rooted, but the roots of *I. californica* decayed, and most of the plants stood still and died later. A few made a second effort to put out roots and lived, but not 10 per cent. survived. In the same situation *I. Purdyi* held its roots, and a large number are now well established. In December I secured a fine lot of *I. Hartwegi*, planting near the others, but in a lighter soil. These, too, at once started a vigorous root growth, but as the soil became cold many died off. I, however, secured a number of strong plants. I had two lots of *I. Douglasiana*. One lot, collected about January 1, had made strong root growth before I secured it and had started stems. I scattered them, some in cold, heavy soil, others in rather warm soil. They started at once, sending out new roots and also fibrous roots from the broken root ends. I lost scarcely a plant and had an abundance of bloom. Later I secured a large mass from a garden I broke up, and with equal success. All of my plants are now strong. *Iris tenax* I had in two lots in December, both coming to me frozen. One lot went near the *Iris californica* in cold, heavy soil, and did not do well. A second lot planted in warmer soil gave a high percentage of growth and a splendid bloom. A third lot arrived in spring—March, I think. They took hold slowly, but many made a fair growth, and others remained dormant, but are starting now.

My conclusion is that *I. Douglasiana* and *I. Purdyi* do best in a heavy soil and handle easily, but that *I. californica*, *I. Hartwegi*, and all others of the species growing in dry situations and loose soil require perfect drainage, and are best moved dormant. The degree of cold will not account for their loss, for they stand a far greater amount in the mountains around. I had a number of other species under cultivation, but not under conditions to make my experience worth detailing here. I am continuing my experiments this season and will give notes later.

CARL PURDY.

Ukiah, California.

Senecio pulcher.—This has been very bright and pretty during the fine late autumn, and even now a few of the pretty rose-purple flowers are open. When strong and well established, the blossoms form large loose corymbs on stout stems about a couple of feet high, and after the principal flowers are over, lateral ones are produced along the stems. Many find a difficulty in establishing the small pot-bound bits sent out from hardy plant nurseries, but it is really very easily managed when good plants are secured. Spread the roots out as much as possible, and usually about the second season these throw up offshoots that may be taken off for propagating.

Caladium esculentum.—This is one of the few fine-foliaged plants that are suitable for planting outside during the summer, the vigorous habit suiting it well for the purpose. The plants should be started in a moist greenhouse or Peach house and put out in prominent positions at the end of June in rich, open soil. They must be well watered home and kept moist until well established, when they will take care of themselves. In a hot, dry summer the effect of the large green leaves is very fine. In October they should be taken up and potted, or, if there are many plants, placed in boxes and kept quite dry until required for next season.

Water Lilies.—I have read with much interest Mr. Blenkinsop's interesting article (p. 460),

and thank him for so kindly acceding to my suggestion. I found the article to which he alludes with some difficulty, as it is entitled "Hardy Aquatics," and signed "Macedonian." It appeared in vol. xlix., p. 149. There is a misprint in my note (p. 420) through the omission of a figure. I wished to say that the temperature of my pool often rises to 75° (not 5°) from sun-heat. Our experiences, allowing for the differences in the circumstances of our tanks, seem to agree very closely. I am inclined to think my plants of *Nymphaea odorata alba* and *N. o. exqu岸ita* are too much confined, being in pots, for *N. o. rubra*—is this identical with *N. o. rosea*?—has done much better since it was shifted into a box. Unfortunately, I must have my plants so that the tank can be cleaned out occasionally, so that they are of necessity cramped for root space. The water in my case is shallower than Mr. Blenkinsop's, being scarcely 18 inches, but as I very seldom have over 3 inches of ice, the crowns are quite out of harm's reach, and the plants have never, so far as I have observed, suffered from cold. The Water Soldier multiplies so fast as to be a nuisance, but *Aponogeton* only does very poorly compared to what I have seen elsewhere. It flowers and then loses its leaves, and then a fresh growth appears, but it is not vigorous. Mr. Burbidge's pond is supplied by a neighbouring millpond and is not so fully exposed as mine, hence the water is much colder; there is very little motion, I think. In conclusion, I think Mr. Blenkinsop will agree with me that the essentials for these *Nymphaeas* are still water, not too deep, 3 feet or less, full exposure to sun, and as much shelter from cold winds as possible. As to Mr. Kane's note, not having any caddis worms in my pool I cannot either confirm or refute what he says.

—GREENWOOD PIM.

THE HUNDRED YEARS PLANT.

SOME notes published in a journal during the current year on the Agaves, and *Agave americana* in particular, have tended to perpetuate the false idea that this plant only blooms when it has reached the age of 100 years. According to this journal, it is such a well-known fact, that in the United States the plant is known by the name of "the hundred years plant." In the south of Europe everyone knows, of course, that the Agaves, and especially the American species, are acclimatised and live in the open air, and develop to the same extent as the Mexican plants and nearly as rapidly. The entire shores of the Mediterranean on both sides are planted with *Agave americana*, which attains to a great size, flowers, and gives out suckers by thousands. I myself live near a road which is lined with it. This road was made thirty-eight years ago by blasting the rocks which overhang the sea between Nice and Villefranche, and since then great numbers of small offshoots of *A. americana* have been planted at random in the fissures of the rocks in order to consolidate the soil and the fragments of rock. The soil is a calcareous, rather clayey limestone, very red and rich in potash. Since 1871 a great number of these plants blossomed regularly every year, and the shafts which are now seen projecting are some of the offshoots of plants put in years ago. The fact is easily verified, and is proved by the multitude of fine specimens obtained comparable in all respects to those of Mexico.

Generally speaking, the American Agave only flowers when it has reached a certain size. The blooming depends rather on the plant's development than its age. One, for instance, being in conditions favourable to it, will bloom at the age of twelve or fifteen years, whilst another less favourably situated will remain small, giving off perhaps as many leaves, but no flowers until after a much longer period. If an Agave is transplanted when it is very large, there is a great chance of its bearing flowers one or two years afterwards. This fact is especially observable in the American Agave *salmiana* and *A. planata*. The American Agave, like all other

kinds of plants, appreciates good soil, manures and care, but to attain its normal development it is content with a soil of little depth and a scarcity of water, under three essential conditions, namely: (1) If it has room to send out its large roots a great distance. The suckers spring up frequently more than 33 feet from the rhizome. (2) If it has the benefit of the night dews, which are very copious in the parts I have mentioned. (3) If it has the benefit of plenty of light and sun. We are a long way from growing it in pots in a cold, dry greenhouse.

The average stature of the Agaves that flower here in such numbers is 4 feet to 5 feet. I often see them 6 feet 6 inches and over. The shafts generally reach to 16 feet 5 inches. I do not think it is frequent for them to rise 22 feet 11½ inches above the plant itself.—ROBERT ROLAND-GOSSELIN, in *Revue Horticole*.

A ROOF GARDEN.

THERE is in my garden a low outbuilding with slate roof which was unduly prominent and had to be made less unsightly. Years of neglect had permitted the Ivy which crept up its walls to grow on to the roof. The Ivy was ornamental, but it was ruining the roof, and had consequently to be cut back to the height of the wall. The roof is a lean-to, facing almost S.S.E., and for various reasons was unsuitable for covering with a rampant Rose or Clematis. After some reflection, it was resolved to convert it into a garden for Houseleeks and Stonecrops. This I thought would not only cover the slates, but would also be interesting, and at the same time do something to relieve the congested state of the garden. The *modus operandi* was as follows: The roof was divided into several portions by means of stones laid on the slates. A mixture of loam, clay, cow manure, and lime rubbish was then prepared and mixed with water to the consistency of thick mortar. This compost was then put on the slates with a trowel, covering the roof with about 1½ inches of the earth. In this while wet the plants were placed, and then well watered through a fine rose to settle them into position. This was done in spring, and as dry weather set in occasional waterings were given for some time. Since the first summer the plants have not been watered with the exception of two or three which showed symptoms of distress through a succession of dry weeks. As it was intended that the plants should be such as would endure heat and prolonged drought, the majority of those planted were *Sempervivums* and *Sedums*. All the former thrive well, as might be expected, and among others *S. arachnoideum* and *S. Lagereri* flourish, although in wet weather they look less happy than other plants of the same species on a perpendicular wall. The common Houseleek (*S. tectorum*), it need hardly be said, looks happy, and *S. Regina Amaliae*, *S. Brauni*, *S. Funcki*, *S. montanum*, *S. Pittoni*, *S. violaceum*, and several others are also thriving. The only drawback to the success of the *Sempervivums* is that their rosettes are sometimes knocked off by the cats. The *Sedums* nearly all do well also, especially those of the same classes as *S. acre* and *S. dasyphyllum*. *Sedum Lydium* is particularly well adapted for such a position, as its foliage assumes in summer the bright red colour in its best hues, and in winter it becomes a sheet of vivid green. Some of the flat-leaved species do not stand the drought of summer so well, and I have occasionally found it necessary to water *S. hybridum*, *S. album*, *S. brevifolium*, *S. oppositifolium*, *S. rupestre*, *S. reflexum* and others do well, the less succulent species being kept near the lower part of the roof, where they receive more moisture.

By way of an experiment a small patch of *Saxifraga aizoon* was planted on the roof. Although it flags greatly at times and needs to be watered two or three times in a season, it has thriven amazingly and has greatly increased in size. It flowers well also, and as there is a corner of the roof as yet unoccupied, I hope to try a few more of the encrusted Rockfoils upon it. I have also had at the top of the roof for about three years a plant of *Iris tectorum*, the Iris seen on the thatched roofs of China and Japan. It has not flowered, but has increased in size and has stood the winters better than in a dry rock garden. I am inclined to think it would do better a little lower down, where it would get fewer cold winds and more heat. Some *Antirrhinum* and *Wallflower* seeds have also been sown. These are beginning to naturalise themselves on the roof, and one can readily see, that did space allow, there would be every inducement to extend the scope of one's roof-gardening operations. Several other plants found useful in wall gardening would be likely to succeed, and I purpose trying, among others, *Campanula Portenschlagiana* and *Erinus alpinus*. They will probably do if their roots are covered by one of the stones.

In roof gardening I should recommend that particular notice be taken that the roof is strong enough to bear the weight of the material and plants employed. It will also be obvious that a roof at a very steep angle would require something fixed along it at intervals to prevent the earth and plants from slipping down.

The question of access to the plants also requires consideration. The outhouse here is a low one, and by means of a short step-ladder I have fixed, it is easily reached, but in order to make the plants more accessible I have a small ladder with broad treads laid up the roof and fixed across. A thick batten runs longitudinally. I am not satisfied with the appearance of this, and think of adopting a plan suggested by a friend, *i.e.*, that of having a ladder with iron points attached, which would keep it slightly above the roof when laid on it. This would be movable. It will be apparent that the growing of plants on ordinary roofs is not adapted for all buildings, and that it is only an extension of the old and picturesque custom of growing *Houseleeks* and *Stonecrops* on roofs. Although thus neither feasible everywhere nor absolutely new, many an ugly outbuilding may by roof gardening be made not only interesting but attractive, instead of presenting a surface of cold and dull-looking slate. S. ARSOTT.

Cursethorn, Dumfries, N.B.

SHORT NOTES.—FLOWER.

Pelargonium Rev. H. Atkinson does capitally on our low, damp ground, and is also one of the freest flowering sorts in pots. A number potted during May are now (December 15) flowering well, while many of the popular new ones are past and put out of the show house.—M. T., *Carron, Stirlingshire*.

Solidago virgaurea nana (p. 461).—The variety which grows so freely here in the rich beds I should scarcely think would ever exceed 6 inches, and often flowers at 4 inches and 5 inches, beginning about May 20 and lasting to middle of June. No doubt the heavy soil of Edge Hall quite alters its character.—E. C. BUXTON.

A good Tufted Pansy.—One of the best Tufted Parsies is Bullion. At the end of November it was a mass of yellow blossoms, and it began to flower while in the cutting bed during last February, and has been blooming ever since. The situation is low and damp and cannot be efficiently drained. All the Pansy race do well on strong, moist soil; but I have often had them do well in dry and warm positions in

England where trenching and liberal manuring were special items in management.—M. T., *Carron, N.B.*

Herbaceous Lobelias.—I read with great interest some letters in THE GARDEN lately on the cultivation of herbaceous *Lobelia* (scarlet), which I grew splendidly at one time in a very wet, heavy soil. I never did anything to them in the way of winter protection, except that I left the tall stems on, which fell over and protected them in some degree. After a long time the bed got so full of weeds that, unfortunately, I took the *Lobelias* up and planted in a dry place, which I thought they ought to like, but in a short time I had not a single root alive, all devoured by rust, which never touched them in the wet mud. We have as yet a very mild winter; *Ecce-mocarpus* and such things in flower in the open.—M. GORDON COOKE, *Tanavalla, Listowel, Kerry*.

ORCHIDS.

ORCHID PROPAGATION.

THE propagation of Orchids is fraught with a good deal of danger if gone about at the wrong time and by inexperienced persons. Not only this, but there are some plants in the family one may cut into as many pieces as zonal *Pelargoniums* and each will make a new plant, while others only lend themselves to slow and uncertain methods. *Cypripediums* have been, perhaps, more propagated than any other Orchids, and the more skilful growers think nothing of taking off single young growths of some of the rarest and most valuable hybrids and setting these going on their own account. What is more important, the parent plants seem little or none the worse for this lopping. Take another family, the *Cattleyas*. These, too, are much sought after, possessors of unique kinds being tempted to increase them as much as possible. In this case, of course, a little different mode is practised. Each portion of the plant having an eye, or lead as it is termed, may be taken off separately, and will make a fresh specimen, but unfortunately not without a considerable reduction of the strength of the parent. There is a right time for doing this, and if the operation is to be carried through at once, there is, I believe, no better time for doing it than when the new pseudo-bulb is maturing and just before it begins to root. On the other hand, if the rhizome is notched deeply some time in advance of the separation, the plants may then be left until the pseudo-bulbs are complete. In this case it is a good plan to place a little new compost within reach of the young roots, and this may be lifted out when separation takes place. Large plants having several leads to spare should not have all these taken off in one season. No matter how carefully it is gone about, cutting Orchids in pieces is sure to check them. Both the parent plant and the divided portions are better for a little nursing afterwards, but this is only a detail and applies with equal force to any kind of disturbance. But no one should fall into the error of thinking that it is only the young plants that need it. These in any case have the advantage of the more prominent and best matured eyes, while the latter have in many cases to push their next growths from ill-matured and weak ones, and through the congested cells of older pseudo-bulbs and rhizomes. This I have frequently noted when propagating *Odontoglossums*, and a fine piece of *O. Pescatorei* that has had several leads taken off now shows by the smaller pseudo-bulbs how weakening is the process. *O. Halli*, on the other hand, I have noticed may be cut without so much damage, and I have now several thriving young plants of *O. H. leucoglossum* of a good type that were little more than single bulbs two

years ago. This variability will be found in almost every genus. Take the case of *Burlingtonia decora*: this pretty plant may be cut up into almost as many pieces as there are bulbs, but it would not do with *B. fragrans*. Not that this cannot be propagated freely enough, but not so much as the former kind. *Lycaste aromatica* and *L. Skinneri* are very easily propagated in this way, but I have not been so fortunate with *L. lanipes* and *L. Barringtonie*, though one would think that the latter large-bulbed kind would take more kindly to it.

The most difficult Orchids to get up a stock of are those with single stems and distichous leaves like the *Vanda*, *Aerides* and *Phalenopsis* species. Not that there is any particular difficulty in taking off side pieces and rooting them when they appear, but one may keep a plant a good many years before it breaks into side growth. Such strong-growing members of this section as *Vandas* of the tricolor and *Aerides* of the odoratum and *Fieldingi* types one may cut down below the principal roots with the certainty of young growths resulting from the lower parts of the stem; but with a dwarf *Phalenopsis* or *Angraecum* it would be different, and here we have to wait until the side shoots appear naturally, and this is not often. The best time for the separation is in spring, just as the roots are becoming active, as indicated by the fresh green tips. The propagation of *Dendrobiums* of the cylindrical-stemmed kinds has been recently referred to in THE GARDEN, and it is only necessary to say that none but strong, healthy plants of good varieties should be so treated as to grow on small bits for several years' time wasted. *Pleiones*, *Calanthes*, and *Thunias* are easily propagated, plants in fairly good health doubling themselves in size or in number of bulbs in about a couple of years. If a more rapid mode is desired with the latter genera, the *Calanthe* bulbs may be cut into two or even four pieces at the time of potting, and with reasonable care such divisions will grow, while *Thunias*, as is well known, may have the stems cut into lengths and multiplied freely. From a monetary point of view these methods of propagation are not to be recommended as far as ordinary varieties are concerned, but they are excellent practice for amateurs, and if they try their hand at first with some of the commoner and more easily managed kinds the experience gained may stand them in good stead when a novel or rare variety comes into their possession that it may be desirable to increase. R.

Phalænopsis amabilis.—This beautiful white Moth Orchid is already in bloom, and a more than usually favourable season has led to the production of very fine spikes. The flowers last well in good condition if not damaged by bruising or by water, the damping necessary in the growing quarters being answerable for the quick decay of the blossoms in many cases. Later plants that are now throwing up their spikes will have a better chance to carry their flowers longer, especially where fogs are troublesome, as the days will be lengthening by the time the plants are in bloom. The roots must not be too heavily watered at this season, or it will lead to loss of foliage later on.—R.

Oncidium zebrinum.—This pretty plant I have usually found bloom in late summer, but I have noted it flowering during the present week. It is a rather large grower, the pseudo-bulbs occurring widely apart on the rhizomes, the long, scendent, branching scapes being produced from between the basal leaves. The flowers are individually less than 2 inches apart, whitish in the sepals and petals, with brownish and purple markings. The plant does not readily lend itself to pot culture, but will thrive on trellised blocks

dressed with Sphagnum Moss if firmly wired on. The roots are easily damaged by disturbance, and should be kept moist the whole year round. It is a native of Venezuela, and first flowered in this country in 1872.—R.

Pleurothallis punctulata.—This almost unique plant is now in flower in the Cambridge Lodge collection. The ground colour is pale greenish yellow, thickly covered with small rich purple spots. The small petals have a lighter ground colour, with larger, more richly coloured spots, the broad flat lip rich purple, mottled with white. It is a striking and desirable variety, and grows best in the Masdevallia house potted in shallow pans, which should be suspended from the roof.—VISITOR.

Lælia albida (Walker's variety).—This is one of the finest forms of this lovely species I have seen. The sepals are pure white, the petals white with a broad suffusion of rose at the apex, the broad front lobe of the lip bright rose-pink, shading to white at the base, with a broad band of yellow in the centre. The side lobes are white, veined with brown at the base. A grand plant, carrying a spike of fourteen flowers, was recently noted in the collection of Mr. W. C. Walker at Winchmore Hill.—H. J. C.

Masdevallia pachyura.—This is a very distinct and interesting plant, producing its flowers in midwinter. The flowers are produced on spikes a little longer than the leaves. The sepals are greenish yellow, heavily suffused and spotted with reddish brown, the apical triangular tails bright green. The small petals are creamy-white toothed at the apex, the flat lip rich purple mottled with greenish yellow. It is a free-flowering plant of good constitution, and does best in shallow pans suspended near the roof-glass. The potting compost should consist of good fibrous peat and living Sphagnum Moss in equal proportions.—H. J. C.

Cirrhopetalum Medusæ.—This is a distinct and interesting species, producing its flowers in tufts at the apex of the spikes, which are 8 inches to 10 inches long; the triangular-shaped sepals are creamy white, thickly spotted with brown at the base, the tails, which extend on the two lower sepals to upwards of 4 inches in length, creamy white, the miniature petals pure white, the lip white, with a bright yellow disc. It is one of the most curious Orchids in cultivation; the lateral sepals are so much lengthened as to give the spike the appearance of a head with long dishevelled hair. A remarkably fine specimen was exhibited at the Drill Hall on Tuesday by Sir Trevor Lawrence.

Dendrobium nobile cœrulescens.—Though one of the earliest to flower, this is also one of the deepest in colour, and the short stems are now covered with blossoms almost from top to bottom. In the shape of the flowers it differs little from the type beyond the fact that the lip is a little narrower and longer. It is a useful and beautiful variety of the old species, and was first grown in this country at Chatsworth, Mr. Gibson having sent it there in 1837. Like the typical *D. nobile*, it is often grown in too much heat in summer, and also too severely dried in winter, but if reasonably treated anyone may take up its culture with every prospect of success.

Odontoglossum facetum.—This, which I recently noted in bloom, is a showy little plant worthy of all care. The blossoms are bright yellow, the segments plentifully spotted with brown, and it is best grown in quite a cool house. It usually grows freely in late autumn, finishing up its pseudo-bulbs early and flowering freely from these as soon as, or before, they are finished. The best time to repot is when the new bulbs are about half complete, or when these commence to root. Give it a compost consisting of peat and Moss, with lumps of charcoal added. Large pots or pans are not necessary.—R.

Cypripedium Olenus.—This is one of the most variable of the *C. bellatulum* crosses. It was raised in the collection of Mr. R. I. Measures, and first flowered in 1895. The ground colour of the

dorsal sepal is white suffused with bright rose-purple, spotted with numerous darker purple spots shading to green, and dotted with brown at the base. The extra long petals are white, suffused with rose, shading to green at the base, the whole being thickly covered with rich purple spots, the lower sepal greenish white spotted with brown. The lip is deep rose-purple mottled with and shading to white at the base. It is the result of crossing *C. bellatulum* and *C. ciliolare*.—H. J. C.

Cypripedium insigne Maulei.—This is still one of the best of the varieties of *C. insigne*, leaving out the yellow-flowered section as represented by *C. insigne Sanderae*. The flowers are larger than in the type and most other varieties, the dorsal sepal very broad, pure white at the apex, the lower part spotted with bright purple. The colour of the rest of the flower is lighter and brighter than that of the typical form. This form was first imported by the late Mr. W. Maule, of Stapleton Road, Bristol, in whose nursery it first flowered in 1860. This and the other varieties are now in full beauty, small plants in 6-inch pots carrying from twenty-five to thirty of the useful long-lasting flowers.

Sophronitis cernua.—This pretty dwarf Orchid is now in flower, the tiny crimson blossoms not being so showy as those of *S. grandiflora*, but a bright and telling bit of colour none the less. It is the species upon which the genus was founded, and has small, closely-clustered bulbs from which the spikes rise. Several flowers occur on each, these being about an inch across, with a bright yellow centre. The plants grow best in a house kept rather warmer than the *Odontoglossum* house, and may be placed as near the glass as possible. If pots or baskets are used, these must be of very limited size and nearly filled with drainage. The plants also do well on small blocks of Fern stem, the close, clinging habit fitting it well for this style of cultivation.

NOTES ON CATTLEYAS.

This is the quietest time in the year for these beautiful plants, not many species being in flower. Where hybrid kinds in this genus and the bigeneric *Lælio-Cattleyas* are grown, these of course are nearly always more or less in evidence, but the *labiata* varieties being over, or nearly so, *C. Percivaliana* will be the next of the popular kinds. Already the sheaths have the buds showing from the top, and in a week or two the plants will be in full beauty. But not only is there a scarcity of flower, the plants in most cases are at rest, or nearly so. *C. Warneri* is growing strongly close to the roof glass, and the tips of the sheaths may be seen on the forward growths. The long-stemmed kinds, as well as the summer blooming *C. Mossii* and others, have quite done growing. Sponging and cleaning should be begun as early in the winter as possible, the first kinds to have attention being those advancing for flower. If possible, the whole stock should be gone over, as there is no better or more suitable time in the year. The house, too, may be thoroughly cleaned, and the plants put tidy all round. The number of plants of *C. gigas* and others growing out of season has been very small this year, but there are signs now of approaching activity in *C. Dowiana*, *C. Gaskelliana*, and their varieties. But after the turn of the year this will be of little moment, and until the leaves commence to unfold in the new growths there is little fear of damping. The atmosphere of the *Cattleya* house should now be kept moderately dry, and although a chance plant or two may be throwing out an adventitious root, it is hardly a good time to pull any of them about. Some plants of *C. labiata* potted a week or two back are rooting well, but I should not care to do much repotting. *Cattleyas*, as is well known, will not stand much drying at the root, but just now they are taking less than at any other season. Especial care is necessary with the smaller growers, as these are more easily injured either by drought or excess

of moisture. It is the safer plan at this time of year when one is doubtful whether or not a plant is dry to leave it another day. A day's drying can do no harm, but a weak plant already moist may be injured by a fresh supply of water. In watering *Cattleyas* keep away from the bases of the pseudo-bulbs, as at this season they are apt to turn black, to the detriment of the plant and the ruin of young eyes of the individual bulb. By sponging inside and washing down the roof glass outside let all the light into the houses, and on every possible occasion ventilate the house freely from above. The lower ventilators in the walls will hardly ever be entirely closed unless during very cold nights or when piercing winds are blowing, always provided these are below the hot-water pipes.

Odontoglossum Insleayi leopardinum.—There are few more highly-coloured or beautiful *Odontoglossums* than this, and a well-flowered specimen has a very fine appearance. In habit it closely resembles the typical form, and is much like *O. grande*, but the blossoms are very much brighter in their markings, especially on the front of the lip. This latter is bright golden yellow in ground colour, the spots deep red. The other segments are paler yellow, with heavy chestnut markings, and the whole flower has a shining varnished look about it that brightens it up considerably. There is, unfortunately, a lot of varieties sold as *leopardinum* that are no better than the typical form, and this ought to be taken note of in purchasing plants out of bloom. The species thrives well in medium-sized pots, with a very rough, open compost and good drainage, the former consisting principally of peat, with a little Sphagnum Moss. During the time growth is active—usually from February or March until late autumn—abundance of water should be given, and although during the resting season, after the flowers are past, the plants need less, yet nothing like severe drying should be practised. The heat of the *Cattleya* house is too high for it, but it likes rather more warmth than the Peruvian and New Grenadan kinds. The growths are not so large nor are the flowers so freely produced as in a temperature a few degrees higher.

SHORT NOTES.—ORCHIDS.

Cattleya Schofieldiana.—The flowers of this species are very welcome in the *Cattleya* house now that the *labiata* section is quiet. It cannot be described as a strong grower, but it is free and good, and will repay the little trouble needed to grow it well. Grow it as strongly as possible through the spring and summer, and after flowering keep it dormant till the spring. It is a native of Brazil, and first flowered with Mr. Schofield in 1882.

Cœlogyne Gardneriana.—The pendulous racemes of this species are very pretty. They are each about 18 inches long, the flowers closely set, but not opening fully, greenish white, with a yellow stain on the lip. Owing to the direction taken by the spikes, it may be grown in baskets or pans suspended in the intermediate house, a nice open description of compost best suiting it. Plenty of air and a moist atmosphere, with a fair amount of shade, are necessary.

Dendrobium Jamesianum.—The white blossoms of this species, with the bright red tinge on the lip, are now very pretty, and though referred to by botanists as a variety of *D. infundibulum*, it is sufficiently distinct as a garden plant. In the manner of growth it is different, the stems being usually shorter and stouter. *D. Jamesianum* requires less heat than *D. infundibulum*, thriving in quite a cool house, while the latter does best in an intermediate temperature.

Oncidium Cavendishianum.—This useful plant is again in bloom, the long spikes surmounted by a fine raceme of yellow-spotted flowers that will last months in good order. It is a capital plant for the house or conservatory, the spikes giving a light and graceful effect to groups of other plants, while it is also useful now for cutting. It grows freely during the summer in a *Cattleya* house temperature, the roots being quite at home in a rough, open compost containing large lumps of charcoal or crocks.]

TREES AND SHRUBS.

PLANTING NEAR THE SEA.

SOME are afraid of planting near the sea, and no wonder, considering the bleak look of things and the cutting winds on land near to it; but that arises rather from our own fault in cutting

countries, and it is interesting to see how well groves of hardy evergreen trees which thrive in a country will break the force of the wind. Yet even in places where the few trees that are planted are cut sharp off by the sea wind above the walls, as in Anglesea, we may see how soon good planting will get over difficulties that seem insurmountable. By the use near

our trees, and 50 yards away we might walk in woods as stately as in any part of the country. Having got our shelter in this way, the growth of the hardy Pines of the northern world seems as easy by the sea as anywhere; indeed, more so, because if there is any one place where the rather more tender Pines of the north are grown well it is near the sea in places around our coast, where if the soil is good, one has not to be so careful about the trees we select as we have to be in inland places.

We have always noticed the evergreen Oak taking the lead among the trees near the sea, and it ought to be largely used; but as it is not very easily transplanted from nursery-bought plants, it is just as well to raise it on the place and plant it young. Even seeds might be scattered with some advantage in places we wish it to grow in, as it grows freely from seed. But perhaps it is more suited for shelter in groups on lawns and in parks than for taking part in a broad wood, for which purpose we had perhaps better go to the greater trees.

In addition to the common evergreen trees of Europe, the Scotch Spruce and Silver Firs, &c., we have the noble Cosican Pine, which, from its habitat in Calabria and in Corsica, can have no objection to the sea. The Pines of the Pacific coast, too, are well used to its influences, and hence we see in our country good results from planting them near the sea, as, for example, Menzies' Spruce at Hunstanton, the Monterey Pine at Bicton, the Redwood in many places near the sea, and the Cedar of Lebanon at Goodwood. One good result of planting in such places is that we may use so many evergreen trees, from the Holly to the Cedar, and so get a certain amount of warmth as well as shelter.

Though our country generally is not perhaps fitted for the growth of the Cork Oak, it is here and there in southern and sheltered parts on warm soils, as in certain parts of Devonshire and on the warm side of the Sussex Downs, seen in good condition. Of this fact we give an example in this striking illustration of the stem of one of the Cork Oaks at Goodwood, near the house. As seen during the past autumn these trees were all that could be desired in health and beauty. This Oak naturally inhabits the southern parts of Europe and the northern parts of Africa, and it is most interesting to see that it can attain the size of a stately tree in our own country. The girth of the stem at 3 feet from the ground is 12 feet 9 inches, and without doubt the trees at Goodwood owe something of their health to their good neighbour, the sea.



The Cork Oak at Goodwood. From a photograph sent by Mr. R. Parker.

down trees in the past, and also from the great area of arable land which in the past has been thought more profitable than woodland, so that in many wind-swept places evidently people have begrudged a break of trees, which, by the way, might often be worth while having for the sake of saving the crops from the prevailing winds; indeed, this has to be done in some

the sea of small-leaved trees like the Tamarisks, Buckthorn, and small Willows, we very soon get a bit of shelter, and by backing these with the close-growing conifers like our common Juniper and some of the sea-loving Pines like Pinaster, and in mild districts the Californian Cypress and the Monterey Pine, we soon get shelter and companionship, so to say, for

Tree planting in the Isle of Man.—An important movement, at the head of which is Lord Henniker, has been initiated in Manxland for extensively planting the island with trees and thus making it more attractive to visitors. A meeting was lately held at Douglas, presided over by Sir John Goldie-Taubman, Speaker of the House of Keys, at which reports favourable

to the project were received from various parts of the island. A resolution was adopted for the formation of a tree-planting society, and an influential committee appointed to draw up a constitution and code of rules for the management and development of the same.

NOTES ON CONIFERS.

A DISPARAGING note is sometimes read as to *Cedrus Deodara*. Why, I can hardly understand, unless it is that on some soils the tree does not make the headway or preserve the healthy appearance the planter anticipated. It would be interesting to know the nature of soil where it is practically a failure, because those who have it at its best are unanimous in appreciating it, and I think with reason, for it is a graceful shapely tree without the formality characteristic of many of the coniferae, and possesses the immense advantage over the Lebanon Cedar that it is seldom damaged by snow. It is of course impossible to form an accurate idea as to the dimensions it is likely to attain in this country, but as the best specimens are going away so kindly with clean stems and leaders mounting away as straight as gun barrels, save for the slight bend at the very top, there seems every reason to suppose that we may hope to get it as large as in its Himalayan home. There is no record as to when it was planted here—probably about fifty years ago. The best specimens, rather over 60 feet high and girthing nearly 8 feet, are on a sloping bank that, save for a foot of surface soil, is nothing but sand, dry at top, but moist below. It would be interesting to know what manner of plants these were. In a recent note on the progress made by trees I mentioned that Yews planted 130 years ago were on the average between 35 feet and 40 feet high, and of girths varying from 5 feet to 6 feet. The comparison between these and the Deodars at half or less than half the age is an interesting feature in tree life. Many of the coniferae are noted for doing remarkably well on a very sandy soil, but it is perhaps only those who have planted in such a soil and watched the growth that know how well they actually do or the progress they make. Seven years ago I picked up a score of small Spruces and planted them in a nursery with the view of securing an occasional Christmas tree when required. The soil was nearly all sand, and, saving for working in a goodly supply of half-decayed leaves round each plant, they had no other help. Seven years ago they were 30 inches high; to-day the tallest are 24 feet and well furnished from base to summit. The kindly growth for many years and the general healthy appearance are not general in the Spruce family. *Abies Smithiana* and *A. Menziesi* are handsome as young trees, but get ragged and unsightly, with a large proportion of dead stuff, as they mount upwards. *A. nigra* is slow, but on the whole satisfactory if planted where the ground is a bit moist. *A. polita* is useless, making not the slightest headway. The Silvers as a whole are better than the Spruces, all the varieties tried doing well. I should say the type is not so long-lived as on heavier soil, neither are the trunks so massive. Most of the old planted trees now fast decaying are, however, 120 feet high, or very nearly that height. *Abies braehyphylla* I have previously noted as doing well and growing at a great rate. It is better on this soil than either *Picea Nordmanniana*, *P. pinsapo*, or *cephalonica*. The two last do very well, but they assume a very dense habit, and are too formal to associate well with other things. *A. nobilis* grows quickly, but *A. grandis* and *A. Veitchi* are rather slow. I find as fairly large trees from 20 feet to 25 feet high or thereabouts that the Silver Firs move better than any of the *Abies* family. Some that were shifted ten years ago are now fine, shapely trees. Naturally, with such a sandy soil, considerable care is necessary to ensure quick growth after the removal. Absolutely the worst tree to move is the Chilian Pine, and, given the greatest care the annual growth for years is only a few

inches. The Hemlock Spruce (*A. canadensis*) is not at home here. Several of them are scattered about the pleasure grounds, and there is invariably the same appearance—a yellow, sickly-looking foliage. The Japanese Cedar (*Cryptomeria japonica*) is one of our fastest growing trees. One shifted some ten years ago as a very small plant from a winter balcony box is now 28 feet high, with foliage well preserved to the base. It is, however, never likely to reach the height we hear that is attained in Japan, unless it could be planted in a position sheltered on all sides from rough winds; the leader is crippled as soon as it gets above the wind line. *C. elegans* is not a success; the foliage has a rusty, unhealthy appearance. In any planting operations in which coniferae were included I have done little with any of the *Pinus* family. Once outside the pleasure grounds, we get a stretch of woodn early a mile square with little else but *P. sylvestris*, and with such a preponderance of this type in close proximity it seemed hardly advisable to increase it. The grounds, too, are already densely wooded, and Pines would intensify the gloom. In all gardens where a considerable amount of cut flower and foliage is required and the glass is limited, a plant or two of *Taxodium distichum* will be found very useful, as the foliage is exceptionally light and graceful. It is not often that one sees large plants of *Cunninghamia sinensis* or *C. lanceolata* outside. I found three here each rather more than 20 feet high. Of these, two were in a bad state and had to be removed, but the other in a very sheltered spot has increased a little in size with each succeeding year, and is a clean, healthy tree. E. BURRELL.

Claremont.

SHORT NOTES.—TREES AND SHRUBS.

Stantonia latifolia in fruit.—Lady Amory, writing to us from Knightsbrayes Court, Tiverton, says: "I do not know if it is usual for *Stantonia* to fruit. Ours has been on this house for nearly thirty years and has never done such a thing, and now it has produced one solitary fruit—purple—like an egg-shaped Plum, $3\frac{1}{2}$ inches long and $6\frac{1}{2}$ inches in circumference."

Angræcum sesquipedale.—Two plants of this exquisite winter Orchid are now beautifully in flower in the collection at Kew. The large handsome blossoms, singularly pure and chaste, are most effective, if not indeed quite unique; certainly so the long cord-like spur a foot or more in length. Several of the widely-spreading blossoms were well expanded, and with other buds to follow will keep up a supply of flowers for some days to come. Other species of this genus in flower are *A. pellucidum*, from Sierra Leone, with a long drooping raceme of nearly transparent white blossoms and a prettily fringed labellum, and the somewhat rare *A. Chailuanum* from West Africa. Of the latter there are two nice plants in flower, the drooping raceme bearing about eight of its pretty white flowers. Both the sepals and petals of this species are narrow and pointed, the pendent yellowish-green spur being about 6 inches long.

Clay dressing for light land.—The addition of clay as a dressing for light or sandy soils does not appear to receive the attention it deserves, at least among gardeners. Farmers, on the other hand, frequently improve their holdings in this way, and thus turn a comparatively worthless piece of land into a most valuable one. Particularly valuable is a good dressing of clay where the soil is so sandy and hot as to be incapable of growing any really good crop. Indeed, I have seen just such a piece, after receiving a dressing of 4 in. or 6 in. of heavy clay, so completely transformed that it would grow almost anything where previously even vigorous weeds could scarcely live. In these very hot sandy soils, and those of a brown sand in particular, while manure does but little good, a heavy dressing of clay will produce wonders. These clay dressings are best

carted on to the surface during winter, so that the frost may perform its part in due season. Such a dressing as that now referred to may be given with advantage. Of equal value is such a dressing to beds and borders as well as to the kitchen garden in all those instances where the soil is too hot and sandy, and therefore deficient in body.—E. J.

GARDEN FLORA.

PLATE 1151.

ANNUAL PHLOXES.

(WITH A COLOURED PLATE.*)

WHERE there is a sunny spot in a garden, let this be a large or a small one, it should be reserved for a group or for a few plants of Phlox Drummondii, without doubt one of our finest annuals. For long duration of bloom or brilliantly-coloured flowers, no other annual can be compared to this Phlox. It is therefore not only well adapted for beds or borders, but it is also very useful as a cut flower on account of the lovely colours and the delicious fragrance.

In the different seed-growing districts of the Continent the culture of Phlox Drummondii is an extensive one, and during the months of July and August the fields of the different varieties in full bloom are worth seeing, looking like an endless Turkish carpet of the most glowing colours. Owing to the careful attention given to these lovely annuals, there have been raised wonderful improvements not only in size of flowers and trusses, but also in the bright and pleasing colours. The annual Phloxes are divided into seven sections or classes, viz. :—

PHLOX DRUMMONDI.—The old tall class, growing about 1 foot in height and distinguished by bright and uniform colours. The flower-trusses are almost as large as those of the next tribe. The brightest colours are pure white, *amabilis* (deep rose), dark scarlet (*atro-coccinea*), dark blood-red (*atropurpurea*), chamois rose, Eclipse (dark blue), Crown Prince (bright chamois-rose), and vermilion-scarlet.

P. DRUMMONDI GRANDIFLORA.—This class, of the same height as the former, produces the largest flowers and trusses of the whole tribe. In this section we find a good many varieties with a large pure white centre (*stellata*) or with a white eye and a dark centre (*oculata*), colours which are beautiful when cut and looked at, but they do not show off well in groups. The best for groups are the following: Pure white, dark blood-red (*atropurpurea*), scarlet (*coccinea*), *Isabella* (a beautiful clear soft yellow) rose (*rosea*), and Brilliant, light pink with dark red eye.

P. DRUMMONDI HEYNHOLDI.—This, about 10 inches high, grows sparingly. It is best fitted for pot culture, and only succeeds well in the open ground during a hot summer. The colours of the flowers are mostly vermilion-scarlet to rose.

P. DRUMMONDI CUSPIDATA AND FIMBRATA.—The so-called starred and fringed Phloxes introduced about six or seven years ago, growing about 1 foot high. These curious-looking, lovely margined flowers show their beauty only in a cut state, as in a flower bed one may call this class ugly.

P. DRUMMONDI GRAF GERD. grows about 8 inches high. These upright-growing varieties produce small flower trusses, and can only be recommended for pots.

P. DRUMMONDI HORTENSIFLORA.—This is one of the most beautiful forms. It is of dwarf growth, about 5 inches to 6 inches high, and forms big round bushes with large flower-trusses; the individual flowers almost as large as those of the grandiflora section. There is no better class for

* Drawn for THE GARDEN in Messrs. Haage and Schmidt's nursery at Erfurt by Rose Pinckert. Lithographed and printed by J. L. Goffart.

the flower garden than this. The brightest colours are alba, atro-purpurea, Brilliant, cinnabarina, coccinea, Triumph, of the brightest vermilion-scarlet, and violacea.

P. DRUMMONDI NANA COMPACTA.—A dwarf compact class, growing from 4 inches to 5 inches high. It does not produce such large flower-trusses as the *P. D. hortensiaeflora*, but it is of a more uniform growth, which is sometimes not the case with *hortensiaeflora*. The best varieties for the flower garden are *atro-purpurea*, *carminea*, *coccinea floribunda* (Fireball), *cerulea stellata* (a clear light blue, rare colour amongst Phloxes), *Defiance* (vermilion-scarlet), *nivea* (Snowball), and *cinnabarina* (punicea). C. SCHMIDT.

Esrfurt.

ORCHARD AND FRUIT GARDEN.

PEACH CULTURE IN THE OPEN AIR.

If Peaches in the open air received the same care and attention as those under glass they would prove as great a success. This coincides with my own experience, which extends over many years. Of all the fine crops of Peaches I have seen the finest have been in the open air, both as regards size and colour of fruit and also flavour. I am sure they were produced at one half the cost of the indoor fruit. The fact is, if gardeners, and especially employers, once secured a good sample of open-air Peaches, the glasshouse fruit would lose favour, and additional efforts would be made to produce further and annual open-air supplies, a matter which would be much less difficult to accomplish than is generally believed. I fully believe success can be achieved in all parts of the country, irrespective of soil or climate, if proper attention is given to their requirements in due season. In my opinion Peaches are as easily and surely grown in the open air as Plums and Pears. In practice I have found the Peaches more certain than either, as for ten years at a stretch I was never without a full crop of Peaches, but both Plums and Pears failed four or five times in that period. I will give you details of my practice.

A SELECTION OF VARIETIES.

By making a selection of varieties to fruit in succession, ripe Peaches may be gathered from the middle of July till the end of October. I do not approve of merely growing late Peaches in the open air; they are as great a success in July and August as in September or October. And in each of these months they possess advantages over the indoor fruit in being of a better colour, more juicy, and, above all, better flavoured. An indoor Peach may be ripened to the point of decay, but at no stage of the process can it equal an open-air fruit when it is just on the point of falling from the tree from maturity, and I am not surprised that those who have them sent to table in this condition should prefer the open-air fruit. The Early Alexander is the first to ripen. It is an American variety of medium size, bright in colour, of good flavour, and free bearing. Following this comes Hale's Early, a little larger, quite as prolific, and a fine open-air Peach. Then comes Early Silver, a Peach not often found in catalogues, but a most prolific bearer, fruit above medium size, of a somewhat pale colour, and highly flavoured. This is a fine August Peach, succeeded by Royal George, a well-known good sort; Bellegarde, also well known and a most sure bearer; Barrington, Noblesse, Walburton Admirable, and Sea Eagle. The last is a fine show fruit, but a little too deficient in flavour to be grown extensively. Any one, or all, of these varieties

may be grown to perfection in the open air. Where there is only space for one of each, I would not duplicate them. I would plant them all to cure the succession I have suggested. If a greater quantity of fruit was desired in one month more than another, I would introduce more of the variety that would come in at that particular time. For an ordinary family supply, the longer the succession is the better. There is one very early variety I have not included. It is Waterloo. It does not fruit well in the open, and when it does, the fruit is too small to possess the full properties of a good Peach. The varieties I have named are not all I have tried in the open. That includes nearly every known kind, but what I have recommended are sorts that have proved themselves year after year to be perfectly adapted for open-air culture.

Drainage, Soil and Planting.

Efficient drainage is an absolute necessity to successful culture. Do not make the mistake at the beginning of trusting to natural drainage. A mistake of this kind may have to be repaired at a time when it will upset the trees and retard a full return for several years. In preparing a site for each tree, dig the whole of the soil out for a radius of 6 feet from the wall and to a depth of 4 feet at least. In the bottom of each hole put some large stones. These should be arranged with the hands. Fill them up to a depth of 2 feet, and over their surface place some smaller stones. Some new turves should then be placed with the grass side downwards over the drainage; then proceed to put in the soil in which the trees are to grow to a depth of 1 foot. It is very rarely that any garden soil is sufficiently good to grow Peaches. If a Peach border was made under glass, the whole of it would be formed of new soil. This would be thought to be necessary, and why should the open-air trees not have the same provision made for them? Ordinary turf, especially that from limestone land, is the soil they delight in. This may be either new or partially decayed. I do not object to the former. It should be chopped up into pieces about 4 inches square. In breaking it up there will be a good deal of small soil amongst it. This is acceptable, and when all has been chopped, two wheelbarrowloads of old lime rubbish should be added to each cartload of soil and two bushels of crushed bones, mixing all together twice over. Do not give any manure, as the mixture is a lasting one, and will retain the trees in the highest condition for a quarter of a century at least. The addition of cow or horse manure might induce a more rank growth at first, but it would produce disease subsequently. This mixture to a depth of 1 foot or 15 inches should be put over the turves that have been placed over the drainage. This should be done when the soil is so dry that it will not cling to the feet, and as it is put in tread it down firmly. When sufficient has been put in to reach the height named, the tree should be planted. The roots of the trees should be fibrous and formed close to the bottom of the stem. They will not extend very far, but they should be spread out over the surface of the new soil thinly with the hands. Work some more of the soil through amongst the roots, and place a quantity carefully over the top of them. Tread this firmly down, and then fill up all over with more new soil. When completed, the roots will not be more than 1 foot under the surface, but this is ample, as deep planting is a great mistake, which all should avoid. I have known Peach trees become unhealthy by having too much soil over the roots. The removal of some of it improved them, but it is much the best way to cover them thinly at first. If this is done the

sun has an influence over the roots, which never fails to show itself on the top growth, but if too deeply buried, or if planted in a very deep, undrained, and cold border, canker and an un-serviceable growth soon destroy the trees. Every particle of new soil put near them should be made as firm as possible. This directly promotes a close, fibrous root action and a healthy, fertile class of wood.

ASPECT AND CLASS OF TREES.

Probably remarks on these ought to have preceded what I have just said, but they must not be omitted. The position best fitted for Peach trees is against a wall. They will not succeed as bushes or standards, but give them a wall, no matter whether it be stone or brick, belonging to a dwelling, outbuilding, or garden, a site is afforded to grow Peaches. I hope no one will run away with the idea that Peaches can only be grown against a great garden wall, as this is altogether a wrong impression, as they will succeed on any wall provided it has the proper aspect. This must be either south, south-east, or east. Peaches will grow and fruit as well on an east wall as a south one. The earliest varieties should be planted on the south aspect and the later ones facing the east. This will suit all admirably. As to the class of tree, I only approve of the dwarf-trained. The standards or half-standards, or any of them with long stems, are always apt to canker in the stem; some of the stems refuse to swell in proportion to the top development. This is inharmonious and ends in a cankered tree. Healthy, well-trained dwarfs are the only class of tree I would plant or advise others to plant. The tall riders might be put in to utilise the upper part of the wall until the dwarfs grew up, when the tall ones would be removed, but this upsets the border. Very little fruit is secured from the tall ones, and if well attended to the dwarfs soon fill the wall. If the dwarf trees, which are undoubtedly the best to plant in all cases, are put in at a distance of 15 feet from each other, plenty of space will be afforded to train them into fine trees, or a new border might be made all along the wall and the trees planted at half that distance apart at first, and as they developed and filled up and met, every other one could be taken out and planted elsewhere.

TRAINING THE YOUNG TREES.

The Peach is one of the freest growing of all fruit trees. If allowed its own way it will often make shoots 2 feet and 3 feet in length in one summer and become a luxuriant bush. Many allow it to do so, and obviate all chances of its becoming fertile, but the mere fact of its growing so well ought to indicate what it is capable of if trained and cared for, and this is what it needs, and without which it will be sterile and unprofitable. The trees ought to be planted before there is any indication of growth about them, and by the end of March or early in April, according to the condition of the weather, the buds will push into growth. On wet days they will be moistened naturally, but in dry weather the trees should be moistened over with the syringe every morning. It is better to do them thus early in the morning than in the evening, as at that time of the year they may be chilled at night, and one of the objects of syringing is to induce free growth. Another object is to prevent insects, especially green fly, from injuring the shoots or foliage, as once the foliage is checked by insects, the trees will never make a free growth, during that season at least, and they must be kept clean. Many more shoots than are required will appear, and all the superfluous ones should be removed when about

2 inches long. All those which come out at the back of the wood with their ends against the wall or going to the wall should be taken off, and those left to form the tree may stand about 6 inches apart. As these grow they should be trained so as to form an evenly spreading tree. Once they are thinned to the necessary number and nailed in position, they should be trained as far as they will grow upwards. Avoid crowding them and on no account let one shoot cross the other, and keep them free from insects by syringing. Should the weather be dry, water the trees at the root weekly, but with clean water only, but discontinue this in August and September, when the wood will mature thoroughly. No protection will be needed in winter. The following spring the shoots left on the previous one will be found to be full of buds like those which were removed when disbudded at first, and as they get into leaf this process must be repeated with all the shoots, leaving the young shoots thinly as before, and continue to train them regularly all over the wall so as to make an evenly-distributed, well-balanced tree. Some fruit may form the second year, and if the trees are healthy and strong, it will not injure them to let a few of these swell and mature. Each spring the process of disbudding must be carefully attended to. The trees will bear much finer fruit the third season, but the disbudding in spring must not once be omitted. The disposition will be to allow more buds to remain and more shoots to grow than can be laid in without shading each other, and this is a mistake which extra care ought to be taken to guard against, as allowing no more shoots to grow than can be quite conveniently spread over the wall is one of the secrets of success. As the shoots grow in summer they should be nailed or tied against the wall. This should be started in May or June, and as growth proceeds tie them in again. This will prevent any part of the tree from being shaded; all being exposed to the sun, the wood will be thoroughly matured.

PRUNING, NAILING AND DISBUDDING.

How ever carefully disbudding may be done in the spring, the trees will require to be pruned each winter. In doing this, any dead shoots should be cut out. In their ascent some of the branches will become destitute of buds on the lower part. These are useless for fruiting, and in pruning, all such should be cut out and some of the young ones left to take their place. The Peach always bears on the previous year's wood, and a careful pruner will allow the best of all such shoots to remain. As a rule, too much wood is allowed to remain in the trees. The shoots of medium strength always bear better fruit and more certainly than very strong wood. This is why a very strong growth is objectionable and why I recommend avoiding much feeding at the roots. In pruning, if I had two

classes of shoots to deal with, some very strong and others only moderately so, or seemingly weakly, I would remove all the former, and when disbudding time came I would take care that the buds which were emitted by the strong shoots were removed, as these would grow just as strongly and be as useless as their predecessors. Any sucker growths from the roots should always be removed and cut away from their source to avoid a recurrence of them. In nailing use narrow pieces of cloth. Broad bands are apt to shelter insects. Never train a shoot nearer the ground than 1 foot. Nail in the strong leading branches first, and train the others in between. Some do not nail their trees till in bloom, as by leaving the shoots loose it is said it makes them later in flowering and prevents injury by frost. I believe in nailing them before they begin to grow and protect from frost. On old full-grown trees the disbudding gives a good deal of work. In some cases the buds appear in clusters, and it is here that green fly, which is the greatest enemy the early growths on the Peach have to contend

PROTECTING THE BLOSSOM.

This is the most important aid to securing a crop I know. As the first of the blossoms begin to show colour, long pieces of stick or rails are placed up against the wall in front of the trees and two thicknesses of old herring nets are hung up in front of the rails. They are made quite tight so as not to flap about or rub on the blossom. This easily-applied protection has saved many crops from the most cutting winds, driving snow and 10° or 12° of frost. In a mild spring the trees have sometimes been well in flower by the end of March, when a sudden change in the weather would cause many to think their Peach crop would be hopeless; but so long as the nets were up I did not trouble about the weather, and I was never disappointed. The first disbudding should take place under the nets. The nets should not be removed until the fruits are as large as full-sized Peas, or if it is a cold spring, larger. In this again I think the advantage of the net protection is very great, as the fruit is very tender when first formed, and a slight frost or a cutting



A Peach tree at Margam Park, Glamorganshire.

with, is found. The young shoots, as a rule, are not ready to remove till the fruits have formed. It is when they are about 1 inch in length that they should be removed. They should be gone over twice at intervals of a week. Rub them off where they are too close first, and they can be left then about 3 inches apart, and when gone over the second time, this distance may be doubled more or less as is seen necessary. During this time syringe the trees on every fine day, and keep them free from fly or other insects. This is very important for their future success. As the shoots grow they will have to be nailed to the wall, or some of them may have to be tied on the top of the old branches. If it is found then that there are too many to find a place for without crowding them very much, the weaker ones, or some that are extra strong, may be removed.

wind will often scorch one side of it if exposed, and then its progress ceases. The nets should not be taken off till May, when both the leaves and fruit will be well able to bear exposure and continue to make healthy growth.

THINNING THE FRUIT.

Any fruits that form behind the shoots or face towards the wall will never be of any use. All such should be removed when the trees are disbudded, and where they have formed in clusters, the smaller ones may be taken off at that time. When about the size of a threepenny piece they should again be gone over, removing all until those remaining stand about 4 inches apart. This may be in May, and a fortnight later the fruit will have gained in size, but some may be swelling in advance of the others. It is these that will ultimately make the finest

Peaches, and in thinning them for the last time, allow all the largest fruits to remain. At this time the Peaches should stand about 10 inches apart. When from 8 inches to 1 foot apart they are a very full crop. As they begin to develop in June rapidly, the trees must be syringed daily in dry, warm weather, and in the best summer weather they should be syringed night and morning. This syringing not only keeps the foliage healthy and clean, but it causes the fruit to swell in a remarkable manner, and this I consider the secret of securing all Peaches in the finest possible condition. The syringing should be continued up till the time the fruit begins to soften, and if the weather is very warm and dry, they should be syringed with pure water until the fruit is almost ready for gathering. As to watering at the root, the trees must also have abundance of this in hot weather, but liquid manure may only be given them in the early part of the development of the fruit. It is a good plan to spread a layer of cow or horse droppings over the surface of the roots and water over this. Peaches are great lovers of water, provided the atmosphere is dry and the border well drained, and the finest possible crops will never be produced unless they are liberally provided with it during the development of the wood, leaves, and fruit. In a growing autumn many young shoots will be produced on the Peach trees. The liberal treatment they receive will induce this, but all such will be removed and the main shoots fully exposed to the sun and air, as a thorough and complete ripening of the wood will help to ensure next year's crop and keep the trees in condition.

RESULTS OF CULTURE.

Herewith is an illustration from a photograph taken in September of a tree treated in all ways as I have indicated. The variety is Barrington. The tree is ten years old. It has not missed a crop for eight years and it is in perfect health. The majority of the fruit seen on the tree weighed each 7 ozs. and 8 ozs., or on an average two to the pound. Other photographs sent to the editor, which have not been made use of, showed the crops on an Early Silver tree for three years in succession, *i.e.*, 1895, 1896, and 1897, and all were full and fine. The regularity of the fruit, as shown in the illustration, indicates that there must have been plenty to select from, and I do not think it is any exaggeration to say that every year tens of thousands of little Peaches are thinned off neighbouring trees. This will show how free Peach trees are in the open air when their requirements receive due attention, and I hope it may induce others to cultivate more generally and extensively the most luscious and delightful of all hardy fruits. M.

WHITEWASH TO RETARD BLOOMING.

SOME experiments at the Missouri Station show that whitening twigs retards blooming and enables fruit trees to remain dormant until safer temperatures can be counted upon. The conclusions of Mr. J. C. Whitten, as given in the *Pacific Rural Press*, may be of interest to our own growers in the more frosty situations. The conclusions are as follows:—

1. In this latitude, winter killing of the fruit buds of the Peach is usually due to the unfavourable effects of freezing after they have been stimulated into growth by warm weather during winter or early spring.
2. This early swelling and growth of the buds, due to the warmth they receive, are practically independent of root action, and may take place on warm, sunny days in winter, while the roots are frozen and dormant.

3. Peach fruit buds may safely endure a temperature of 10° or 20° below zero, provided they are well ripened in autumn, are entirely dormant, and the cold comes on gradually.

4. Zero weather may kill fruit buds that have swollen during the previous warm days, or that were not properly ripened in autumn.

5. Shading or whitening Peach trees to prevent their absorbing heat on sunny days checks the growth of the buds, and is consequently a protective measure.

6. Shading the trees with board sheds enabled Peach buds to survive the winter uninjured, when 80 per cent. of unprotected buds were killed. Trees protected in this way blossomed later, remained in bloom longer, set more fruit in proportion to the number of apparently perfect flowers, and held their fruit better than any other trees on the station grounds. This is the most effective means of winter protection tried at the station, but it is probably too expensive for commercial orchards.

7. Whitening the twigs and buds by spraying them with whitewash is, on account of its cheapness and beneficial effects, the most promising method of winter protection tried at this station.

8. Whitened buds remained practically dormant until April, when unprotected buds swelled perceptibly during warm days late in February and early in March. Whitened buds opened three to six days later than unprotected buds. Eighty per cent. of whitened buds passed the winter safely, when only 20 per cent. of unwhitened buds passed the winter unharmed.

9. Thermometers covered with purple material registered during bright, sunny weather from 10° to over 20° higher than thermometers covered with white material or similar texture, thus indicating that whitened Peach twigs might be expected to absorb much less heat than those that were not whitened.

LARGE-FRUITED PERPETUAL FRUITING STRAWBERRIES.

IN the year 1893 the Strawberry known as the Saint Joseph was raised from seed at Clanoves, in the department of Saône-et-Loire, by M. l'Abbé Thivolet, curé of that district. From the year 1880 the Abbé, who was an enthusiastic amateur gardener, had conceived the desire of raising a perpetual-fruited large-fruited Strawberry which would bear the same relation to the common varieties as the alpine Strawberry bears to the Strawberry of the woods, and, although one of his friends tried to dissuade him from endeavouring to effect his purpose by crossing one of the large-fruited kinds with the alpine Strawberry, he employed this method, as he informs us in an article which appeared in the *Moniteur des Campagnes*, an agricultural and horticultural paper published at Saint Quentin. From the seed thus obtained an imperfectly perpetual-fruited and, what was worse, rather unproductive Strawberry was raised and named Roi Henri. I do not call in question the fact of this crossing as described by the Abbé, but what I do doubt entirely, and what every Strawberry grower will doubt as well, is whether the crossing had the slightest share in the result, since neither the Roi Henri nor the Saint Joseph Strawberries exhibit any characteristic features in which we can trace the least relationship with the alpine Strawberry. Moreover, it is not at all necessary to bring in this species to account for the tendency which a large-fruited Strawberry has to become perpetual-fruited. This tendency does exist and manifests itself in almost all kinds of Strawberries from time to time. Nothing is more usual than to see in gardens, or even in the fields, Strawberries of the common variety Princesse Royale, Vicomtesse Hélicart de Thury frequently, and Belle Lyonnaise oftener than any other kind flowering a second time in autumn. What in these varieties is really an exception, but a frequent, normal, and almost antiquated exception, in habit may easily become the rule in another variety.

What does this second flowering of Strawberries proceed from? It is this. Instead of merely producing in spring one or two flowering stems from axillary buds, the plants which flower a second time produce flowering stems from some of the successional buds, which in the natural course of things would develop into runners. In the case of Strawberries which accidentally flower again in autumn, the flower-stem which appears in September or October evidently takes the place of one of the last runners which the plant would produce. Let this take place more frequently, say during the whole summer, and you will have a Strawberry that may be termed not merely second-flowering, but perpetual-flowering. Now, large-fruited Strawberries which flowered not only a second time, but also perpetually were not unknown previously to 1880, as the most authentic documents record at least one variety of considerably older date. I refer to the variety named l'Inépuisable, raised at the establishment Mabilly, Limoges, and put into commerce not later than the year 1874, in the October of which year it was described by its raiser in the *Revue Horticole* (p. 506) as being very vigorous-growing, very productive and abundantly continuous-flowering. This new variety did not fulfil all the hopes which it had inspired. In January, 1874, M. Edouard André wrote to say that with him in Touraine the variety was *inépuisable* (inexhaustible) only in producing leaves, although he acknowledged that at Limoges, in the ground of the raiser himself, whose good faith and skill were there established beyond doubt, he saw the variety fully in fruit in November, 1874. From this it would appear that its native climate is essential to grow this variety well, for in the vicinity of Paris I have cultivated it for a long time without ever obtaining from it, even at its flowering in spring, any fruits that were in the least degree presentable. Its defect, so far as I can conjecture, is in not having the sexual organs properly developed, the stamens or pistils having some weak point in their organisation, for the flowering was abundant and continuous, proving what I stated above, *viz.*, that at that time some of the large-fruited Strawberries had the property of constantly producing flowering stems, the flowers so abundantly borne on which were hardly ever succeeded by well-developed fruit. Any fruit that was produced was almost always small, of different shapes, and irregular in form, as is usual when fecundation has not been properly effected. What I have just said about the Inépuisable Strawberry, the first forerunner of the perpetual-fruited Strawberries, is applicable in a high degree to the variety Roi Henri, which is restricted to the domain of merely curious plants and prevented from being taken in hand by amateur and professional cultivators by the imperfect manner in which it sets its fruit. Its numerous and, at first sight, well-formed flowers are succeeded only by small, badly formed and very often entirely abortive fruit.

The Abbé Thivolet acknowledged very candidly that the manner in which this first gain of his turned out caused him some vexation. Nevertheless, he was not discouraged, and from fresh crossings between it and some varieties which set their fruit well he obtained some new varieties which were less continuous-flowering than the Roi Henri, but set better and bore fruit of good form and sufficient size. Of these he mentions two in particular, *viz.*, Robert le Fort and Léon XIII. "But," says he, "these were not what I had dreamt of. These two varieties, however, attracted my attention, and upon them I proceeded to concentrate my

labours. Robert le Fort was remarkable for the abundance of its flowers. Léon XIII., which was less floriferous, but perfectly continuous-flowering, was distinguished by its first-rate fruiting qualities. I spent ten years in making experiments in crossing one with the other, seeking to realise the ideal of an English Strawberry that would be as perpetual-fruiting as the alpine Strawberry. In 1892 I made a sowing of Strawberry seed, prepared with every care and precaution possible, and watched over it with the tender solicitude of a father for his children. Amongst the numerous seedlings which were produced one attracted my attention early by the beauty of its fruit. After this its flowers were produced in constant succession, and the fruiting from these was faultless, the last flower setting quite as well as the first. The perpetual-fruiting English Strawberry was at last discovered!

But how, it may be asked, can it be explained why a plant of such merit, raised in the year 1893 and awarded a first-class prize by the Horticultural Society of France on September 27, 1894, did not make its way more speedily. To this it may be replied that the comparative disappointments which were experienced in the case of its predecessors had made the horticultural world somewhat sceptical on the subject of a perpetual-fruiting large-fruited Strawberry. It may be added that the name of the raiser had no great notoriety amongst horticulturists, and that the means at his disposal for making his new variety better known were not very extensive. I must confess that, as concerns myself, although I had been taking a lively interest for many years in the question of a perpetual-fruiting large-fruited Strawberry, I had in some way missed seeing the announcement of exhibition of the Saint Joseph at the meeting of the Horticultural Society and the high prize which had been awarded to it there. It was not until the year 1895 that I obtained some plants of it, and from the first I could assure myself that these were superior to any of the perpetual-fruiting Strawberries which had been put into commerce up to that time. The conclusions to which my observation of them during the first year led me were confirmed in the most striking manner by the summer and autumn of 1896, and especially by their behaviour in the same seasons of 1897. During the whole summer the production of flowering stems continued without the slightest interruption, not merely on a few plants, but on a whole plantation many hundreds of square yards in extent and in an open field. Some of the plants which were two years old bore at the same time seven or eight flowering stems in various stages of growth, and I can declare, without any exaggeration, that thirty of these plants, well selected, would furnish throughout the whole season a very satisfactory dish of well-ripened and well-flavoured fruit every morning. The succession of fruit, produced especially by the emission of fresh flowering stems which spring from the axils of new leaves on every principal axis of growth, is frequently still further augmented by the premature flowering of the runners of the year which, when scarcely rooted, and sometimes even before taking root, flower in time to have their fruit ripe before summer is over. The great superiority of the variety Saint Joseph is chiefly due, as its raiser very truly says, to the fact that the fecundation of its flowers takes place with great regularity, and that up to the very last all the flowers produce fruit, which is naturally more or less large according to the position of the flower on the stem.

Of course, as in Nature nothing is produced from nothing, it is obvious that, to ensure a

well-sustained and abundant amount of production, it is necessary to feed and water a plantation of the Saint Joseph Strawberry all the time during which anyone wishes to gather fruit from it. Like all organised beings, it yields in proportion to what it receives. The fruit is well coloured and of medium size when not thinned out; the flesh is red, very sugary, melting and perfumed. In quality it much resembles the variety Vicomtesse Héricart de Thury (abbreviated to "Ricart" in the Halle Market at Paris, where it holds the first place in the estimation of gastronomical connoisseurs).

The horticultural world is now, thanks to M. l'abbé Thivolet, really provided with a genuine perpetual-fruiting large-fruited Strawberry, which cannot be too highly recommended to both amateur and professional horticulturists. It will probably soon have rivals, but that will not deprive it of the merit of having been the first of its series.—HENRY L. DE VILMORIN, in *Revue Horticole*.

THE WEEK'S WORK.

FRUIT HOUSES.

VINES, FIRST EARLY, IN POTS.—For first early Grapes pot culture is preferable in every respect, for it enables one to avoid starting permanent Vines unduly early and to take another crop of Melons, Tomatoes, or anything, in fact, which can be worked with facility from the end of April until the end of October. Pot Vines started from November 1st to the 10th will, even if brought on steadily, have fairly broken by this time and the canes be fit very soon to be tied into position. If any have not broken so evenly as one could desire, these can still be kept bent down to facilitate as even a break as possible. It is not, however, advisable to sacrifice any good and promising shoot just for appearance sake, it being more important to secure the best bunches from the strongest breaks on pot Vines. Disbud to one shoot at every break without any delay, and thin those also near the base. A slight reduction in the use of the syringe after a fair start has been made should be the rule, otherwise there will be a tendency towards a soft and too sappy a growth, which will not resist so well any severe strain later on from inclement weather. Damping down three or four times a day and keeping the evaporating troughs well filled will answer the purpose to a great extent; the exceptions should only be when closing after an hour or two of sunshine, or once a day when firing hard against a freezing or easterly wind. Plunging material will give encouragement to a more rapid root action, and is desirable not alone from this point, but likewise by reason of the constant and steady degree of humidity thereby occasioned. Of course, it is not absolutely essential, for good Grapes can be grown without any bottom heat, but a longer time is needed for these wherein to finish their crop. Again, on the other hand, pot Vines can be stood over hot-water pipes by merely placing bricks on the latter. Good Grapes are grown in this way, but the attention must be more constant. Pot Vines now fairly broken into their first leaves may have as a night temperature 60° as an average, less, however, by 2° or 3° if the weather be frosty. A rise of 5° up to 15° may safely be permitted according to the prevailing state of things outside.

PERMANENT VINES.—EARLY HOUSES.—In some cases these also will be on the move, more particularly where forcing has been practised at an early period for some years. These always when in health break away more freely than early pot Vines, hence they should not be excited quite so much at the first stages. Endeavour, however, to secure as even a break as possible, either by bending them down or by merely leaving the upper portions inclining downwards. As in the case of pot Vines, and for the same reason, dis-

continue the use of the syringe to some extent when growth has commenced. Look to it also that all inside borders are thoroughly well watered. A merely superficial watering is not sufficient; it is deceptive to the eye and ruinous to the Vines themselves. Weak liquid manure will greatly assist the root action, the ammonia arising therefrom being also beneficial. Any well-proven artificial manure which has a good percentage of phosphates will also be an assistance, more especially where there has been a previous tendency towards the production of stoneless berries. Such manures, if applied at an early stage, will afford that food to the Vines which will enable them to pass through the stoning process in a more satisfactory manner. Where the borders are outside, sufficient litter, or leaves and litter, should be placed upon them to prevent any cooling of the soil during cold weather. To cover borders sufficiently to produce bottom heat by means of fermenting material does not pay for the time expended upon it. The better plan is to cover the borders early in the autumn before the heat has escaped.

LATER HOUSES.—From the time of the appearance of this calendar onwards for another week will be suitable, and very convenient, too, to many, for starting their Vines so as to ensure ripe Grapes by midsummer. Such Vines should have every prospect of good crops in them with the lengthening of days ere they are far advanced. If these are not already dressed, if insects have in the past been troublesome, then no time should be lost. A good wash is found in Gishurst direct from the cake, applied with a paint-brush, it being preceded with water from 100° to 120° in order to facilitate its penetrating power. Where mealy bug is rife, the Chelsea blight composition can be effectively used instead of Gishurst, but with an equal part of water added to it. Mid-season (*i.e.*, those grown naturally) and late Vines should now all be pruned without delay, except, in the case of the latter, where from some particular reason the latest Grapes cannot all be conveniently stored after cutting. No time should, however, in any case be lost in finishing up all pruning operations, so as to afford as long a period of rest to the latest houses as possible. If not in any other case, the latest houses should be carefully dressed after pruning with styptic to guard against bleeding. All houses, as a matter of necessity, should be thoroughly well washed down. For this purpose parathin oil insecticide is a good penetrating agent to precede the use of brushes. Tar brushes on long handles are very suitable and expeditious for both glass and wood. Guard, however, against a too free use of this insecticide so as to cause injury to the roots of inside borders. When pruning take note if any extension is in any special case desirable as an insurance against the failure of a neighbouring spur and hence a blank.

LATE GRAPES.—Those still left on the Vines will need frequent attention for the removal of decaying berries. The night temperature should rule with that outside to a great extent; when cold outside, then 40° to 45° is sufficient, but when milder then a slight advance is safer, so as to avoid touching the dew point when moisture will be precipitated in a slight degree upon the berries. All spurs with no bunches upon them should be pruned at once. Grapes now taken to the fruit room should be placed in clean bottles with a few pieces of charcoal and rain water in preference to any other. Keep the temperature here as steady as possible, 45° to 50° being sufficient.

STRAWBERRIES, FIRST EARLY, IN POTS.—Those started three weeks or so back will soon be on the move, when a little more warmth may be given; but on no account should too much excitement be permitted, otherwise there will be a tendency to go blind. Keep these as near the glass as possible and watch closely against the first appearance of green fly. Guard against the two extremes of dryness and excess of moisture at the roots. Now is a good time to introduce a much larger batch of plants with far more hopes of success in store. Clean pots and free drainage should obtain, whilst

all decaying leaves should be removed. The best place for these now is a Peach house or vinery just being started, the temperature of the former being the more congenial, and at that the Strawberry house proper should stand as a rule.

HORTUS.

KITCHEN GARDEN.

FREQUENT and rather heavy rains during the past week will have interfered somewhat with general outdoor work, especially digging and trenching, and on heavy retentive land some time must now elapse, even should the weather prove dry, before such work can be again attempted. However anxious one may be to get as much ground work finished as possible within the next fortnight, heavy soil should not be turned over for the sake of doing so while in the present wet state, as more labour will be incurred later on, when there is less time at disposal to break it down and get it into a suitable friable condition to receive plants and seeds, especially the latter. It is not from the actual turning over of the soil that harm follows, but from the treading and wheeling necessary in carrying out the work; therefore it had far better be left alone until there is sufficient frost to form a slight crust, and then the rougher it is left as each spit is turned over the better, as it allows a greater surface for the weather to act upon.

RETARDING BROCCOLI.—The absence of frost to any extent has allowed these to turn in quickly, and there is every reason to believe the supply will be greater than the demand. It only requires a week's really hard weather, however, to change all this, and what may be plentiful now will in a short time become both scarce and dear. It is well then to be on the alert, and lay in a good store of plants which are ready for use in a way that protection can be afforded if need be, and so tide over the evil as far as possible should it arise. There are various means adopted to preserve this useful crop from severe frost after the heads have attained a serviceable size. One plan is to lift all that are ready, with a fair amount of soil clinging to the roots, and lean them against a wall or some such shelter in a way that rain or snow cannot beat into the centres. Long litter or Bracken should be used to cover the stems, and if occasion requires it the whole of the plants as well. In this position they will remain in a fresh condition for weeks. Where there are only a few plants ready for lifting these could be placed in a spare frame or heeled over where they stand and covered with litter. Precautionary measures must also be taken with other crops which are likely to suffer from nipping frosts which often follow rain. Of course, much depends on the position of the garden as to the injury caused as well as the severity of actual frost. Some bushy sprays of Fir and Yew stuck into the soil between Parsley roots will sometimes turn several degrees of frost, and are a simple means of affording protection when nothing better is available. The branches used should stand quite a foot or more higher than the crop they are supposed to shelter. This simple means may also be used both for Lettuce and Endive if these have become far advanced. Long Hazel rods may also be used to form hoops over such beds, and larger boughs or mats may rest on these and form a cheap and fairly safe covering.

CROPS UNDER GLASS.—Where Tomatoes were afforded a house to themselves there will have been little difficulty in keeping the plants healthy and securing nice gatherings. A dry atmosphere, moderate supplies of water at the roots, with a slight warmth in the pipes at all times must be strictly observed if the plants are to keep up a supply of fruit until those sown in the autumn are ready to succeed them. A little feeding is necessary if a fair crop of young swelling fruit is on the plants. A little dusting of some artificial manure is better than liquid from the farm, the latter not unfrequently causing the fruit to decay prematurely. Root-action is naturally slow at mid-winter; therefore, strong doses of manure in any

form act more as a poison than a stimulant. The batch of young plants which are expected to yield ripe fruit by April require careful management for the next two months at least. It would prove harmful to excite growth of any description during that period, but, on the other hand, the plants must not be starved either by being kept too cold or too dry at the roots. They will repay for shelf room in a light house where the temperature ranges about 50°. So long as the leaves remain of a healthy green do not disturb the plants, but at the first sign of the lower leaves losing colour shift them on into one size larger pot. See that the compost is warmed before being used. It should consist of new loam, leaf-mould, or spent Mushroom manure, and a little sharp sand. Make the soil firm, pressing it down so as not to bruise the roots, tie each plant to a neat stake, and replace them on a shelf or as near the glass as possible. See that the ball of roots is thoroughly moistened before potting, then the plants will stand for perhaps a week before any further watering is required. Air is necessary to keep the plants sturdy, but this should be admitted carefully, so that they are not subjected to a draught. Plants kept slightly on the move in this way will be strong and healthy as the days become longer, and commence to show flower-trusses near the base of the stem, that is if they are allowed plenty of room to retain the lower foliage during the winter. Small batches of roots of both Rhubarb, Seakale, and Asparagus should be put in at close intervals, so that the produce may be used at once. It is surprising how soon each of these loses its freshness at this season; indeed, Seakale quickly becomes bitter as well as tough if not used at once, and, unless great care is used, much of its whiteness also. Where either of the above has to be kept several days after it is cut it should be stood on dump sand in a cool cellar and covered with a large flower-pot. This is better than standing it in saucers of water, as the water soon becomes tainted and imparts an unpleasant odour, which may be detected after the produce is sent to table.

RICHARD PARKER.

STOVE AND GREENHOUSE.

HARDY PALMS.

ON page 490, last volume, you give a picture of a fine hardy Palm growing in the gardens of Efford Park, Lymington, but the plant is called *Chamaerops Fortunei*, syn. *C. excelsa*. I believe that *Chamaerops Fortunei* and *C. excelsa* are totally different plants, and that the former is by far the hardier of the two. I have had *C. Fortunei* in the open for about fifteen years, first in a low, damp position exposed to late frosts, and for the last seven or eight years in a dry sandy position, rather sheltered by walls and in a garden about 300 feet above sea-level. For one or two years I protected it overhead with glass, leaving the sides open, but, on the recommendation of a gentleman who has seen it in its native home in Chusan, I now leave the Palm uncovered. On the recommendation of the same friend I have lately manured the plant pretty freely, with very encouraging results. Three years ago I ordered *C. excelsa* from Messrs. Fratelli Rovelli, of Pallanza, Lago Maggiore, and have had two plants of it out since. It is a totally different plant from *C. Fortunei*, though M. Rovelli (when I saw his very interesting nursery last winter) told me he had believed that the two Palms were identical, having only different names. *C. Fortunei* seems to me the hardier of the two, and a friend of mine has it growing and thriving on the London clay a few miles from here.

My *C. Fortunei*, though fifteen years or so old, is not a yard high, so that one at this rate

would have to live a century or two before sitting under his own Palm tree. Believing the plant, from my experience, to be absolutely hardy, I bought three large specimens, 6 feet or 8 feet high, from Messrs. G. B. Villa and Co., Coringliano, near Genoa. They were shipped at Genoa, after some delay owing to a detention of the steamer, and reached me nearly two years ago, when they were planted out in the open, and have stood there since without any protection. The old leaves were greatly injured owing to the sailors, in their excess of zeal, watering them copiously when they were tied together, instead of watering the roots only. These plants, though still a little poor in the leaves owing to this accident, are quite healthy. A friend of mine who got some of the Palms at the same time as myself planted his in a sheltered old chalk pit about 600 feet above sea-level. Here one of them flowered last summer. These plants cost us about 15s. for each specimen, and I suppose similar ones in hothouses here would be worth £5 or more. These plants also are all quite distinct from the Palm I have as *C. excelsa*. M. Rovelli considers *Jubæa spectabilis* to be the hardiest of Palms. I have one planted out, but it has not yet gone through a winter, and I have given it a glass cover for its first year.

My garden is exposed and windy, and what Palms evidently require is shelter and rich soil. Wind is their great enemy, not cold, and I feel sure that Palm groves are quite practicable in the south of England, provided the trees are grown within a sheltering belt of other trees, or where they are free from wind. The charming Bamboo garden at Kew shows what a difference a little shelter makes, and I believe that the rather miserable large Palms outside the house by the main gates there would do far better if they were also planted in some sheltered spot in the Rhododendron valley. Palms, of course, in this climate must not be sheltered by trees that overshadow them in any way, as they want all they can get of our feeble sun. It is a wind-break that is wanted.

J. I. R.

Chislehurst.

Crinum asiaticum variegatum.—This striking plant, attractive at all times owing to its well-marked variegation, is among the giants of this family, and is now represented at Kew in the large Palm house by a fine flowering example which stands several feet in height. Evidently a vigorous grower and an abundant rooter, this specimen has a trunk nearly 2 feet long and handsome recurving leaves that reach nearly or quite 6 feet in length. From the side of the trunk-like stem issues the vigorous scape, and having attained 2 feet in length, unfolds its numerous pure white flowers. Of these there are between twenty and thirty in an umbel, the segments and the tube being pure white and about 6 inches long. In this array of white the purplish tinge of the stamens is very distinct.

Luculia gratissima.—Though not one of the most easily managed plants in cultivation, the above is certainly one of the handsomest and most fragrant of greenhouse shrubs. It is, perhaps, cultivated with the least trouble, provided at all times water is afforded with intelligence and forethought when planted out in good soil. In a mixture of rough pieces of fibrous peat, a third part loam, and plenty of silver sand and charcoal or lime rubbish, the above plant will grow vigorously. A foot deep of this soil and at least 6 inches of drainage should keep the plant in health for a long time. Well-grown plants are always a feature, and when these attain a large size and are covered with their splendid clusters of pink and white flowers, they are delightful. Much the best results may be secured by growing the plant in a cool greenhouse and, if possible, planted out. Even in the cool conservatory this

should figure as one of the most precious of flowering shrubs.

NOTES OF THE WEEK.

Tufted Pansies at Christmas.—On Boxing Day I was able to pick a spray of these hardy flowers, which proves how robust and healthy their constitution must be. Blooms of Mary (Gilbert and Lord Elcho (yellow), Cottage Maid (lavender and deep purple), White Empress (white), and Lord Salisbury (pale yellow) were charming.—D. B.

Begonia leprosa.—This very distinct species is now flowering in the No. 7 range at Kew, where it produces freely its white and pale pink blossoms. It is a native of China. Several other species are also in flower, notably *B. socotrana* and *B. Gloire de Lorraine*, the latter being especially attractive suspended in small shallow pans near the glass.

Ardisia polysepala is a rather striking species with Hoya-like leaves and small clusters of nearly jet black and glossy berries. The flowers of this East Indian species are white and produced rather freely in umbels on the lateral branches. A very attractive characteristic of the plant is the fine crimson colour of the foliage when young, and in the somewhat ascending habit of the plant is very effective.

Senecio sub-scandens.—This is a very distinct species of tall growth that, in truth, inclines to a semi-climbing habit. The growth is free, and in the coarsely sinuate and toothed leaves it is not unlike some of the *Sonchus* species. The species belongs to South Africa and is a most abundant bloomer. A large example of this has been flowering freely of late in the succulent house at Kew.

Calanthe Veitchi.—For some weeks past a beautiful display of this useful winter Orchid has been made at Syon House, where it is grown by Mr. G. Wythes in quantity, and is prized for its richly coloured spikes of flowers. Employed as a pot plant for decoration and inserted in a bed of Maiden-hair Fern it is always attractive and valued for the useful length of the racemes. Of this kind alone a large number is grown.

Ficus elastica variegata.—In spite of the fact that the green-leaved India-rubber plant has proved a most valuable plant commercially, the variegated form, which some years since appeared with a great flourish of trumpets, has not made the advance anticipated for it. This is readily understood by those who have grown the above, as frequently in the young state the variegated parts are by no means attractive; indeed, given the liberal treatment that appears to suit the green form so well, the plants appear to revert to normal conditions.

Sollya heterophylla.—This pretty greenhouse plant has been called the Australian Blue-bell Creeper, and though not a showy flower is one of the prettiest among autumn and winter-blooming subjects. The small drooping blossoms are distinctly pretty when seen on well-grown plants. More frequently seen than the above plant perhaps is the variety known as *S. h. angustifolia*, often sold as *S. linearis*. This is of less twining habit than the type, and with its pretty clusters of blue flowers and narrow leaves constitutes a pleasing plant for the cool greenhouse.

Callicarpa purpurea.—When in flower there is little in the axillary clusters of whitish blossoms, which alone are small and insignificant, to foretell the beauty and value of the plant in its fruiting stage. It is, however, clear that almost every flower produces in turn its fruit. On cut-back plants the berries are attractive from the middle of autumn, and when they reach perfection are of a rich deep glossy violet-purple. The fruiting branches are frequently from 4 feet to 6 feet long, nearly two-thirds of this length being covered with clusters of berries at some 6 inches apart, the weight of the clusters of fruit bringing the branches into an arching position, and thus rendering the plant most attractive.

Tellima grandiflora rubra.—I have often wondered why this hardy North American plant

is not more generally grown, seeing that it is so useful and attractive in colour during the duldest months of the year. Like the black-leaved Ivy (*Hedera atropurpurea*), its green leaves put on a dark bronze-red or chocolate tint with the first frosts of October, and are very effective from that time until February or March, when the new leaves become green once more. For bunching with Violets or Snowdrops or for table decoration these leaves are very useful, and I find that but few people know to what plant they have belonged when they see them as so used under artificial light. I have well-nigh discarded the old green-leaved form in favour of the rubra variety, which is far more useful and ornamental.—F. W. BURBIDGE.

Flowers in Dublin.—Crocus Imperati is earlier in bloom this year than ever I remember it here before. To-day (December 24) many flowers are expanded in the sunshine, and really remind one that the shortest day is past and that we may hope for spring. The Winter Heliotrope (*Tussilago fragrans*) has been in flower a month or more, and at night the canal banks are redolent with its perfume. I saw some spikes to-day on heaps of road scrapings fully 16 inches in height and of a good colour. The heaps of road scrapings (off the limestone roads) seem to suit this plant perfectly; if in full sunshine, so much the better. Even on the top of a mud wall it seems quite at home, but it is a terrible weed in shrubbery or herbaceous plant borders, and so must be introduced with caution. The Winter Jasmine (*J. nudicaule*) is lovely this year, and the Lenten Hellebores are pushing up strongly, some being actually in bloom.—F. W. BURBIDGE.

PUBLIC GARDENS.

A recreation ground for Littlehampton.—The Duke of Norfolk, whose fiftieth birthday will be celebrated on Monday, has promised to contribute 100 guineas towards the expense of laying out, as a recreation ground for Littlehampton, a field of eleven acres, which he has presented to the town for that purpose. On Friday, January 7, his Grace will open the Victoria Institute at Arundel.

National Viola Society.—A committee meeting of this society was held on Wednesday evening last, the president occupying the chair. After the minutes had been read confirmed and correspondence of a varied character disposed of, the question of future exhibitions was considered. Several suggestions were made, which if acted upon would probably have the result of still further popularising the flower. It was ultimately agreed to ascertain from certain well-known places of exhibition what would be the prospects of a show held during the latter part of June, 1898. That time of the year was generally considered better than either a few weeks earlier or later than that date. The new hon. secretary is Mr. R. T. Dougall, 52, Pembroke Road, Walthamstow, who will be pleased to hear from any persons interested in the different types of the Viola and wishing to become members.

The Royal Gardeners' Orphan Fund.—At the monthly meeting of the committee on the 22nd ult., Mr. William Marshall presiding, the following special donations were announced: Altrincham Gardeners' Mutual Improvement Society, proceeds of concert, £18 5s.; Rugby Chrysanthemum Society, per Mr. W. Bryant, sale of flowers, £7; per Mr. C. Ross, The Gardens, Welford Park, Newbury, £6 11s.; per Mr. J. H. Vallance, Bristol Chrysanthemum show, £5 5s.; Peshurst Gardeners' Association, £3 5s.; Mr. H. Herbst, Stannore, Richmond, box, £3 1s.; Chislehurst Gardeners' Mutual Improvement Society, per Mr. H. Jöell, £2 17s. 9d.; Tonbridge Gardeners' Association, per Mr. G. Fennell, £2 10s.; per Mr. J. Miles, Dudley Villas, South-

ampton, £2 3s. 6d.; Miss M. Buller, per Mr. G. Bolas, Wirksworth, £2; Mr. J. Relland, Newton Abbot, box, 10s.; Mr. T. Wilkins, Inwood Gardens, Henstridge, 10s.; other smaller sums, £1 19s. 6d. The secretary reported that the treasurer had received the sum of £427 7s. 4d. from the J. W. Thompson bequest. Applications were received in the interest of eighteen children seeking the benefits of the fund, and all were accepted. The election will take place on February 18 next. Some of the cases appeared to be of a very pressing nature. Some routine business was transacted, and a cordial vote of thanks was passed to the chairman for presiding.

OBITUARY.

JAMES BROWN.

It is with regret I have to inform you of the death, on December 22, at the age of sixty-five, of Mr. James Brown, gardener at Abercainey, Perthshire, after over forty years' service there. He was one of the best known gardeners in Scotland, and for many years was a most successful exhibitor of vegetables and hardy fruits at Perth, Dundee, Edinburgh and Glasgow. Mr. Brown succeeded his father-in-law, the late Mr. James Arnot. Abercainey was the home of the McIntoshes of Dalkeith and Drumlanrig Gardens, and one of the most beautiful of Scottish seats.

Carron, N. B.

M. T.

The weather in West Herts.—The weather remained cold until the 26th, but since then the temperatures have been unseasonably high both during the daytime and at night. On the night of Christmas Day the temperature in the screen fell to 20°, but on the following night the lowest reading was only 43°, showing how sudden the change in temperature must at this time have been. The greatest cold shown by the exposed thermometer was 15° of frost on the night preceding the 24th, but the previous night was almost equally as cold. The recent frost lasted such a short time, that the ground temperatures are now even higher than they were before it set in. After a dry period lasting ten days the weather has again become wet and stormy. The 23rd was, with one exception (December 29, 1892), the calmest day I have yet recorded here during the past twelve years, the total velocity at 30 feet above the ground for the twenty-four hours being only 2 miles. The sun shone brightly for nearly five hours on the 22nd, and for three and a half hours on Christmas Day.—E. M., *Berkhamsted*.

Magnolia Yulan fruiting.—In reply to an inquiry in issue of December 25, 1897, I can inform you that this had for the first time three or four berries on it last autumn in my garden. I planted it against a south wall in 1881, where it has flowered splendidly.—F. CECILIA TUBBS, *St. Leonards-on-Sea*.

Cooking Celeriac.—I would be very much obliged if you would kindly send me a recipe for cooking Celeriac.—F. H.

* * * The Celeriac should be peeled and well washed in cold water, then cut in slices about three-quarters of an inch thick. Melt a lump of butter in a large saucepan, and when it frizzles, put in as many slices as will lie flat at the bottom, and fry a nice brown on both sides. When all the slices are fried, put all in the saucepan, cover close, and stand on a corner of the stove where they will not burn for ten or fifteen minutes. After frying, pour the browned butter over and serve.—B.

Names of plants.—*J. Mackenzie*.—*Sequoia sempervirens*.—*J. Malcolm*.—1, *Lælia anceps*.—*T. Whalley*.—*Cypripedium insigne*.

Names of fruit.—*N. Shakelton*.—Apples: 1, New Hawthornden; 2, Yorkshire Beauty; 3, Norfolk Beauty; 4, probably Court Pendu Plat; 6, Pear Marie Louise d'Uccle.

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STOVE AND GREENHOUSE.

ARUM LILIES FROM SEED.

THOSE who may desire to raise a large batch of Arum Lilies as quickly as possible cannot do better than resort to seeds, a means which, while ready enough in its way, is not so freely adopted as may be supposed. Indeed, I doubt not there are many who have never regarded it as worth the trouble it involves, and of course there is truth in the remark in those instances where a good supply of corms already exists. In such instances the supplies are more than maintained by the numerous offshoots that are available each year whenever this is needed. And where a few hundred plants are grown it is surprising how large a number of offsets find their way to the rubbish heap; indeed, in my own experience I have sent them thither in barrowfuls year after year because there was no further use for them. To raise seedlings in such a case would be useless, but there are others where no stock exists, and if it is desired to embrace their culture on a large scale, seedlings at once prove acceptable and economical. It is occasionally so in market nurseries where the plants under notice have once been largely grown, and owing to a glut of such things their culture is for a time given up completely. Such an instance came under my notice a few years since, where a large grower made a very successful stroke of business through raising a large batch. As is well known, the large pure white spathes these plants produce are of the greatest value during the winter season, more particularly from the moment the Chrysanthemum is past to the season of the Easter festivities. To secure good flowering plants prior to Christmas from seeds, it is necessary that the plants be at least nine months old, so that with this object in view there is no better time for sowing the seeds than quite early in January. If this is done in a good brisk stove temperature, many of the seedlings will be up and ready for potting in

a month or six weeks—sometimes considerably less when the whole of the seeds are quite fresh and plump and not mixed with others a year old. In any case, however, thin sowing of the seeds in pans or boxes is advisable, as by this means the earliest seedlings may be raised and pricked off as soon as ready. This is not needful where the bulk of the seeds vegetates at much the same time, as then all may be pricked off together into good rich soil in boxes 4 inches deep. From these the seedlings in a few weeks should be potted into 4½-inch pots, and eventually in the early part of July placed in their flowering pots—those of 6-inch diameter for the smaller and 7-inch for the larger plants. These sizes I have found quite large enough for seedlings of the first year, and by getting their final shift at the time stated, or even earlier if the plants admit, abundance of roots will occupy the pots to ensure a good flowering in due course. The young plants must be kept growing vigorously from the start, and a moist, warm temperature should be given up to mid-summer. From this time, when the final shift is given, the plants may be grown in pits unless ample house room is at hand, and the plants continuously maintained in a growing condition. If this be not done, failure will ensue, as, unlike the older examples, there is as yet no corm formed at the base, and the size the corm attains in the first year must largely depend on the amount of the elaborated sap. The mention of this is rendered necessary because of instances known to me where both seedlings and the small corms taken from the old roots have received a season of rest at midsummer on a par with established examples. In such instances, a great loss both of time and flowers ensues. It is quite possible to flower these Arums splendidly in about ten months from the seed sowing, provided a generous treatment be accorded the plants throughout and the plants kept growing freely. E. J.

Rondeletia (Rogiera) gratissima.—Among stove-flowering shrubs this is one of the most

valuable by reason of the fragrance of its flowers, which are of a pinkish hue and disposed in dense terminal heads after the manner of the Ixora. A well-grown bush is a very desirable subject in the warm greenhouse at any time. It is not a difficult plant to flower in winter where the plants are grown for this purpose, taking care always to keep down attacks of red spider.

Primula floribunda.—Among the yellow-flowered species of Primula this is very attractive, and useful also as a winter bloomer. Indeed, it is not strictly a winter-flowering plant, as it blooms at almost all seasons of the year with great freedom, the numerous deep golden flowers being most attractive. Happily, too, it is one of those accommodating species that may be had in flower almost throughout the year, when a series of sowings is made to this end. This may be easily effected, as it is one of the most prolific seed-producers of the whole race. In common with some other species, however, the best crops of seeds are always produced by plants grown well exposed in the open, so as to be ready for harvesting in July or August. P. obconica and P. verticillata are also amenable to a similar treatment when a good crop of seed is required.

Marguerite Carnations.—It is doubtful if the value of late summer sowings of these is fully appreciated. Calling at a local nursery recently, I noticed a very nice batch just getting established in small pots, and these, of course, can be kept with the greatest ease through the winter. Planted early in borders, they will make a fine display long before the summer Carnations are open, and, what is more important, will keep this up until destroyed by frost. The colours and form of many of them are equal to those of named varieties, and late in the autumn I gathered enough for half a dozen glasses from plants in the open that flowered in the greenhouse early this spring and were afterwards planted out. Young plants, too, that have been flowering in the borders in summer may be taken up and potted carefully, and if placed in cool, light frames or a greenhouse will continue to give useful blooms for a long time. If required to flower outside from spring sowings, these should be made as early as possible, and the plants encouraged, by timely transplanting, to make their growth quickly yet

sturdily. If left in the seed boxes to get drawn and weak, it takes them half the season to recover and the better half of the flowering season is lost.—H.

Arum Lilies.—I have never had these so good so early in the season as they are this year, and just as the *Chrysanthemums* are on the wane, plants with three or four spathes and nice fresh foliage are very useful for standing in the house. Many different modes of summer treatment have been recommended, but any plan that tends to a very rapid growth in summer should be avoided. Some growers plant out in trenches and give very rich soil, about the worst thing possible if early and continuous blooming is looked for. A better plan, although it means more trouble in watering, is to leave them in the pots and give them a thorough ripening. Repot into larger sizes or divide them up in autumn. They will come away at once and flower abundantly. For weeks my plants stood quite exposed to the hot sun, and often, I am afraid, were none too well supplied with water, but no harm was done; indeed, they start more freely when all the foliage is lost in summer. Large, fleshy, green stems suffer badly when the time comes for lifting and potting, and it will take them a long time to get over the check. If I wanted to increase the stock very rapidly, perhaps there would be no better way of doing so than planting out and getting a lot of growth into them, but in private gardens as a rule this is not required, though early flowers are often useful.—R.

Euphorbia splendens.—There are two species of this genus that in no inconsiderable degree do much to the brightening of the warm greenhouse or stove during the winter months, viz., the above-mentioned plant and its near ally, *E. (Poinsettia) pulcherrima*. Singularly enough, while the subject of this note is among the brightest of flowering plants in winter, the other species named has quite inconspicuous flowers that in themselves would be of little use in decoration. This apparent shortcoming, however, is frequently forgotten, because the brilliantly coloured bracts more than compensate for what the blossoms could supply. It is noticeable also that much the same tone of colour prevails in the leaf bracts of the one as in the floral bracts of the other. At the same time, both species possess a value of their own, the above-named being perhaps second to none either in its brilliant blossoms or graceful habit. Particularly striking is this plant when grown without any pinching or stopping. It produces long arching wreath-like racemes, studded with brilliant scarlet flowers for a length of from 2 feet to 4 feet. Such examples when grown in pots are singularly effective for arranging among Palms and Ferns, and a few plants in the conservatory at this season are a feature in themselves.

Hovea Celsi.—This is perhaps one of the most rarely seen of greenhouse shrubs, as it is also among the most beautiful and brilliantly flowered among winter subjects. It is doubtless due to the increasing demand for quick growing plants, that are also useful for producing considerable quantities of cut flowers, that such beautiful and distinct plants are becoming less common. At the same time some of the species at least are among the most striking of winter-flowering plants. The *Hoveas* belong to the Leguminosae, and coming from Australia are nearly hardy, requiring, in fact, a cool greenhouse to grow them successfully. It is true the plants, like many other hard-wooded subjects, are somewhat slow in growth, but with care some useful-sized plants may be raised in a year or two. The species named above is noteworthy for its intense deep blue flowers, which are produced in small axillary clusters on the erect-growing branches. Established plants of this kind will commence blooming in November and keep up a succession of flowers for many weeks. The plants require a very sandy peat soil. Very firm potting is essential, as also perfect drainage. *Hoveas* are somewhat difficult to strike from cuttings, and are more

readily raised from fresh seeds when sown in slight warmth in sandy soil. The seedlings require to be grown on quickly, taking out the point at 6 inches high, and again when the breaks are 4 inches long, to induce a more bushy habit. During summer the pot plants are best in a sheltered place in the open.—J.

DAPHNE INDICA RUBRA.

No winter-flowering plant is perhaps more greatly prized than this welcome and fragrant evergreen shrub, and none better suited for small button-hole bouquets. As a pot plant, however, the growth is usually too slow to permit of its fragrant twigs being freely employed, while not infrequently the pale yellow tone of the somewhat leathery leaves shows that the plant is in poor health. This is due, I think, to the employment of peat for this plant.

Some years ago I experimented with a couple of plants that had been grown in peat to a large extent, and which, though possessing roots in plenty, failed to display any vigour of foliage, while the growth was of the usual character, the flowering sprays only an inch or two in length. These plants after flowering were taken in hand and nearly the whole of the peat soil taken from the roots. Finally, they were repotted in Bantstead loam, sand, a little cow manure (very old), and some burnt clay earth. The growth in this loamy soil was remarkable; the foliage during the ensuing year quickly attained to nearly treble its former size and was of a deep dark green. With such greatly improved foliage I need hardly say that the growth was also greatly improved, as also the heads of blossoms, the latter being of larger size individually, and the trusses nearly twice their usual size. From these plants, which formed perfect bushes of evergreen foliage, it was easy to cut sprays of blossom from 3 inches to 6 inches long. Since that time I have frequently advised the planting out of this beautiful shrub in loamy soil, and upon more than one occasion have seen thin and shabby bushes transformed into fine vigorous examples. Those who have only seen this *Daphne* as small pot plants have but little idea of its value when planted out in soil chiefly loam, fairly deep and of good quality. A capital position for this *Daphne* is in company with the *Camellias* in the cool house or even a corridor. In such places I have seen this *Daphne* make fine bushes some 4 feet high and as much through. The crop of flowers such things provide in the winter season is astonishing, nor does the cutting materially affect the future supply.

E. J.

BOUVARDIA CORYMBIFLORA HUMBOLDTI.

I WAS interested in the note in THE GARDEN at page 467 concerning the above plant. At the same time I do not see that "A." has established a case in favour of the view adopted in the note mentioned. Even assuming the plant so well known as *corymbiflora* to be a variety of *Humboldtii* will not make the adoption of a purely specific term for such variety any more correct reading. At Kew I have frequently seen the plants named as above, the specific term occupying specific rank. I am not at all disputing the raising or the introducing of the plant to commerce, for of this I know nothing. Seeing the reference to the Maida Vale firm, however, I turned to Messrs. Henderson's catalogue of 1878, which is only a few days short of twenty years old, and find the following description of *B. Humboldtii*: "Distinct species, snow-white, the largest of any." Immediately below follows this description relating to *B. Humboldtii corymbiflora*: "Four sizes larger than the well-known *B. jasminoides*, the flower-tube 3 inches in length, and the terminal ray lobes $1\frac{1}{2}$ inches in width; in colour snow-white and exquisitely fragrant, produced in large thyrse-like racemes of ten to fourteen in each." From these descriptions, *B. Humboldtii* would appear the typical

plant, and certainly Messrs. Henderson's cataloguing it in the way above mentioned would account for the name as we usually see it adopted to-day. Mention is also made of a variety of *Humboldtii* called *grandiflora*, recently certificated, but while admitting this as having in some of the flowers (certainly not all) a slightly larger tube, I could see no difference between it and what I have grown as *corymbiflora* by the hundred. Indeed, like "A.," I regarded it at first sight as the old variety, and a later and very close inspection only convinced me that it is but very slightly removed from this kind. In saying this I am aware of the existence of a plant for comparison, but the point is, was this third plant *B. corymbiflora* at all, or merely the typical *Humboldtii* of gardens? If the former, it was a poorly-grown and altogether unrepresentative plant. I have grown this fine autumn-flowering kind in great numbers and marketed many hundreds of bushes in 7-inch pots when about six or eight months old with from six to ten branches, each carrying large heads of bloom. These plants were about 30 inches high above the pot, and with the liberal treatment then afforded made handsome bushes. Indeed, for this vigorous growing kind a most liberal treatment is essential from the beginning. To get the best results the plants should be in their flowering pots by the end of May.

E. J.

Begonia socotrana.—This is certainly among the most welcome species for greenhouse work, the large, handsome and almost orbicular leaves forming as great an attraction as the trusses of rose-pink blossoms. The flowers of the *Begonias* are usually borne in such profusion as to render them invaluable in the greenhouse during winter. Indeed, with a careful selection of species and hybrids a good display of flowers may be obtained for months in succession. Among the most important are *B. Gloire de Lorraine*, a wonderful bloomer admirably adapted for pots or baskets, and *B. semperflorens rosea gigantea*, a more erect grower with large handsome foliage and a continuous supply of flowers. These with the above are especially valuable at this dull season of the year.

Libonia floribunda.—Notwithstanding the ornamental character and beauty of this species, the plant is very rarely seen in good condition. For pots the above species, together with the larger and brighter form *L. penrhosiensis*, is well suited, and makes very attractive examples when well grown. The little bushes are at this season freely covered with their brilliant scarlet and yellow flowers. *L. penrhosiensis* is, perhaps, the showier of these plants and easily grown in sandy loam and peat in about equal parts. Cuttings root quite readily early in the year, and if given the same treatment as *Bouvardias*, excepting soil, will be found to do well. Plants that are stopped at least twice make fine bushes that will be studded with their pretty flowers. Early cuttings and firm potting with free drainage must receive attention. Red spider quickly attacks these things, and must be kept in check with a firm hand.

Primula sinensis vars.—Well-grown plants of these, now obtainable in so much variety by means of seeds, are among the most serviceable of greenhouse flowers during the winter season. A few years of selection and careful seedling have brought about a wonderful improvement both in form, size, and colour in these useful pot plants; so much so indeed, that perfection would appear to have been reached. It is true that, while we have so-called blue varieties, the true blue is not yet, and even when attained can scarcely equal for utility as well as for decorative value and beauty the many lovely shades of rose, pink, salmon, blush, carmine, and white that prevail at the present time. Foliage also has received attention, and the Fern-leaved section embraces many equally beautiful forms. Size of truss is as large as is necessary, and possibly a modification here and a greater length of stem that would

elevate the head of bloom somewhat more than is the case at present would be a step in the right direction. Some of the strains of single white kinds possess this advantage, though the blossoms are in themselves small in comparison. At the same time they are free seeders and possess a good constitution, so that improvement may soon be expected. Equally valuable are some of the semi-double forms, as these are especially useful for bouquets, button-hole flowers, and the like.

Kalosanthes (Crassula) coccinea.—I never remember seeing this useful plant in such fine condition as during the past summer, when several of the market growers were sending it to Covent Garden. This is far more difficult to manage than the hybrid varieties such as *M. Pfitzer*, *Mrs. Wynne*, and *M. Buebner*, which under ordinary treatment never fail to flower, besides which they branch out freely, and are of dwarf habit. *Coccinea*, however, is far more showy, especially when treated as the market growers do. The first thing is to get strong cuttings. If kept dry there is no difficulty in rooting them. The cuttings may be put into dry, sandy compost and placed on a shelf, or they may be laid out on a stage for a few days and then put in. No water should be given for several days. Although they will grow in the poorest soil possible, they make much better progress when potted in good rich loam. Several cuttings may be grown together in the same pot, and if well exposed to the sun, will flower the following season. This applies only to strong cuttings, which should not be stopped, as each will grow up without making lateral branches. They only produce one terminal truss of bloom. I find when necessary they may be potted together after they have set their bloom, and, by so doing, those of the same height may be kept together. If done carefully, even if most of the soil comes from the roots, they will not suffer. About six plants put together into a 6-inch pot make a fine show and last for a long time in the conservatory or for house decoration, though in a close room the perfume is rather too powerful to be pleasant.—A.

ZONAL PELARGONIUMS FOR WINTER FLOWERING.

REMOVED a few miles from the influences of London's fog and smoke, there is not the least reason why the greenhouse may not be made bright and effective in the dull days of winter. Within the radius of the fog, however, all the skill that can be brought to bear will not make these plants flower with anything approaching a full measure of success. In the pure country air things are very different, a fact amply verified by the fine display that Messrs. Cannell brought to the Royal Horticultural Society's meeting on the 14th ult.—large, handsome trusses of some of the finest varieties in commerce, and equally splendid trusses of the more recent novelties of the present year. Indeed, to such a high state of excellence do these things appear to have reached, that it would seem well-nigh impossible to improve on existing kinds. And, indeed, in some shades of colour this may be so, though perhaps in others there is yet the florists' ideal to be reached, that certain rotundity of flower and substance of petal that go so far to making the perfect flower of the florist. Nearer London, however, many amateurs who have their solitary greenhouse would be content with any display of these Pelargoniums now, as day by day the few remaining *Chrysanthemums* are still retained, well knowing the great void that appears inseparable with the season.

Some of the smaller-flowered sorts are still among the best of such things for winter work—at least, so far as the amateur is concerned—and with the well-known *Raspail Improved* are

very attractive just now. Of course, it is but little good starting in winter to secure this display, as by this time the plants should be sturdy bushes with the trusses in sight, and ready to expand soon after they are placed in the greenhouse. Some small plants potted into 6-inch pots in June and grown on steadily till September make capital bushes for winter work. A soil only moderately rich and the plants potted exceedingly firm are among cultural details of the greatest importance. A young plant with three breaks should have the points of each shoot removed soon after the shift to the flowering pot. And this may be repeated if necessary about the middle of August. The removing of flower-trusses should be persisted in, so as to secure as much growth as possible, while moderate supplies of water will assist firm growth. By these means the month of September should see really good compact plants that in a light warm house and fairly dry atmosphere will flower freely. E. J.

Tibouchina heteromalla.—Under this name the plant illustrated by a coloured plate in THE GARDEN for April 3 of the present year as *Melastoma heteromallum*, and also in the accompanying article referred to as *Pleroma*, is now flowering freely in the new wing of the temperate house at Kew, which is kept warmer than the main building. Planted out it forms a good-sized bush, whose sturdy stems are clothed with elongated heart-shaped leaves covered with silky tomentum, which is more pronounced on the under than on the upper sides. The blossoms, which are borne in a many-flowered panicle, are of a violet-purple colour and about a couple of inches in diameter. It is less showy than its near relative, *Lasiandra maerantha* of gardens, which at Kew is also included in the genus *Tibouchina*, but still is well worth growing where it can be planted out in an intermediate temperature, as it flowers during the dull winter season.—H. P.

Freesia refracta alba.—For some years this lovely fragrant plant was not well grown, in a measure due to the quality of the bulbs then procurable, as also to the culture being but indifferently understood. Formerly the plants were subjected to too high a temperature and were afforded too little moisture: but now, with a considerable modification of these ideas, well-grown and freely-flowered examples are much more plentiful. In a cut state in the warm sitting-room it is impossible to over-rate their value. Even as pot plants these lovely things have no equal, for the elegant blades from which the sprays of fragrant blossoms issue are singularly neat and dainty in appearance. Given a uniform temperature of 45° to 50°, a good sturdy growth is secured, and when in full growth water must be given freely till the inflorescence is fully grown. Soot water or liquid manure may also be given somewhat freely when growth is free.

The Papyrus (Cyperus Papyrus).—This, which is often called *Papyrus antiquorum*, is fairly well known as a tall and stately, yet graceful subject for associating with the *Lotus* and such things where a house is devoted to aquatic plants, but at Kew it is also put to another use, and in the greenhouse No. 4 devoted to flowering plants it is grown in pots and employed for groups. The tall stems, each crowned with a mass of slender, gracefully disposed foliage, remind one to a great extent of a large form of the popular *Cyperus alternifolius*, except that the foliage of the *Papyrus* is much narrower. As few plants so light and graceful combined with a good height are available for greenhouse decoration, the *Papyrus* certainly merits a word in its favour. Being naturally a semi-aquatic, it needs, of course, copious supplies of water, and in order to ensure this the pot in which it is growing should be stood in a large saucer.—H. P.

Callicarpa purpurea.—It is now some years since I met with this *Callicarpa* in grand condi-

tion in the Birmingham Botanic Garden, and its great beauty as seen during a dull winter's day then made a lasting impression. Despite its beauty and the fact that it was figured over fourteen years ago in THE GARDEN, it must still be considered an uncommon plant, though its cultural requirements are not at all exacting. It was conspicuous in a group of plants at the recent Aquarium show, each specimen carrying two or three long shoots studded for a considerable distance from the axil of almost every leaf with clusters of small, bright violet-coloured berries. The weight of berries causes the long, slender shoots to arch over, and in this way they lend themselves readily to grouping. Prune it back hard early in the spring, and encourage the production of those long flowering shoots upon which the future display of berries depends. This *Callicarpa* was introduced from India in 1822, and in this country it needs the temperature of the cool end of the stove, or better still an intermediate house. It is readily increased by cuttings of the young shoots put in during the growing season.—H. P.

Freesias.—Few subjects have advanced in popularity so much within the last ten years as the *Freesias*, and they are now grown in almost every garden. By potting in successive batches they may be had in flower throughout the winter and early spring, and their highly fragrant blossoms are particularly appreciated at Christmas-time. When forced in order to obtain the flowers early, the foliage comes very weak and hangs over the edge of the pot. To obviate this as far as possible, the plants should be grown in as light a position as possible. Later on they will flower in an ordinary greenhouse temperature, and then the foliage is far more sturdy than is the case with forced examples. *Freesias* form an exception to the general run of bulbous plants, as when raised from seeds they flower under a year. *Freesias* were first grown in quantity in the Channel Islands, but the supply is now obtained from other sources as well, though the *Guernsey* bulbs are still in the very front rank. They have been tried in Bermuda, and though large and attractive bulbs have been sent from there, the yield of bloom, as far as my experience extends, has not been equal to that from bulbs grown nearer home.—H. P.

MARGUERITES.

THESE have now come into such general use as pot plants, that few plants are seen in such large numbers in Covent Garden Flower Market. It is in the spring and summer that they are most in demand, though I think I should be right in saying that they will be found there every time the market is open throughout the year.

For early spring-flowering, plants struck last spring and then cut back close about July and potted into 4½-inch pots are the most reliable. Their cultural requirements are very simple, and it is, perhaps, owing to this that they are left to take care of themselves and often spoiled. To have nice compact plants, it is now that they require looking after. The first thing is to keep them clean. The only sure remedy for the maggot is to use paraffin as an insecticide—about a small wineglassful to 2 gallons of water, kept thoroughly mixed while it is being used. Where the maggot has not already got established, a good syringing every three or four weeks will prove quite effectual, but where it already exists, the leaves affected should be picked off and burned and paraffin used oftener. Although I do not care to recommend paraffin generally, I find with due care it may be used for *Marguerites* with perfect safety, and will prove effectual in destroying all insect life to which they are subject.

Next to keeping plants clean, room and ventilation are most important. It is astonishing how soon they run up tall if crowded together or kept too close and warm. A little heat with plenty of air and sunshine is beneficial where plants are required to be in flower early in the spring, other-

wise the cooler they can be kept the better, provided they do not get actually frosted. The early plants are generally inclined to go too much to growth, and should therefore be potted in rather poor soil, and no manure should be given until the flowers begin to open, and then it should be used sparingly. There are several distinct varieties of Marguerites; that known as Haller's maximum is the best for all the year round or keeping up a succession of bloom. There is one usually called the summer variety which has very finely-cut leaves and large pure white flowers produced in great profusion for one crop of bloom, but it does not branch out and keep up a succession like the first named. The yellow varieties are much more difficult to manage, and it is rarely that good plants are to be met with in the market. A.

CHOROZEMA CORDATUM.

A FEW of the earlier flowers of this pretty greenhouse species are now opening. It may be grown in a variety of ways, and is pretty in any, from the neat little bush such as grown by nurserymen and market growers to the large specimens trained in a variety of ways that are even now to be met with occasionally. Such plants used to be common, and one of my earliest recollections connected with gardening was the tedious job of tying these into pyramids and on to balloon-shaped trellises. This plant is far more beautiful when grown in loose open bushes. By all means let them be cut into shape a little in spring or early summer when the blossoms are past, but tying them closely in ruins the pretty pose of the branchlets and flowers. The best thing to do is to clip them a little with the shears when they become really untidy, but if kept in form a little when young they will go for several seasons with no attention at all in this way. I like to see a few of the lower shoots hang down loosely over the pot, as this does away with all stiffness or formality. Just when the plants are coming into flower a few forked sticks may be placed about the centre of the plant: the foliage will hide them and they will serve to keep the plants a little in shape without much staking or tying.

The plants may be raised from cuttings or seeds, the latter being usually the readiest means of propagation. They may be allowed to ripen on the plant and sown at any season, the best soil being finely sifted peat and sand. Young seedlings need a good deal of care, and are best kept in light, well glazed pits where a little heat may be turned on in a cold night. But gardeners, as a rule, procure plants in small pots from nurserymen who make a speciality of this class of plant, and this is the best way when a small number of plants only is required. The best time to repot these with a view to growing them on is just as they begin to push after flowering, before the young shoots have lengthened much. Pot very firmly and give small shifts every season rather than one large one. The roots are as fine almost as those of a Heath, and will not push through a quantity of loose, half sour material. About one-third of loam may be added to the peat and a liberal addition of sharp silver sand may be given. If the soil is in the right condition when potting takes place, not too dry nor so wet that it soils the hands, watering will not be necessary for a day or two, but the plants should have the assistance of a light shade and a closer atmosphere than usual. Then given one good soaking of water and let them get well on the dry side before it is repeated. After this the plants are comparatively safe and will make a fine clean growth in a well-managed greenhouse. Watering requires great care all the year round, and when the roots reach the sides of the pots

they must not on any account be allowed to get dry. A month or so in the open air after the growth gets a little hardened is very helpful; the heads cannot be too fully exposed to sunshine, but the pots may be screened a little either by plunging in suitable material or by arranging them so that one shades the other a little. Take the plants under cover before the autumnal rains, or these will be too much for the roots, but for a week or two after housing the syringe may with advantage be used among them once or twice daily. There are one or two garden varieties of the species differing principally in the larger size and deeper colour of the flowers. R.

THE LATE MRS. HARRIETT BEECHER STOWE AS A GARDENER.

IN the "Life of Harriett Beecher Stowe," the authoress of "Uncle Tom's Cabin," compiled from her letters and journals by her son (1889), at p. 3 is the following:—

Another remembrance is this: Mother was an enthusiastic horticulturist in all the small ways that limited means allowed. Her brother John in New York had just sent her a small parcel of fine Tulip bulbs. I remember rummaging these out of an obscure corner of the nursery one day when she was gone out, and being strongly seized with the idea that they were good to eat, using all the little English I then possessed to persuade my brothers that these were Onions, such as grown people ate and would be very nice for us. So we fell to and devoured the whole, and I recollect being somewhat disappointed in the odd sweetish taste, and thinking that Onions were not so nice as I had supposed. Then mother's serene face appeared at the nursery door, and we all ran towards her, telling with one voice of our discovery and achievement. We had found a bag of Onions and had eaten them all up.

Also I remember that there was not even a momentary expression of impatience, but that she sat down and said, "My dear children, what you have done makes mamma very sorry. Those were not Onions, but roots of beautiful flowers, and if you had let them alone we should have next summer in the garden great beautiful red and yellow flowers such as you never saw." I remember how drooping and dispirited we all grew at this picture, and how sadly we regarded the empty paper bag.

There have been a good many forms of this story of eating Tulip roots in mistake for Onions:—

When John Balthasar Schuppe was in Holland, a merchant gave a herring to a sailor who had brought him some goods. Some very valuable Tulip roots lay on a table, and the sailor mistook them for Onions, and, not knowing aught of their value, he ate them with his herring. Through this little mistake the sailor's breakfast cost the owner more than if he had entertained the Prince of Orange, as the bulbs were really at that time worth several hundred florins.

The above story is given in Beckmann's once celebrated work, "History of Inventions," where a full account of the tulipomania is given as it existed in Holland a century or two ago.

The Turks long ago had feasts of Tulips just as the Romans had feasts of Roses, and as the Chinese and Japanese, and even ourselves, have Chrysanthemum fêtes to-day. Richard Hakluyt, in his curious work, "Remembrances for Master S.," in 1582, says, "Now within these four years there have been brought in England from Vienna, in Austria, divers kinds of flowers called Tulipas." But to return to our subject.

Mrs. Stowe long desired to have a home in the South, and finding Florida the best field for

doing good, she bought a place at Mandarin, a charming winter residence. The following are extracts from letters written by her during her residence there, and are interesting as showing her delight in the flowers and fruits of such a genial climate.

No one who has ever seen it can forget the peaceful beauty of this Florida home and its surroundings. The house, a storey and a half cottage of many gables, stands on a bluff overlooking the broad St. John's, which is 5 miles wide at this point. It nestles in the shade of a grove of superb moss-grown live Oaks, around one of which the front piazza is built. Several fine old Orange trees also stand near the cottage, scenting the air with the sweet perfume of their blossoms in the early spring, and offering their golden fruit to whoever may choose to pluck it during the winter months. Back of the house stretches the well-tended Orange grove in which Mrs. Stowe took such genuine pride and pleasure. Everywhere about the dwelling and within it were flowers and singing birds, while the Rose garden in front, at the foot of the bluff, was the admiration of all who saw it.

In a letter written in May of the following year (1874) to her son Charles, at Harvard, Mrs. Stowe says:—

I can hardly realise that this long, flowery summer, with its procession of blooms and fruit, has been running on at the same time with the snowbanks and sleet storms of the North. But so it is. It is now the first of May. Strawberries and Blackberries are over with us: Oranges are in a waning condition, few and far between. Now we are going North to begin another summer, and have Roses, Strawberries, Blackberries, and Green Peas come again.

In a letter written from Mandarin, March 28, 1875, Mrs. Stowe says:—

That afternoon we drove out into the woods and gathered a quantity of superb Easter Lilies, Papaw, Sparkleberry, great Fern leaves and Cedar. In the evening the girls went over to the Meads to practise Easter hymns, but I sat at home and made a cross, 18 inches long, of Cedar and white Lilies. This Southern Cedar is the most exquisite thing; it is so feathery and delicate.

In a letter to Dr. O. W. Holmes, dated Mandarin, February 23, 1876, Mrs. Stowe writes:—

How I wish you were just where I am, to see the trees laden at the same time with golden Oranges and white blossoms! I should so like to cut off a golden cluster, leaves and all, for you.

In January, 1879, she wrote from Mandarin to Dr. O. W. Holmes:—

Dear Doctor,—I wish I could give to you and Mrs. Holmes the exquisite charm of this morning. My window is wide open; it is a lovely, fresh, sunny day, and a great Orange tree hung with golden balls closes the prospect from my window. The tree is about 30 feet high, and its leaves fairly glisten in the sunshine.

In December, 1879, she writes to her son, now married and settled as a minister in Saco, Me.:—

Dear Children,—Well, we have stepped from December to June, and this morning is sunny and dewy, with a fresh sea-breeze giving life to the air. I have just been out to cut a great bunch of Roses and Lilies, though the garden is grown into such a jungle that I could hardly get about in it. The Cannas, and dwarf Bananas, and Roses are all tangled together, so that I can hardly thread my way among them. I never in my life saw anything rarer and run rampant over the ground as Cannas do. The ground is littered with fallen Oranges and the place looks shockingly untidy, but so beautiful that I am quite willing to forgive its disorder.

F. W. B.

ORCHARD AND FRUIT GARDEN.

MUSCAT OF ALEXANDRIA GRAPE.

THAT the above-named Grape is the best and most popular at the present day is the unanimous verdict of all who have the means and convenience to grow it. It is free setting, a good cropper, and by no means difficult to manage. The engraving shows a portion of a small lean-to facing south 32 feet by 14 feet, and 10 feet high at the ridge. For the past thirty years the Vines have never failed to give a very heavy crop of Grapes, over 100 bunches a year, which goes a long way to prove that after all the sound, well-made Vine border is the best and cheapest.

The photograph was taken towards the end of September, the Grapes having been ripe by the middle of August. At the present time (November 20) there are still several dozen bunches, every berry of that rich amber colour so desirable in this Grape, which also adds to the length of time it can be kept in a plump and highly presentable manner for the table.

J. R.

Pear Glou Morceau.—"G. W. S." will no doubt be pleased to know that this valuable Pear

but during the past five years it has not failed to produce a crop more or less heavy. It is not a late keeper—in fact, with me it must be used in November and early part of December. As with other Pears, however, it keeps longer in some seasons than in others, but it is not safe to attempt to retain it later than the middle of December. Before the planting season closes I would strongly recommend it to the notice of those who require an addition to their stewing varieties. My tree is on the Pear stock and has formed a large bush, but from its free-bearing nature it has not made much lateral growth for the past few years. Another useful variety, though smaller, is *Bezi d'Heri*. Like *Gilgil*, this has always cropped with remarkable freedom.—W. S.

Pears keeping badly.—Fruit growers could hardly expect Pears to keep well owing to the very mild weather we now have. Soft, melting kinds will not keep under such conditions, but I was not prepared to find when visiting one of the best fruit gardens in North Hants on the 8th of December that such kinds as *Winter Nelis*, *Glou Morceau*, and *Easter Beurré* were nearly over. As my friend and I were in the fruit room the question arose as to the cause of these kinds giving over so soon. He advanced the opinion that the warm weather was the cause, but I was not inclined to agree with him, as in the garden I have charge of, which is 100 miles further west, near the sea, and on a very damp site, I have

be a little lime rubble. Light loams need something to make them more holding. In such composts Melons make short-jointed, fruitful growth, and if the plants are set out with their "collars" a little above the level of the soil, they seldom fall a prey to canker.—S. E. P.

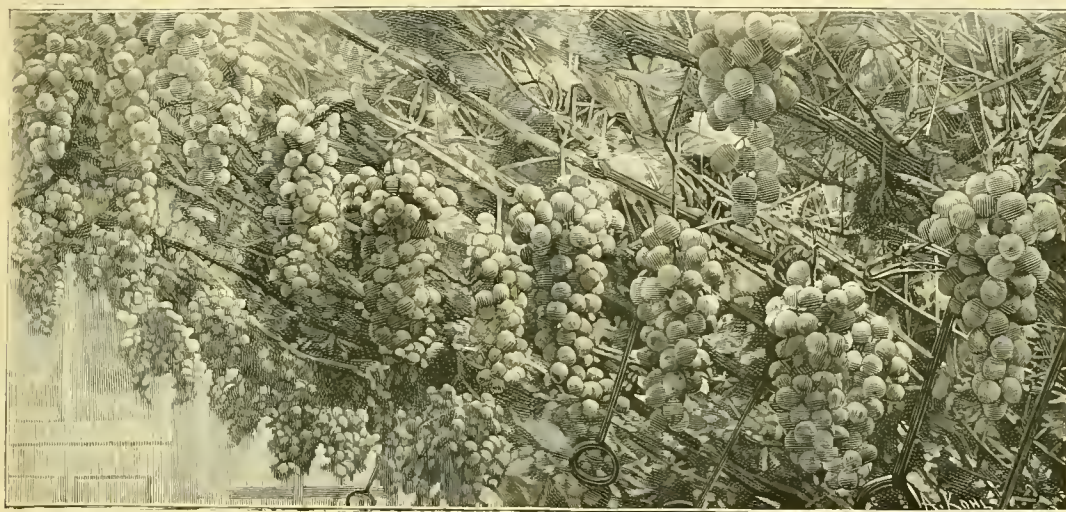
WHIRING OLD GARDEN WALLS.

MANY old garden walls about the country are in such a wretched condition from the many years' nailing and unailing of fruit trees, that at length they have become full of nail holes, so that it is hard to find a sound bit of joint between the bricks or stones to hold a nail, and much time is lost thereby. Such walls built of rubble limestone I found here, and, without repointing the whole, I found it impossible to continue to train fruit trees with nails and shreds. I then commenced to wire the walls, as time and labour would permit, in the following manner: The trees were unnailed, all old nails drawn from the walls, and branches safely secured to stakes. Then some good mortar was made from lime and fine coal ashes or forge dust, the latter the best. All holes between the stones were filled with this mortar, which gets much harder than mortar made of sand and lime. Eyelets were then driven half their length into the walls in lines from 7 inches to 8 inches apart and 5 feet from eyelet to eyelet in the lines. Straining bars were fastened to the ends of the walls and at about 100 yards apart. It is necessary to well fasten these, as the strain is considerable. A wash was then made of quicklime, tar, and lampblack to tone down the colour. This is made very thick, and is daubed over the wall with a stiff tar brush, working it into every nail hole and crevice. Insect life will hardly survive this treatment. No. 12 or 13 galvanised wire is then threaded through the eyelets and fastened to one straining bar, which is half an inch by 1 inch broad. The wire is then strained with an ordinary wire strainer and fastened to the second bar. The eyelets are then driven in so that the wire is as close to the wall as will be convenient to tie.

Many object to galvanised wire, as they say it causes canker and gumming. This has not been my experience, although I have had many miles of it in use for over twenty years for training Peach, Pear, Cherry, Plum, and Fig trees to. This will doubtless cause canker, as any other wire or hard substance will do with undue pressure, but with ordinary care no such trouble need be feared. I have found wiring a great saving of labour and expense, and I can highly recommend the practice to anyone having old, worn-out walls of either brick or stone.

Fota, Cork.

W. O.



Grape Muscat of Alexandria at Broughton Hall, Yorks. Engraved for THE GARDEN from a photograph sent by Mr. J. Rainbow.

is equally as good and rich in flavour, grown on our deep holding loam, as it is with him on his lighter and warmer soil. I grow it extensively for December use, and have trees both on the Pear and Quince stocks. As regards the produce, it is equally good as regards flavour, but there is a great difference in the size. By far the larger fruits are produced by the trees on the Quince stock, many weighing three-quarters of a pound, and the skins are particularly clear and bright looking. I should also add that all these trees are grown against a wall facing due south, and that I have given up growing it as a bush out in the open garden on account of the fruits being poor in quality. It appreciates wall culture and should be accorded a warm position. It is a strong growing, free-bearing Pear, and coming into use as it does in midwinter its merits can hardly be over-estimated.—A. W.

Pear Gilgil.—What "S. H. B." says in favour of this Pear (p. 470) I can fully bear out. I consider it one of the best stewing Pears in its season. To those unacquainted with it—and there are a large number who are—it would easily pass as a dessert variety, judging from appearance only. I have only one large tree of this,

good sound fruits of *Josephine de Malines*, *Easter Beurré*, *Winter Nelis*, and *Glou Morceau*. Apparently *Josephine de Malines* will keep a month longer. At the Drill Hall on December 14 a goodly number of Pears from gardens widely apart was shown for the flavour prizes.—DORSET.

Melons.—Where early Melons are in request seed-sowing must be done at an early date. The first week in the new year is none too soon to sow when ripe fruits are required in April and May. The seeds should be sown singly in 2½-inch pots in nice mellow loam, with just a little silver sand added. Sow plenty of seeds to make allowance for weaklings, of which there is always a certain percentage in early raised batches of plants. The plants should be raised in a sharp heat and kept growing close up to the light on a shelf placed over the hot-water pipes in a forcing house, or where they will experience a brisk growing heat. I have discarded pot culture for several years now, as better results are obtained from borders about 9 inches deep, the same in width, and flat on the top, the whole being made perfectly firm by ramming. For compost use the best loam obtainable, the heavier the better, and if fairly rich no other addition is necessary, unless it should

Strawberries.—Early batches of plants just coming into flower should be fumigated twice if there is the slightest suspicion of aphid being present and syringe the plants on each succeeding morning with tepid water. When in flower cease syringing the plants, keep the air drier about them, and fertilise the flowers with a camel's-hair brush daily. When a sufficiency of berries has set to form a crop and they commence to swell off, move the plants to a warmer house. With judicious feeding, proper attention to root watering and syringing, fairly good flavoured fruits may be had, which, however, will not compare with those grown upon later started plants. As the plants are moved on into warmer quarters fill up their places with others taken from the starting pit and make good all vacant places in the latter with plants taken in from cold pits or from outdoors as the case may be. When forcing is

deferred until the beginning of the year, which is usual in many places, there will be plenty of facilities for starting them where the early forcing of Peaches, Vines and Figs is conducted. Shelves can generally be fixed in convenient positions in these structures, and these will accommodate a good many plants. A pit filled with tree leaves will also hold a great number of plants, as they can be plunged pretty close together, and no better quarters for the starting of Strawberries can be had. As they throw up their flower-spikes they should be taken and placed on the shelves in the forcing houses to flower and set. In all cases, before taking in life plants dip the foliage of each into soft soapy water in which has been mixed some flowers of sulphur. See that the drainage is in working order, remove Moss and weeds from the surface of the soil, but beyond this do not further disturb it. Top-dressing may be done if it is really required, but if the potting was properly performed it is unnecessary.—W.

TRAINING PEACH TREES.

THE pruning and tying of indoor trees after being taken off the trellises for cleaning will now be in full swing, and very often twice as much wood as there is room for is often tied in. There are many young trees planted a couple of years or so that make strong vigorous shoots in spring, these throwing laterals somewhat freely towards the end of the season. Naturally it is best to let them alone, and by the free outlet for the sap render any interference with the roots unnecessary. But these laterals, useful as they are, should not be left too thickly. They usually occur at the upper parts of the trees, and if encouraged to draw the sap from the lower parts, making sometimes bare places that are not so easily filled as when they occur higher up. A medium course is better than either extreme, and laterals left about a foot apart on long strong shoots are sure to get well ripened and fairly well set with buds. In a neighbouring garden recently I came across some trees planted about five years since. The growths for a season or two had been much too strong, yet being young trees they had only been allowed to carry a few fruits each. The consequence of this mode of treatment was that every season they grew stronger, and the chance of ever getting a full crop grew more and more remote. Then as a remedy, root-pruning—often another name for root-killing—was resorted to, and this, not being done too carefully or early enough in the autumn, checked the trees so badly that they have not as yet got over it. Had these trees in their second season been allowed to carry a full or even, I might say, a heavy crop, it would so have restrained the growth—and by sympathy the roots—that no root-pruning would have been necessary. Possibly a few of the strongest shoots may have required a little pinching or depressing when tying in, but if the borders are firm and composed of hard, solid substances rather than rich manure, there will not be many of these. Root-pruning is sometimes necessary, and very often it is of great benefit. My point is that if trees are properly planted in suitable borders and the work carried out at the proper season it is only in rare instances they need be disturbed. It may be urged that roots will find their way out of the borders to an unsuitable subsoil, and these must be cut off. They occasionally do so in the best managed borders. I know of a large tree of Sea Eagle with a branch spread of about 30 feet, all made within the last six or seven years, that has never had a spade or fork near the roots since planting. The roots of this tree have every season been encouraged to come to the surface by laying on about an inch of fresh loam and burnt garden refuse, and if any are gone below they have found something that suits them.

In tying the fruiting branches they should be kept as nearly parallel as possible, and in no case must they be less than 4 inches apart. Any that have been left nearer than this during the previous

season may be cut in to within a few buds of the old stem whence they sprang and will form little fruiting spurs in some cases. If they die back they are easily removed in the spring, but if cut to a wood bud there is no fear of this. Sometimes it is necessary to tie a shoot for bearing in the same line as an old one that has fruited, but is retained on account of other shoots starting from it. In this case tie it in fairly close for the sake of neatness, but not underneath where it will get no light. Where there are thin places in the body of the tree the tips of the longer shoots must be taken out to a wood or triple bud, but where extension lengthways is needed, this must not be done, though the resulting fore shoot may be once pinched if it seems taking an undue share of the sap and the back buds are not lengthening out properly. The twisted strand of matting tied around the end of the shoot and tightly drawn to the wires is a barbarous relic of rule-of-thumb gardening. It no doubt gave the trees a smart appearance when freshly tied, but soon strangled the shoot at the top, oftentimes the only one left beyond the fruit. If the top bud is not required and can be rubbed out it is all very well, as it gives a tidy appearance without doing any mischief, and the shoots resulting may be heeled in and afterwards tied to the strand of matting. Where the fruiting shoots fill up the trellis and have to be cut out annually, the top shoot may be pinched when it has made a few leaves, a basal one left at disbudding on either side and the better one selected. Any shoots that have got too woody and strong, or are above the average in size of those on the tree, should if convenient be slightly depressed, this checking the flow of sap a little. To cut such shoots out bodily is bad practice; it means the production of even stronger ones next season, and breaks up the uniform flow of sap that is so desirable in well-trained trees. R.

Pear Nouvelle Fulvie.—This excellent Pear received favourable notice at the hands of "G.W." quite recently, and I heartily agree with all he has to say respecting its good qualities. I grow it somewhat largely, all of the trees being in the form of single cordons, trained obliquely, and they are on the Quince stock. I find the variety a good grower and bearer, and the fruits are generally very large. It is true they are not particularly handsome in appearance, but this deficiency is more than compensated for in their rich flavour, and I consider Nouvelle Fulvie ranks next to, if not equal to, Marie Louise in this respect. With me it ripens early in December, but no doubt if grown as a bush in the open it might make a difference of some two or three weeks in the ripening period. I consider it a most valuable Pear, and being such a regular cropper it is worth extended cultivation.—A. W.

Plums under glass.—Plums, like Cherries, will submit to gentle forcing only, and so long as the open weather continues, but very little, if any, artificial heat will be required. When the house is first closed and until the trees give signs of starting into growth 45° at night and 50° by day will be sufficient. When first closing the house, take the precaution to well fumigate the trees two or three evenings in succession, and again before they come into flower. If the trees are planted out, thoroughly moisten the border with tepid water. Pot trees are more easily dealt with, but after the balls are once moistened, water carefully until they come into flower and the roots become active. The trees intended for the second house should be moved under cover if in pots and still standing outdoors. Examine the drainage to see if all is in good order before taking them in, and after arranging them in the house throw the ventilators open until starting time arrives.—S. E. P.

The Veitch prizes for flavour.—I have read Mr. Tallack's note on this subject, and I find that generally he and I are agreed. When, however, I proposed that any variety winning two years in succession should be for the following year withdrawn from the competition, I had no

wish to depreciate that variety, but simply to have admitted that such variety's position as a high flavoured one in its season was fully established, and that being so, it seems almost absurd to continue subjecting it to the same ordeal. When we find Cox's Orange Pippin Apple, for instance, in season, scarcely any other variety has a chance to get a look in, because this one is so good. But we want to learn what other varieties approach it in flavour, and, unless these win a first or second prize, nothing is heard of them. Even authorising the judges to highly commend the next very best varieties to the prize-winners would be of some service. As to the danger of limiting any variety of long duration to a short time for competition, it is obvious that if Mr. Tallack's suggestion be adopted it must have exactly the same effect as my own, which only applies to withdrawals for one year. That one or two growers eligible to compete may have some variety of special excellence that those possessing it should be able to exhibit again, after it has taken a first prize, is possible but not very probable, seeing that nearly all good new varieties come through the trade, who are not eligible, and get pretty equally distributed the same season amongst gardeners.—A. D.

EARLY PEACHES.

TREES started in the middle of last month will be in full flower, and will now need daily attention in the way of fertilising to ensure a good set of fruit. This is best accomplished with the aid either of a camel's-hair brush or a rabbit's tail. The attendant should be careful when performing this operation not to brush the blooms before the pollen grains on each are quite ripe, and to be content with only touching them but once, or at the least twice, as brushing them unnecessarily day after day only injures the delicate organs of the flowers. This operation is best done about mid-day when the air is dry, and if a little air can be admitted at the apex of the house, matters will be greatly facilitated, as the pollen will disperse all the more readily. On dull days sufficient heat must be kept in the pipes to command a temperature of 55°, and no damping should be done prior to the brush being passed over the flowers. On fine mornings the heat may be dispensed with for a few hours, and admit air when the mercury touches 65°. A slight damping under these circumstances is beneficial, and this may be done about 9.30 a.m. In both cases a damping of the floor and border surfaces may be done as soon as the house is closed, or directly after fertilising has taken place, which will prevent the inside atmosphere from becoming parched. The only time damping should be omitted altogether is during foggy weather, and then the house should be kept as dry as possible for the time being. To temper the cold air before it passes into the house, tack fine muslin or tiffany over the ventilators. The night temperature should be from 45° to 50°, according to outside climatic conditions, and 55° by day, with a rise of 10° more with sun-heat. In cases where a start was not made quite so soon, the flowers on the trees will be just showing the colour of the petals, and advantage should be taken of this fact to give the house a good fumigating before they expand fully. Although aphid may not apparently be present, it is always advisable to take this precaution in case a few may be lurking about, as the grower is powerless should an attack of fly occur where the trees are in bloom. Two mild fumigations should suffice, and syringe the trees the following morning. Examine the borders, and if these appear likely to become too dry before the flowering period is over, give them water at a temperature of 85°. W.

SHORT NOTES.—FRUIT.

Peach orchards.—From three-year-old Peach orchards in the Ozark region, an abundant crop, of excellent quality, was produced. Eleven days were required for gathering and shipping, and the selected fruit was forwarded to eastern markets in refrigerator

cars. The net returns amounted to about £34 per acre.

Californian Raisins.—Notwithstanding heavy rains in California, which interfered with the work of drying, the raisin product of that state for this year is estimated at 75,000,000 pounds, according to *The Fruit Trade Journal* of New York.

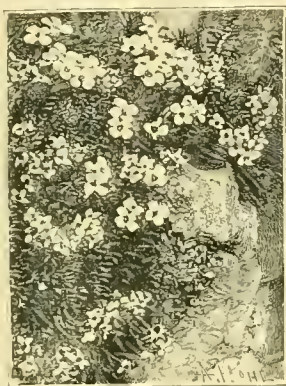
FLOWER GARDEN.

PETROCALLIS PYRENAICA.

(SYN., DRABA PYRENAICA.)

THIS is one of the choicest gems for the select part of the rock garden, where it should be associated with rock plants of the very smallest type. Though the name implies that its home is in the Pyrenees, it is by no means confined to that region, but occurs frequently in the Carpathian Mountains and in Switzerland, where it is found at an altitude of 7000 ft. to 10,000 ft., mostly on abruptly sloping calcareous rocks. In our rock gardens, therefore, this plant should be planted sideways, *i.e.*, with its roots in a more or less horizontal position.

The plant here figured has for two years been growing in such a position in the nurseries of Messrs. R. Veitch and Son, Exeter, where a photograph was obtained, which, however, can



Petrocallis pyrenaica in Messrs. Veitch's nursery at Exeter. Engraved for THE GARDEN from a photograph sent by Mr. F. W. Meyer.

give no idea of the delicate beauty of this little gem, which reminds one of the charming *Androsace glacialis*, which it greatly resembles, but is less difficult to grow. The plant shown in the engraving spreads about 6 inches or 8 inches, but is scarcely more than 1 inch in height. It resembles a compact cushion composed of dense rosettes similar to *Silene*, but formed of minute leaves divided into three or more linear lobes. From the centre of each rosette springs a cluster of from four to six delicate pale lilac flowers, each nearly half an inch in diameter, which last from May to the end of June. The position in which the plant is growing is one fully exposed to the sun. It was planted into a very narrow but deep crevice filled with soil with which had been freely mixed limestone chippings.

Elmside, Exeter.

F. W. MEYER.

New Cannas.—Messrs. Dammann and Co., of Naples, have taken up the *Canna* with much energy, and now publish a sheet of splendid kinds, which, although mostly dwarf in their character, are very fine blooms. The advance in these *Cannas* is most interesting, and they are precious for those who grow them well in or out of doors. Unhappily, this way of figuring things

in sheets is not such as gives one much idea of the plants. The attempt to cover the whole surface ruins the chance of the form being rightly seen.

ERIGERON GLAUCUS AND ANTHEMIS TINCTORIA.

WOOSTER'S plate of *Erigeron glaucus* in "Alpine Plants" errs, I think, in showing the leaves too light in colour, and, in my copy at least, the colouring of the flowers is not so deep as in reality. The small woodcut of the plant in Messrs. Veitch's nursery shows its shapely form well. I observe that Wooster gives South America as the place of origin of *E. glaucus* (which he spells, as some do, *glaucum*), but this appears to be a mistake, as North-West America is given by other authorities, as your contributors say. The "Index Kewensis" under "*Erigeron*" does not state that *E. glaucus* is synonymous with *Aster bonariensis*, but under the heading of "*Aster*" gives the latter as a synonym of *E. glaucus*. Is it absolutely certain that these are synonymous? If so, the name of *bonariensis* would give colour to Wooster's statement that the plant came originally from South America. In an old edition of the "Cottage Gardener's Dictionary" a hardy annual appears as *Erigeron bonariensis*. Paxton's "Botanical Dictionary" has the same. The "Index Kewensis" has also an *Erigeron bonariensis* (Linn. sp. pl. 864, Am. Austr.), and as a synonym of *A. linearifolius*, *A. bonariensis* (Hort. ex Link, Enum. Hort. Berol., ii., 323). I imagine there may have been some confusion between *E. glaucus* and *E. bonariensis*; the latter I have never seen.

Regarding *Anthemis tinctoria*, I find this varies in colour much from seed, and that your artist has drawn from a plant slightly different from *A. tinctoria pallida*, referred to by "E. J." in his able notes. From a plant of the ordinary yellow Ox-eye Chamomile I have had a number of self-sown plants presenting considerable variation in form and colour. They vary from deep yellow to pure white, and some are superior in form and size to the parent. What I got from a good source as *A. t. pallida* is a pale creamy yellow of great beauty, and *A. t. Kelwayi* is, as "E. J." says, very fine. There are others, such as *A. t. Canary Bird*, of considerable value. I well remember the fine effect produced by a mass of *Anthemis tinctoria* against the background of a hedge at Edge Hall some years ago. There was considerable variety among the flowers, and the same was to be seen in a bed in Messrs. Dicksons' Chester nursery, which I visited the same day.

Cursthorpe, by Dumfries, N.B. S. ARNOTT.

Dianthus monspessulanus.—We are accustomed to think of all rock or alpine Pinks as suitable for the rock garden only, but such is not always the case. *D. monspessulanus* I have grown in the border during last summer, and with good effect. It continued to put forth in considerable quantity its beautiful, large, fringed, deep rose-coloured blossoms for weeks in succession. The habit of the plant, too, is very compact and free, especially so when grown on calcareous soils. I was so pleased with it that it is my intention to grow it even more largely this year. Some years ago I saw it wild in South Tyrol, where it grew in considerable masses out of old retaining walls.—R. POTTER, *Witney, Oxon.*

Herbaceous Lobelias.—Reading "S. F. W.'s" letter on these on page 463 reminded me of a gentleman that was here last summer and admired a row I had planted at the back of a flower border. It was about 50 feet long and about 1 foot wide. He said he could not get *Lobelias* to do so well at his place in Ireland. He let them stay in the ground all winter. I find lifting them after they have done flowering and packing them close together in shallow boxes with sandy soil is best, as they can be lifted with compact balls of roots and stored in any cold house or frame, giving them very little water, and then

planting them out at the beginning of April. When left in the ground, I have seen some of them rot off in very wet weather, leaving the bed very patchy. To get a good effect you must have a good-sized clump, planted fairly thick.—J. D., *Peniarth.*

IBERIS JUCUNDA.

(SYN., *ETHIONEMA CORIDIFOLIUM.*)

THE native home of this little gem, which also goes by the name of the Lebanon Candytuft, is in the mountain ranges of Asia Minor. It is probably not perfectly hardy in the most northerly counties of Great Britain, but is so in the southern and midland counties. A plant in Messrs. Veitch's rock garden at Exeter, from which the accompanying engraving was made, has stood several severe winters and now forms a pretty little bush, only about 4 inches high and 8 inches to 9 inches in diameter. It is, therefore, not a fast grower, and should be associated with the dwarfest kind of rock plants. The plant here illustrated is growing on a steep rocky slope facing south, and is planted in light loam mixed with an abundance of limestone chippings. It was in bloom here during July and August, when I noted some interesting changes of colour. The flowers appear in



Iberis jucunda in Messrs. Veitch's Exeter nursery. From a photograph sent by Mr. F. W. Meyer.

densely-crowded flattened racemes, almost umbellate in appearance. The individual blooms are scarcely more than a quarter of an inch across, and are of a delicate pink colour, veined with bright rose. The young flowers have in the centre a small white spot, resembling a star, and ending in a yellow throat. In older flowers the white star vanishes, and the eye in the centre becomes dark red, while the pink or rose-coloured petals assume a pale flesh-coloured hue, almost approaching to white. The leaves—alternate, fleshy, somewhat cuneate in shape, half-inch to 1 inch long and about an eighth of an inch wide, tapering towards the base—are of a glaucous colour and evergreen.

Elmside, Exeter.

F. W. MEYER.

HERBACEOUS LOBELIAS AND TIGRIDIAS.

THE correspondence on the hardness of these reveals much difference of experience; more marked, as may be expected, in the case of the *Lobelias* than the *Tigridias*. In this district it is not possible to succeed with the latter if permanently planted out. I have had them survive a mild winter, but they were worthless the following summer and did not bloom. "S. F. W." has given good advice concerning the purchase of bulbs. In 1897 there were many failures from

the bad condition of the bulbs, which must either have been harvested in improper weather or were not fully ripened before removal. Early in spring I ordered a few, and was informed that "the crop had failed," and that those ordered it might not be possible to supply. As the Tigridias are so effective and desirable in their season one was unwilling to be without them, and a request was sent to forward what could be had. The bulbs were much shrivelled, and from this cause and the contributory effects of the wet season the display of flower looked for was quite absent.

With regard to the Lobelias, not only do I find it impossible to preserve them in the open garden, but I have found it necessary to keep them moving gently with a little heat. In an absolutely cold frame they cannot be preserved here. This experience is confirmed by others in the same locality. On the other hand, I have seen these Lobelias exhibited in Scotland on stands of hardy perennials, and have been assured that in some districts (notably in the neighbourhood of Glasgow), they are hardy with a slight covering of ashes. These Lobelias have been a standing subject of complaint when shown in stands of hardy perennials; but, in view of the conflicting experience of growers, what can be said? Those of us who cannot grow them regret the fact, and content ourselves as best we may with *L. syphilitica*, the flowers of which are not a sufficient substitute for the brilliantly coloured blooms of the others. One cannot well account for the difference of experience shown in your columns. Everyone must try for himself and take the success or failure which follows. Yet I fancy that for many flowers the light, dry soil such as this is not the best for wintering some flowers. Some experiments with the *Alstroemerias* and various other plants have brought this home to me. "There are more things in heaven and earth than are dreamt of in our philosophy," and we must confess ourselves at a loss many a time in our gardening. S. ARNOTT.

Carsethorn, by Dumfries, N. B.

WINTERING DALLIA ROOTS.

It is at this period of the year that rot will frequently put in an appearance on Dahlia roots which are being kept over the winter for propagating. Some varieties keep much better than others, while some rarely become affected. Close attention should be given now and onwards, and when signs of decay occur care should at once be taken to cut away the decaying parts, in the hope of preventing it from extending further. As a general rule Dahlia roots are kept dry all the winter, but at the same time as cool as possible, taking care to exclude frost. An old Dahlia grower was once asked how Dahlia roots could be preserved through the winter with certainty, and his reply was, keep them from frost and damp and heat. It is held that damp gives rise to rot, and yet I have known roots preserved safely through the winter placed under the plant stand of a warm greenhouse, with water falling upon them from the pots above. I daresay there were losses, but I have known the roots preserved unharmed in this way. One man will keep his roots in dry sand all the winter packed in boxes. Another will place his in the driest parts of his greenhouse, of course safe from frost. Years ago it was the practice of some to pit their roots as they did their Potatoes, covering them with straw and mould. They have been kept with safety in a dry underground cellar which is dark, but yet warm enough. I have known them to be sewn up in matting and hung up in a coal cellar, another method being to pack them away in dry soil under a potting bench. Many operatives in the midlands and north who have allotment gardens some distance from their dwellings carefully dry their roots with some of the soil adhering to them, and hang them up round the walls of their kitchens. One important precaution is necessary—not to put the roots away in any place until the soil upon them is quite dry. Early propagation is not desirable except in the case of those who have good convenience for securing in-

crease; especially so in the case of those in the trade who supply cuttings. Then it is necessary the forcing beds be prepared in January and the roots got into position. The amateur with limited convenience, and who requires but few plants, need not begin propagating until the end of March or early in April, as Dahlia cuttings take much less time to root than they do in February. R. D.

DISEASED MARIE LOUISE VIOLETS.

IN accordance with your wish, I send you this note detailing the behaviour of the above, and the treatment given them for the past twelve months, although it differs but little, if any, from that accorded to healthy plants so often recorded in your columns. I do not claim to have eradicated the disease; far from it; but it is a fact that the whole stock is gradually improving in vigour, as evidenced by the deeper green of the foliage and continued blooming of the plants. You will observe from the samples of both sent herewith for comparison that there is yet room for improvement ere they become equal to the fresh stock, especially in the darker green of the leaf and strength of the flower-stalks. In the autumn of 1896 when put into the pits the whole stock was tolerably good plants, slightly paler in colour of leaf than usual, may be, but nevertheless good clumps, perfectly free from insect pests, a mass of expanded and expanding blooms and bristling with buds. Almost immediately upon being transferred to the pits the leaves commenced to damp off (an unusual thing in this pure air), being infested with a kind of sticky, slimy dampness, which in spite of constant picking, dusting with fine dry wood ashes, &c., continued until almost every leaf was destroyed, so that by the end of the year they were in a pitiable plight. Naturally with the defoliation blooming ceased. As nothing more could be done for them in the dead season further than protecting from inclement weather as carefully as if they still supplied abundant bloom, they were left thus until the middle of March, by which time nine-tenths of them were dead or dying and the remainder crippled. The whole lot was dug up, the clumps pulled to pieces, and any bits showing a vestige of life and growth were laid aside for providing stock for this season. The selected bits were then dipped, roots and crowns, in a strong and rather thick mixture, consisting of extract of quassia chips, sulphur, and soft soap, and afterwards laid in nice light soil in a part of one of the pits and tended carefully. As the season advanced they gradually commenced growing, until by planting-time many were tolerably well-rooted stuff, but with very sickly foliage. As I was unable to procure enough fresh stock I was compelled to plant the best, and gave them exactly the same treatment as the healthy ones kindly sent me planted alongside. A marked difference prevailed throughout the summer, the affected stock carrying the pale yellowish-green hue in strong contrast to the deep green of the new, and it was not until towards September that the contrast in this respect became less marked, the green gradually deepening in the leaf, which it has continued to do up to now, but is still considerably paler than the clean lot. Up to the present one is as free-blooming as the other, and so far there is no sign of leaf-damping; not even the necessity for picking a decayed leaf has arisen since pitting in the first week of October. Whether these plants with generous treatment would ever recover their original luxuriance is more than I know. My belief is that they eventually would, but having abundance of fresh stock this season, I shall try my luck with them in preference to experimenting with the old. I believe a change of stock had become necessary here, for I had had no fresh plants for eighteen years.

As to cultural details, they are few and simple. A quarter of ground in the kitchen garden in good heart is selected. This year the choice fell on a steep sloping bank with S.W. aspect, and

although Violets had at various times previously been grown on it, a season intervened, the plot being cropped with early Cabbages followed by late Peas. Referring to my note-book, I find that early in the new year this plot was bastard-dug, and on January 20 a thick layer of pure leaf-mould and some garden refuse mixed with lime was spread on, and left so until the beginning of April, when this dressing was well broken up and thoroughly incorporated by repeated forkings with the topmost spit, to which was added a sprinkling of fish guano and bone-meal, and when sufficiently dry on the surface, well trodden and prepared for planting, which was commenced on April 26 and completed on May 4. Marie Louise is planted 9 inches apart each way in beds 9 feet wide. Thus each bed contains eleven rows, and by missing the next two rows, space is allowed for alleys between the beds. On July 9 the beds were dressed with artificial manure, taking care to put it well around the plants and between the rows without injuring the foliage. Intense heat being now prevalent, mulching was resorted to on the 16th of the same month, the mulch consisting of fresh wood moss. (I have great faith in wood moss as a mulch in hot weather for all growing crops.) On August 28 this mulch was turned over, the beds top-dressed, and the moss replaced. Pitting commenced on September 28 and was completed on October 5. Of course, weeding, clearing runners, and watering were not neglected, the latter with strong house sewage, having a plentiful supply of it at the upper end of the plot, and to this overhead watering with sewage, combined with the moss mulching, I attribute the almost invariable immunity from red spider on Violets.

For the obvious reasons stated above, I have had to abandon one item of culture usually followed here, viz., the selection of stock plants. Divisions, runners, anything, in fact, with a scrap of root and leaf, had to do duty for stock, but when single crowns from short, near home runners are available, they are far preferable to perpetuate stock and produce the finest blooms. I may state that the blooms sent you are from plants that have been flowering freely since the latter part of July, so that by now they must be partly exhausted.—J. R., *The Gardens, Tan-y-bwlch*.

** There is certainly a marked difference in the condition of the foliage of the unhealthy plants when compared with that first sent to us. There is a difference in the colour of the leafage of the two sets of plants, but as far as the flowers are concerned, those of the once unhealthy lot are as good as those from the healthy plants, and in time no doubt the unhealthy plants would regain their lost vigour.—Ed.

RIVIERA NOTES.

THE mild autumn you have had in England has been equally so in proportion on the Riviera, while the sunshine has been constant day by day with very few exceptions, when welcome rain has fallen. In consequence the crop of autumn Roses has been finer than usual; and as the hot weather prevented their export, the wealth of Roses flowering in the fields and terraces has been marvellous. Lamarque, Maréchal Niel, Paul Naloumand, M. V. Houtte, Papa Gontier, La France, Gloire de Dijon, and many others have filled the still air with sweetness. At Bordighera especially I saw many blooms of Maréchal Niel as rich in colour and massive in substance as they could be in spring. At Nice the Chromatella or Cloth of Gold is still unapproachable for its beauty and quality, but as it is not generally a very free-flowering Rose, even on these sunny shores, it is gradually disappearing. It was a delight, however, on the shortest day to gather a dozen faultless blooms of this exquisite Rose that would create a sensation in London any day in

the year could they be transported without any loss of their beauty!

Carnations, on the other hand, have suffered from the heat, and though very abundant and sweet, were smaller and poorer in quality than usual. French-Italians do not care for the smooth, round-edged petal so dear to English florists, and admire most those varieties that shade from deep tones in the centre to white or flesh colour at the edge, but they do insist they shall be sweet scented, so that goes far to atone for the coarseness of some varieties. Narcissi have flowered long before their proper season, and have been quite unsaleable. Mignonette is happily finer than usual, and with the enormous quantity of Orange blossom and Heliotrope makes one forget that winter has yet to come. At San Remo I saw in one nursery garden a seedling yellow Paris Daisy of great merit, halfway between the tall-growing Etoile d'Or and the little Comte de Chambord, and with the continuous blooming qualities of the latter. This should be a valuable plant when it is known and grown. Iris stylosa and I. germanica are both full of flower, looking so strange to English eyes when seen together at this season. Lopezia coronata is a very dainty little flowering shrub with brown stems and pink flowers, that should be worth trying for the sake of its distinct character. It mixes so prettily on a wall with Heliotrope, and has a very curious effect among Streptosolen Jamesoni, now grown in quantity all along the coast in sunny gardens.

This Christmastide the market at Nice is a marvellous sight, with its stalls piled high with masses of Roses and Carnations under the welcome shade of the big umbrellas that screen them; and the succulence and beauty of the vegetables appeal to the palate equally effectually. Market growers now grow the old sugar Pea in quantity for winter work. It certainly is most excellent both eaten in the pod or shelled in the usual way, and judging from this season it is a most abundant bearer. I wonder how it would answer as an autumn crop in England! The Persimmon has become a very popular fruit, and is most effective on the dish or piled up on the stalls. When quite soft and transparent it is a delicious fruit, but it is not given to everyone to be patient enough to wait for that happy moment; hence foolish folk call it rough and astringent, while to those who wait it is like a huge Apricot, melting and delectable. The hot suns and brilliant atmosphere make us forget that we are passing through the shortest days. If winter should suddenly invade these sheltered shores, as it can do from time to time, how bitterly we shall complain!

E. H. W.

Villa Campa Bella, 33, Rue Cotta, Nice.

Campanula persicifolia.—I am obliged to "S. W. F.," Torquay, for his note referring to this on page 503. The question of the parentage of *C. persicifolia alba grandiflora*, to which I alluded on page 402, is one which struck me on first seeing that fine Bellflower several years ago. I have always felt inclined to think that it resulted from a cross with *C. latifolia* or *C. l. macrantha alba*. Apart from the flimsy texture of the flowers, their form gives support to the idea, and *C. grandis* would hardly give this. It is only fair to say that seedlings of *C. p. alba* (not the large form) are variable in size, form, and texture, and that many are deficient in the wax-like appearance of the best.—S. ARNOTT.

Pæonies.—Replying to Mr. Tallack (p. 482), I merely took exception to a certain passage which I quoted in Mr. Tallack's own words. Nor do I think Mr. Tallack at all strengthens his case by a complete alteration of the subject under which he originally wrote. This I note is

"*Pæonies and Rabbits*," but is now changed to "Naturalising *Pæonies*." "Rough herbage" is rather an elastic term, and of a kind there must be miles in the rough shrubbery and other borders in this country alone. What I do not understand is what kind of "rough herbage" Mr. Tallack has to contend with that it so quickly and effectually masters strong-growing *Pæonies*. Surely where such a state of things prevails, a few feet or yards one way or another could make but little difference, and with a fair amount of light above, there is no need for failure unless, indeed, the soil is itself exhausted. The chief item of all such work is a first clearance of roots, then plant your subjects for naturalising sufficiently thick not only for effect, but to bold sway. Unless the former is well done, such things as *Pæonies*, that take two or three years to get established in good soil, are worse than thrown away. All such things require light, and given this, many things, and *Pæonies* among them, if properly started, would be just as content in the middle of a wood as in the best shrubbery or other border.—E. JENKINS, Hampton Hill.

FLOWER GARDEN NOTES.

ANNUALS.

So far as one can judge from the catalogues already to hand, there does not seem to be much that is specially new in connection with annuals that are used in the flower garden. Certainly a few species whose varieties multiply exceedingly have their novelties, but this means something fresh in colour or size of flower, and not, as a rule, much that can be regarded as an improvement in the matter of an effective display. Where herbaceous plants are excluded from those portions of the flower garden that are more or less formal, and the system of early-summer and autumn planting is still in force, it may be well at this season of the year to refer to the fact that if necessary a very fine display can be made solely with annuals, and although these naturally entail a certain amount of trouble, there is with them no necessity for autumn propagation and winter housing, three and a half months are at the most the time required before they are ready for the open ground, or rather before the weather conditions enable them to be planted so far as size and strength of plant are concerned. Two and a half months from the time of sowing would be sufficient even with those things whose germination and after progress are not over-quick. One reason why many forms of annuals have not come more to the front is that sufficient discrimination has not always been shown in their selection. Prominent beds ought to look bright until frost or a continuation of wet autumnal weather destroys their beauty, and it is therefore useless to fill them with things that however bright they may be for a time, are very quickly over. Again, given a selection of long-standing subjects, the aim should also be plenty of variety alike in the matter of height, foliage, colour and habit. The ability to secure all this in annual flowers is not sufficiently recognised, but they are certainly available, as may be deduced from a few examples out of many. In height we can range from the 6-foot Sunflowers and seedling Dahlias to the dwarf Phloxes and Petunias; in foliage from the huge-leaved Tobaccos to the tiny Portulacas; in colour from silvery Centaureas and white Verbenas and Stocks to scarlet Linums and crimson Antirrhinums, and in habit from the stiff, heavy-flowered Begonias to the graceful Celosias and Pentstemons. Not many of the plants under consideration, whether annuals or perennials treated as annuals, can be left for outdoor sowing; they may be divided into two classes, viz., to be sown respectively the last week in January and the last week in March, in both cases under glass, a little bottom-heat being essential in the former and advisable in the other. Cultural details may be summed up in a few words: Sow thinly, prick off quickly, grow along as sharp as possible, and harden off thoroughly. In offering a selection of a few things, I do not intimate that they repre-

sent all that can be employed, only that they rank among the best and most enduring, and can be raised and grown easily.

ANTIRRHINUMS.

Of the many named varieties now offered, a selection of three or four distinct colours, say in white, yellow, and crimson, answers all ordinary purposes; it is also a question if very dwarf forms are desirable. We have plenty of things that are naturally dwarf, or that can easily be kept so and show to great advantage with their flowers arising from a dense carpet, without having miniature Snapdragons with tiny spikes; sturdy, robust plants from 18 inches to 24 inches are the best. Sow early in February on a gentle hotbed, or in boxes that may be placed on the pipes of ainery or Peach house that is just started. A capital place for pricking out the young seedlings will be a pit or frame that has winter-housed cuttings of Tufted Pansies, Pinks, &c. Of the

BEGONIAS

of the semperflorens type, the best that have come under my notice are Fairy Queen, Crimson Gem, and Zulu King, and of their size I do not know anything more beautiful or that gives a more lasting display. Where it is not desirable to house old plants or to resort to autumn propagation from cuttings, seed can be sown in warmth the last week in January, and the young plants grown along quickly. As there is a little element of formality in beds wholly devoted to these Begonias, something should be grown to mix with them, and there is nothing better for the purpose than *Grevillea robusta*. Cultural details as to the tuberous section have so often been given that it is not necessary to repeat them. A special point for outdoor work is the selection of suitable varieties, and it is now generally acknowledged that the best results either in the single or double forms are obtained from comparatively small erect or semi-erect flowers.

Of dwarf plants, or those that if necessary can be kept dwarf without much trouble, four really good species, each of which is now obtainable in great variety, are *Nemesia strumosa*, *Phlox Drummondii*, *Verbenas*, and *Petunias*. To obtain good plants seed should be sown early in March in boxes, standing them on a slight hotbed, or on pipes being perhaps the safest plan. The germination of very small seed is more certain in this way than when sown in a frame, and a better watch can also be kept for the several insect enemies that are partial to tiny seedlings. I think two of the most effective things in a flower garden, and that certainly should be included in all arrangements, are *Salpiglossis* and *Pentstemons*. No plants are likely to be more admired than these, and it may be added that fortunately few things are more easily obtained. The *Pentstemons* are sown in ainery in February, the *Salpiglossis* in a frame in March. Although there are now any number of different strains of *Petunias*, no very great advantage will accrue from investing in the same, good types of *grandiflora* and *nana compacta* producing all that is required respectively for large and small beds.

MARIGOLDS.

These are often regarded as common flowers, and an erroneous impression prevails that they are short-lived; on the contrary, however, the best forms produce a display so far as yellow shades are concerned that cannot be surpassed by any other flower, and only given the prompt removal of decaying blooms, the plants will last until frost cuts them down. Very little variation is seen in the lemon and orange African forms as supplied by good firms, and *Legion of Honour* is a bright and showy variety of the French section. Following on in tall annuals of yellow shades I should recommend among Sunflowers the selection of the new miniature, known as *Stella*, as being the better flower, both from a quality and size standpoint, and yet not at all coarse. It is also equally free. *Prinrose Queen* is very good, more robust in habit, the blooms larger, and as the name indicates, considerably paler in colour. Both the *Marigolds* and *Sunflowers* can be sown in frames

on a slight hotbed about the third week in March. Apropos of this slight hotbed, mentioned several times in connection with sowing the annuals under consideration, one made entirely of leaves, Oak, Beech, or, failing these, Spanish Chestnut, is the best. It should be made about a fortnight before the time of sowing, built up to a height of 4 feet, and trodden very firmly and evenly to prevent sinking. Where a considerable number of fine-foliaged plants is required, and it is not possible to obtain any great variety, three serviceable things to be used in different situations are Cannas, Grevillea and Nicotiana var. colossea, the two former to be sown in heat in January (the Canna seed to be soaked in warm water for a day and night previous to sowing), and the Tobacco in pans or boxes about the middle of March in gentle warmth. Seedlings of all these should be transferred to single pots as soon as they can be handled.

Claremont.

E. L. B.

NOTES FROM SUFFOLK.

The year still bears its name as a flowering year even to its close. The record of bunches of Primroses gathered in December appears in daily papers. On Christmas Day, and, indeed, for the preceding weeks, sprays of yellow Bankian Roses climbed to the windows and nestled under the eaves of the house. White frosts touched the foliage here and there, but leafy branches still linger to set off the apparently unseasonable blossoms. This year I saw a berry, or "hep," on a blossoming bunch, but it never ripened, and fell before the summer pruning and nailing thinned and trained the trees. Perhaps in more southern counties these little Roses fruit, but I have never noticed their so doing here, where the flowers, yellow and white, open profusely, and the trees on which they grow are sixty or seventy years old. Thinking about Roses, I wonder if many readers of THE GARDEN cultivate the tiny, dainty *Rosa multiflora*: the seed sown in February produces miniature plants which flower in June, and such sweet little flowers in every sense of the word, richly scented, varying in colour from white to crimson, through shades of pink, some single and some perfectly double. Year-old plants are sturdy little bushes and profuse flowerers. Those who can see beauty in the least of Roses will have much in these pompons, which convert the *Rose De Meaux* and *Fairy Pet*, &c., into comparative giants. They are quite hardy, and have had buds and blossoms out this month. The alpine *Auricula* beds have been very gay, and the flowers as bright and highly coloured as ordinarily in spring, but the frost has checked them, and yellow leaves are a sad substitute for the healthy foliage of a few days since.

The buds on shrubs and fruit trees are swelling fast. If Nature sleeps, it must be like the historic weasel, ready to take advantage of every chance which may befall. The wall fruit trees, so scanty in produce last year, are well set with blossom-buds and have made plenty of wood, and Apples, Pears and Plums will, let us hope, bring in a better crop next season. The bush fruit, too, promises fairly, and I hope many will try the new Japanese Wineberry; the fruit is pleasant to the taste and distinct in flavour. Even as a decorative plant in sunny margins of shrubbery it should find favour. The crimson shoots covered with soft spines are very pretty, and the blossom-buds are, unexpanded, like Moss Rose buds. There is a peculiarity about the flowering which is noticeable; the crimson-brown bud expands and shows a small white-petalled bloom, which when set is carefully covered by the protecting carpels. By degrees these carpels open again, and a seeded

berry, yellow at first, but glowing under the ripening influence of the sun into ruby-coloured fruit, is in appearance as attractive as it is agreeable to the palate.

Shrubby borders remind one of flowering shrubs. Are these charming adjuncts to the more formal parterre planted as freely as they might be? Not alone *Rhododendrons*, *Azaleas*, and *Kalmias*, but double-flowered Almond, Peach, Plum, and Apple, with Lilacs, Rose Acacias, and other bright blossomed trees should enliven the borders of the lawn. Then for sheltered nooks we have the *Ceanothus*, with its soft blue flowers, the *Desfontainea*, with Holly-like leaves and scarlet and yellow blossoms, standards of *Prunus Pissardi*, *Scarlet Oak*, *Japanese Maple*, *Salisburia adiantifolia*, *Paulownia imperialis*, *Liquidambar*, and many more trees and plants deciduous and evergreen, so often praised in THE GARDEN for flower or foliage, form or colour, the mere enumeration of which would convert this note into a catalogue. There are flowering shrubs, too, seen in very old gardens, whose names are unknown or forgotten by the horticulturist of to-day. One sees them and admires their brightness and beauty in old world places, growing untrained and unpruned, half overgrown and wholly neglected, but quite worthy a re-introduction into the choicest gardens.

SUFFOLKIAN.

GARDEN REFUSE.

GARDEN refuse of all kinds is most useful to the gardener when properly made into a fertilising manure. The ordinary every-day routine of work gives rise to the accumulation of this refuse, as few days pass without cleaning taking place in some part or other, whether in the kitchen garden or outside of it, so that really there is no trouble or extra labour involved in the gathering of it together. Walk edgings, flower-bed and border edgings, road sidings, and all such like can be added with the best possible results. All prunings, the trimmings of shrubberies, old and young wood, all the decayed growth of the herbaceous borders and weeds, *Potato* and *Tomato* bine, should be burned, these enhancing the value of the compost in a high degree. There is nothing but can be utilised with much advantage and convenience to the gardener. Indeed, every gardener can make this excellent compost without having to bestow any great care or labour in its manufacture. All this refuse as the work goes on must be carried to a place by itself out of the way, where, if it is regularly put and the heap at convenient times dressed up, the materials it is composed of will in time heat and decompose. Short grass sweepings throughout the summer and rough leaves at the close of the season should be added; indeed, everything that can be brought together as cleaning goes on. Where gaslime can be had it should be pounded small, the smaller the better, so as to mix well with the compost. The plan I used to adopt was to throw a coating of it over the heap every week throughout the summer, so that it got aired to remove the noxious gas ere more of the refuse was added. This process should go on methodically until the end of the year, when the whole should be turned and carefully mixed, and as the work goes on all scraps of wood and stones should be picked out to make the whole as clean a mould as can be made in that way. This is usually done in a time of frost, or when the ground is too wet to work on from heavy rains, so that no time is taken up with it in good weather. This compost ought to lie a year to give full time to make thoroughly, and then it can be used in many ways with great advantage.

In most gardens by this time all the herbaceous borders and beds will be cleared of the past season's growth and the surface of the soil slightly stirred with the fork. Then the first chance of frost should be taken to give the beds and the borders

a good top-dressing of the compost, which will fall and work into the ground with the weather before spring, when it will only be necessary to give a slight touch with the fork to make all the surface equally level. This compost is much to be preferred to manure of any kind, as it gives rise to fine rootlets which build up a solid stubby growth the opposite of what manure would do on heavy soils. The compost is useful in the flower garden where *Geraniums* and all other soft-wooded things are planted, for if the soil is in any way heavy, a dressing of it helps to make the surface fine, and as planting goes on it mixes with the soil and gives the plants a kindly start. It is also most useful for planting all half-hardy cuttings in frames or otherwise. Cuttings of all soft bedding plants strike readily in it. It suits all manner of seedlings; then with vegetable seeds it is a great help to rapid vegetation, keeping the surface of the ground from running close together, which it is apt to do if the weather should be wet in the spring. If all the Brassicas were sown broadcast and thin, covered with the compost and raked in, these would lift with nice balls of fine roots, stout, stocky plants that would soon take to their new quarters. It is of much value to plant young *Strawberry* plants in, as they take readily to it and make a free start into growth, and is much to be preferred to manure for *Potatoes*, as the quality of the haulm is likely to be drier and not so readily disposed to blight. A coat of it in the *Celery* trenches is of advantage to the plants when put out. *Onion* and *Carrot* ground should have a dressing of it in the early part of the winter, so that at sowing time it would make a fine mould for the seed. In the case of planting *Gooseberries*, *Black* and *Red Currants*, *Raspberries*, and all such like, its use to assist immediate root action is apparent in the free start into growth the bushes make; then for top-dressing cordon, bush, and pyramid fruit trees on the *Paradise* stock it is most advantageous, as rains wash in the chemical properties of the compost to feed the roots. *Violets* do exceedingly well in it either in frames or out in the open; indeed, there is no end to the many things it can be applied to with the best possible results. I have proved this over a series of years, and would urge all who have not hitherto done so to adopt the same practice.

A. KEMP.

Coolhurst, Horsham.

GARDEN FLORA.

PLATE 1152.

YELLOW ROSES.

(WITH A COLOURED PLATE OF *ROSA LUTEA* AND *R. LUTEA* FL.-PL. *)

THE single form figured in the plate under the name of *Rosa lutea* is more often alluded to as the Austrian Brier or Austrian Yellow. We have no older known Roses than Austrian Yellow and Austrian Copper, both having been grown in this country by John Gerard upwards of 300 years back. *Rosa lutea* is a fairly vigorous grower, hardy, and a sure bloomer when pruned upon correct lines. To cut away the long slender shoots of the previous summer is simply to destroy the charming late spring show of blossom. Both of the single forms are rather fugitive, and would be of little service were it not for their rich colour and early blooming. I have never seen these to better advantage than as standards, with the growths allowed to droop in a natural manner from the weight of blossom. As dwarfs they are apt to ramble close to the ground, but over rough roots and banks make a charming display. There is a peculiar perfume to both blossom

* Drawn for THE GARDEN at Gravetye Manor, Sussex, by H. G. Moon. Lithographed and printed by J. L. Goffart.



and foliage, the latter partaking strongly of the Sweet Brier. Some pretty hybrids have been obtained by the Right Hon. Lord Penzance, a variety named Lady Penzance retaining much of the colouring found in the Austrian Copper.

We have two double forms, known respectively as Harrisoni and Persian Yellow. The latter is deeper in colour, rather larger, not quite so full, and a better grower. Persian Yellow was sent out in 1838, Harrisoni in 1830, so that both the single and double forms are very old garden favourites. The doubles are naturally much more lasting than the singles, and among our showiest Roses for early summer display. Rosa sulphurea and R. hemispherica are synonymous, and were introduced from the East in 1629. In the yellow Banksian Rose we have another old and valuable kind, this having been distributed by the Royal Horticultural Society in 1824. When given a warm and sheltered position and left unpruned for a couple of seasons, this is a truly grand sub-evergreen climber, producing in immense bunches small and very double blossoms. Unfortunately, it is rather tender, need-

Maréchal Niel, which, introduced in 1864, is without doubt our most popular climbing Rose for under glass. We have a more constant bloomer in Perle des Jardins, and one more amenable to pot culture, taking up very little space and flowering with the greatest certainty from each short growth.

Other good yellows are M. Furtado, a variety needing very generous treatment to secure a full and medium-sized bloom. Isabella Sprunt is also thin, but a charming coat flower early and late in the season. In Amazone we have a deep golden-yellow that always forms a long, full, and pointed bud. Caroline Kuster provides a pure lemon-yellow of good size and form. This is grand upon a low wall or fence, is very hardy and a free bloomer. Rêve d'Or is also very hardy, a rampant grower and almost evergreen. The great error made in cultivating this variety lies in pruning it; it should never be cut back hard, but left to grow at will so far as space will allow. Belle Lyonnaise, which gives us a pale lemon or citron-yellow, is especially sweet-scented, and, like Rêve d'Or, needs very little pruning. One of the most

the folly of grafting all our beautiful hardy Rhododendrons on the common R. ponticum, with the result that it eventually displaces the very fine kinds grafted upon it, and as it often layers itself, covers the whole foreground of many of the most important parts of our gardens and pleasure grounds, making them monotonous and devoid of light or shade and pleasant colour. The remedy for this would be to get all these fine kinds of Rhododendrons on their own roots if we could only get the nurserymen out of the way to which they have been committed for many years, of grafting everything on R. ponticum. The hardy forms of Rhododendrons are very easy to layer in the usual old-fashioned way. In a visit to Dresden during the summer we saw a marked deviation from the usual way of grafting these plants in the garden of Herr Seidl, who has a fine establishment there for the supply of Azaleas to the greenhouses of Russia and various parts of Northern Europe. The father of this gentleman discovered that a certain English Rhododendron called Cunningham's White, a well-known old kind in many gardens, gave him better plants than the stock he had been used to employ, and he at last began to graft all his greenhouse Azaleas on it. He has now gone further, and is grafting all his species of hardy Rhododendron on the same stock with excellent results. It is interesting to see, as it saves us from further invasions of ponticum. What is Cunningham's White? It is simply a form of the American catawbiense, and therefore much hardier than the Eastern ponticum. Cunningham's White on its own roots is a very hardy covert plant; in fact, it bears our hardest winters, which sometimes in deep valleys cause ponticum to lose its leaves when this would not lose one.—*Field.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

THE flowers of Peaches and Nectarines started at the end of November or early in December will now be showing colour, being more advanced than this even in some instances and under the most favourable climatic conditions. There is no corresponding advantage in closing these houses earlier than the time indicated, for there must of necessity be an element of uncertainty in its practice. With the most approved of the older kinds, and the addition of the newer ones for first early forcing, a good succession can be had from one house of six or eight trees to last for at least one month's supply, *i.e.*, during the month of May, with the chance in favourable seasons of securing the first earlies during the latter part of April. Of Peaches, the best early kinds are Alexander and Waterloo, which are very similar, but both of which are predisposed to bud dropping if excited too soon. Amsden June, although a clingstone, is not so liable as the foregoing to this failing, hence it is desirable to the extent of at least one tree. Hale's Early will succeed these. The next choice may be Early Grosse Mignonne or Rivers' Early York. Of Nectarines to accompany the foregoing, the first early unquestionably is Rivers' Cardinal. For early forcing it has no equal, being a free setter, and so far in my experience not at all disposed to drop its buds. Its successor, *viz.*, Early Rivers, of first size and first-class flavour, is also without a rival. Cardinal is of medium size and highly coloured, with the flavour excellent. Lord Napier, which for some years held the premier position from point of earliness, has now to take third place, being fully three weeks behind both of the aforementioned, between which that period of time is about equally divided. To succeed these the next choice can be Elruge, Dryden, and Improved Downton. These will extend the season into June with comparative ease. In the early forcing of these fruits a few essential points should be considered. In the first place it must not be inferred that because we now have earlier ripening varieties that they can be started with safety any



Flowers of the Copper Austrian Brier.

ing protection in winter and to be grown upon a dry border as a further inducement towards more complete maturation of autumnal growth.

Turning to the other pure yellows, we find a wide interval before the introduction of any worthy of general culture, the first being Celine Forestier, in 1858. This, a fine addition to our yellow climbers, is a grand autumnal, and, owing to the formation of its centre, lasts longer upon the plant than other Roses. La Boule d'Or, which appeared two years later, is a glorious Rose during a dry season, but an utter failure otherwise. Under glass it can be depended upon, and would be a really valuable variety if a little freer to open. This also applies to Perle de Lyon, one of our purest yellows, but an indifferently formed flower. There is no Rose with deeper coloured foliage than this. Even when quite matured it still retains the deep rosy and metallic shadings which contrast so well with yellow and apricot coloured Roses. We find this in Mme. Falcot, Sunset, Perle des Jardins, and others. Perle des Jardins is probably the most commonly grown of all yellow Roses, not excluding

useful in this section is Marie van Houtte, a Rose that can scarcely be planted in the wrong place, one of our first and last to bloom, and exceptionally free and hardy. Towards autumn, instead of a pale yellow, we almost invariably find the flowers beautifully tinged with pale carmine and rose. Medea, a newer Tea from Waltham Cross, has also proved itself a thoroughly reliable Rose and deserves to be in every collection. It is a large and perfectly formed flower, apparently likely to prove the best pale lemon-yellow. A deep nankeen-yellow is found in Perle d'Or, one of the very dwarf miniature Polyanthas that are so useful for pots, massing and edging. Every bloom is perfect and less than the size of a shilling-piece.

So numerous are the many shades of yellow that I have been forced to miss out such as Comtesse de Nadaillac, Princess Beatrice, Jean Ducher, Mme. Charles, Mme. Carnot, William Allen Richardson and several more.

A. P.

Grafting Azaleas and Rhododendrons.—Our readers have often had our views as to

earlier than hitherto has been the practice with older kinds. Herein a mistake is often made, and one which is fertile in bud dropping in numbers of cases. It is even safer to excite them to a less degree at the first, making up for any fancied loss of time after the stoning period is passed. First-early houses for the first week or so should be merely syringed once, or possibly twice on bright days, no fire-heat being employed unless it be to exclude frost. During the next fortnight apply a little warmth, gradual at first, so as to raise the temperature to about 55°, with a little ventilation, to render the atmosphere buoyant. The heat in the pipes at nightfall should be *nil*, unless there is the possibility of frost, so as to reduce the temperature below 40°, or even a few degrees less if severe frost ensues. Anent this subject it should be noted that under natural conditions the temperature during flowering even will often recede at night to near the freezing point, but during the day it will rise correspondingly high, and thus effect all that is desired in relation to the pollen masses. At the end of the first four weeks a night temperature of 45° to 48° is ample, rising to 60° in the day from sunshine, bearing in mind the ventilation, and attaining the maximum point by early closing. These temperatures will need but little alteration until the flowering period is upon us. Take particular care that all borders are thoroughly soaked at the time of starting and again before the flowers commence to expand. If any borders are caked or hard upon the surface the soil should be carefully pointed over, avoiding the recurrence of this in the future, in order to facilitate in some degree the process of aération. Where there has in previous seasons been a tendency to drop during the stoning process beyond what is reasonably expected, it is more often than not an indication that the soil is deficient in lime. A good remedy for this is found in the best quality of bone meal, which should contain some 40 per cent. of soluble and insoluble phosphates. Nitrogenous manures are not in such a case so desirable, for there may be abundant evidence of vigour in growth, whereas the fruits do not always pass safely through the stoning process. Where the food most needed is to impart additional vigour and to assist in the stoning, then either of the best known artificial manures, which in their analyses indicate the above component parts, should be applied, but not beyond the prescribed limits. If fumigation was not attended to at the time of closing, then see to it that it is performed before the first flowers expand, so as to prevent any spread of the green fly, which thus far is the most to be feared of any insect pest. It will be advisable to close a second house now, so as to have ripe fruits during June and early July. The varieties already named will still answer well for this purpose. The pruning of this house should be already completed and the tying also finished off. If in past seasons red spider has caused trouble or any scale appeared to give annoyance, do not omit a dressing of a safe insecticide. Two good remedies are to be had in the old Gishurst Compound at 4 ounces to the gallon, and in the new NL All insecticide at the strength prescribed for a winter dressing. In both cases the strength of these remedies may be doubled for the old wood.

LATER HOUSES.—In these and those which come on naturally it is not too late yet to attend to the state of the borders where the trees show any symptoms of declining vigour. Fresh loam, with a little bone-meal and well-decayed farmyard manure, will greatly assist such trees, first removing the exhausted or inert soil, preserving the healthy roots during the process. When adding the new soil make it as firm as possible without running the risk of compressing it too much should it be on the wet side. On the other hand, if the trees indicate by their growth that there is too much vigour, then do not hesitate to root prune or even lift them completely if necessary, replanting in the same soil. By attention to this, canker need give but little trouble, whilst the trees will yield far better crops. This means of giving a check to the wood-growth is much better

than severe pruning of the branches. Indeed, hard winter pruning has done more to ruin Peach and Nectarine trees than many imagine. In any case after replanting give a good soaking of water to settle the soil. The treatment of pot trees should be the same in each case as given under this heading.

FIGS.—There is now every prospect of success in store for securing the first crop of Figs started in the new year. Earlier starting implies corresponding risks, and unless this fruit is one of the first importance it is scarcely desirable to start earlier. The temperature accorded to Vines may on the whole be applied to Figs; no higher range at any rate should be permitted, more especially during the first stages, as the Fig is more easily excited than the Vine, all other things being equal. Where the Fig house, or where Figs are grown with Vines, and are now fairly started, the first crop may be looked for early in May without any hard forcing at any period. Planted-out trees will in most cases still consist of Brown Turkey and White Marseilles, but St. John's and Pingo de Mel are as pot trees much to be preferred for early forcing. These latter varieties will give good first crops in medium-sized pots and little compass. Later trees should undergo the regular cleansing and have what little pruning is needful done and then be tied. If mealy bug is troublesome, use the remedy already given in last issue for Vines so infested. **HORTUS.**

KITCHEN GARDEN.

GENERAL WORK.—Work in this department, owing to the mild weather, has been progressing steadily, and all digging in suitable soils should be pushed on. Should frost prevent this, the wheeling of manures can be done more expeditiously than at other times. In manuring land, the crop which is to follow should be considered, as such crops as Beet, Salsafy, Carrots, Parsnips, and others do best when the land has been manured for the previous crops. It is equally necessary to thoroughly dig the land, as roots to be free of forking need depth. There is no better plan than turning up the soil as long as possible before cropping, for the weather to pulverise and sweeten it. Now is the best time to settle what crops each quarter shall carry. I have seen the same land occupied by a similar crop for years, but this is not advisable. I am aware with a small walled-in garden one is often obliged to plant such crops as Peas or early Potatoes in the same place. In such cases much may be done to give more vigour by adding new soil, burnt wood ashes, or old potting soil. Green crops of all kinds at this season will need to be kept free of decaying leaves, and though such plants as Savoy and Coleworts when cut will produce shoots freely, if there is an ample supply of other things it is well to remove the stumps and prepare the ground for another crop. The Kales so far have done well, and will produce an abundance of cutting material. Broccoli will be early this year—indeed, it looks as though there will be no break in the supply. The Autumn Protecting Broccoli has been excellent. In this district we have had a sharp and short spell of frost, which in a measure has done good, as it checked the growth of spring Cabbage. Now is a favourable time to tread round late-planted Cabbages, as frost lifts the plants out of the soil. So far as I can see, no root crops have suffered by exposure, and in our light soil I lift very few roots in autumn.

CLUBBING IN CABBAGES.—There is no better time than the present to prevent any of the Brassicas clubbing next season. Of course, in remedying the evil the kind of soil must be taken into account; but most growers find clubbing more troublesome in light soils, and these are the kinds which should now be treated. So far I have found nothing better than gas-lime, and in bad cases used freely. It is best to spread it on the surface for a week or two before digging in if the lime is used plentifully and fresh from the works. Lime that has been stacked in the open for a time is less powerful, and may be used at

once, taking care to break it fine before digging in. Free exposure to the weather will soon prepare fresh lime, but it is well to place it well under the surface in digging. My system with land that produces clubbing is to lime early in autumn and double-dig, placing the lime between the two courses, and turning the ground up as roughly as possible. If possible next season avoid cropping with any Brassica crop, or if unavoidable use one that will not be planted in the spring. Root crops do well on land treated thus. Not only does the lime prevent clubbing, but it kills slugs and other pests. Land that is occupied and needing dressings of lime may be left for a time, but in such cases so much lime cannot be employed.

EARLY PEAS.—Few vegetables are more welcome than early Peas, and now is a good time to sow for May supplies. I am not a lover of the small white Peas, which make a wiry growth and produce two or three peas in a pod. They may be earlier, but very little more so, than large kinds with some Marrow flavour and much sturdier growth. Of course, no one would advise large sowings. My note at this date applies to pot culture only with a view to planting out or for frames. For some years I have relied for the earliest supplies on December sowings in 4½-inch pots placed in cold frames. Treated thus, there is no forcing, as the plants are exposed in favourable weather on all occasions, and at planting time are sturdy and able to resist frost. Peas treated thus rarely fail to do well. Few plants are hardier than Peas if grown so from the start. I admit the Marrow varieties sown too early in the open decay in the soil, but under pot culture this does not happen, and excessive moisture, which is fatal in their early stages, is not felt with frame protection. I have used a larger-sized pot, 6-inch, for such kinds as Duke of Albany or large growers, but much depends on how many seeds are sown in each pot. In sowing, little moisture is needed, in fact none if the soil has been in the open, but if dry it will be well to water with tepid water. I prefer a firm, loamy soil, use no drainage other than coarse old Mushroom manure, and stand the pots on a coal-ash bottom close to the glass, which is covered in severe weather. Mice and mildew are the worst enemies to contend with. The latter is soon checked by free exposure in fine weather and dusting over with dry wood ashes and sulphur. For earliest supplies such kinds as Chelsea Gem (a dwarf grower), May Queen (a very early 2½ feet Marrow), Daisy and Gradus are excellent. For years I grew Duke of Albany, and topped the plants at 3 feet, but the crop was soon over, and I find the two last-named bear longer, and are much liked.

PEAS IN FRAMES OR POTS need much the same treatment at the start. I think it best to sow in small pots and then plant out. In this case the cultivator will need to start as early in January as possible, and here heat may be employed, as there is no fear of injury by rains or frost. Avoid excessive heat at the start, as this means a weakened plant, and once the plant is unable to bear its own weight in the earlier stages, no matter how well treated afterwards, it rarely pays for the room. As soon as the plants are well through the soil, it is advisable to remove to a cooler place. Plants grown to fruit in pots do well in any sized pot from 7 inches to 12 inches.

POTATOES IN FRAMES AND POTS.—With the advent of the new year Potatoes in frames and pots claim attention. I add pots, as many can grow a few in pots who cannot devote a frame to this vegetable. For forcing many prefer the Ashleaf kinds, and so far they are difficult to beat. I am aware at times the tubers lack size, and there is too great a proportion of small tubers if the plants are forced hard. Some persons object to their yellow flesh, but when well grown few varieties equal the Ashleafs for flavour. Such kinds as Sharpe's Victor, Ringleader and English Beauty are excellent for hard forcing. For frame culture it is advisable to prepare the tubers in advance. Of course, for this work the seed sets

are specially ripened for forcing by exposure. I am strongly in favour of what is termed starting the sets either by potting up singly in small pots or placing thinly in boxes in soil, and when the shoots are an inch long they are in nice condition to plant out or pot up into larger pots as may be required. If boxes are used it is well to be careful in lifting to preserve the roots. After potting up the sets they do well in a warm house, or, failing this, they may be placed on a warm bed, as it is well to get root growth a little in advance of the tops. Avoid excess of moisture in starting the tubers, as there is ample vigour in the sets to push out roots. In any case bottom-heat will quicken growth, but avoid extremes or rank steam, as it causes an elongated growth. After planting, much depends upon the warmth at command, and it is not wise to have high temperatures at the start, as what is wanted is root growth to balance the top. A temperature of 55° at night, with a few degrees higher by day, will suffice. Give air on all favourable occasions. It is also advisable at planting to have a good depth of soil, at least 9 inches, and if possible a little bottom-heat will be beneficial. For pots, two plants are ample in an 8-inch size, three in a 12-inch. The pots should be near the light and the soil firm and good. If grown in a genial light pit or house, tubers fit for table may be had in less than three months. S. M.

KITCHEN GARDEN.

FLOWERS IN THE KITCHEN GARDEN.

As a rule, the kitchen gardens connected with small establishments especially are anything but attractive to the generality of owners and their friends; in fact, more often than not they present a muddled-up, rubbishy appearance. Plenty who own or rent these badly-arranged gardens would gladly alter their character for the better if they only knew how to proceed with the work, and I am afraid there are a good many who are altogether indifferent to appearances, their principal desire being a regular and good supply of vegetables. As it happens, it is a comparatively easy matter to make a garden fairly ornamental without impairing its usefulness in any very perceptible manner. The rage for tender summer bedding plants has decreased in a very marked degree during the past few years, and very thankful innumerable over-worked gardeners are for this sensible relief. There is yet, however, much room for improvement in this respect, especially in the smaller places, where perhaps only one or two gardeners are employed, as well as in innumerable cases where the proprietor can be classed as an amateur gardener, or one who only employs casual labour. Instead of cutting up and spoiling a small lawn with flower beds it would, in many instances, be a far more satisfactory plan to dispense entirely with these and grow many more flowers of a more serviceable and really beautiful character alongside the principal walks in the kitchen garden. With the aid of various hardy plants and a good variety of more tender subjects, an almost continuous and at times quite a gorgeous display of flowers could be had.

As gardens vary so much in their conformation and arrangement, it is scarcely possible to lay down any general rules as to the best positions for the principal walks and the borders running parallel to them, but a few general hints may perhaps be given with advantage. In some instances a walk would best be made to encircle the garden well clear of the boundary walls or fences, a flower border from 2 feet to 4 feet in width being formed on the inner side, or it may be on both sides if the

border does not unduly encroach on ground valuable alike for early vegetables and the roots of wall trees. Sometimes the principal walk might well be taken through the centre of a garden, or at any point where it and borders alongside can be viewed from the best rooms in the dwelling-house, and if a hardy fernery was formed at the furthest end this would be an additional attractive feature. For these central positions I have a liking for turf walks, these being easily kept in order, always pleasant to walk upon, and doing away with the necessity for any kind of edging. Espalier or horizontally trained Apple and Pear trees form an excellent background for these flower borders, or, if preferred, bushes or pyramids may be substituted. There is an almost unlimited selection of plants that are attractive when in flower, and, in addition, particularly well adapted for cultivation where a good class of plants for cutting from is needed.

It may not be always possible or convenient to form borders in kitchen gardens solely for flower culture, but there is yet much that might be done towards improving their appearance. A few dwarf Roses, clumps of Carnations and Pinks, patches of Mignonette, groups of Asters, Stocks, Antirrhinums, Pentstemons, and Gaillardias, with dwarf Cactus Dahlias, variegated Maize, Chilian Beet, and a variety of other showy and serviceable plants at wide intervals, it may be among bushes, would all serve to brighten a garden. The various sections of Anemones, and which but few fail to admire, would appear to be especially at home when grown among fruit trees and bushes, and I have seen good collections of Hellebores successfully grown in such positions. Narcissi, again, as a rule, thrive well when grown in fruit borders, large clumps being formed and abundance of flowers produced without any apparent injury to the other occupants of the borders. Patches of the common Daffodil planted within 15 inches of the stems of large bush-shaped Apple trees soon become well established, masses of flowers much superior to those gathered in woods being annually produced. Much may also be done towards making a kitchen garden attractive by having a few rustic archways, these being covered with Roses, Clematises, Hops and Gourds. I.

Glass-raised Onions.—Whilst some leading growers of Onions sow seed so early as December, the great body of growers do not sow until January. It is really a matter of warmth, room, and light, for these are essential elements in the securing of fine sturdy young plants. The practice of sowing seed in this way is now common; indeed, it has become a regular part of garden work. After all, the labour involved in sowing a few hundred seeds, raising the plants, and getting them ready for planting out in the spring is not great.—A. D.

Savoy New Year.—For cutting in the new year this seems to be an excellent variety judging from a first trial. If it has a fault it is found in its size, which is slightly above the average—at least it is so here. It is a dwarf, short-stemmed sort, having nicely curled leaves of good colour, and is altogether a Savoy that can be recommended. It would appear to be a good selection of that well-known strain which has stood the test for so many years—the Dwarf Green Curled. Another variety grown for the first time this year is Best of All. This has a very large head, and would be valuable where quantity rather than quality is the chief object in view.—W. S., *Wills*.

Celeriac Large Prague.—At this season Celeriac is a most useful vegetable, but I regret it receives little attention from our leading seedsmen, as the variety noted above is not catalogued

—indeed, if asked for, is rarely sent. The only variety, and that a poor one, is the Turnip-rooted Celeriac. There are much better types of this vegetable on the Continent as the one noted above, and the Apple-shaped and Early Erfurt are greatly superior to the ordinary kind. As a good winter vegetable in season from November to April Celeriac is worth growing. It is also very useful as a salad, boiled and cut up in slices like Beetroot and served cold. During growth it is necessary to give copious supplies of moisture.—G. WYTHES.

Tomatoes for salads.—In many gardens Tomatoes are needed for salads in a raw state, and here one may with advantage study size. Large fruits are not needed, and in growing for this purpose earliness and quality are the principal requirements. For salads golden fruited kinds may be more grown, as some of the yellow fleshed Tomatoes are certainly the most delicately flavoured. I am not advising yellow-fleshed fruits on account of their weight, but for their useful size, evenness and good quality. Another excellent salad Tomato is Conference. Few fruits equal it in earliness, and as a salad Tomato it is of just the size, with a thin skin which readily separates from the fruit, and the flesh is rich and juicy. For salad it is important to get varieties noted for flavour.—S. H.

Chicory in winter.—A few years ago but little attention was paid to the selection of Chicory by seedsmen, with the result that the variety grown was poor and the leafage small, with little or no heart. Of late there have been some good selections, and we can grow this plant quite as well as our continental friends. The Witloof is an excellent variety, and far superior to the older form. This produces compact growths not unlike Seakale in shape, and is a valuable vegetable. Sutton's Christmas Salad, a new variety, is also a fine addition. The roots are not unlike those of Witloof, but the leaves are longer and less bitter than those of the common Chicory. These are the best in my estimation, and make a good addition to our winter vegetables. Both are large growers and should have plenty of room.—G. WYTHES.

French Bean Early Forcing.—In his excellent article on forcing Beans (p. 511) Mr. Wythes does not mention this variety, one so well suited for the earliest batches, and for small houses in particular, by reason of the dwarf growth of the plants. It does not bear pods of the size of those of *Ne Plus Ultra*, but it is earlier, and a greater number of plants may be grown in a limited space. The importance in the first crop is not so much a matter of size of pod as the earliness—at any rate, this is usually the case in the private garden. Under ordinary forcing conditions this variety has been ready for gathering in less than six weeks from the time of sowing. Early Favourite is another very early kind; so is Earliest of All; but neither has the extremely dwarf growth of the Early Forcing, and for growing on suspended shelves this dwarfness is a decided gain. Where house room is unlimited, however, I should certainly advise one of the two others named. I say one, because they both so closely resemble each other, that only one is required for sowing for an early crop. For many crops a good stock of *Ne Plus Ultra* is not surpassed in all-round qualities. I have not grown *Syon House*, and am, therefore, not in a position to compare it with others for early work. I agree with Mr. Wythes in condemning the old method of top-dressing Beans, and believe it more often does harm than good.—W. S., *Wills*.

SHORT NOTES.—KITCHEN.

Young Cabbage.—In connection with the recent discussion as to the advisability of retaining Cabbages for sprouts or so arranging the different sowings that first cuttings would be available all the year round, it may be worth noting that nice young heads of Ellam's Early Dwarf were cut the last week in

November from a sowing made in the second week in July.—E. B. C.

Chou de Burghley.—This somewhat hybrid Cabbage raised by the late Mr. Gubert at Burghley, and said to combine a winter Cabbage with a spring Broccoli if allowed to stand for that purpose, does not seem to be a popular vegetable, as it is seldom met with in private gardens and never as a market product. Yet when a good stock of it is obtained there can be no doubt but that it is a first-class Cabbage.—A. D.

THE LATE MR. ISAAC DAVIES, OF ORMSKIRK.

As a young man Mr. Davies was engaged in the Botanic Gardens at Liverpool, then under the curatorship of Mr. Henry Shepherd. Mr. Andrew Murray was also in the then celebrated Liverpool garden along with Mr. Davies. Mr. Murray afterwards became curator of the Botanic Gardens at Cambridge. Mr. Davies was born in 1812; and so good was his general health throughout, that he was able to conduct his business in all its detail up to a few weeks before his death.

Mr. Davies first started in business near Liverpool, at Wavertree, from which place he removed to Ormskirk some thirty-one years ago. Like all celebrated gardeners and nurserymen, Mr. Davies was, even at an early age, very fond of making experiments, especially in cross-breeding and in hybridisation. Nearly forty years ago he raised many good garden varieties of Calceolarias, Cinerarias and Pelargoniums, but it is rather with the very distinct and beautiful hybrids and forms of Rhododendron and Azalea that his name is more intimately associated to-day.

In this connection one of the first and most remarkable of Mr. Davies' successes was the now well-known and highly-appreciated Rhododendron *præcox*. It was the result of a cross between *R. ciliatum* and *R. dauricum atro-virens*. It is one of the earliest of early blooming hybrids in mild and sheltered localities near the sea. Here in Dublin it flowers with the Crocus and Snowdrops, and is often so profusely covered with its blossoms that not a vestige of the shrub itself can be seen through the soft lilac veil formed by its flowers. Amongst the seedlings of *R. præcox* were the forms *rubrum* and *superbum*. As a shrub for cool house culture *R. præcox* and its forms are most useful plants. Mr. Davies next crossed *R. ciliatum* with the pretty little *R. virgatum*, and the result was the now popular *R. multiflorum*, the free-blooming habit of which was doubtless derived from the last-named parent. After this last success Mr. Davies followed by crossing the hybrid *R. multiflorum* with a hardy white Rhododendron, and so obtained *R. omniflorum*, *Pixie Queen* and *Queen of Dwarfs*, in which there is a further improvement both in habit of growth and in flower. *R. Pixie Queen* is a lovely dwarf greenhouse plant resembling *R. multiflorum*, but instead of bearing, like the last, blush flowers, those of *Pixie Queen* are pure white. Both form close-set little shrubs a foot high or so. The edges of the petal lobes are daintily crisped, and the flowers are borne in compact clusters at the tip of every shoot or branchlet. Though hardy in the mildest and most sheltered localities, they are best grown in pots plunged out of doors during summer and placed in a cold house, pit or frame during cold weather, where they will bloom in March or earlier in a warmer greenhouse temperature. *R. multiflorum* was a favourite plant with Mr. Davies, and accordingly he again crossed it with the Indian *R. Edgeworthi*, and from this cross originated a beautiful race of sweet-scented Rhododendrons, of which he was

deservedly very proud. These varieties included the following: *R. Countess of Derby*, *Lady Skelmersdale*, *Mrs. James Shawe*, *Countess of Sefton*, all with exquisite white or delicately tinted sweet-scented flowers. Hybrids were also obtained by crossing a hardy white Azalea (? *A. indica alba*) with a hardy seedling scarlet Rhododendron, some of which bore the large Rhododendron-like clusters of flowers on plants more nearly resembling an Azalea in habit. Two of the best of these he called *R. elegantissimum* and *R. roseum odoratum*. One of his latest successes in this way was *R. Daviesi*, which he obtained between *R. retusum* and *R. javanicum*, the waxy flowers being of a very clear and rich orange colour, but otherwise more nearly resembling *R. retusum* in form.

Two very pretty hybrid Rhododendrons are *R. elegantissimum* and *R. roseum odoratum*, which resulted from a cross Mr. Davies made between *R. Hendersoni* and a dwarf white Azalea remarkable for its early flowering habit. This same white Azalea crossed with *R. Brayanum* produced the sweet and rosy kind above named (*R. roseum odoratum*). These crosses



The late Mr. Isaac Davies, of Ormskirk.

are curious, as being between deciduous and evergreen parents, so that they are scarcely true evergreens in habit, but as grown under glass their flowers are very fine. Another very dainty hybrid raised at Ormskirk is *R. floribundum*, which was the result of *R. virgatum* crossed by *R. Prince Camille de Rohan*. It is dense, dwarf, bushy, and free blooming, the flowers being white, now and then softly flushed on their margins with delicate rose. Its only fault is in flowering too freely, so that but little growth is made for propagating purposes. Amongst the choice sweet-scented hardy Azaleas reared at Ormskirk are *A. Daviesi*, pale sulphur, changing to white; *Avalanche*, pure snow white; and hybrida *odorata*, also pure white, free flowering, and very fragrant.

Mr. Davies regularly reared large quantities of *Azalea mollis* from seeds, also a race of beautiful hybrids between *A. mollis* and *A. occidentalis* and others by crossing *A. mollis* with

the best forms of *A. Daviesi* and the Ghent varieties. All these were very lovely and of nearly all shades of colour, bearing large and shapely flowers, white, sulphur, fawn, peach, rose, pink, orange-yellow, red, some blotched and spotted with pink or red, and others were sweet-scented. *A. pontica* was also largely grown from seed, and many charming variations occurred, though they were not so variable as in the case of *A. mollis*.

I am sure many readers will recollect with satisfaction the splendidly grown, healthy stock that always came from the Ormskirk nursery—sturdy, well-rooted stuff, each shoot tipped by flower-buds, and the varieties, even of his mixed seedling stock, always of superior quality. Apart from hybridising, Mr. Davies was constantly crossing the best seedlings of hardy Rhododendrons with each other, and some of the results were very fine. Amongst others I may name *R. Isaac Davies*, *Stanley Davies*, *Wm. Davies*, *Mrs. Isaac Davies*, *Beauty of Ormskirk*, *Flag of Truce*, and *Sir H. Havelock*. *Boule de Feu*, *Empress*, *Monarch*, and thirty or forty others are characterised by sturdy, free-blooming habit, fine foliage, and large conical trusses or heads of bloom.

One of the last, perhaps the last, of Mr. Davies' catalogues (1896) now lies before me, but it really gives no adequate idea of the wealth and variety of floral beauty the celebrated Brook Lane Nursery at Ormskirk contained in its palmy days. Now, alas! all the valuable stock is sold off and swept away and the site utilised for building purposes, but history and tradition will long preserve in the annals of the garden the story of the many beautiful new plants that originated there in days that are no more.

According to the 1896 catalogue, in addition to those mentioned above, the following hardy Rhododendrons were raised by Mr. Davies: *Afghan Chief*, *Blue Beard*, *Boule de Feu*, *Carminatum*, *Countess of Lathom*, *Copernicus*, *Charles Kingsley*, *Commodore*, *Claribel*, *Dr. Johnson*, *Duchess of Albany*, *Flower of May*, *George Stevenson*, *General Graham*, *Hetty Davies*, *King of Crimson*, *Kepler*, *La Brillante*, *M. Thiers*, *Milton*, *Model*, *Marksmen*, *Oliver Cromwell*, *Rob Roy*, *Robert Cobden*, *Sunrise*, *The Ameer*, *Wordsworth*, *Jenny Davies*, *Elaine*, *John Ruskin*, *Othello*, *Colleen Bawn*, *Gounod*, *British Queen*, *Rosalind*, *Napoleon*, *Romola*, *Seneca*, and many others. It is pleasant to know that Mr. Davies not only did so much in improving the Rhododendron by hybridisation and cross-breeding, but he had great faith in own-rooted plants, seedlings, or plants from layers, which he offered at rates far below their real value.

One speciality of the nursery at Ormskirk deserves mention, viz., seedling bulbs of the Japanese *Lilium auratum* and its variety *rubrum vittatum*. This Lily, so capricious in most soils, Mr. Davies grew from his own saved seed in large quantities in the open ground. These bulbs were sound and healthy.

In conclusion, I may add that personally Mr. Davies was a man of fine and noble character, always busy, always pleasant, always happy and interested in his life's best work, the growing and improving of the flowers he loved.

His bent of mind led him on from one experiment to another, and it is pleasant to know that a long and active life was rewarded with notable success. If there is anything to be regretted it is that the Brook Lane Nursery, or at any rate the choice collections of seedling and hybrid Rhododendrons and Azaleas therein, should have been sold at a great sacrifice, owing to the death of one of Mr. Davies' sons who

was in the business. Having no one to succeed him in the business he had built up, he decided to sell off all his stock in September last, and it is a pathetic remembrance to think that the owner died ten days after what to him, old though he was, must have been a sad and depressing event, and his widow only survived him a little over ten weeks. In Ormskirk and its neighbourhood he was well known and deeply respected, and in presenting the portrait of such a gifted and remarkable man to readers of THE GARDEN, it is with pleasure I can say that his name will long be affectionately remembered, not only in Ormskirk, where he had made his home, but in every garden throughout the country where his lovely hybrid and seedling Rhododendrons and Azaleas are grown.

F. W. BUREIDGE.

BOOKS.

THE BOG AND WATER PLANTS.*

THIS highly scientific German work embraces not only the bog plants and aquatics which may be cultivated out of doors, but also those of tropical regions requiring a temperate or warm house for their cultivation, including also miniature plants which might successfully be grown in rooms. The book contains close on 200 pages and has 126 illustrations. The author has travelled in the Congo district and other tropical regions, and has given detailed descriptions not only of plants already well known to horticulture, but he also describes a large number of plants whose introduction he thinks desirable, but which up to the present are only very rarely, or not at all, met with in cultivation. Among the latter he mentions the following: *Aponogeton monostachyus* (L. fil), *Aponogeton Berneriannus* (Hook. fil) (from Madagascar), *Aponogeton* (syn., *Ouvirandra*) *fene-stralis*, the Brazilian *Eichornia paradoxa* (Solms), *Heteranthera graminea* (Vahl.), *Heteranthera Seubertiana* (Solms), *Azolla rubra*, *Azolla pinnata*, and a great many others, which will be a boon to those desirous of gaining reliable information on plants comparatively unknown.

The arrangement of the book is strictly scientific, and not less than seventy-five natural orders are dealt with. Of these, ten orders of Cryptogamae, twenty-four orders of Monocotylæ, and forty-one orders of Dicotylæ supply the vast number of plants described. The book contains a great many very practical hints on the propagation and successful cultivation of the plants. Most as full, for instance, are the hints given for successfully growing the blue *Nymphaea zanzibarensis* out of doors during the summer. Of the greatest practical value, too, is the last chapter, which suggests collections of bog plants and aquatics for various purposes, such as plants for deep or shallow water, for the margins of ponds, streamlets and waterfalls, for "floating islands" in lakes, for bog beds, rooms, and even plants suitable for a salt water aquarium. The reading matter throughout is interesting, and many of the illustrations are most excellent, as, for instance, those of *Nymphaea Marliacea* Chromatella, *Eichornia crassipes*, *Nelumbium luteum*, a most artistic engraving of a group of *Cyperus Papyrus* growing out of doors, and a great many other beautiful cuts. It is a matter of great regret, however, that these really good engravings should in some places be interspersed with "process work" of the worst class, showing blurred pictures quite unworthy of the plants they represent. Such illustrations, for instance, as that on page 73, supposed to represent *Calla palustris*, would have been better left out altogether.

* "Die Sumpf- und Wasserpflanzen von Wilhelm Monkemeyer." ("The Bog and Water Plants": their description, cultivation, and use. By W. Monkemeyer, Inspector of the Botanic Gardens of the University at Leipzig. Published by Gustav Schmidt, Berlin. 1897.)

For the botanist it may be necessary, perhaps, to adhere to a strictly scientific arrangement in such a book, but for the practical gardener or the amateur the book would be more useful if it were less scientific. I find, for example, owing to the severely scientific classification, plants requiring all kinds of different temperatures together on the same page, and in the case of a plant not well known it requires a considerable amount of reading before one is able to find out whether the plant described requires a stove, a greenhouse, or may be grown out of doors. In my opinion the book would be more popular generally if the classification were more simple, say "stove plants, greenhouse plants, half-hardy plants and hardy plants."

Although on the whole I very much admire this excellent work, I have one more fault to find, namely, the omission or too scanty description of some of our most beautiful Water Lilies. No one will deny the beauty of *Victoria Regia*, and the author very properly devotes about four pages of interesting description to this plant. But this stately giant can only be grown by the few who possess the extensive accommodation required for its culture, while many thousands might grow out of doors and without trouble such gems as *Nymphaea Marliacea* albida, N. M. Chromatella, N. Laydekeri rosea, N. L. lilacina and N. L. purpurata, but in Herr Monkemeyer's book the descriptions given of the five last named species vary from one to three words for each. The preface of the book is dated October, 1897, but the work is certainly not up to date, for not a single word is mentioned about such gems as *Nymphaea Robinsoni*, N. Seignoureti, N. Marliacea ignea, N. M. carnea, N. M. rubra punctata, N. Laydekeri fulgens, N. L. fulva, and N. L. lucida, all of which are of such importance for the embellishment of our water gardens, that their entire omission from a work of such a recent date must be regretted, especially when for several years past these treasures of the water garden have been cultivated not only in this country, but also across the Atlantic, as is evident from the excellent extract from Mr. Tricker's book "The Water Garden," published in THE GARDEN of Dec. 4, 1897, pp. 44 to 47. F. W. MEYER.

Elmside, Exeter.

TREES AND SHRUBS.

WINTER-FLOWERING TREES AND SHRUBS.

THE number of trees and shrubs that flower during the four dullest months of the year—say, from the middle of November to the early part of March is perhaps larger than many would imagine. The following list contains over fifty species which may fairly be described as coming under that heading. It is based on the conditions that obtain near London, and could no doubt be lengthened considerably by those living further south and west, just as it would have to be reduced to suit more northerly localities. The date of flowering, too, is to some extent dependent on the same conditions, and still more so on the mildness or severity of the winter. A long and severe frost, for instance, setting in before Christmas would defer the flowering of several shrubs from December and January to February or later. The conditions also under which individual plants grow vary the time of flowering. *Chimonanthus fragrans* growing on a wall is usually in flower at or before Christmas, but as a bush in the open it blooms a month or six weeks later.

Many of the plants mentioned would, if they flowered in April, May or June, be eclipsed by the great host of more showy things that then burst into bloom, but now their modest beauties have a singular charm, added to in many instances by a sweet fragrance. It would be

an interesting thing to bring together in some sheltered spot all, or as many as possible, of these winter-flowering trees and shrubs, adding to them others that flower by the beginning of April. By devoting some such place to them, the shelter from north and east that many need could then be more easily furnished—shelter which is not only welcome to the plants themselves, but to those who may love to watch and tend them. For such a purpose one imagines as an ideal spot a piece of fertile ground sloping well to south-south-west and surrounded on the north and east by a belt of trees, in the foreground of which are growing Hollies, Box, or other close evergreens. Many things, such as the Witch Hazels (*Hamamelis*), *Prunus Davidiana*, some of the *Daphnes*, &c., being deciduous, require some such background to set off their beauty to greatest advantage.

The following list is as complete as I have been able to make it at present, but doubtless there are omissions. Of course, by including others that flower a month or even a fortnight later, the list could be greatly lengthened, but such things are more strictly spring than winter-flowering.

NOVEMBER.

- Lonicera fragrantissima* (up to March).
- " *Standishi* (up to March).
- Hamamelis virginica* (often earlier).
- Fatsia japonica*.
- Arbutus hybrida*.
- " *Unedo* and its varieties.
- Jasminum nudiflorum* (up to February).
- Daphne Mezereum* var. *grandiflora*.
- Elaeagnus glabra*.
- " *macrophylla*.
- " *pungens*.

DECEMBER.

- Crataegus monogyna* var. *præcox* (Glastonbury Thorn).
- Erica mediterranea hybrida*.

JANUARY.

- Clematis calycina* (up to March).
- Erica carnea* (up to March).
- " " var. *alba* (up to March).
- Viburnum Tinus* (Laurustinus).
- Chimonanthus fragrans* and vars.
- Garrya elliptica*.

FEBRUARY.

- Erica mediterranea* (up to April and May).
- Daphne Laureola*.
- " *Mezereum*.
- " " var. *flore albo*.
- " " *oleoides*.
- Berberis nepalensis*.
- Prunus Davidiana* (often earlier).
- Pyrus* (*Cydonia*) *japonica*.
- Hamamelis arborea*.
- " " *japonica*.
- " " " var. *Zuccariniana*.
- Cornus mas* and varieties.
- " *officinalis*.
- Rhododendron altaiclerense*.
- " *dauricum*.
- " " " var. *atrovirens*.
- " " " *Nobleanum*.
- " " " *parvifolium*.
- " " " *præcox*.

EARLY MARCH.

- Forsythia suspensa*.
- " *intermedia*.
- Rhododendron fulgens*.
- " *Thomsoni*.
- Nuttallia cerasiformis*.
- Daphne Blagayana*.
- Dirca palustris*.
- Populus tremula*.
- " *tremuloides* var. *pendula* (Parasol de St. Julien).
- Stachyurus præcox*.
- Parrotia persica*.

Corylopsis spicata.
 Pieris (Andromeda) floribunda.
 " " japonica.
 Salix Smithiana.
 Akebia quinata.
 Arbutus Andrachne.
 Cassandra calyculata.
 Prunus Amygdalus var. persicoides (generally
 two weeks in advance of the common
 Almond).
 Ulex europæus (common Gorse).

Besides the above there are, of course, numerous trees with inconspicuous flowers which bloom early in the year, such as many of the Ashes, Elms, Alders, Willows, Filberts, and Poplars.—W. J. BEAN.

* * We beg to call our readers' attention to the interesting and suggestive notes of Mr. Bean on the trees and shrubs that flower in winter and very early in the year. As many live in different climates from those that obtain in the home counties and about London, we should be grateful if they would look at Mr. Bean's list and add to it where possible. Where the climate is favourable, outdoor gardening in winter is not without its charms, and we feel sure that our readers could hardly do a better service to the cause than by telling us about their winter treasures in that way, and of the plants as well as the shrubs that go to form them.—Ed.

Hibiscus Single Painted Lady.—This variety is doubtless included by Mr. Bean in what he describes as the "host" now in commerce. So beautiful are these shrubs when in bloom, flowering also so late in the summer, that it is surprising they are not far more widely planted. Surely only general ignorance of their charms could excuse this comparative neglect. The variety I have named above I saw blooming in quantity on plants about 20 inches in height at the Coombe Wood Nursery last September. There were other varieties blooming also freely, especially totus albus and Blue Celeste, but the Painted Lady was much the most effective.—A. D.

Propagating Hibiscus syriacus.—In THE GARDEN for December 25 a very characteristic group of distinct varieties of this Hibiscus formed the subject of the coloured plate, and in the accompanying article the propagation of these varieties was referred to, and also the fact that there is quite a host of them offered by nurserymen. Some of the continental dealers especially make a feature of the different varieties, and the whole of them from that source that have come under my observation are grafted plants. They are all grafted on to young seedlings, the point of union being just at the collar. When planted the scion will doubtless form roots of its own, and out of a number of grafted plants under my observation that have been in their present position half-a-dozen years there have never been any signs of suckers, so that the most prominent objection to grafting does not apply in the case of the many varieties of this Hibiscus.

Pterocarya caucasica.—Despite the fact that a deep crack across the centre of the trunk of our big specimen of the Caucasian Walnut indicates a collapse at no distant date, the tree grows at a great pace, and careful measurement gives the diameter of branch-spread as a little over 100 feet, the extremities of the branches with the split in the trunk and the semi-horizonal position they naturally assume coming down to the ground on all sides. Possibly the growth has been greater in 1897 than in any previous year on account of the destruction of all the embryo catkins early in the season and the total absence of the enormous crop of curious nuts the tree usually carries. If, however, the top growth is rapid and wide spreading, the root action is even more so, extending to a considerable distance beyond the branches, and as on three sides of the tree and at no great distance from it we have respectively Vine, dessert Cherry, and bush

Apple borders, a winter's job will be to dig a trench on all those sides, some 12 yards from the trunk, sufficiently deep to make sure that we are well below all roots. Fortunately, these, as with nearly all trees with widely spreading roots, are not far below the surface, and the labour required is thereby considerably reduced.—E. L. B., *Claremont*.

THE JASMINE NIGHTSHADE.

(SOLANUM JASMINOIDES.)

LOVERS of wall plants, especially those who reside in the warmer southern districts, should bear in mind this, which is well suited for such positions, and one which keeps up a long succession of bloom. Mrs. J. S. Beale, Standen, East Grinstead, Sussex, who kindly sent us the photograph from which our illustration was prepared, writes us as follows:—

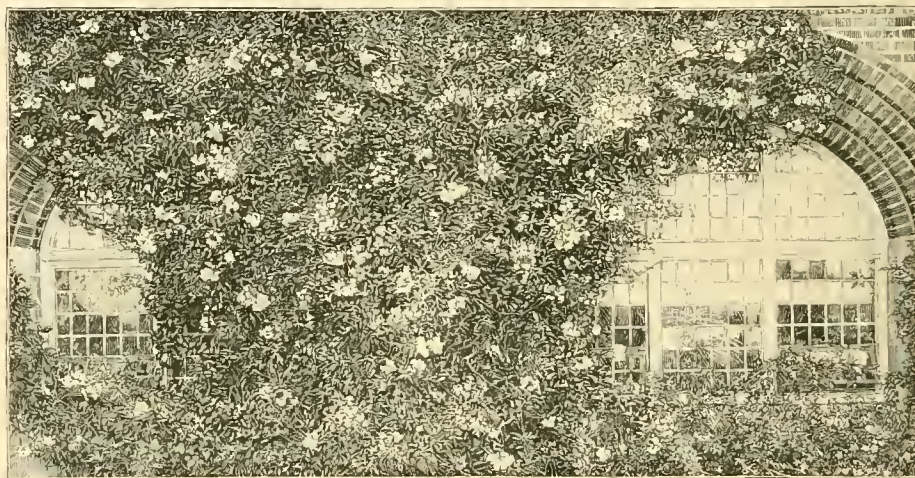
The plant figured was planted in May, 1895, the aspect south-west. It has had no protection other than a mulching at the beginning of winter, and has flowered each year from May till November. The photograph was taken on October 26, 1897.

Planting near the sea.—I write to ask if you or any of your correspondents will advise me as

east coast of England, and you can easily find out if it thrives locally. We agree about the Portugal and Sweet Bay. Do not plant skinny, narrow groves or clumps, but massed as much as you can in the space, and then the trees will shelter each other and the inner ones grow as well as they do at Bodorgan and other places where planting near the sea has been well done. Hollies, too, should do if protected from rabbits, and they often do admirably near the sea. Local results should be considered.—Ed.

SOME AMERICAN SPRUCES.

THE WHITE SPRUCE (*Picea canadensis*) is the most boreal of the Spruces of Eastern North America, where it is distributed from within the Arctic circle to the northern borders of New England and New York, Northern Michigan, Wisconsin and Minnesota, South Dakota and Northern Montana. This tree, which sometimes attains a height of 150 feet, may be distinguished by the strong foetid odour of the foliage, the dark blue-green colour of the leaves and the slender elongated cones, with thin, rounded, entire, flexible scales. The White Spruce is a tree of the north and displays its greatest beauty only in cold countries, suffering in summer in the middle States and even in Southern New England from the attacks of the red spider, which soon make



The Jasmine Nightshade (*Solanum jasminoides*) at Standen, East Grinstead. Engraved for THE GARDEN from a photograph sent by Mrs. Beale.

to the kind of shrubs I should plant to shelter a garden on the east coast of Scotland about 500 yards from the sea-shore and 100 feet above sea-level. The beach is sheltered by a sandbank about two miles to the outside, so the full force of the surf is not felt on the shore, and salt spray is never blown up so far as my garden. The rainfall here does not average more than 26 inches. Frosts are not very severe nor white frost very much trouble for a place so far north. My garden is fully exposed to the wind and gets the full force of east winds from S.E.—N.E. on the one side and S.W.—N.W. on the other. Local people have advised me to try Portugal Laurels or Bays, but I dislike them both, and have found neither is altogether hardy, being very much browned by the spring winds off the sea. *Olearia Haasti* has stood better with me than a few Portugal Laurels I was very reluctantly induced to plant. I find wind the worst enemy I have in the garden, and think if something could only be started to grow it would go on all right.—WILLIAM LOW.

* * We should advise you under the circumstances to keep to very hardy things or those that love the shore, such as Tamarisk, Sea Buckthorn, and the small-leaved Willows for the seaside, and inland, Savin and the English Juniper. *Olearia* might go in a hard winter. The evergreen Oak is often an excellent tree near the sea on the

foliage thin and shabby. East of Cape Cod, however, it is the most beautiful of the Spruces which have been thoroughly tested here, dense in habit, with persistent lower branches, and beautiful in colour. Individuals vary considerably in the colour of the foliage, however, one of the most distinct of these colour forms being the tree with pale blue leaves (*var. coerulea*) which is attractive.

THE RED SPRUCE (*Picea rubra*), an Appalachian species distributed from the valley of the lower St. Lawrence River to North Carolina, although little known in gardens, is a fine ornamental tree long confounded with the Black Spruce (*P. Mariana*), a tall slender tree frequently attaining the height of 100 feet with thin branches and dense dark green foliage. The Red Spruce, which is the timber Spruce of New England, New York and the middle States, is a slow-growing tree in the forest, and it is not improbable that the oldest trees in New England belong to this species. I have had little opportunity to observe this tree in cultivation; the few planted trees, however, which I have seen are healthy and well furnished with branches, and certainly have not grown very rapidly.

THE BLACK SPRUCE is a smaller and more northern tree and an inhabitant of swamps and low, wet ground. With the White Spruce it ranges to the Arctic circle, and it is more

generally spread over the Northern States than the Red Spruce, bordering on the Great Lakes, where the Black Spruce is very abundant. The Black Spruce is a tree of rather open habit, with blue-green foliage; in cultivation it soon becomes thin and shabby, and it is probably the least desirable of all the Spruces which have been fairly tested here as ornamental trees. Several varieties are described by nurserymen with a dwarf, more or less compact habit, or with the foliage marked with yellow or white, which are common seminal phenomena.

PICEA ENGELMANNI is widely distributed from British Columbia to Northern Arizona, and is one of the most beautiful of the Spruces. It is a noble tree, often 150 feet in height, with a tall stem covered with light cinnamon-red scaly bark and pale blue, acute soft leaves. This is the timber Spruce of the high slopes of the Rocky Mountains, where it forms great forests at elevations from 8000 feet to 11,000 feet above the sea-level. Here in New England *Picea Engelmanni* grows slowly, like most trees which have been transplanted from high altitudes to the sea-level, forming a handsome narrow and compact pyramid, with its lower branches resting on the ground. The largest trees have produced a few cones here. Unfortunately, *Picea Engelmanni* begins to grow very early in the spring, and therefore it is frequently injured in Western Europe by spring frosts, although in Northern Russia it appears to be one of the hardiest and most valuable conifers.

PICEA PARRYANA (the *Picea pungens* of most authors), the second Rocky Mountain species, the so-called Colorado Blue Spruce, is a tree of more restricted range, being confined to Colorado, Eastern Utah, and Wyoming, growing only along the banks of streams in small isolated groves at elevations between 6000 feet and 9000 feet. This species may be distinguished from Engelmann's Spruce by its pale, deeply-furrowed bark, which is unusual in this genus, by its stouter glabrous branchlets and thicker rigid sharp-pointed leaves, bright blue on some plants and dull grey-green on others, and by its larger cones. As it appears in Colorado, *Picea Parryana* is a far less beautiful tree than *Picea Engelmanni*. The lower branches are soon overshadowed by those above them and then quickly die, and trees more than 50 feet high are usually thin and ragged in the tops. This Colorado Spruce has proved very hardy on the Atlantic seaboard, where it has been largely distributed by nurserymen, and young plants are surprisingly vigorous and handsome. The lower branches on the oldest specimens cultivated here, however, are already beginning to die, and there is every prospect that this Spruce will prove a failure as an ornamental tree.—*Garden and Forest*.

Rubus biflorus.—In the early part of last year attention was directed in THE GARDEN to the distinct appearance of this *Rubus*, especially during the winter months when devoid of foliage, as then the whitened stems were even more noticeable than at other seasons. There is a group of several plants of this Bramble near the flagstaff at Kew at the present time. This is one of the most striking outdoor features of the gardens. Though it is by no means new, this *Rubus* is not much known, and is very rarely met with in nurseries. There are certainly some very ornamental subjects in the genus *Rubus*. Illustrations of this occur in the species under notice, in the Rocky Mountain *R. deliciosus*, with its large, white, Rose-like blossoms; *R. nutkanus* and *R. odoratus*, with large white and purple flowers respectively; *R. laciniatus*, the vigorous-growing cut-leaved Bramble, and the double pink-flowered form, which furnishes quite a wealth of blossom about July even in a dry situation.—*T.*

Chimonanthus fragrans var. grandiflorus.—I said in a recent note that of the two forms of *Chimonanthus fragrans*, viz., the type and var. *grandiflorus*, the older and better known variety was the first to flower. This was so as far as occasional blooms were concerned, but the

other was the first to come out in mass, and for the last ten days has been covered with fine large blooms. This form is as yet comparatively unknown, and in the majority of cases planters who have applied for it have found with the first production of flowers that they have only secured the type. In addition to being twice the size in the individual blooms and much deeper in colour, the var. *grandiflorus* is very vigorous, furnishing large stretches of wall very quickly. By the removal of a portion of a *Benthamia japonica* on the one side and a green *Rhamnus* on the other, I have been able to considerably extend the plant of the large-flowered *Chimonanthus*, and it now covers some 360 square feet of wall. Writing above of *Benthamia japonica* reminds me to inquire if this has ever been tried as a substitute for Boxwood. In removing one or two horizontal branches, I kept one and fashioned it into a walking-stick. It takes a fine polish, and is the hardest and heaviest English wood I have ever handled.—*E. L. B., Claremont.*

OFFICIAL REGULATION OF THE WHOLESALE TRADE IN FRUIT AND VEGETABLES IN THE PARIS MARKETS.

WE, the Prefect of Police, considering (1) the Law of August 15-24, 1790 (No. xi.), and that of July 19-22, 1791; (2) the Law of June 11, 1896, respecting the Halles Centrales and the decree issued on April 23, 1897, for its execution; (3) the regulation orders dated November 28, 1893, October 17 and November 28, 1896; and (4) the order of December 30, 1865, with respect to the police control of the public markets, make the following orders:—

ARTICLE 1.—The wholesale market for fruit, vegetables, grain, and flower shall be held every day. The sale of fruit and vegetables shall be carried on from 4 o'clock to 10 o'clock from April 1 to September 30, and from 5 o'clock to 10 o'clock from October 1 to March 31.

ART. 2.—The opening and closing of the sales shall be announced by ringing a bell, and no sales are allowed to take place outside of the regulation hours.

ART. 3.—When consignments by railway happen to be delayed in transit, the agents of the two prefectures, acting in concert, will have power to postpone the closing time of the sales.

ART. 4.—No one is allowed to enter the market outside of the hours of sale except the officials of the authorities, consignors who can establish their identity as such, the salesmen and their employés, who must be provided with a card of identification, signed by a salesman and counter-signed by the chief inspector of the sale-room. Also, no one is permitted to take up a stand in the market without necessity while the sales are going on.

ART. 5.—All persons who are not in the service of the authorities or of the salesmen must leave the sale-room immediately after the closing of the sales is announced by ringing a bell, and the market doors must be closed a quarter of an hour before the closing of the sales.

ART. 6.—The unloading and handling of goods sent into the market, the taking charge of goods deposited in the storeroom and the delivery of goods to purchasers shall be entrusted to the porters exclusively. The assistance of these porters may also be demanded by purchasers in counting fruit or vegetables which are sold by number, and this counting takes place in presence of the salesman where the sale was made. The services of these porters and the amounts of their wages are detailed in the order and table annexed to the present ordinance.

ART. 7.—Goods must be sold in the package in which they arrive, except Potatoes sent from Africa in barrels, which may be sold in lots of 55 lbs. each, also Oranges, Lemons and Mandarines sent in boxes, barrels or loose (unpacked), which may be sold by the hundred.

ART. 8.—Goods that are to be sold by weight must be weighed before the sale is announced, and a memorandum indicating the gross weight must be placed on each package. The consigners should mark on each package the weight of the tare, and when this is not done the tare shall be regulated by that of packages of the same kind and dimensions, or it may be set down approximately if there happen to be no similar packages for comparison at hand when the sale takes place. The weight of the tare must be marked on the weight-note as well as the gross weight. Packages containing goods that are to be sold by number or measure must bear a label indicating the nature of their contents. In the case of forced fruits that are sold by weight, each package should be marked in plain figures with the net weight of the goods which it contains. The weight of the tare and also the nature of the contents of each package should be stated by the consigner in his letters of advice to the salesman.

ART. 9.—It is expressly forbidden to place in the bottoms of baskets, hampers, or any other kind of parcel fruit or other commodities of a kind or quality inferior to those placed at the top. It is also forbidden to place in the bottoms of baskets or hampers containing fruit or vegetables which are to be sold in bulk in the package just as it stands any excessive amount of packing material unnecessary for the preservation of the fruit or vegetables and calculated to give a false idea of the contents of such baskets or hampers. Goods which are sold by bulk in large hampers or in bundles should, when they are being packed for sale, be put together without leaving empty spaces between them, so that the appearance alone of the package or bundle will give an exact idea of the bulk of its contents. Breaches of these regulations will be noted, and, if necessary, brought before the correctional tribunal. The provisions of this article, and also of the preceding one, are to be communicated to consigners by the salesmen who represent them in the market.

ART. 10.—The inspectors of the market shall examine the goods which are put up for sale, and shall seize any that they may find to be in an unsound condition.

ART. 11.—Any consigner who wishes to set a minimum price on his goods should advise his salesman of the same by letter or telegram before the sales commence.

ART. 12.—The salesman, when putting up one or more packages for sale, must announce the nature and kind of the goods, and also the net weight when they are sold by weight, and the number or measurement when they are sold in either of these ways. He should also state whether any package is to be sold in bulk and just as it stands. When a number of packages are put up for sale in bulk, the salesman shall fix the starting price for the whole lot.

ART. 13.—Goods for which the salesman shall have fixed a starting price, addressing himself generally to an assembly of several purchasers, shall be considered as being put up for sale by auction, and shall be knocked down to the highest bidder. The salesman is bound to accept the first offer and the successive biddings until the goods are knocked down. In these auction sales the biddings are regulated as follows:—

10 centimes on prices below 5 francs.	
25 " " " " "	from 5 francs to 10 francs.
60 " " " " "	from 10 francs to 20 francs.
1 franc	above 20 francs.

ART. 14.—In order to facilitate the management of the delivery of goods at the grating of the sale-room or in the open space at the storehouse, the salesmen shall deliver to purchasers a sale-note with particulars which tally with the counterfoil of the memorandum book. The goods will not be delivered by the porters unless this sale-note is presented to them, and it is to be retained by them.

ART. 15.—It is forbidden to remove goods from one station to another in the market. In the interest of good order and to prevent overcrowding, when a salesman shall have received a greater quantity of goods than his station will hold, the

surplus shall, with the concurrence of the deputy of the prefecture of the Seine, be placed temporarily in one of the stations which are not so much crowded, but the goods can only be sold at the selling-place of the salesman to whom they were consigned.

ART. 16.—The employes and porters of the market who belong to the prefecture of police are expressly forbidden to purchase any goods there on their own account or for anyone else. The same rule applies to the employes of the salesmen.

ART. 17.—The notification with respect to the storing of goods unsold and the resuming of a sale, as prescribed by Articles 47 and 53 of the decree of April 23, 1897, shall be made in conformity with the examples annexed to the present ordinance. The notification with respect to storing the goods for safe keeping shall, immediately after the closing of the sales, be conveyed to the syndic of the guard porters, who will submit it to the disposal of the chief inspector. The notification with respect to the resuming of a sale must be conveyed to the chief inspector on the following day before the opening of the sales.

ART. 18.—Salesmen are forbidden to bring into the market, in addition to the furniture prescribed in Article 18 of the decree of April 23, 1897, any tables, scales, &c., without having previously obtained permission to do so. Requests for such permission sent to the authorities should mention the nature and dimensions of the articles.

ART. 19.—The general provisions of the order of December 30, 1865, with respect to the police control of the public markets are applicable to the wholesale market for fruit and vegetables.

ART. 20.—Breaches of the regulations are to be noted in official reports addressed to us on the subjects concerned.

ART. 21.—The following are cancelled: (1) The police order of May, 18, 1855; (2) the order of April 2, 1837, and the resolutions of November 17, 1876, November 4, 1878, and June 18, 1885, fixing the amount of the porters' wages; (3) previous regulations and resolutions determining the hours of opening and closing the market and also the minimum of lots.

ART. 22.—This present ordinance shall be printed, published and posted up, and the divisional inspector of markets, the special commissary of the Halles, the chief and other inspectors of the wholesale market for fruit and vegetables are, each in his own province, charged to see that its provisions are strictly enforced.—LÉPINE, Prefect of Police, in *Revue Horticole*.

ORCHIDS.

VANDA AMESIANA.

THERE is probably no more variable species than this in the genus, the flowers differing considerably in size, but more so in colour. In some the tint is quite a deep rose-purple, and through a great variety of shades it reaches to nearly a pure white in the very pale forms. The variety *alba*, which appeared first with Messrs. Williams, of Holloway, is said to be quite pure white, but though I have seen plants labelled *alba*, I have yet to see a pure white form. But all the forms are beautiful, free-flowering, and useful Orchids, worth a place in the most select collections. The stems do not as a rule attain any great height, but if several are grouped together in a broad flat pan or basket these make a fine specimen, and blooming freely are very showy. The flowers are also extremely useful for cutting, the entire spikes being very nice for vases where a light upper arrangement is necessary, though in this condition they do not last long, the smaller side bits making capital dress or coat sprays. The present time has been looked upon as its flowering season, but I have noted it in bloom in various collections almost all the year round. A good deal depends upon the temperature it is

grown in, and the fact of its thriving so well in a variety of temperatures seems to point to its being a plant of good constitution. I like to give it fairly cool treatment, and I think the plants are far more likely to be satisfactory over a number of years when grown in this way than if subjected to much heat. But the *Odontoglossum* house proper, with its heavy shading the greater part of the year, is not an ideal place for it by any means. Rather than this I would keep it as near the light as possible and close to a ventilator in the Cattleya house. The house that suits it best is one kept cool and moist at night, but only sufficiently shaded by day to prevent injury to the leaves. Vandas of this class, and even such as *V. coerulea*, can stand heat as long as it is sun-heat, and a continual current of air is passing over the foliage. What they dislike is a close, moist atmosphere, kept up by closing the houses and forcing the fires by night. In fact, a high temperature during the autumn is just the thing required to make the leaves hard and firm and prepare the plants for winter, but, as everyone knows, air and sun are also important factors. As I have many times pointed out in THE GARDEN, a natural and well-balanced temperature should be aimed at, and where this is provided, even though it may be a few degrees above or below that usually thought necessary for the plants, these will thrive better than in the right temperature, if this is brought about by insufficient air and too much fire-heat. As mentioned above, specimen plants of *V. Amesiana* do well in large flat pans, but where single-stemmed plants are concerned a better plan is to grow them in pots or baskets of restricted size. They will establish themselves much sooner in this class of receptacle, and are not so liable to be over-watered as in those of a larger size. Clean Sphagnum Moss and charcoal make the best compost for it, but good drainage is essential. The roots seem to delight more in rambling about over lumps of charcoal, crocks, and similar material than in pushing very far away from the centre of growth, like those of *V. suavis* and other large growing species.

During the growing season and until the roots show by their reddish brown tips clouding over that growth is past for the season, the plants like plenty of moisture both at the roots and in the atmosphere, but afterwards this may be lessened considerably, though at no time quite withheld. *V. Amesiana* is a native of the Shan States, and is found growing naturally in rather exposed sunny positions. Messrs. Hugh Low and Co. imported it with other Orchids from this country, but since then many large and successful importations of the species have been made. The most nearly allied kind is *V. Kimballiana*, and with this *V. Amesiana* is often associated in its native country. R.

Lycaste Skinneri rosea.—In this the sepals and petals have a warm, rich tint of rose that is very distinct and pleasing, while the lip is profusely spotted with crimson. Like the type it is an easily grown plant, this being proved by the fact that many persons have been fairly successful under varying modes of treatment. Some grow it in loam, some in peat, and others in a mixture specially prepared, and as they are all productive of good results for a time, each one thinks he has hit on a better method of culture than the other.

Mormodes pardinum concolor.—This variety has flowers of a bright lemon yellow, without any of the crimson spots as seen in the type. It is a very delicate plant, and not by any means so easily grown as the typical *M. pardinum*. The spikes rise about a foot high and are closely

covered with flowers. The best place to grow it is in the lightest part of the East India house, and a limited amount of compost only is necessary, the roots though fairly strong seeming to delight in growing closely packed together. Plenty of water is necessary while growing, but after the foliage is off the plants may be kept absolutely dry for a few weeks with advantage.

Odontoglossum blandum.—For a long time after its first introduction this pretty *Odontoglossum* was very rare, and even now it is not so plentiful as one could wish. The spikes rise about a foot high, and the flowers are somewhat closely produced thereon. Its habitat is high up on the mountains in New Grenada, consequently a cool, moist, and airy house is essential the year through. Grow it with the coolest section of the genus in pans not much wider than the plant itself. Shade heavily in summer, and in winter keep the glass clean so that plenty of light reaches it from all sides.

Odontoglossum læve.—This Mexican species is not perhaps in the front rank of *Odontoglossums*; still a good variety is worth having. It is a very strong-growing, easily-cultivated plant, distinct in habit and flowers from any others now in bloom. The spikes are often a yard or more in length, the upper portion covered with blossoms, these being individually about 2½ inches across. The outer segments are greenish-yellow, almost wholly covered with brown blotches, the lip whitish or rose colour in different varieties. It was sent to this country by Hartweg in 1840, and flowered at Chiswick soon after. It requires a cool, moist and airy house, with an abundant supply of water at the roots summer and winter.

Aerides multiflorum.—This pretty species is not often seen in flower at this season, but a nice spike comes from a correspondent. There is not much to distinguish this plant from *A. roseum* but the name, and probably the above was the first name given to it, though the first plants to flower in this country were called *A. affine*. It is rather a dwarf-growing *Aerides* with leaves each about 9 inches in length, and the spikes are plentifully produced when the plants are healthy. Coming as it does from a more mountainous region than some other kinds it does best in a light and airy structure, kept moist by frequent dampings. In the early part of the season, especially if the plants have been repotted or otherwise disturbed at the roots, a medium shade must be allowed, but in the autumn the sun may be allowed to shine almost fully on the plants and no harm will be done. Large receptacles are not necessary, in fact they are harmful, but in small baskets or suspended pans the plants have a fine appearance when carrying their pretty drooping spikes of rosy purple flowers.

SHORT NOTES.—ORCHIDS.

Odontoglossum elegans.—This is a very distinct and handsome *Odontoglossum*, probably a natural hybrid between *O. cirrhosum* and some other kind. It has light yellow sepals and petals with very heavy markings of reddish-brown, and the lip is deeper yellow pointed at the apex and having a large blotch in the centre. It produces long vigorous spikes when healthy and strong, and thrives well in the coolest house.

Lælia anceps.—A form of this Orchid comes from a correspondent under the varietal name of *alba*, which it certainly is not. This variety has no rose or purple about it, while the form sent has the usual streaks of purple and a deep yellow blotch in the centre; the sepals and petals are, however, pure white. It comes nearest in colour to *L. a. Dawsoni*, but has not the wonderful substance or the size of petal seen in this form.

Cypripedium Boxalli.—The first flower of this I have seen this year is now open, and it is much earlier than usual. The species, if species it is, is very nearly related to *C. villosum*, but from this it is quite distinct. The flowers are large, the dorsal sepal broader than that of *C. villosum*, with very dark purple blotches reaching nearly to the apex. The petals are yellowish tinged with green, the lip similar, and the

whole flower shining as if polished. It does well under cooler treatment than most *Cypripediums*.—R.

Maxillaria grandiflora.—This is a fine old species not sufficiently known among Orchid amateurs generally, though one comes across large old specimens occasionally in collections. It has the habit of a *Lycaste*, and the large flowers occur singly on the spikes. The sepals and petals are pure white, the lip marked with purple, and the flowers are delicately fragrant, lasting well in good condition. It thrives best in the cool house, being a native of Peru.

NOTES OF THE WEEK.

Camellias and the fog.—It is noteworthy that the flowers of these once popular evergreens are absolutely proof against London fogs, expanding in all their pristine purity as though luxuriating in the most congenial surroundings.

Rosa lucida.—In an article on single Roses which lately appeared in THE GARDEN this species was recommended as a climber. Here it creeps nuder ground and quickly forms a low colony, but has never shown the slightest disposition to climb. *R. l. macrophylla* is the freest, but three-year-old plants are not much more than 2 feet high.—T. SMITH, *Newry*.

Hamamelis arborea.—This winter shrub is gay with blossoms. The value of this plant, however, lies in the pretty glow of colour furnished by the petals. It is a deciduous shrub, and for its early flowering is of considerable value in the garden at this time. At its time of flowering, not a leaf is to be seen on the plant, while every twig, large and small, contributes its quota of the gay-coloured flowers. At Kew, a group near the Orchid house is now in flower.

Rosa lavigata.—The Kew list makes this, *camellifolia*, *sinica*, and *herokeensis* to be the same thing, but *R. camellifolia*, the Japanese plant, and *R. lavigata* from North Carolina as grown here are quite distinct. There is no doubt about their near relationship, but the latter is much more slender than the former. Neither has flowered here, as they require rather warmer quarters than I can give them.—T. SMITH, *Newry*.

Erica colorans.—This is one of the most useful and beautiful of the winter-flowering Heaths. The flowers, almost glassy in appearance, are at first white, changing to a reddish purple with age. The leaves are of the darkest green and very dense, a characteristic that displays the well-flowered shoots to the best advantage. Quite small plants in 5-inch pots have been gay with blossoms since November, and promise to remain some time longer.

Prunus sinensis fl.-pl.—This plant, so freely covered with its globular blossoms of snowy whiteness, is among the best known of forcing shrubs for winter use. A few such plants are especially well suited for arranging among dark-leaved subjects in the conservatory, and, though leafless, are not unattractive when there are but few things to select from. In these respects it is a useful as well as reliable plant, and, when established in pots, can be forced into bloom quite readily.

Rhaphis salicornioides is a very pretty species from Brazil, with erect blossoms of a tawny orange hue and inclining to orange-yellow within. The blossoms are each not more than an inch long and borne with considerable profusion on the unique little bushes. Another species, *R. mesembryanthoides*, with pure white starry blossoms, is also interesting just now, the former being decidedly the better grower. Both species are now flowering at Kew in the large succulent house.

Pinguicula caudata.—Quite recently we noted a nice batch of this striking species flowering profusely in one of the Orchid houses at Syon House. It is worthy of note, too, in a garden such as Syon, situated so close to the Thames, with its inseparable fogs and dire consequences, that the colour of the flowers was so bright. Coloured flowers perhaps more particularly quickly feel the ill-effects of this poisonous cloud, but the above gave no evidence

of having suffered and the flowers were very effective in the gloom.

Rhododendron multicolor luteolum.—The foliage usually in the species, hybrids, and varieties of *Rhododendron* has much in common, but in this curious and distinct plant it is quite an exception—indeed, the leaves are not unlike those of some of the *Eriostemons*, the sparsely furnished branches bearing but little evidence of the tribe to which it belongs. The blossoms are few in number and small, greenish yellow in colour, and broadly eampanulate in form. It is a curious and interesting form recently noted at Kew.

Canary Creeper in January.—By way of comment on Mr. Burbidge's note (p. 12) I enclose a spray of the Canary Creeper, which has been in continuous bloom on the front of my house (Monkstown, Dublin) for many weeks past. I never remember its remaining to anything near the new year before. *Crocus Imperati* has been in abundance for about ten days; last winter the first flower opened on November 26, and to-day (January 2) I see a bud or two of *C. Sieberi*. We have had, I need scarcely say, very little frost, but there has been ice on two or three occasions.—G. P.

Snowdrops.—In a few days should the mild weather remain these will be flowering in their thousands. Only the other day as a groundwork to the large Rose beds on the grass at Kew we noted them springing forth, a veritable carpet, with here and there a large globular head of snow white almost ready to expand, and hundreds of pearly white buds already in sight. Thus thickly grown, they will constitute a sort of self-protection against the damaging effects of pelting rain and the like that quickly mar the purity of the flowers in the ordinary beds among bulbs in general.

Ornithogalum thyrsoides album.—Perhaps one of the most remarkable features of this species is the length of time the plant remains in flower. The inflorescence is composed of a compact thyrsoid-like panicle of pure white blossoms, the individual flowers large and showy. The growth is somewhat dwarf, rarely exceeding 18 inches high, while good spikes are frequently produced at half that height. In the above kind the dark centre is very conspicuous, while the blossoms remain many weeks in good condition when in a cool greenhouse temperature. For autumn and winter blooming this is a most useful kind and worth cultivation.

Alocasia Putezeysi.—Though this genus contains many striking forms, it certainly boasts but few with the proportions of this distinct and handsome species, which attains some 5 feet high before the handsome leaf-blade is developed. This is similar in shape to that of *A. longiloba*, the colour a dark metallic green, the midrib (which is very prominent) pale green bordered with white. The secondary veins, that occur alternately or nearly so, are of the same colour. The leaf-blade is about 2 feet in length, the reverse surface being of a dark purple. A fine plant of this handsome form is now in good condition in the *Nepenthes* house at Kew.

Rosa Wichuriana.—This has always been recommended as suitable for covering banks or to creep among stones; but the other day I saw about 20 feet run of wall completely covered by one plant. The aspect of the wall in question is due west, close to the sea and exposed to terrible winds, but even so, now in the early days of January, it is a dense mass of the brightest green. I am told that it has been in flower all the season through, and there are still a few buds remaining. Altogether as a wall covering, in a dry, exposed position, where even Ivies are battered to pieces, it has no equal, and its appearance is very uncommon.—T. SMITH.

Anoiganthus breviflorus.—This handsome species, figured in THE GARDEN, July 18, 1891, is now flowering in the No. 7 range at Kew. The stout scape issuing from a large *Vallota*-like bulb grows 15 inches high, and bears an umbel of

erect flowers of a light orange-yellow shade. The umbel contains from eight to ten flowers, and as the latter expand the foliage appears from the base. The species is by no means plentiful or even well known in gardens, though there can be no doubt of its worth, and flowering in the depth of winter should render it of still greater importance. Just now a good-sized pot with several bulbs, each carrying a flower spike in different stages of growth, may be seen at Kew. The species comes from Natal.

Hessia spiralis.—This is one of the most minute of the *Amaryllideae*, though not necessarily of the least interest, flowering as it does at this dull season of the year. Dainty and fragile in all its parts, the foliage, in size at least, would be about equal to that of the autumn *Snowflake*, if, indeed, as strong as in this pretty plant. In the twisted or spiral character it is quite distinct, and likewise in the forked characteristic of the inflorescence. The scape is nearly 6 inches high, the perianth segments of a pinkish hue externally, the inner segments white. In the examples now flowering at Kew, the umbel contained only some three or four flowers, which, expanded, are each about three-quarters of an inch across. It is one of a small though pretty group of Cape bulbous plants.

Iris reticulata var. sopenensis.—This charming winter Iris is the first of its race to open its flowers, the first blossom appearing on New Year's Day in a narrow border at Kew. This is earlier than usual for this kind. Its earliness may largely be accounted for owing to the mildness of the season so far. Coming so early in the open ground, however, should render it of considerable value in pots, as, given merely frame protection, these pretty kinds would make delightful subjects in the sitting-room or the very cool conservatory. The flowers are somewhat variable in this kind, those in question being of a purple-blue tone and about 4 inches high, the blossoms appearing while the foliage has scarcely pierced the ground. It comes from Asia Minor, near Kharput.

Asparagus decumbens.—I send a flowering shoot of this exceedingly beautiful and but little-grown species. Unlike *A. plumosus*, it is pendulous, the shoots soon falling over of their own weight, and, when a number of plants are grown on a high shelf, forming a veritable green veil of great delicacy and lightness. It thrives with me in winter in a temperature of between 50° and 60°, and is now hanging down for about 5 feet. The tiny blossoms are very pretty, white with orange-red stamens, and recurved, reminding one of a miniature *Turnep Lily*; under favourable circumstances they exhale a strong lemon scent. For dinner-table decoration it is admirably adapted, the bright, fresh green being most attractive on the table-cloth, while for gracefulness it far surpasses its relative, now so much used, the *Smilax*.—GREENWOOD PIM.

Iris fimbriata.—This very beautiful species, which is also known as *I. japonica* and *I. chinensis*, is among the most useful of winter-flowering plants for the greenhouse or conservatory. Though very nearly hardy in so far as its roots are concerned, it is not to be seen at its best in this country when so regarded. Grown under glass either in broad, shallow pans or planted out in good soil, the plant is usually a success when afforded plenty of moisture when growing, and its beautiful spikes of pleasing blue and fringed blossoms will reward the cultivator. With generous treatment, every one of the fan-like growths will produce a lax panicle of its lilac-lavender and golden crested blossoms. A large specimen will produce a dozen panicles or more, each containing a dozen or more blossoms. In this way a profusion of its flowers is often maintained from early in January till the end of April, or even later.

Hardy Palms.—At page 11 "J. I. R." says he thinks that "*Chamarops Fortunei* and *C. excelsa* are totally different." I think, perhaps, he has fallen into a little mistake. The plant he calls *C. Fortunei* is *C. humilis*, which often throws suckers

from its base. Here we have some hundreds of *C. excelsa* growing outside, but I have never seen a sucker from these, although some have been planted out over forty years. Both male and female plants flower freely every year. From experience, I think the only Palm worth growing outside in the British Isles is *Chamerops excelsa*. *C. humilis* is not nearly so hardy as *C. excelsa*. *Jubæa spectabilis* is growing outside here, but very slowly, and under the same conditions is not nearly so hardy as *Chamerops excelsa*, but just about as hardy as *C. humilis*.—W. O., *Fota, Cork*.

—I was much interested in "J. I. R.'s" letter on hardy Palms, and should like to hear his definition of the difference between *C. Fortunei* and *C. excelsa*. I recognise two varieties, but do not know which is which. Contrary to "J. I. R.'s" experience, all the best specimens that I know in this county are growing in partial shade, and I live in Cornwall, where we probably get less sun than he does.—W. I.

Mild winter in Cornwall.—As an indication of the exceptionally mild winter prevailing at Falmouth, we have had batches of swallows and martins visiting us at intervals during November and the early part of December. One martin hunted over the same garden from December 20 to December 27. At the present moment our gardens show more than 100 species of shrubs and plants in flower. Among them are:—

<i>Abutilon megapotamicum</i>	<i>Grevillea rosmarinifolia</i>
Boule de Neige (standards)	<i>Illeborus in var.</i>
<i>Darwini tessellatum</i>	<i>Hydrangeas in var.</i>
Crusader, Prince of Wales, &c.	<i>Hypericum uralum</i>
<i>Acacia dealbata</i> , 25 feet high	<i>Iberis in var.</i>
<i>Wynbergi</i> , 12 feet high	<i>Iris stylosa</i>
<i>Iophantha</i> , 7 feet high	<i>Leptospermum baccatum</i> , 7 feet high, continuously in flower for past twenty-four months
<i>Aralia Sieboldi</i> , 10 feet high	<i>Magnolia</i>
<i>Eupatorium Weinmannianum</i> , 8 feet high	<i>Marguerites</i>
<i>Bugmansia sanguinea</i> , 7 feet high	<i>Narcissus</i>
<i>Clematis balearica</i>	<i>Nicotiana affinis</i>
<i>Cobæa scandens</i>	<i>virginica</i> in flower during past five months
<i>Cyclameu ibericum</i>	<i>Olearia Gunniana</i>
Comm. persicum	<i>Pittosporum Tobira</i>
<i>Cyphomandra betacea</i> in fruit	<i>Polyanthus in var.</i>
<i>Coronilla glauca</i>	<i>Primulas in var.</i>
<i>viminialis</i>	<i>Rhododendron Nobleanum</i>
<i>juncæa</i>	<i>Ruscus aculeatus</i>
<i>Crocus Imperati</i>	<i>Schizostylis coccinea</i>
<i>Choisya ternata</i>	<i>Senecio Petasites</i> , 7 feet high
<i>Desfontainea spinosa</i> , 7 feet high	<i>Sparmannia africana</i> , twelve branches, each with fine clusters of flowers, 8 feet high
<i>Erigeron speciosus</i>	<i>Spiræa ilicifolia</i>
<i>Eryngium pandanifolium</i>	<i>Snowdrops</i>
<i>Fragaria indica</i>	<i>Solanum arboreum</i> , 6 feet high, in flower for past five months
<i>Fuchsias in var.</i>	<i>jasmintoides</i>
<i>Geraniums in var.</i>	<i>Verbascum</i>
<i>Genistas in var.</i>	<i>Veronicas in var.</i>

—H. Fox, *Falmouth*.

The weather in West Herts.—A very warm week for the time of year. The day temperatures were all above 43°, while on no night did the exposed thermometer show more than 7° of frost. At the present time the ground is about 3° warmer than is seasonable at 2 feet deep and about 5° warmer at 1 foot deep. Rather more than an inch of rain fell during the week. The temperature during December was remarkably variable, but, taking the month as a whole, it was warmer than any of the previous eleven years, except 1894. Rain fell on nineteen days, to the total depth of 3½ inches, which is about three-quarters of an inch in excess of the December average. The sun shone brightly on an average for about 1½ hours a day, which is a better record than for any December since 1893. The year 1897 was, on the whole, an unusually warm one. The only four unseasonably cold months were January,

April, May, and September. The aggregate rainfall amounted to 26½ inches, which is about 3 inches short of the average at Berkhamsted for the previous forty years. The past year was the third dry year that we have had in succession; in fact, during the past twelve years there have been only two (1891 and 1894) in which the rainfall has been in any way in excess of the mean for the district. The last Rose of the year in my garden was destroyed by the frost on Christmas Day, which is the same day as last year, and three weeks later than the average date of its destruction in the previous twelve years.—E. M., *Berkhamsted*.

COVENT GARDEN.

A Look round Covent Garden Market at Christmas-time is always interesting, as showing the progress made in the cultivation of market produce. Plants and cut flowers were as plentiful as usual, the Scilly Isles and south of France keeping the market well supplied. The following are some of the prices realised on December 24: Violets (dark) were selling at 1s. and 2s. per dozen bunches; Parma Violets at 3s. 6d. to 5s. per bunch; Narcissus Paper-white, at 2s. to 3s. per dozen; Anemones, double pink, 2s. per dozen bunches; Anemone fulgens, 5s. per dozen bunches; Bouvardias, 6s. to 12s. per dozen bunches; Lilac (white), 4s. to 6s. per bunch. *Freesia refracta alba*, which is within the reach of everyone to cultivate, sold at 2s. 6d. to 3s. 6d. per dozen bunches; Arums, from 4s. to 6s. per dozen; Eucharis, 6s. to 8s. per dozen; and *Lilium Harrisii*, 6s. to 8s. per dozen. Lily of the Valley realised prices ranging from 1s. to 3s. 6d. per dozen sprays; Roman Hyacinthus, 6d. to 1s. per dozen sprays; Christmas Roses, 1s. 3d. to 2s. per dozen; Roses, Tea, from 1s. to 2s. per dozen; yellow, 2s. 6d. to 4s.; Tuberoses, 8d. to 1s. per dozen blooms; single Daffodils, 1s. 6d. per dozen. Orchids were very scarce. Scarlet *Geraniums* realised 9s. to 12s. per dozen bunches; *Chrysanthemums* (white), 8s. to 12s. per dozen bunches; yellow, 6s. to 12s. per dozen bunches; Carnations (white), from 1s. to 2s. 6d. per dozen; Carnations (pink), 1s. 6d. to 2s. 6d. per dozen.

Pot plants, of which there was an excellent supply, realised good prices. Cyclamens, always great favourites at this time of year, sold for 12s. to 30s. per dozen. Poinsettias, which are a feature with their deep crimson bracts, the huge groups of which were wonderfully effective dotted about the market, brought the growers 18s. to 24s. per dozen plants. Of *Chrysanthemums*, that excellent late variety Mrs. Canning, one of the best late whites for market work, sold for 8s. to 12s. per dozen bunches. *Ericas* realised 9s. to 24s. per dozen. Of Azaleas, that excellent double white variety *Deutsche Perle* sold for 2s. 6d. to 3s. 6d. each. *Genistas*, which were exceptionally early, realised 12s. per dozen; *Cinerarias* and white *Marguerites*, 8s. to 12s. per dozen; *Mignonette*, 6s. to 8s. per dozen. Fine-foliaged plants find a ready sale at this season for table decoration, *Dracenas* realising 18s. to 30s. per dozen; Palms (various), from 6s. to 36s. per dozen; specimens, from 10s. to 100s.

There was a plentiful supply of Holly, Mistletoe, and evergreens of every description, also Christmas trees from 6s. per dozen upwards, according to size. T. P.

Royal Horticultural Society.—The first meeting of the Royal Horticultural Society in 1898 will be held as usual in the Drill Hall, James Street, Westminster, on January 11, 1 to 4 p.m.

Gardeners' Royal Benevolent Institution.—We are asked to state that the annual friendly supper of the members and friends of this institution will be held as usual at Simpson's Hotel, 101, Strand, on Thursday, January 20, at 6 p.m., after the annual meeting, when Mr. A. W. Sutton, of Reading, will preside. We have also much pleasure in announcing that his Grace the Duke of Portland has promised to preside at the

60th annual festival dinner of the institution, to be held, it is hoped, in June next, but the date is not yet fixed. All inquiries to be addressed to Mr. Geo. J. Ingram, secretary, 50, Parliament Street, S.W.

PUBLIC GARDENS.

THE STATUES IN THE BOTANIC GARDENS OF BRUSSELS.

We note with interest a protest in a Belgian paper against one of the many instances of spoiling a garden with bad sculpture:—

On the terrace above the four porphyry chandeliers which have been placed there under the curious pretext that it lacked fountains, four birds may be seen in bronze, in which one may almost make out the familiar contours of an eagle, a condor, a stork, and a vulture, each in the act of devouring a fresh-water eel. Naturalists will observe that none of the species above-mentioned is addicted to the practice of eating fish, the stork itself never soars in its appetite above frogs, and the codfish as a dish, at any rate, is unknown to him. Therefore, it may be asked, why represent these birds as engaged in a pastime which is so foreign to them? However, a little lower down we find a lion protecting a duck, a thing which is very rare, not to say obsolete in practice; next, parrots are seen perched upon the chimneys of the little greenhouses and deriving the full benefit of the smoke therefrom. Storks, it is said, are sometimes seen nesting in chimney stacks, but we never heard this of parrots. The visitor may also be puzzled at the sight of a man in gaiters, but shirtless, and who fraternises with a wild boar; and by another bound to a tree, to whom has been given the charge of a number of herons, which he incontinently allows to escape from his hand; and he may be inclined to ask to which age and variety of the human species these two specimens belong. Many people think that the sculptural adornment of this garden is a symbolism which is strange, dubious, and deplorable in its pretentiousness. There are zoological groups which are scarcely comprehensible, such as a crocodile with a boa between its jaws and endowed with the tongue of a lion, and a fantastic-looking tiger with bran stuffing. But the most incredible of all is the group which represents a man cast away upon a tree—apparently a palm tree—on the ground a pelican and some dead ducks. So many dead in so little space can only be intended for an allegory. Can the author have intended by it the Manchineel, of which the shade is said to be deadly? Evidently not, since the victims writhe in the throes of a horrible death, and the Manchineel's, according to Scribe and Meyerbeer, is a painful poison. We give it up. Venomous fungi alone would seem capable of inflicting such stomachic pains.

It is to be regretted that a public garden should be made a dumping ground for such rubbish of the studios, and we fear that some of it is the result of jobbery in finding an outlet for the energies of bad sculptors, who would be much better employed working on the earth, instead of disfiguring it with what no one wants, which makes the judge of such work grieve, and beyond all doubt disfigures the garden, which should be a place for beautiful living things and not absurdities in stone.

Dracæna indivisa.—In a small state this makes an elegant plant for table, the narrow deep green leaves incurving at the ends and forming a very well-shaped and ornamental specimen. The best way to raise it is from seeds. These if sown early in spring make useful plants by the following winter. Sow in strong heat in a light, open compost consisting largely of leaf-mould and sand, and this material may enter largely into the subsequent potting compost. Some variation in the colour of the leaves will be noticed.

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ORCHARD AND FRUIT GARDEN.

FRUIT TREES FROM SEEDS.

THE raising of fruit trees from seeds is a subject that has not been taken up largely by private gardeners; at any rate if it has there have not been many successful records given of late years. The reason why so little is done by private gardeners probably is because as generally represented there are so very few seedling trees that come up to the standard of old and established sorts, to say nothing of the rare possibility of getting something superior. Mr. Tallaek puts quite a new aspect on the case on p. 495, and revives an interest in the raising of fruit trees from seeds, not as a commercial enterprise, but simply as a home study.

My experience of raising fruit trees from seeds is very primitive, for the simple reason that it was never encouraged in gardens in which I have served, and the impression gained by inquiry has been that they are so long in coming into a bearing state that the work is very slow and unremunerative. There has always been an aspect of uncertainty even whether some seedling trees would fruit at all, but, judging from Mr. Tallaek's remarks, this is absolutely without evidence. At the present time, however, I have a few seedling Peaches or Nectarines, or perhaps both, that have come up by chance, some indoors, and others in the open garden, probably from fruits eaten and the stones thrown down and buried in the course of digging. These are two years old, and have been growing in the open border until the last autumn, when I took them up and had them potted with a view to bringing them into earlier bearing, and which the restriction in pots ought to do. They made a strong growth last summer, but no sign of a flower-bud was to be found on either, so that the same time will elapse as that given by Mr. Tallaek before any prospect of fruit will be assured, namely, four years from the time of the

germination of the seed. I can give no explanation as to why so many seedlings should have sprung up in the spring of 1895, but to me it points somewhat to the fact that the natural conditions for germinating must have been more than usually favourable, for in no previous year, nor during this last summer, has there been any sign of a chance seedling Peach in these gardens since I have had charge. Seedling Grape vines, on the other hand, have been found on several occasions, but no useful result has been obtained, their growth being usually so slow and weak. Had they made such a willing start as the Peaches alluded to their prospects would have been better. That there remains a possibility of obtaining something distinct has been proved by the introduction of the now familiar kinds Lady Hutt, Appley Towers, and Marchioness of Downshire. Some few years since I remember at Draycot, near Chippenham, the gardener, Mr. Gibson, having a couple of chance seedlings, both distinct from any others I know, but neither proved good enough to justify a name being given them. One was a white, the other black, of the Sweetwater and Hamburg types.

In regard to seedling Peaches my observations bear out what Mr. Tallaek says respecting their hardness against frost, and while trees established on walls get blistered badly by the cold March winds, the seedlings in the open suffered not the slightest injury. This is true also of maiden trees recently obtained from the nursery and planted on a portion of the wall where the older trees suffered so badly last spring. Not a leaf was blistered on these young trees, although not so well protected by netting as the older ones.

Seedling Apricots might be almost considered rarities. I am not quite sure whether I have ever met with a home-raised seedling Apricot. I shall not now rest satisfied until I have some of these as well as other fruit trees; not, however, by depending on chance or self-sown ones. Apricots have never been a success here, but on taking charge I found one—a standard

—doing better than the others which had been worked near the ground. I at once resolved to extend the standards, and so far anticipations have not disappointed me. This induces me to think that a different stock must have been used for the standard than that adopted for dwarf-trained trees. In this matter, however, I am open to correction, as my opinions are based only on actual experience obtained as above described. It would be interesting to learn whether seedling Apricots can be fruited as quickly as Peaches, and how long either of these hard-shelled seeds remains in the soil before actual germination and growth take place. Has Mr. Tallaek attempted raising Plums and Cherries from stones, and with what results?—W. S., *Wilts.*

—As Mr. Tallaek has written so approvingly of the practice of raising stone fruits from seed, can he tell readers of the average of really good seedlings Peaches, Nectarines, and Apricots produce? Without doubt the nurseryman finds it most advantageous to raise his trees by budding on Mussel Plum stocks. It is his business to produce as rapidly as he can, and the best with his appliances that he can. But the private gardener has a freer hand in the matter, as if he chooses he may raise seedlings, grow and train them, and then plant against walls or inside houses, and fruit them if even but experimentally. If Mr. Tallaek has done all this, then he can answer the query I have put to him.—A. D.

Fruit room.—It is to be feared that fruit rooms in general will be wearing a rather poor appearance in consequence of the short crops of the past season. The greatest care should therefore be taken of the fruit that remains, especially if necessary to keep it as long as possible. The less Apples and Pears are disturbed beyond picking out decaying fruits the better, and however great the temptation may be to give them a wipe over with a cloth if dirty or dusty, it should be resisted, as this bruises and disfigures the skins. Keep the room cool and at a low, equable temperature for Apples, and cover the fruit over with sheets of paper or tiffany in the event of severe

frost setting in, rather than employ fire-heat to ward off its effects. The Pear room may be kept rather warmer, but guard against using too much heat, otherwise the fruits shrivel. Pears generally have been highly flavoured this season, a fact which is due in a great measure to the past fine autumn, which led to the fruits being perfectly developed.—S. E. P.

Winter Grapes.—I always read the notes from the pen of Mr. Iggulden, and at no time was more closely in touch with him than on the matter of Grapes (p. 448). I feel sure that the majority of Grape growers in the north will agree with what is written on the page indicated. I know several owners of gardens who refuse to eat Gros Colman. Why? Because it was sent in for dessert when it was unripe. It is long after the berries are coloured that they are fit for dessert, and some who have discarded Gros Colman Vines are now alive to the fact that they were in error, and have had this fine variety again established, being careful not to have any of the fruit cut before the end of the year. Many gardeners, too, have had to reconsider their verdict on the quality of Gros Colman. It is a great mistake to take the finely-grown examples seen on exhibition tables into consideration (during the early part of September) as representing the highest qualities of this Grape. I never could keep Gros Colman so late (in fine fresh condition) as Lady Downe's. Good Gros Colman during February is easily supplied, while Lady Downe's can be had of excellent flavour and appearance and as fresh in May as in October. About thirty years ago I staged a pair of bunches of Lady Downe's along with two new Black Hamburgs for competition in June. The Black Hamburgs were preferred by reason of larger berries, but did not surpass in bloom or flavour the Lady Downe's of the former year. Lady Downe's in a great measure displaced the excellent West's St. Peter's as a late Grape. Though West's St. Peter's was one of the most popular Grapes in England during my early gardening days, I never have seen it extensively cultivated in Scotland. I could always grow it better in the south of England than in the north. Black Hamburg is now seldom seen as a late Grape, but it can be kept in capital condition to the end of the year.—M. TEMPLE, *Carrou, N.B.*

MANURING FRUIT TREES.

WHEN the pruning, cleansing, and training are completed, attention should be given to the manuring of all trees standing in need of assistance in this direction. Manure in some shape or form is highly necessary if the trees are to be maintained in a vigorous bearing condition, as the demands made upon the roots by the crops year after year soon lead to the soil in their immediate vicinity becoming exhausted. The trees themselves soon give signs when this stage is reached by the crops of small, and badly-flavoured fruit. Manure judiciously applied will obviate this, and the present is a good time to carry out work of this description. Regarding the kind of manure to use, much will depend upon circumstances. Well-rotted farm-yard manure is the best, where it can be had. Old hotbed manure, if thoroughly decomposed and freed from sticks and other extraneous matter, also answers well, and it is astonishing how the roots of the trees will take possession of and ramify in it. Artificial manures are of course valuable, but they should not be used exclusively, as fruit trees, like all other members of the vegetable kingdom, appreciate a change of plant food. If artificial manures are used for two or three consecutive seasons, farm-yard or hotbed manure should be used the third or fourth year. Although manure is requisite for the well-being of the trees, it should not be applied in an indiscriminate manner. To this end, all which have not borne during the past

season, if in perfect health, should be omitted, as a food applied under such circumstances is apt to lead to an exuberant growth. It is therefore a good plan to look the borders or plantations round beforehand, and mark all those which are not to be manured. If solid manures are used they should not be dug in, but simply placed over the roots, as digging destroys great numbers of roots. The proper way is to draw the soil from off the roots to as far as the branches extend, place the manure some 2 inches or 3 inches thick over them, and then return the soil. Even when applying artificial manures it is a good plan to draw the soil on one side, so that they may be properly buried. Bone-meal or bone-dust and dried blood mixed in equal quantities, bone-meal and kaimit in the proportion of two parts of the latter to one of the former, and incorporated with an equal bulk of wood ashes, may be used with excellent results. Superphosphate of lime and muriate of potash mixed in equal quantities answer well for Apples and Pears. Ashes, or the residue from the burning of refuse and brushwood, is also valuable for this purpose, but the materials should be passed through a coarse riddle to free them of stones, &c. Soot is a valuable food, possessing as it does a certain amount of ammonia. Both this and the foregoing should be used in all cases where there is a deficiency of colour in the fruit. Sulphate of iron also increases and heightens colour, but before using this it is best to analyse the soil to ascertain whether it is needed. For such fruits as Currants of sorts, Gooseberries, and Raspberries no mistake can be made, and they can be given an annual dressing of manure without the slightest hesitation. With respect to the alleys under fruit walls, these, by reason of their being so frequently used the whole year round, get trodden very hard and become almost impervious to water. It is therefore a good plan to use lime rubble in addition to the manure to ensure greater porosity. Wall trees will require a top-dressing of new soil if that at the surface has become exhausted. Pears, Peaches, Apricots, and Plums come under this category. All this should be done now, or before the time arrives for affording the trees protection. A. W.

Keeping Grapes.—A correspondent a few weeks ago mentioned that he feared Grapes would not keep quite so well as usual, and I am sorry to say that such is the case. Black Alicante and Gros Colman are keeping the best, and, strange to say, Lady Downe's the worst. Instead of a weekly inspection, it is necessary to give the bunches a look over every other day, so that the berries as soon as they commence to decay can be at once removed. Keep the bottles filled with water and maintain a dry temperature of 45° to 50°.—A. W.

Japanese Plums.—It is hardly ten years since Japanese Plums began to attract the attention of fruit growers in the United States to any considerable extent, but it is now certain that they have won a permanent place among the cultivated fruits of this country. The best of them rank only good to very good in flavour and quality when compared with such varieties as Bavay's Green Gage, Washington, Jefferson's and other choice kinds of the European species, *Prunus domestica*. The Japanese Plums are not exempt from black-knot, and are fully as susceptible to injury from leaf-spot as are the ordinary kinds of Plums. Our Plum orchards suffered from an unusually severe attack of aphid the past season, and native Plums of the Chickasaw, Americana and intermediate groups, together with the Japanese sorts, were injured worse than the varieties of *Prunus domestica*. Japanese Plums are apt to have the fault of the Wild Goose and many other

native kinds in that the ripening fruit drops from the pedicel quite readily. Some of them, like Kelsey, are so tender that they cannot be fruited in the north. Ogon is the hardiest in fruit bud of the kinds fruited here, but it is not as hardy as the Italian Prune and others of the hardiest domestica kinds. The colours of Japanese Plums range from the clear yellow of the Ogon to the beautiful clear red of Red June and the darker, duller red-purple of Satsuma. Sometimes Burbank has a brilliant red cheek deepened to almost red purple with yellow background, but neither the blue nor purple shades of the Prunes and Damsons characterise any Japanese Plums. In some varieties the yellow is shaded with green, resembling somewhat the colour of a Green Gage Plum, and nearly all varieties have a delicate bloom, which, when it softens such brilliant hues as those of Red June and Wickson, adds much to the beauty of the fruit. As compared with domestica Plums, none of the Japanese kinds rank best in quality, yet some of them have a sprightly, agreeable flavour and attractive colours, and are good enough in quality to sell well. Some kinds, like Abundance and Burbank, begin bearing when very young, and are so productive that it is advisable to practise thinning, not only to increase the size of the remaining fruit, but also to prevent injury from overbearing. Willard and Ogon ripen before the earliest of the domestica kinds, and October Purple, one of Mr. Burbank's latest productions, as its name indicates, carries the season for Japanese Plums late into the fall.—*Garden and Forest.*

NOTES ON MELONS.

Now the Chrysanthemums are over, the pressure on the houses is a little relaxed, and where Melon houses have been used for forcing bulbs and other winter flowering plants the removal of these to the conservatory allows a start to be made. The whole of the old soil—if this were left in place—should be removed, and the drainage also taken out. No matter how carefully laid in the first place, it is sure to have become to some extent clogged with soil by now, and should be entirely renewed. After all is taken out, the wood and glass of the house must be thoroughly cleaned, and the walls and inside of the borders must have a coat of limewash. Replace the broken bricks, flints, or whatever is used for drainage, and over this place a thin layer of straw litter. It is then ready for the new compost, and it is surprising what poor stuff Melons will grow in provided they are well treated in other respects, and the staple of the soil is improved by the addition of a few barrowloads of fresh loam and lime rubble. Edgings from the sides of drives and garden walks, oddments of turf from lawn repairs, or any chance soil that may be to hand are all useful. Of course, where plenty of good loam is to be had, this is the material to use, but many of us have to make the best of what is procurable, and this need not deter anyone from growing this luscious and popular fruit. The best compost to use is a good sound holding loam thinly cut, with one barrowload to six of burnt garden refuse and lime rubble. A 6-inch potful of soot may also be added with advantage. If grown on the cordon system, a long ridge the whole length of the house should be used, but for extension a separate mound should be made for each plant. A depth of about 3 inches of soil over the drainage, independent of the ridge or mounds, is ample, and all should be very firmly rammed. If the seed is sown the same day as the border is made, the latter will be settled and nicely warmed by the time the plants are ready. So much time is not, of course, really necessary, but it is an advantage in every way. I never top-dress Melon plants in pots, as is still practised in some places. When well up and producing a rough leaf they are strong enough to plant out, and will make better headway than if kept in the small pots. At this time of year no shading will be needed, but in summer a piece of paper should be placed over each plant during bright sunshine

for a day or two. Ram the soil as hard as it can be made around the plants, and afterwards prick the surface over lightly with a sharp stick or dibber. If the soil is in proper order, no water will be necessary at the roots for about a week after planting, but light dewings overhead on fine days are helpful. One good soaking of tepid water must be given after this, and the plants respond to this by a rapid growth of both roots and leaves. The earliest crops are, I think, produced by cordon plants; at any rate, it is the simplest form of training, and this is an advantage, to beginners especially. Take the plants up on one stem until the middle of the trellis is reached, then stop the main stem by pinching the top out. A few days after the two lower shoots on the trellis will have advanced far enough to be stopped, and this check brings them to fruitful shoots about the same time as the female flowers appear on the upper ones. Thus at least three and often more flowers are open the same day and may be fertilised, a pair of fruits being enough to take from plants put out 2 feet apart. Varieties differ in the time required for fruiting, but not sufficiently as a rule to make any difficulty as to the atmospheric treatment. Plenty of water is needed until the fruits are beginning to colour, and frequent top dressings of rich soil are necessary while the fruit is swelling. The more sun and air allowed the better the flavour of the fruits will be, especially in the later stages of colouring and ripening. Varieties are now very numerous, the scarlet-fleshed kinds being especially rich in flavour and juicy in texture.

Peach Late Devonian.—This variety promises to become valuable for late use, as, in addition to its lateness, it is of excellent flavour. We have none too many late Peaches for use when September is well advanced, but Late Devonian fills up a void, and the quality is superior to that of some late varieties noted only for mere size. The variety in question is not a small fruit by any means, but handsome, with a rich crimson colour on the sunny side and greenish yellow on the other portion. The flesh is juicy and melting and remarkably good for such a late fruit. It keeps well into October after gathering. This new Peach is specially good for open walls. In 1894 it received an award of merit from the Royal Horticultural Society. I have not seen it under glass, and so do not write on its merits other than as a wall tree in the open. I am pleased to note how well it succeeds in a light soil, young trees making good progress and plenty of fruit-buds.—G. WYTHES.

The most productive Grape Vine.—The Aramon Grape Vine is hardly mentioned in treatises on fruit culture, notwithstanding that every day in the latter part of September thousands of pounds' weight of the fruit are sent from the south of France to the Paris markets. This variety, also known by the names Gros Bouteillau, Plant Riehe and Ugni Noir, is vigorous-growing, with long, thick, procumbent shoots, large leaves, which are broader than long, and large, sometimes very large, dark red berries with a slight bloom and borne in large clusters from 9 inches to 12 inches long and 6 inches to 8 inches across. The fruit ripens late, like that of the Gros Colman, and although its quality is not first-rate, it is not inferior to that of either the Gros Colman or the Gros Guillaume, both of which it surpasses in the abundance with which it is produced. In illustration of its productive quality I may mention that, grown in the deep, fertile soils of the south of France and Algeria, it has produced a crop yielding from 3080 gallons to 3520 gallons of wine, which, allowing about 12½ lbs. of Grapes to the gallon, means an average crop of over 16 tons of Grapes to the acre, or more than 9 lbs. to the square yard. These figures may seem fabulous, yet they are quite true. They are not even approximately reached by the yield of any other variety of Grape Vine. In the hothouses of England the Aramon produces Grapes which hang long on the Vine and then acquire a highly

pleasant flavour.—GEORGES BELLAIR, in *Revue Horticole*.

KITCHEN GARDEN.

SEED POTATOES.

WHEN seedsmen have to inform their customers that "seed Potatoes are scarce and likely to be dearer as the season advances," they serve to bring home to the intending purchaser the fact that owing to the excessive drought of the summer, the heavy rains of the autumn, and the severe attack of the destructive fungus to which Potatoes were subjected last year, a heavy penalty is likely to be paid, if not individually, at least collectively, for the effects of so undesirable a season. We have no means of counteracting a bad season for tubers through the agency of seed proper. The saving of seed from Potato plants would hardly pay in any case, whilst we have to contend with two important factors in that matter. First, few varieties of any cropping or table value produce seed naturally; and second, the disease is just as destructive to seed Apples as to seed tubers. We can only hope to continue the perpetuation of our Potato stocks by the aid of tubers as hitherto. That being so and these being scarce, it is important that those we have should have the fullest opportunity furnished them to render to planters the best possible service. Nothing can be worse for them than that they should lie in heaps whether in close pits or in stores, because the mild winter literally forces growth, and lying in bulk both helps to generate artificial warmth and to elongate the shoots, which so readily break from the eyes or tuber buds. No practical grower needs to be told that such storing means great waste through loss of stamina, yet this sort of storing is practised in myriads of cases and with huge bulks of tubers, for no other reason than that it is so hard to break away from ordinary method or routine. It is not merely that growth after planting is in such case weaker, the plants lacking vigour and robustness and reproducing a weakened stock, but so many of the sets go quite blind after such treatment, and thus results over large breadths perhaps one-fourth of failures, producing blanks, and rendering the consequent loss very great. No excuse or argument can satisfy for such failures. As compared with seed tubers so stored as described, the intelligent method adopted generally by gardeners stands out in strong comparison. From the moment of lifting the tubers to their planting, the object is to secure the best and most advantageously sized sets, to keep them thoroughly exposed to the air and light and always cool. They are kept thin, and thus when in the course of nature growths from the crown-buds ensue, these shoots are carefully preserved, and because the tubers are kept dry and in full light and air, no elongated blanched shoots result, but only such as are stout and vigorous; and these, again, having attained to a length of about 1 inch, remain so for a long time, indeed, till planted. Thus cared for, these seed tubers are full of vigour and strength, and will with proper culture carry strong growths and produce heavy crops. The sprouting of the sets in the light in this way also enables all that are diseased or blind to be rejected. Diseased tubers, though but very partially so, always exhibit greater precocity in sprouting than healthy tubers do, and such sprouts are invariably weak. It is well to be able to distinguish the unfit in this way, and to destroy rather than to plant them. There can

be no doubt but that very much disease is propagated by the planting of sets in which fungoid spores have remained dormant all the winter. These with warmth, moisture, and growth speedily increase. Plants that result from partially diseased tubers never reproduce a healthy crop. Thus the proper winter storage of seed tubers, whilst rendering so firm and robust those which are healthy, enables the diseased to be singled out and destroyed.

When Potatoes are scarce and prices rule high the consuming public feels the pinch very much, the grower perhaps less, as an enhanced price to some extent enables him to recoup losses resulting from shortness of crop. But as the crop once produced is the nation's food, and a very important food too, it is a matter of grave importance. Hence it is nationally incumbent on Potato growers, especially for market sale, to do all that is possible to mitigate disease attacks and to help keep the average crop up to its normal standard. It may well be asked not how many, but how few have utilised the now well-known Bordeaux mixture, undoubtedly the very best of disease preventives we have.

A. D.

Potato Bopee.—This is a new variety from the United States, and bears a very close resemblance in colour of skin and general appearance to Beauty of Hebron. It is so far found to be a good cropper and yet just a little earlier; but these are invariably characteristics of newly-introduced American varieties, although they all find their level after a year or two. It is interesting to note that Beauty of Hebron is the longest-lived in this country of the American varieties, and has been generally grown because of its earliness. Its white sport is now much more widely grown than is the pink-skinned original, and that is being hard run in popularity by Early Puritan. That Bopee has a coloured skin will not add to its popularity in the face of the competition these white-skinned forms present. Really we are pretty well off now for white first early and good cropping Potatoes.—A. D.

Chicory.—I find this extremely useful through the later winter months. It is not, of course, to be compared with Lettuce, but if well blanched it is quite equal to the usual sample of Endive as seen in most places. Where frame-room is abundant, and Endive can be kept in good order, it is to be preferred, but it does not produce anything approaching the quantity from a given space which Chicory does, nor is it so easily grown. A couple of rows of Chicory sown in April and thinned to 6 inches apart give a nice lot of roots, and these may be forced with the greatest ease in any shed or outbuilding from which frost is excluded. Old wine cases make good receptacles for the roots, these being planted in one with a few clean leaves or a thin layer of Moss just over the crowns, another case being placed on the top to exclude the light. A good soaking of water may be given after planting, and this will last for several weeks. Leave the box open for a day to allow some of the moisture to escape, then cover up, and lay some litter or mats over. Grown in this way it is crisp and excellent, but in a warm forcing pit or manure frame it is worthless. Anyone who like myself has to send in salads daily throughout the year with very limited accommodation will find Chicory grown thus very useful. Witloof is the best variety I have tried.—H.

Broccoli.—In common with other winter crops, the Broccolis are in a soft growing state, and should very severe weather set in a great many of the plants will be rendered useless. That most useful kind Veitch's Self-protecting has been better than ever this year, and is without doubt one of the best kinds in cultivation. Snow's is a good kind when the true stock is procured, but this is not always. I have grown this in the west of England on a light, hungry sand where many other kinds were failures, and cut good

useful heads for over a month from one sowing. Here on a heavy, moist soil it is just as reliable. Last season I grew a variety named Snow's that ran about a yard high and produced heads in January about 2 inches across, but, fortunately, I had a good lot of Vanguard which helped me out of a difficulty. There are not, in my estimation, many finer varieties than this, but its large succulent stems are among the first to suffer from the effects of frost, though the heads are fairly protected by the foliage. Leamington and Safeguard are good varieties to follow this, but all are beaten easily by Late Queen, probably the hardiest kind in existence. No matter what the weather, this nearly always comes through, and at the end of May and beginning of June is indispensable. If the ground is likely to be scarce this should not be sown till the middle of April, though earlier sowing does not alter its season.—H.

CELERY ROTTING.

Will you tell me what has caused my Celery to go rotten in the centre? It was fine-looking strong Celery, but when I started to lift it I found that in the centre it was going bad, apparently starting from the top of centre, and as time has gone on it has got worse. The outer part, though spongy, was sound. The top and roots were quite healthy. The ground is new, and slopes to the north on a rocky foundation full of stones. It was earthed up three times.—P. W.

* * Many have their Celery go wrong after a dry summer. Unfortunately, you do not give any information when the earthing up was done, but it was done no doubt before the plants had completed their growth, as you say the decay set in at the top. Another evil was want of moisture in your dry, stony land. More Celery is ruined by premature earthing up than many think, also by too much earth being given at one time. The plant is much best given free exposure as long as possible. With free exposure the leaves are hardened, the growth firmer and more advanced. To bury tender growth under a mass of soil is entirely wrong. The heart of the plant cannot make any further growth, with the result that decay sets in and it finally goes from the top through the whole plant. The evil is caused by earthing up too early, probably placing too much soil at one time or so firmly that new growth cannot be made, or the growth made cannot expand. I recently saw a similar case to yours, the grower attributing the decay to the kind of plant, he having grown a new variety. Of course he was anxious to get finer heads than usual, and earthed up too quickly. It may be asked, how can we obtain early Celery without earthing up early? Of course, to do this one must plant early, but it is a simple matter. The best way is to only place small quantities of soil at a time, not entirely covering the plant so that only the tips of the leaves can be seen. For Celery to use at this season it is best to defer final moulding up to the latest date possible, as the plants get hardened and the blanching takes much less time with plants thoroughly matured. I never mould up late Celery till October is well advanced, and by so doing get plants that keep sound into April. The want of moisture is the cause of spongy portions of the plants, as the soil you describe would probably be dry, and it would be necessary to flood the trenches previous to earthing up to get good results. Though the plants may look healthy and the surface soil moist, the plants at the roots may be dust-dry. Rains with gross leafage do not reach the roots, the moisture is thrown to the side of the plants, and the roots receive but little, and the plants, if not given copious supplies, suffer like yours. Celery is impatient of drought. Many growers at the start give large quantities of manure when the plants are young, and later on when there is a much larger plant the plants are not fed. Far better give less manure at the start and more in the way of fertilisers when growth is active, one of the best foods being weak liquid manure from stables.

The best plan is to give it in a weak state and often. Always see that the plants are thoroughly moist before earthing up. G. W.

Pea Springtide.—This new Pea is worth growing where early Peas are needed, as it is quite as early as the old round-seeded white Peas, and having a good deal of Marrow flavour is a valuable introduction. This variety sown the third week in February last year was fit for table the last week in May only given ordinary culture. The cropping qualities of this variety are excellent and the quality all one can wish. The stock was true, all the plants being of the same height and bearing pods to within 6 inches of the soil. With me it was between 2 feet and 3 feet in height, very robust and productive.—G. WYTHES.

Forcing Beetroot.—Many do not need early Beetroot, and it may be urged that when good roots can be kept till May there is no need to force. Many growers know the demand for salads in the spring is greater than at any other period of the year, and in May old Beetroots are growing out badly and have lost colour, often flavour also. Beet when required early is best sown in heat in pans of light soil, and when the rough or third leaf appears it may be pricked off into pots or boxes, and when growth is active transferred to a cold frame and planted out in April on a warm border and protected for a short time. Of course, earlier roots may be obtained under glass. The seedlings if pricked out into frames and given plenty of air in fine weather soon turn in. For early May roots it is best to sow the first week in February. The Turnip-rooted varieties are the most suitable. I have found Crimson Ball the best forcer, as it has a small top and is of a splendid colour.—G. WYTHES.

Colour in Globe Beets.—Since the newer forms of early Beets have been sent out they have proved of much value for summer use. Much against my will, however, I am asked not to grow again the variety I had chosen, but the longer or main-crop varieties instead, and on my inquiring the reason for such an unusual request, I was told the colour after being cooked was not so good as in the ordinary Beets. I should not accept this explanation so freely had mine been an isolated experience, but, mentioning the fact to a gardening friend, I learnt that he had a similar complaint made. I can only think that the season or some local influence must be the cause, as in a growing state there is nothing to indicate a want of colour. Faults are lodged sometimes by prejudice against garden crops, and I can only think this to be an instance of it, but it is to be regretted that the handsome strain of Globe Beets, which is such an advance on the older Egyptian type, should be the victims of undeserved complaint. It would be interesting to learn if any reader of THE GARDEN has noted any deficiency of colour in the Early Globe Beet compared to the standard main-crop varieties. Another season I purpose sowing the two kinds alongside for early use, so as to be able to compare them easily, as I cannot accept an objection from one season's use as final for all time.—W. S.

Winter greens.—All descriptions of hardy winter greens and late Cauliflowers also have been and continue to be most abundant; indeed, prices for these vegetables have been absurdly low. The mild and long-continued open season has kept things growing continuously, and literally of everything there is a glut, even Autumn Giant Cauliflowers have been wonderfully plentiful. So long as Cauliflowers are cheap there is but a moderate demand for Cabbages, Savoys, Kales, and Brussels Sprouts. What good Brussels Sprouts the market growers obtain from the sturdy plants grown out in their fields. They are got out early, but the soil is moderately manured only and soon gets trodden firm, hence stem growth is not of that strong, pithy, or soft nature commonly seen in gardens, and the sprouts if much smaller are very firm. The Exhibition variety that on rich

soil grows so gross in stem, leaf and sprout, in the fields becomes exactly the plant desired, and there can be no doubt but that its introduction into market culture has nearly doubled the produce of ordinary breadths, as compared with that of older stocks. Brussels Sprouts constitute probably the very best of all winter greens, and to the market-grower are the most profitable. Large quantities of Cabbages, Coleworts, and early Savoys will be spoiled this season and rendered useless because turning in long before needed. Any late plantings will prove really serviceable, especially if hard weather should ensue in January. A good dense-headed stock of Scotch Kale is also then very serviceable.—A. D.

CLIMBING FRENCH BEANS.

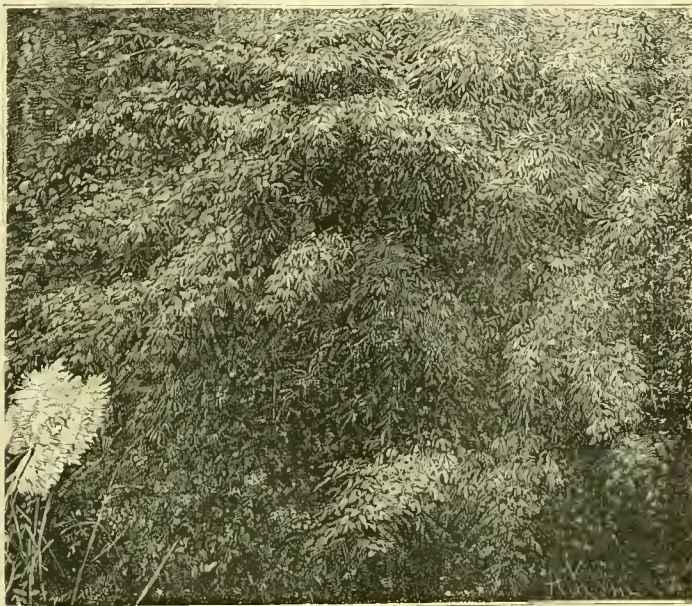
THESE are finding more favour as they become better known, and though at first many people said we did not want these half-way kinds, their usefulness, good quality, and splendid cropping will make them in greater demand. There are now several varieties, such as Tender and True, an excellent variety both as regards crop and quality. In this the pods are as handsome as those of the Canadian Wonder with their good flavour. Earliest of All is a splendid type of French Bean, and distinct from Tender and True. It is a white-seeded variety, the pods of medium length, and, what is so much valued in the kitchen, almost stringless. It is one of the best quality Beans I have grown. A Bean little known is Princess, the pods of which are not so large as those of Tender and True. This, like Earliest of All, is a white-seeded Bean, and desirable for cooking whole, as the pods are small, but of delicious flavour. This variety in a young state is delicious and certainly worth a trial, as the beans served whole are much nicer in colour and flavour. Another excellent type of French Bean, and one worth room in all gardens where quality is valued, is Canadian Glory. This is a stringless variety and dwarf. The varieties alluded to are much earlier than the ordinary runner, which is a great gain. Another point in their favour is that these dwarf climbers are longer bearing than the true dwarf French varieties, the pods of which get old and tough so quickly that, unless gathered daily, the crop is spoiled. There is now no need to grow the tall runners, as either Tender and True or Earliest of All will give equally as good—indeed, heavier—crops if the plants are well treated. The cost of stakes is less, as ordinary Pea sticks will answer for them. Last year I had splendid crops from plants with only 4-foot supports. Stakes a couple of feet more high are ample, and the plants being dwarfer the pods can be easily gathered. I consider this type of Bean a splendid introduction, as anyone may sow earlier and gather almost as soon as from dwarfs if the plants are topped. G. WYTHES.

Helleborus orientalis.—The large group of this well-known Lenten Rose in the rock garden at Kew is now well advanced to flowering, some hundreds of blossoms being ready to open and many fully open. The group in question occupies a rather sheltered position, and should severe weather intervene, which is not improbable, may receive a serious check. More disastrous even than frost in their present state would be a heavy fall of snow, that may bear the flowers to the ground and by no means improve their appearance. So far, however, the effect is excellent, as the majority of the old foliage is still in capital condition—always a great gain where these things are grouped freely together. Other members of the genus Hellebore in flower at Kew are *H. orientalis roseus*, a rather showy form, *H. colchicus*, and *H. caucasicus* with its greenish yellow blossoms. A small group of *colchicus byzantium* is also yielding a few blossoms, and in greater numbers are the beautiful coloured cups of *Crocus imperati*. This *Crocus* is particularly pleasing, especially at this season when so few flowers are to be found in the open garden.

TREES AND SHRUBS.

ARUNDINARIA NOBILIS IN CORNWALL.

THE engraving herewith gives only a very imperfect idea of what is probably the finest specimen in England of this most graceful Bamboo, though other large plants of the same species in the gardens of Mr. Rashleigh, at Menabilly, and Mr. Lakes, at Trevarrick, St. Austell, run it very close as to size. I am indebted to Mr. Smith, head gardener to the late Miss Fox, at Penjerrick, near Falmouth, for the photograph from which the accompanying illustration was prepared, but having seen the original, I may say that no illustration could adequately portray the graceful character of its slender stems with their elegant drooping habit. On the group here illustrated the stems are 30 feet in length. The group consists of three clumps, each of them measuring 14 feet to



Arundinaria nobilis at Penjerrick, near Falmouth. Engraved for THE GARDEN from a photograph sent by Mr. F. W. Meyer, Exeter.

15 feet in circumference at the base and spreading out to about 25 feet diameter at the top.

Although *Arundinaria nobilis* has been grown in Cornwall for more than half a century, it has only recently been named by Mr. A. B. Freeman Mitford, who gives a detailed description of this most desirable Bamboo in his excellent work "The Bamboo Garden" (pp. 178 to 180). In many parts of Devonshire also handsome specimens of this plant may be seen, though not so large as those in the Cornish gardens. In the nurseries of Messrs. Veitch and Son, Exeter, a number of the true species are doing remarkably well.

Elmside, Exeter.

F. W. MEYER.

Notes on conifers.—Under the above heading (p. 6) Mr. Burrell states that "he does not understand why some speak so disparagingly of *Cedrus Deodara*." I think, perhaps, it is because of its short life. About ten years ago I cut down a large tree that had been, doubtless, planted with great care; the trunk near the ground was 9 feet in circumference, with a wide spread of branches and height over 60 feet. Every root was rotten. Many others are growing here and appear quite healthy, but are not so old as the

one above mentioned. There may be some soils and situations in which it will live for many years, but such I have not found. *Abies grandis* and *Abies Nordmanniana* are two of the healthiest and fastest growing of the Silver Firs. With Mr. Burrell these are not satisfactory, although some of the *Cryptomerias* do well. Here all the *Cryptomerias* are very healthy; the lower branches, which sweep the ground, take root and make trees which we sometimes take off and plant.—W. O., Fota, Cork.

THE UMBRELLA PINE.

(*SCIADOPITYS VERTICILLATA*.)

LIKE the Ginkgo, *Sciadopitys* was for a long time known only from a few individuals cultivated in temple gardens and from a large grove on the hill in Kyushu, in the neighbourhood of the ancient monastery-town of Koya. This grove was once supposed to be the original home of the species; it is more probable, however, that all these trees were planted many centuries ago. Dupont, a French engineer, found what he con-

sidered indigenous trees on Chimono and in the province of Meno; and in this province, below Nakatsu-gawa, I found great numbers of *Sciadopitys* growing, as I thought, indigenously and sending up their narrow pyramidal heads far above the Pines and other forest trees. In a country, however, which has been densely populated for centuries, and where tree-planting has been a recognised industry for more than 1000 years, it is not always easy to determine whether what may appear to be a perfectly natural forest has not been planted. In these mountain forests of Meno the *Sciadopitys* grows with a tall, straight trunk to a height of nearly 100 feet, and is always remarkable in its narrow, compact pyramidal head of dark and lustrous foliage. This tree is so abundant here, that the wood, which is nearly white and very strong and straight-grained, is a regular article of commerce, being floated down the Kisogawa in large rafts to Osaka, where it is chiefly consumed. Except in the immediate neighbourhood of this Meno forest, *Sciadopitys* does not appear to be cultivated in Japan except in temple gardens, where specimens picturesque in old age, with loose habit and pendent branches, may occasionally be seen carefully protected by low stone railings.

Sciadopitys verticillata, which owes its common name of Umbrella Pine to the arrangement of the

PLANTING NEAR THE SEA.

I QUITE agree with every word said on this subject (p. 5), and I think only those who have lived near the sea know how injurious its wind-sweeping influences are. I have had considerable experience in seaside planting, and observed the results of it very closely. As to the commercial value of seaside trees, many would no doubt consider this, but by forming margins of Willows and other things next the sea, and planting the Pines or Firs next to them, a useful class of timber is quickly produced. The soil near the sea is often poor and contains much sand, and when first I began planting I thought the trees would do little or no good in such; but what is wanting in the soil seems to be made up in the atmosphere, as the trees grow quickly and are particularly free from the attacks of insects at root or branch, which is a point of no little importance. It is, however, as shelter that the first benefits of seaside planting will be experienced, and the land, both in the immediate district and for a long way inland, and the stock, too, will soon show how invaluable the shelter is. I have known strips to be planted on parts where hardly a particle of vegetation was to be found, and the grass would gradually diminish towards this part from the more luxuriant surface of the fields. The trees had not been planted more than two years until the vegetation began to regain itself, and in a few years the surface that was destitute and profitless had become as luxuriant as ever. In my opinion the best season to plant near the sea is February and March. If planting is done in the autumn no roots will be made for several months afterwards. In that time gales may upset a good many of the trees, but when planted in the spring they begin to grow almost at once, and it is astonishing how a seaside tree can grow once it begins. I believe it has two inducements to do this over the inland tree. The seaside tree is often in an atmosphere which may be termed humid when the inland tree is being parched, and the former is most congenial to the growth of all trees, especially soon after being planted. The other inducement for them to grow is that, although the sandy soil on the surface may be dry—so dry that the inexperienced wonder how trees of any age, more especially young ones, can exist in it—lower down there is always abundance of moisture. The roots quickly begin to penetrate in search of this, and when some of the inland trees are at a standstill, or may be shrivelling up in a dry soil, the seaside ones luxuriate in its cool depths. This I have noticed frequently, and put it forward to give confidence to proceed with seaside planting in the case of those who may think their soil is too dry or unsuitable for the trees, especially while they are young. If once a margin next the sea is established, the success of any amount of further inland planting will be fully assured, and besides planting on the sandy and poorer soil near the sea I am in favour of including a piece of the better land, which will generally be found further from the sea, as part of the plantation. In years to come this part would be the most remunerative, as when once the plants are established next to the sea they should always remain, but those more inland can be thinned like any other plantation, or wholly cut down if ready and replanted,

but the margin could not be dealt with in this way. It is agricultural landowners who would find it most advantageous to plant by the seaside, and the seaside town authorities, especially those who aspire to have their obscure villages brought out as favourite health resorts, ought to give the matter of planting trees in their districts attention.

Besides the trees and plants mentioned on page 5 as being suitable for the seaside, there are two more I would like to include. The one is the Alder, and the other the Balsam Poplar. Both grow remarkably well in moist ground, and where land of this character lies between better soil further in and the sea I would plant all the wet part with these two plants, and in two years afterwards introduce the Pines. Neither the Alder nor Poplar need be planted as bushes or trees with roots if it is not convenient to dig holes, which it may not be, but if branches are cut from them about the thickness of one's wrist, and from 18 inches to 2 feet in length, and inserted 6 inches or so in the ground all over the wet part at a distance of 1 yard apart, they will grow and soon form a thick tangle that will afford excellent shelter and a harbour for wild fowl. In and near towns where the trees may be desired of a more ornamental character, the green-leaved Enonymus is the hardiest of all bushes and will flower in the teeth of the sea gales. M.

WILLOWS AT CHICO FORESTRY STATION.

THE Willows receive as yet little attention in California, and the value of our native species is not so fully recognised as it should be, although *Salix lasiandra*, which closely resembles *S. lucida*, *S. lasiolepis*, which somewhat resembles *S. humilis*, and the more distinct *S. levigata*, all native in this State, are often planted for firewood and fencing. The best of the famous Spanish hand-made saddle-trees which were formerly produced in various parts of California and were even shipped to Mexico and Texas, were made of native Willow wood, carefully selected and seasoned. In time there will probably be an extensive demand for basket Willows in California, especially for horticultural uses. *Salix viminalis* and other soft-wooded Osier Willows have been widely distributed for fifteen or twenty years by the Agricultural Department of the University, and have been planted in many places to protect river banks. Aside from these Oziers, from *S. babilonica*, and from the native Willows, nothing has been done with Willows in any part of California, although there is now more or less inquiry respecting the best species for cultivation.

The following brief notes upon various Willows planted at Chico Forestry Station were taken late in August, when the season's growth, although not completed, was in most cases nearly so. The collection was begun in the spring of 1895 by planting in the nursery small cuttings of twenty-four selected species. The soil is a good corn land loam, near Chico Creek. Several native species of Willow are on similar soil, within a stone's throw. Again, in 1896 and in 1897, others were added to the collection, which now contains about forty species.

In February, 1896, from five to ten plants of each of the twenty-four species obtained in 1895 were set out in permanent plantation form. They received no irrigation, nor any especial care. The Willows in this plantation are, therefore, about thirty months old from small cuttings. The list includes *Salix alba*, *S. caprea*, *S. cordata*, *S. discolor*, *S. hippophaefolia*, *S. japonica*, *S. Madeni*, *S. pentandra*, *S. purpurea*, *S. Salmoni*, *S. sericea*, *S. Sieboldi*, *S. Villarsiana*, *S. viminalis*, *S. daphnoides*, *S. dasyclades*, *S. regalis*, *S. lucida*, *S. serengeana*, *S. baly-*

lonica, *S. nigra*, *S. humilis*, *S. alba vitellina* and *S. caprea* var. *cinerea*. Many of these Willows are beautiful in growth, and especially handsome in winter and spring. But since the collection was made in order to introduce the most useful species, I shall only describe those which seem particularly well adapted to California. The Willow which shows the most remarkable growth is

SALIX SALMONI, a native of the Levant. This species in that respect much surpasses all our native Willows as well as all others in the plantation. In the nursery the cuttings made roots and thrust up stems of 10 feet in length within six months after planting. Five selected trees were cut back to one stem of 2 feet in height, and planted out in February, 1896. Now, in August, 1897, two of these trees stand respectively 31 feet to 32 feet in height, with trunks that exceed 18 inches in girth at 2 feet from the ground. The other three are nearly as large. All five trees are beautiful in shape, with the straightest of main stems and with slender, semi-drooping branchlets. Like *S. alba*, the young shoots seem to be well adapted for coarse basket-work if properly grown for that purpose, but the rapid development and hardness of this tree may give it greater economic value than Poplar or Eucalyptus globulus in some parts of California.

S. ALBA and *S. ALBA VITELLINA* come next to *S. Salmoni* in point of growth, the former rising to a height of 12 feet, the latter to 19 feet, with trunks which girth 8 inches or 9 inches. Although both these Willows are extensively used in Europe for timber, for charcoal, for hoops and basket-work, for tanning materials and other purposes, they do not as yet appear superior to some of our best native species.

S. PENTANDRA, though less rapid in growth, seems to be worth cultivation. The largest tree stands 10 feet high, with a girth of 5 inches. The large, dark green, smooth and glossy leaves are extremely handsome. This species yields bark that is very rich in salicin, a substitute for quinine and a useful anti-rheumatic.

S. CAPREA, another handsome species, grows very rapidly here. The tallest trees are 14 feet high, with trunks 8 inches in girth. The bark is valuable for certain sorts of tanning, and the timber is very useful.

The average rates of growth of some leading species, as compared with *S. Salmoni*, have been as follows; age, soil, culture and other conditions were the same in all cases:—

	Feet.		Feet.
<i>S. Salmoni</i>	30	<i>S. Sieboldi</i>	10
<i>S. alba vitellina</i> ...	18	<i>S. Madeni</i>	8
<i>S. regalis</i>	15	<i>S. cordata</i>	6
<i>S. caprea</i>	14	<i>S. viminalis</i> (female	
<i>S. daphnoides</i> ...	13	plant)	5
<i>S. viminalis</i> (male		<i>S. lucida</i>	4
plant)	12	<i>S. purpurea</i>	4
<i>S. pentandra</i>	10	<i>S. discolor</i>	3

The best native Willows under similar conditions appear to rank in point of growth somewhere between *S. Sieboldi* and *S. regalis*. —CHARLES H. SHINN, in *Garden and Forest*.

Notes from South-western China.—The following notes are from a letter from Dr. Augustine Henry, dated at Mengtse, September 9 of last year: "I may mention that I have found a magnificent *Paulownia* with evergreen leaves, which is the most gorgeous sight when in flower imaginable. *Lonicera Hildebrandiana*, (discovered by General Collett in the Shan States, also occurs here in the mountains. It is a rambling shrub, climbing over rocks, the flowers deep yellow, each about 7 inches in length. *Leucoseptum canum*, of Northern India, is a remarkable labiate, common in mountain woods at about 5000 feet altitude. It is a tree some 20 feet high, and in habit is exactly like a *Buddleia*. Yunnan is a large province, and is associated in the minds of botanists with the wonderful discoveries of

Père Delavay. He collected mainly in the west of the province on the high mountains near Tali, which are practically spurs of the Himalayas. The region here, that is, Mengtse and to the south, crossing the Red River, and extending as far as the Shan States under French control, is very different from Delavay's ground, and will probably turn out as rich in species, new and interesting, but not so suitable for introduction into cultivation, as the mountains do not rise to the heights seen in the vicinity of Tali. Here, nevertheless, are many fine *Rhododendrons*, and there is a great variety of *Cyrtandrae*. These are always beautiful plants, occurring, as a rule, in shaded parts of mountain forests, mainly on rocks. A good many *Begonias* also occur in the same habitat."

AMERICAN AND JAPANESE HEMLOCKS.

THE CANADIAN HEMLOCK (*Tsuga canadensis*) is a large tree generally and widely scattered from Nova Scotia to Minnesota, and southward through the Northern States and along the high Appalachian Mountains to Northern Alabama. The Hemlock, which delights in cool northern slopes, the rocky banks of mountain streams and dark narrow ravines, is one of the most splendid inhabitants of the northern forest. Too much neglected by those who make parks and gardens in the Northern States for less beautiful and permanent foreign trees, no other conifer, nevertheless, which can be used here equals it when a specimen is needed to stand alone on a lawn, and with no other tree can such dark, dense masses of foliage be made here. Although usually found in the forest on northern slopes or in shaded ravines, the Hemlock will grow in full exposure to the sun; isolated trees, however, suffer from the dry, cold winds of the late winter and early spring, and it is usually advisable to protect young trees by thick planting. Quick thinning, however, should follow thick planting, for the Hemlock loses its greatest charm as a lawn tree when it is deprived of its lowest branches, which, with abundant light and air, are vigorous and long-lived, and make an isolated Hemlock tree, with its long branches gracefully sweeping the ground, a broad-based pyramid of great beauty. Young trees, which are easily transplanted from the woods, grow rapidly in good soil into handsome specimens, and if planters could only disabuse their minds of the idea that a tree is common, and therefore should not be used in ornamental planting because it grows naturally in their neighbourhood, there is no reason why this Hemlock should not become one of the greatest ornaments in all northern parks. The second Hemlock of Eastern North America,

CAROLINA HEMLOCK (*Tsuga caroliniana*), is distinguished from the better-known *Tsuga canadensis* by its larger, broader, and darker coloured leaves, from six to ten lines long and retuse or often notched at the apex, and by its larger cones with oblong scales longer than wide and spread at maturity nearly at right angles to the axis of the cone. The Carolina Hemlock, which grows usually on dry rocky ridges and the banks of mountain streams mostly at elevations between 2000 feet and 2500 feet above the sea-level, is distributed along the Blue Ridge from South-western Virginia to South Carolina generally in small groves, and frequently mingled with the other species. It is a beautiful tree of compact pyramidal habit, occasionally 60 feet in height, with a trunk rarely exceeding 2 feet in diameter, and dense dark green lustrous foliage. Sixteen years ago the Carolina Hemlock was first raised in the Arnold Arboretum, where it has proved quite hardy, promising to become here a first-rate ornamental tree. Still rare in gardens, this beautiful Hemlock is now gradually becoming known to the cultivators of ornamental trees. The noblest of its race, at once the largest and the most graceful of all Hemlocks,

THE COLUMBIAN HEMLOCK (*Tsuga Mertensiana*) of the north-west coast, has not proved hardy here in New England, although there is

still some hope that plants raised from seeds gathered in the exceedingly cold and comparatively dry interior regions of Montana, Idaho, or British Columbia, to which this tree extends, may prove more satisfactory here than the plants taken from the warm wet coast region, although a first attempt made in the Arboretum with plants collected by Sereno Watson in Idaho in 1880 has not proved successful.

PATTON'S HEMLOCK (*Tsuga Pattoni*), the second Western American species, is a tree with pendent branches densely clothed with dark green or with glaucous pale blue foliage and elongated bright purple or light green cones, which are usually pendulous, but in Alaska are occasionally erect, owing to the shortness of the much-thickened branchlets, due, no doubt, to the severity of the climate. Patton's Spruce is a tree of high alpine slopes, only reaching the sea-level, so far as is now known, in the neighbourhood of Sitka,

of Birches. Of the two species which inhabit Hondo,

TSUGA DIVERSIFOLIA is the more northern and the larger tree. It is this tree which grows on the Nikko Mountains above Lake Umoto, and which ranges as far north as the slopes of Mount Hakkoda, near Aomori. The second Japanese species,

TSUGA ARARAGI (the *Tsuga Sieboldi* of many authors and the *Tsuga Tsuga* of others), is a more southern and a smaller tree, growing, as I saw it on Mount Koma-ga-taka, in scattered groves among deciduous-leaved trees and *Pinus densiflora* and not in continuous forests. *Tsuga diversifolia*, which is frequently 80 feet in height, with a trunk 3 feet or 4 feet in diameter, may be distinguished from the southern tree by its darker red bark, more slender branchlets, its shorter and narrower leaves and much smaller cones, which are rarely more than half an inch in

trial to maintain itself here in good condition, it will doubtless become a popular ornament of American gardens. *Tsuga diversifolia* is a less beautiful tree than our native Hemlock, and, unless it develops qualities which it has not shown yet in this country, it will probably never be very popular here.—*Garden and Forest.*

ORCHIDS.

CYPRIPEDIUM LEUCOCHILUM GODSEFFIANUM.

A GLANCE at the accompanying illustration will show that no ordinary variety of Lady's Slipper Orchid is here depicted. Botanically, of course, it is a form of the Siamese *C. Godefroye*, but there is a vast and important difference between the botanist's and the gardener's point of view when the value of a plant as a beautiful object has to be considered. The actual flower from which the photograph was made was a prominent feature in the Royal Diamond Jubilee bouquet presented to Her Majesty by Messrs. Sander and Co., of St. Albans. Its mere size alone is sufficient to attract attention, but when it is added that the upper arching sepal and the petals are of a lovely creamy white heavily blotched with reddish-purple and maroon, while the large pouch is of a pure and spotless ivory-white, one can readily understand that Mr. R. H. Measures, of The Woodlands, Streatham (to whom the plant belongs), prizes it immensely. Indeed, I am able to state on excellent authority that he has refused 1000 guineas for this historic and unique specimen, which he has named in compliment to the able and energetic manager of Mr. Sander's nursery, Mr. J. Godsell. Incidentally it may be mentioned that Mr. R. H. Measures, of Streatham, owns one of the choicest collections of well-grown Orchids in the country.

JOHN WEATHERS.



Cypripedium leucochilum Godseffianum.

on Baranoff Island, and ranges from about latitude 60° north southward along the high coast mountains, extending eastward in British Columbia to the Selkirks, and in the United States to the Cœur d'Alene and Bitter Root Mountains of Idaho and to Northern Montana, and southward along the Sierra Nevada, where it is rarely seen below elevations of 10,000 feet above the sea-level. Patton's Spruce, with its drooping leading shoots and pendent branches clothed with slender waving spray which have strength to withstand the fiercest mountain gales and the heaviest burdens of enveloping snow, is certainly the most beautiful of the alpine trees of this continent.

In Japan, Hemlock trees are common at high elevations, and the coniferous forests which cover the mountain ranges of Central Hondo above 5000 feet are chiefly composed of these trees and

length; while the longer, broader, and more lustrous leaves and smooth lustrous orange-brown branchlets of *Tsuga Araragi* serve to distinguish the southern tree before it begins to bear cones, which are nearly an inch long.

The two Japanese Hemlocks are successfully cultivated by Mr. Hunnewell in his pinetum at Wellesley, where they are both hardy and where there are fine plants of *Tsuga Araragi*, the largest being about 16 feet in height, and smaller specimens of *Tsuga diversifolia*. Most of the Japanese Hemlocks in our gardens, however, belong to the northern species, which, although probably hardier, is a less attractive tree than *Tsuga Araragi*. This with its large lustrous leaves and excellent habit is certainly one of the most beautiful of the Hemlocks which are hardy in this climate, and if it proves its ability on a longer

Aerides quinquevulnerum.—This species is now in bloom, the spotted flowers being very pretty and long-lasting. It is an old species, having been sent home as far back as 1840 by one of Messrs. Loddiges' collectors. It is a strong-growing plant of fine appearance when healthy, the racemes a foot or more in length. Like all this class of plant, it requires a large tropical house and ample room to do it full justice under cultivation. The plant should be grown when small in suspended baskets or pans, but when they are too large for this mode to be convenient, they may be placed in large pots on the stage, a mixture of Sphagnum and charcoal suiting it for compost.

Dendrobium primulinum.—This pretty and useful species I noted in bloom recently, and I do not remember having seen it so early before. Though the flowers lack the rich tints of those of many other *Dendrobes*, in their soft mauve or rose they are very pleasing, and it is one of the freest blooming kinds. The warmest and lightest house at command should be chosen for it while making its growth, the plants thriving well in rather larger pots or baskets than the thinner-bulbed deciduous kinds. After the growths are fully developed, a cool, dry rest is essential, only enough water to prevent shrivelling being allowed after the leaves are off. It is a native of Nepaul, and was introduced in 1837.—II.

Lælia albida.—The blossoms of this species are not large, but very delicate and beautiful, and it is a great pity it is not oftener seen in good condition. For a few years after its introduction it seems happy enough, but after this it frequently goes back, the growths becoming smaller yearly. It is easily distinguished from all the other

Mexican *Lælias* by its roundish pseudo-bulbs and delicately tinted blossoms, these occurring with great freedom as long as the plants are healthy. The sepals and broader, wavy petals are whitish, just tinted with pale purplish-rose, the showy lip being lined with yellow and having a deeper tinted blotch in front. As a species it is very variable, but though many of the varieties have received distinctive names, they run in and out of one another, so to speak, and are not all of them distinct. *L. albida* may be grown in baskets or suspended pans, and even trellised blocks have been used with capital results when lightly dressed with compost and carefully attended to as to moisture. In any case a light, airy house with abundant atmospheric moisture, a temperature not so high by several degrees as that of the Cattleya house, and almost full exposure to the sun are needed. Plenty of water at the roots during the growing season and freedom from insect pests are also necessary for its successful culture.

Phalænopsis Schilleriana.—Few Orchids are more beautiful at this season than a well-flowered plant of this grand species, the lovely racemes of warm rosy-tinted blossoms having a remarkably fine effect. The foliage, too, on healthy plants is very showy, the greyish irregular marbling showing up well on the deep green ground. As on most Moth Orchids, the flower-spikes occur very freely, and from now onwards the blooms will be plentiful where there is a good stock of plants. The best plants I have seen for a long time were growing in a low span-roofed house, suspended so that the leaves were almost touching the glass. In such a position the warm air of the house circulates very freely about the roots and foliage, while were the plants arranged ever so thinly upon the stage it would not have the same freedom. There can be no doubt that these Orchids thrive much better in certain positions and localities than others, but I think with a little care these strong-growing representatives of the genus may be grown in most collections. Constant thin shade, freedom from insect pests, and encouragement to keep in their proper seasons of growth and rest are all important factors in their well-being. *P. Schilleriana* was introduced by the gentleman after whom it is named from Manila about 1860, and it has by more recent importations become one of the most popular kinds.—R.

SACCOLABIUM GIGANTEUM.

THE scent of this fine winter-blooming Orchid is at once noticed when entering the house where it is in bloom. Very beautiful, too, are the blossoms, the rich clusters vieing with all others now open. The racemes are each about a foot long, the individual blossoms white, spotted on the sepals with magenta, the lip having a blotch of bright purple in front. A good deal of variation may, however, be seen in these, and out of a dozen or more plants in flower several quite distinct may be picked, while perhaps no two will be exactly similar. *S. giganteum* is in fact such a beautiful plant, that one wishes it was more amenable to culture and not so liable to go back after a year or two in this country. It usually arrives in rather a rough condition, but after a week or two in a warm, moist house, it begins to grow vigorously. If obtained early in the year the plants often flower well the first season, and if the roots have made good progress and obtained a hold in their new home they may be allowed to carry the flowers; if not, they should be pinched off early so as not to further weaken the plant. The second season should see them thoroughly established, and they then have several years of health in them and should not fail to flower annually. The plants may be grown in pots or baskets suspended so that they get plenty of light. They will stand as much sun, too, as most Orchids, and the more they have without damaging the leaves the better they flower. Sunlight has a very hardening effect upon the growth of this class of plant, rendering it less liable to be checked by cold or otherwise during

winter. Moisture must not be neglected when growth is active, and as little compost is necessary, the water may be freely and frequently applied to the roots. A steadying of the growth may be observed in autumn, and soon after this the tips of the flower-spikes will be noticed at the base of the leaves not far from the top of the plant. Less moisture, of course, is now required, but it must not be withheld entirely from the roots until after the flowers are past or have been cut. Then a rather sharper resting season than the majority of distichous-leaved Orchids like may be allowed. Keep the night temperature at this season between 55° and 60°, the former figure on cold nights only, and let the atmosphere by day be kept drier. Even if the plants shrivel a little it does not matter, but as soon as this is noticed they must again be well watered, and in all probability will again commence to grow. This is the best time to give the roots a little assistance in the way of a top-dressing of Sphagnum and charcoal, but be careful in doing this that the bulk is not too much thickened.

Dendrobium cymbidioides.—Although an old species, introduced by Messrs. Rollisson, of Tooting, in 1852, this is but seldom met with in present-day collections. The flowers are produced on spikes 5 inches to 7 inches long, with from five to nine flowers on the spike. The sepals and petals are creamy yellow, the lip shorter than the petals, creamy white in front, shading to yellow, and having a blotch of purple in the centre of the disc, the side lobes creamy yellow, heavily suffused with dark brown, with two raised white ridges at the base. It is a most interesting and beautiful species, and well worthy of attention. A finely-flowered plant was recently awarded a cultural commendation by the Orchid committee when exhibited at the Drill Hall.

Cypripedium insigne Ernesti.—This, with the exception of *C. Sanderae*, is by far the best of the yellow forms of this beautiful species. The upper part and outer margin of the dorsal sepal are pure white, and if held up to the light show the purple spotting as seen in the best forms of *C. i. punctato-violaceum*, the basal part pale greenish yellow, with numerous raised warts in place of the spotting seen in the variety just alluded to. The lower sepal is also pale green, veined and spotted with a darker shade of green, the petals of fine form and substance, pale lemon-yellow, veined with green. The lip is much brighter yellow than the other segments, and with its highly polished character forms a striking contrast to the other portions of the flower. The original plant, carrying five flowers, is now in bloom in the Cambridge Lodge collection.—VISITOR.

Cypripedium Harveyanum (Arddarroch variety).—This is a lovely hybrid, the result of crossing *C. Stonei* and *C. Lceanum*. The dorsal sepal is 2 inches long, 2½ inches across, the ground colour almost wholly white, slightly suffused with rose, shading to greenish white at the base. It has numerous rich purple longitudinal lines, the centre one being much broader, showing the characteristic influence of *C. Spicerianum*, derived in this case through *C. Lceanum*. The petals, each upwards of 3 inches long, show the twisted characters of *C. Stonei*, the colour being similar to that seen in *C. Lceanum*, yellow, suffused and lined with rich brown. The lip is pale purple, shading to greenish yellow. The disc of the column clearly shows the influence of *C. Stonei* both in shape and colour. The lower sepal also favours *C. Stonei* in shape and colour. It is altogether finer than the original *C. Harveyanum*, and has recently flowered in Mr. R. B. White's collection at Arddarroch, from whence the name is derived.—H. J. C.

Lælia rubescens.—This old species, better known as *L. acuminata*, is seldom met with growing for any length of time in a satisfactory manner. It is, therefore, with some degree of satisfaction one is able to note plants where the difficulties of its culture have been overcome.

These satisfactory results have been attained in the Burford collection of Sir T. Lawrence, where plants have recently flowered. It is one of the most distinct and beautiful of the small-flowered Mexican *Lælias*. The sepals, petals, and front lobe of the lip are of a pale lilac shade of colour, which contrasts well with the maroon disc-like throat. It requires a long rest after flowering, but as soon as an active stage is commenced the plants should have an abundance of moisture. They should be grown in baskets suspended from the roof, where they can obtain the maximum amount of light with sufficient shade to prevent burning. It first flowered in Mr. Baker's collection at Birmingham in 1840.—H. J. C.

Angræcum sesquipedale.—Though not possessing the elegance and grace of many other Orchids, this singular plant has a beauty of its own, the large ivory-white flowers with their long spur being very attractive. Like all of the distichous-leaved race, it likes plenty of heat and elbow room, a good light and plenty of moisture. But it differs from some others in that the atmosphere need not be so moist, so if there are dry corners in the East India house or even the warmer end of the intermediate house the plants will do well there. The hard glaucous foliage seems almost insect-proof. The plants do best in clean Sphagnum Moss and charcoal, a fairly good thickness of this being allowed so long as the charcoal is in lumps sufficiently large to prevent closeness. Pots or baskets may be used for it. If the latter are made shallow and wide, they contain a lot of rooting space, and this is just what the plants like. But in most cases if the plants are left alone on the stage for a little while they will take hold of anything in the way of wood or pottery that they come near to, with the result that growth is very free and abundant.

Cypripedium longifolium.—This grand old species is very useful, its fine habit alone making it worthier of a place than many newer and more expensive kinds. Fine specimens like those at Cambridge Lodge and in other collections are very beautiful when the long, graceful spikes are carrying their flowers. But too often such plants as these have to make room for present-day favourites, which, although beautiful in their way, have not the fine proportions of the old kind. This individual species is noteworthy, too, as being one of the parents of many of the finest hybrids, the number having *C. longifolium* blood being very large and an important section. When in good condition the leaves are each quite 2 feet high, and each flower often 4 inches across and of a pleasing shade of rose, white, and greenish yellow. *C. longifolium* likes plenty of heat and moisture, and, owing to the vigour of the plant, a much more substantial compost than Orchids generally thrive in may be allowed. All the year round the roots take plenty of water, and given these few simple details, the plants may be easily grown in an ordinary plant stove. *C. longifolium*, though long before known to botanists, was first sent home in a living state in 1867. It is a native of Chiriqui and other parts of Central America.

Cypripedium Lceanum.—This is one of the most useful and beautiful of the hybrid Cypripediums. It was the first hybrid raised in which the lovely species *C. Spicerianum* had been used as one of the parents. It is the result of crossing *C. insigne* and *C. Spicerianum*, and first flowered in the collection of Sir T. Lawrence at Burford Lodge, Dorking. It was followed shortly afterwards by *C. Lceanum superbum*, raised in Messrs. J. Veitch's nursery from *C. insigne* Maulei and *C. Spicerianum*. Since that time it has been raised in several collections with considerable variations. There can be no question that the finest forms we have seen are those which were raised in the Lake house collection at Cheltenham. I have six separate forms before me now entirely distinct one from another, sent from Mr. Cypher, Cheltenham. The finest is *C. Lceanum giganteum*, in which the dorsal sepals in each measure upwards of 2½ inches across and 2½ inches long. Upwards of two-thirds of its whole area is clear white, shading to green, with numerous small

brown spots at the base. It has the Spicerianum hybrid characteristic of purple up the centre. The petals, each nearly 3 inches long, are pale green, suffused and spotted with reddish brown, the finely-shaped lip rich polished brown, shading to green at the base. Many of the other forms were equally worthy of consideration, making up for size in the superior markings and fine substance of the flowers. This hybrid cannot be too highly recommended. Its easy culture and fine constitution, combined with the fact of its flowering at the dullest season of the year, should be sufficient to induce anyone in possession of a greenhouse to cultivate it in quantity.—H. J. C.

NOTES ON ODONTOGLOSSUMS.

WHERE a good selection of these is grown, the cool house will now daily become more interesting. Not only are the plants very free flowering when in good health, but the flowers rank among the most beautiful in the whole family. Foremost, of course, is the ever-popular *O. crispum*, and this has been flowering in one or other of its varieties for the past month; later plants will carry on a fine display until midsummer, or even longer. The large spotted forms are not as yet making much show, but the smaller forms are very nice, though not, of course, so valuable. The present is one of the most trying seasons of the year for the cool Orchid grower, though as regards this individual genus the plants should by now have made considerable progress with their roots since being repotted in autumn. Where these have got well out into the new material the plants are comparatively safe, especially where the plants are properly potted, that is, where only a thin surfacing of compost is needed. Writers on Orchid matters have for years been urging amateurs to give less material and more root moisture to these beautiful Orchids, and I am glad to see that in very many cases the advice given is being followed. In place of the large, ungainly pot with a small plant rocking about helplessly in the middle of it, we see nice smart-looking little specimens that have taken hold of every bit of compost, and which if held upside down would not fall out of their pots. This is a decided step forward, and those who have not grasped the importance of this detail I advise to try and do so with as little delay as possible. Although such plants as I have last mentioned have the power—owing to the capital grip they have of their pots—of carrying their blossoms much longer than those with which I have contrasted them, there is still an unaccountable desire among amateur growers to leave the blossoms too long upon valuable plants. Everything is done, and rightly, to conserve the blossoms as long as possible while the plants are in an unsuitable atmosphere, and this is my answer to those who say that "The plants carry their flowers until they fade in their native habitat; why cannot they do so under cultivation?" In the former case the plants themselves have a splendid root-hold, a climate exactly suited to their requirements, but not the best for the conserving of the blossoms. In the latter the conditions are just reversed, and if this is not sufficient reason for what a correspondent of mine terms the unnatural practice of removing the flowers before they fade, I am afraid I can give no other.

WATERING

is very easily overdone; still, on the other hand, the plants want a lot of nourishment to enable them to finish up their pseudo-bulbs properly. The earlier plants require a good deal less moisture than the later ones, for until there are roots enough to take up the moisture as it is given it does no good, but only sours and clogs the compost. As long as the Moss in the latter is kept fresh looking and green the Orchid roots will not suffer, but it must not be allowed to grow freely up around the bulbs at this time of year. In spite of all that is said against keeping the Sphagnum alive in Orchid culture, I like to see it green on evergreen kinds; it seems to sweeten

the rest of the compost, and is the best index to the state of the latter as to moisture. Overhead sprinkling is certainly harmful at this time of year, leading to damping and other troubles, but a moist atmosphere is as useful now as at any time during the year. It is necessary to keep a little warmth in the pipes, and this without ample moisture in the air is liable to bring insects in its train. Another cause of disfigurement of the foliage may perhaps be noted, and that is the carelessness with which the plants are too often handled while the growths are young and tender. The least touch on the point of the young leaves is sure to leave its mark, and this as the season advances grows further down and makes unsightly brown tips to the leaves. Each time these are cut back the damage goes further down until the leaf is lost, and many plants are by this means ruined in appearance. Sponging, too, should be very carefully gone about, as the texture of the leaves is so delicate and the outer skin so easily ruptured. The sponge should be kept wet, and the whole of the surface of the foliage thoroughly wetted with tepid water before commencing. This softens any filth and dirt that may have accumulated thereon, making it far easier to remove than when dry and hard. At this time of year there are often plants that were not repotted during the autumn. They may have been in flower or may not have looked as though they required potting, but now seem in a rather close state. It is better to attend to such now or a little later while the weather is cool and there is not much sun than to leave them until the roots are further advanced and the sun has more power. But it is not often, if carefully looked over in autumn, that there are more than just a chance few that require this attention. For the rest, give them all the light available by keeping the glass clean, and on all possible occasions let them have the advantage of the freest ventilation.

AIRING.

The silly theories one sometimes sees published about allowing no top air for Orchids seem the more ridiculous the more one thinks of them. What makes it even worse is the fact that these self-styled authorities on Orchid culture recommend amateurs to place their plants as near the roof glass as possible. Now, one of the chief advantages of this latter proceeding is the freedom with which the air plays about the plants in question. Do away with top ventilation, and the air currents are destroyed; not only this, but the chink of air in early morning helps to dry the night moisture off the leaves, prevents scalding later in the season, and is decidedly an advantage in every possible way. To leave on a lot of top air when cold winds are blowing is an error, and anyone who does this must not expect good results; but to condemn top ventilation because some growers do this is about as reasonable as condemning water because an occasional plant is ruined by an overdose, or a young growth killed by a drip from the roof. In this detail of culture, as in every other, observation of results and very close attention are necessary. Positive, and one might say oracular, denunciations of certain points of culture are often cropping up; theories of doubtful truth and accompanying instances of splendid results attained are frequently propounded; but the less amateur growers listen to them and the more carefully they go about making any radical changes in cultivation the better. By all rational means try and attain to success in the culture of these beautiful plants, but until the wisdom of any course of procedure is proven, experiment with it very slowly and carefully. H.

An important Orchid sale took place at Messrs. Protheroe and Morris's auction rooms on January 7. It included 15,000 pieces of *Odontoglossum crispum*, which had been collected for Mr. Thomas Rochford, of Turnford Hall Nurseries, Broxbourne, by Mr. John Carder, 350 semi-established *Cattleya aurea*, and several flowering specimens of other Orchids. The prices realised

by the *Odontoglossums* ranged from 10s. to 3gs. There were over 300 lots of *Cattleya aurea* which fetched from 1g. to 18gs. each, the latter price being paid for a specimen with seventeen enormous pseudo-bulbs, thirteen huge leaves, and four leads. Among the miscellaneous lots some good prices were also realised. For instance, *Laelia anceps* (Downside variety) fetched 7gs.; a piece of *Odontoglossum crispum*, imported direct and in its packing case, was purchased for 4½gs.; a yellow variety of *Cypripedium insigne*, 9gs.; and a specimen of *Odontoglossum crispum roseum* found a buyer at 30gs.

Cœlogyne flaccida.—The flowers of this are not unattractive, but they lack the quality of those of *C. cristata*. It bears semi-pendulous racemes of white flowers, the lips of which are blotched with yellow and reddish brown. It lasts well in good condition without any injury to the plant. To grow it well a rather shady part of an intermediate house is best, and the plants may be grown in fairly large pots of peat fibre, Moss, and a little leaf-mould and charcoal. It must not be much dried at any time, or the pseudo-bulbs will shrivel, and the racemes consequently will be small. It was introduced from Nepal by Dr. Wallich over sixty years ago.

Masdevallia Estradæ.—Though a diminutive plant, this bears very beautiful flowers and is as useful as any of the larger kinds. It is not common in cultivation, nor is it always obtained true; the leaves grow closely in tufts, are about 3 inches long, spoon-shaped, and the flower-scapes rise just above them. The tails are yellow, shading to white as the upper part of the sepal is reached, purple beneath. It thrives in the cool house, suspended from the roof in small pans of peat fibre and Sphagnum Moss. The plant must be carefully shaded during the summer. It was introduced by Messrs. Williams, of Holloway, in 1874.

Cymbidium giganteum.—It is difficult to say why cultivators insist in tying up the spikes of this beautiful Orchid, when by placing it high in the house on an inverted pot or box the flower-spikes push in a natural manner, not exactly horizontal, but with a graceful arching curve that is very attractive. The beautiful deep green of the foliage, too, makes an admirable set off to the brownish crimson of the flowers, and a large plant I have so treated has been quite a picture for the last three weeks. Moreover, the colour of the lip is hidden by the upper sepal when the spikes are brought to an erect position, but when growing naturally this can easily be seen from below.

Phaius tuberosus.—This is a remarkably fine species and worthy of the greatest care, but, unfortunately, this does not always ensure healthy plants. Quite recently I met with a few nice healthy pieces growing in almost all clean Sphagnum Moss, these being laid on large, flat pans nearly filled to the rims with crocks. In this material they are rooting freely, and should also flower well presently. A dense shade and abundance of atmospheric moisture are also necessary, a shady corner of the East India house, or where *Phalanopsis* are grown, being usually chosen for it. Thrips are very fond of the plants, and must be kept under by frequent sponging and very light fumigation. It is a native of Madagascar.

Saccolabium bellinum.—In the size and shape of its blossoms this is quite distinct from the *Blumei*, *retusum* and *giganteum* types. The sepals and petals are greenish-yellow with brown spots, the lip being white with yellow and purple markings. *S. bellinum* is not a large-growing plant and must not be overpotted. A good way to grow it is in medium-sized wood baskets suspended from the roof in the East India house or with the *Phalanopsis*. The only drawback to the latter mode is the amount of shade required by the *Moth* Orchids, this being in excess of what suits the *Saccolabium* best. Still they get along fairly well together, more especially during the winter. Water must be liberally supplied at the same temperature as

that of the house during summer, and in winter the plant must not be dried. It was discovered in Burmah in 1873 and introduced by Messrs. Hugh Low and Co.

Cypripedium insigne var. illustre.—This is one of the most distinct forms of *C. insigne*. It is now in flower in the collection of Mr. R. J. Measures at Rogate, Sussex, where it was grown for years before the moutanum section was introduced. The dorsal sepal has a broad band of white extending to half the depth; the ground colour of the basal portion, instead of the usual green, is yellow heavily spotted with dark brown blotches as large as Peas. There are four or five purple blotches at the base of the white. The petals are similar in colour to the base of the dorsal sepal, heavily spotted and lined with brown, the lower sepal green, thickly spotted with brown, the lip yellow suffused with brown. When exhibited on November 28, 1893, it received an award of merit.—H. J. C.

Cattleya Percivaliana.—This beautiful species may easily be distinguished from all others of the labiata group by the rich lip markings. These are excelled by few other kinds, and such lovely flowers at mid-winter are sufficient to make it a very popular kind. The older forms of the species were not so large as those from later importations, and had, moreover, the fault of remaining half closed, though possibly this was in part due to not being established. As we now have it the flowers are only a very little smaller than those of *C. Trianae*, to which it makes a nice companion plant. Many varieties will be noticed, but the type form is pale rose on the sepals and petals, the lip rather narrow and blotched with deep crimson-purple with shades and veinings of rich golden yellow and varied tints of red. The plants thrive in the usual Cattleya house temperature, but delight in almost continual exposure to sunlight. The pseudo-bulbs and leaves often have a bronzy reddish tint, a sure sign of health and vigour. It commences to grow soon after flowering, and keeps with constancy to its annual routine of growth, rest and flowering. No drying off is necessary, only a little slackening of the moisture when the bulbs are complete, and a little excitement just as the flowers are pushing. *C. Percivaliana* is a native of Venezuela, whence it was introduced in 1882 by Messrs. Sander and Co.

ODONTOGLOSSUM LONDESBOROUGHIANUM.

BOTH in habit and the shape and colour of the flower, this fine species more nearly resembles an *Oncidium* than an *Odontoglossum*, the uniform blade of the lip being especially like that of many in the former genus. Owing to its rambling habit, the plant is not suitable for growing in pots in the ordinary way, and the best way to cultivate it is on pieces of Tree Fern stem about a yard or more in length, one end being placed in a potful of crocks with a light surfacing of Sphagnum to conserve the moisture. The plants may be wired down firmly at first, and care is necessary not to injure the rhizomes in doing so. To prevent this a few thin strips of cork are useful, these being placed under the wires. After the plant becomes established on the stem the roots of course will hold it, but it is well to be on the safe side at first. The plant is a native of Mexico, and is usually allowed more heat than most *Odontoglossums*. I have seen it doing well under cool treatment in several places, and notably in the late Mr. Crispin's collection some few years since, but I prefer a temperature quite as high as that of the *Cattleya* house while growth is most active. A light, sunny part of the house may be chosen and very little shading will be necessary except during the hottest part of the season. The roots, too, are thirsty subjects, and notwithstanding the partially deciduous character of the plant, these should never be absolutely dry for long together. If the Fern stems are not to be had, long trellised blocks or rafts answer the purpose fairly well, and with a

little Sphagnum Moss about the rhizomes the plants go on fairly well for a time. These should always be taken down for watering and dipped in a tub or tank. There is no certainty of wetting the whole of the material in any other way, the upright position making them very liable to run dry. As hinted above, the plant often loses its leaves in late winter, but I have known instances of the plants carrying their foliage upon the old pseudo-bulbs until the middle of the summer, which makes them practically deciduous. This, however, need make no difference to the treatment of the plant. Disturbance of the roots should be avoided, insects kept under at every opportunity, and the flowers not allowed to distress the plant, for it is rather a tricky subject to grow successfully over a long period. The flower-spikes, which appear in late autumn and winter, are each over a yard in length on strong plants, and towards the upper end produce a number of small but brightly coloured flowers. The sepals and petals are yellow with a number of long, narrow blotches of reddish brown, the lip is very bright and showy, golden-yellow, about 12 inches across. *O. Londesboroughianum* was introduced by Messrs. Backhouse in 1876. H.

Odontoglossum maculatum.—This is now in bloom, and perhaps no other species in this extensive genus will carry the flowers so long and with so little detriment to the plant. It is a very variable kind, some of the poorer forms being rather deficient in bright colouring, but all are worthy of care. In a cool, moist house the plants are of easy culture, liking rather more room at the roots than the crispum section and a rough, open compost. No drying of the plants during winter is necessary, as the flower-spikes appear almost before the bulbs are finished in many instances.

Dendrobium nobile albescens.—In this form the colouring has nearly entirely disappeared from the sepals and petals, but the lip is almost exactly similar to that of the type. A plant I noted in flower last week was carrying about a dozen flowers, but as it was only a small one doubtless it is quite as free as the old form. This variety is not very plentiful, and those who have strong plants of it should endeavour to propagate from them as freely as possible. All the forms of *D. nobile* are often kept too cool and dry during the winter months, as it is a species that will not stand with impunity the rough winter treatment many of the deciduous kinds will.—H.

Oclogyne cristata.—The earlier plants of this fine old species have come in very usefully for Christmas decorating. These consist of the pale green round-bulbed type, the longer pseudo-bulbs of deeper colour being as often as not associated with a late-flowering habit. To make room in the Orchid house this season, a number of plants, both large and small, were turned out into quite a cool Peach house, where they have made a capital growth. The shadiest part of the house should be chosen for this species, and it must never be dried at the roots sufficiently to cause shrivelling of the pseudo-bulbs.

Oncidium ornithorrhynchum.—Large plants of this species with their spikes tastefully tied out have a very pretty appearance, the soft colour of the blossoms showing up very well under artificial light. It is certainly one of the smallest-flowered of *Oncidiums*, but the number of flowers produced and the graceful appearance of the spikes amply make up any deficiency in point of size. *O. ornithorrhynchum* is an easily-grown plant, delighting in shade and moisture, and although it thrives with the *Odontoglossums*, a rather higher temperature is preferable. It does best in pots of peat and Moss over good drainage, and is a native of Central America.

Lælia anceps (Chamberlain's var.).—This is the largest of the typical forms of *L. anceps*. The following particulars were taken from a plant with two grand spikes of flower in the nursery of Mr. J. Cypher at Cheltenham. The sepals, each

upwards of 2½ inches long, are of a soft rose shade of colour, the petals of the same length as the sepals, upwards of 1½ inches broad in the centre, and much darker in colour than the sepals. The lip, upwards of an inch across the front lobe, is deep crimson-purple shading to white at the base, where it has a raised, bright yellow disc. The side lobes are each extended upwards of an inch from the centre, having a broad rich purple band at the outer edges shading to creamy-yellow, prominently lined with deep purple-brown towards the base. It is a distinct and desirable variety.—H. J. C.

Dendrobium Phalænopsis Schröderianum.—Although perhaps past their prime, the beautiful racemes of this grand Orchid are still to be met with, and I noted a fine dark large-flowered variety this week. Possibly no other *Dendrobes* is just now so popular, but it is sad to see so many plants of it killed by injudicious culture. Out of a score of nice specimens purchased by an amateur friend two years ago not one has a decent growth this year, and this through nothing else but trying to grow it in a miscellaneous collection of *Cattleyas*, *Dendrobes*, and other more or less easily grown intermediate kinds. There is no doubt this species can be grown and kept in health for a number of years, though how long it will be difficult to say, but the plants must have plenty of heat. They die off wholesale in dry, draughty houses, and many amateurs are misled by travellers and nurserymen, who for obvious reasons tell them they can be grown in their houses where perhaps a few Orchids have to make the best of it with a general and varied collection of plants. I do not consider it difficult to grow, but heat, moisture, and light it must have in abundance. It does best suspended from the roof in small pans, as the roots are not given to much extension. There is often a quiet season after the flowers are past, but the plants must still be kept warm, and the time when the least water is needed is just as the young growths begin to push from the base of the older ones.—H.

GARDEN FLORA.

PLATE 1153.

THREE NATIVE PLANTS.

(WITH A COLOURED PLATE.*)

WHEN we have a beautiful shrub or plant a native of our land, we have generally a double proof of its value, because so much surer of its vigour than of the many that are said to be hardy. A plant may appear to be hardy, and be really so, and yet dwindle away for some reason while native things go on for ever. Our native Holly is a standing example of what we gain in a native shrub, as it is more valuable than any evergreen ever introduced. Of all the genera of plants that give us hardy plants for our gardens, there are few from which so many have been culled as the *Campanula* order; yet we doubt if any plant has ever come from the Alps that is quite so precious as this, our common Hairbell (*C. rotundifolia*). It is plentiful, wild in many districts south and north, and a plant which one never seems to find too frequent. On hedge-banks and in tufts by the roadside, or in bits of grass, occasionally in sheets in unown places, it comes by itself, especially in cool and upland ground. Where any attention is paid to the wild garden, it would come in admirably. So far the wild garden is concerned with spring flowers to a great extent, but there is a certain number of plants that flower well in autumn, and it is often worth while keeping a

* Drawn for THE GARDEN at Gravetye Manor, Sussex, by H. G. Moon. Lithographed and printed by J. L. Gollart.



THE WOOD PEPPER OF ALPINE

corner of grass unmown for them, and one of the prettiest of these is this Hairbell running wild through the grass in autumn. The effect, indeed, is so pretty, that it would, where the plant does not come freely in a wild state, be worth while raising it from seed for this and other purposes. It is a first-rate perennial, though it is one of those plants that look better in their natural state than they ever do in the garden.

The next plant of the three is the purple Vetch, in many districts as common as the Hairbell, wanting no cultivation, and occasionally coming in the shrubberies as well as adorning the hedgerow and meadow. It is well worth growing where it is not plentiful, and is better in colour and in other ways than many introduced plants of this order.

The last is the common Toadflax. This is perhaps not in every district as common as the others, but it is pretty where found in large colonies on railway banks and in sandy and gravelly places, and it is a good deal prettier, we think, than many plants of the same family that are introduced, its *Peloria* variety being very curious as well as pretty.

THE WEEK'S WORK.

KITCHEN GARDEN.

VEGETABLE SEEDS.—At this season it is advisable to order the vegetable seeds, and to beginners it is not always an easy matter. I often deplore the scanty attention paid the kitchen garden. I much object to sowing in large quantities, far better sow more often and in less quantities, as by so doing a succession is secured and gluts avoided. By sowing as advised anyone can select those things most suitable for the season. The soil also must be considered, as in a heavy, wet, clay soil it would be useless to purchase Marrow Peas for present sowing. It would end in failure to sow certain seeds at this date, so that I would advise due care being given to selection. Another point often overlooked is that seedsmen send out the best material early in the year, and with late orders there is a difficulty at times in obtaining special kinds. I have heard novelties condemned by those who think there can be no improvement. There is a certain interest in growing the best, and if possible it is well to prove a few to test quality. I do not advise discarding old things for the sake of new, but give a fair trial to these latter. Of late years everyone who has studied the merits of vegetables will admit there has been a great gain in the quality of various things. Take Peas. Here we have an unlimited selection and few inferior kinds, as these get weeded out after exhaustive trials. I am a strong believer in change of seed for the Potato crop. I admit one may grow the same variety in the same soil for a quarter of a century, but the crop is much poorer than would be the case with seed from a different soil. I prefer strong sets to small ones. At one time much poor seed was planted. Anything was thought good enough, but it greatly affected the crop, as the plant was much longer in laying hold of the soil, and often pushed up a number of weak shoots instead of a strong one.

PREPARING SEED POTATOES.—Potatoes when received from growers are different from home-grown seed. Having been in bulk and kept very cool, the turning over in moving will have prevented growth. If needed for early planting they may be sprouted, but I do not advise hastening the growth and then keeping the sets too long out of the soil. The best plan is to place the sets thickly in shallow boxes or trays, the eyes upward. The sets, if kept cool, will push out sturdy shoots and be in nice condition for planting. Treated thus there is no breaking of the shoots as when baskets are used. Another point, and one worth notice, is

the time saved at planting, as it is an easy matter to take the trays to the quarters. When the sets are prepared in this way it is an easy matter to reduce the eyes, leaving the best. If space is short the seed trays may be placed one above the other, but must be given a cool store, and in such a position that the air can circulate freely through them. Any variety it is needed to increase by cutting should now be cut and allowed to dry. It is not wise to plant newly-cut sets, as they often decay if much rain follows planting. Early varieties should be given a light place and be kept as cool as possible.

FORCING VEGETABLES.—Much depends upon the means at command to force. If natural or slow forcing can be carried out the vegetables are superior. Many persons object to forced vegetables as being flavourless, but in a measure much depends upon how they are forced. I have noted the value of slow forcing to get good quality, and this is not difficult after the new year is in. Many roots force well with only leaves as the heating agency, and leaves and manure combined give a gentle heat. There is less rank steam, and though the growth is slower there is better quality. It is surprising what uses may be made of leaves, and they are valuable another season for many purposes. Doubtless the handiest way to force Seakale is to place in a dark Mushroom house. If small quantities only are needed introduce a few roots fortnightly, but much depends upon the temperature given, as if at all warm it causes a weak growth and loss of flavour. The best Kale is that grown slowly with ample moisture. The roots forced in the open with warm litter in beds are superior in quality to those grown in a dry heat. Now is a suitable time to prepare materials for forcing beds if there is a demand for early vegetables. I find it a great saving of time if the heating materials can be placed in bulk and turned occasionally before placing in position, as they have time to settle, there is less shrinkage, and a gentle heat results. I use leaves largely, owing to a scarcity of manure, and in the end am the gainer, as though it is essential to prepare in advance, the leaves give the best vegetables, as the roots delight in the sweet moisture and gentle warmth these afford. Such vegetables as Carrots, Turnips, and Potatoes are best grown thus, and it is surprising what excellent results are secured with these materials. For many years I grew vegetables for early supplies in home-made turf pits with leaves, and found it profitable, but with cheap glass these are superseded. Beds needed for sowing with the above early in February should be prepared at once and the soil placed in position to get warmed through. Allow any steam to escape, as it keeps the soil wet if confined. The best forcing Turnip is the Early Milan, either the white or red topped variety. There are some excellent Carrots, such as Early Nantes, Early Gem, and Parisian Forcing; the first and last named are earliest, but Early Gem is much the nicest and largest root. Both Turnips and Carrots should be sown on soil made firm if at all light.

FORCING ASPARAGUS.—The usual mode is to lift roots and force either in pits on manure or in houses, and if not forced too hard there are fair results. It is an expensive process, and where large quantities are needed it is advisable to have permanent beds and thus avoid yearly destruction of plants. I am aware without proper convenience it is well to lift for very early supplies. When forced thus avoid strong heat, and give ample ventilation to obtain flavour, the grass comes stronger and is of a better colour if grown slowly. I have often forced permanent beds in the open, placing manure in the trenches and over the beds, but to be successful there must be a good depth of trench and a fair width also, to allow sufficient material. If beds can be grown specially for early work it is a great gain. Such beds need ample supplies of water from May to September, or what is better, liquid manure. Now is a good time to prepare soil or make beds for permanent use with a view to forcing, as it will be well to get all in readiness. For April

planting I find 4-foot beds with two rows of plants the best, as these are readily got at for cutting. The alleys should be 3 feet wide, and the beds 4 feet in depth, and if bricks are used for the sides of the beds they should be pigeon-holed. It may be thought such beds will need a glass covering. Such is not the case. I use wooden sides with litter. The only drawback is that the grass is white, but it soon becomes green if the litter is not thick. I have noted the forcing of Asparagus in beds, as thus the Asparagus is more appreciated, the culture is not costly, and the produce much superior to that grown in strong heat.

FORCED CHICORY.—This vegetable is not looked upon with favour by many, but it is worth attention in all gardens where variety is needed. To get the best quality it is well to grow the newer kinds. The large-leaved Belgian is one of the best, and it serves two purposes, being useful as a salad and as a vegetable. To get the best results it should be forced slowly, like Seakale, but avoid too much heat or moisture, as excess of either causes rapid decay. If a few good roots are placed in a temperature of 55° they produce compact growths. These should be cut when from 4 inches to 6 inches in length. If allowed to open out or expand its value as a vegetable is lost, but it makes an excellent salad plant. To obtain the best roots of this plant it is well to sow in May and force from November to April. The plants for forcing should be grown in rows 2 feet apart, and thinned to 1 foot apart.

BROAD BEANS FORCED.—These need little forcing, but it is well to sow early in January for March planting. I prefer to sow in 4½-inch pots, three seeds in a pot, and place in cold frames near the glass. Treated in this way they are sturdy plants by planting time, and never receive a check like plants raised in strong heat. The produce from plants raised thus is much earlier than from seed in the open ground, and gives far less trouble than autumn sowings in the open. An early variety is best. I do not advise the small-podded varieties often recommended for earliness, as they lack size and often good quality.

S. M.

HARDY FRUIT GARDEN.

CHERRIES.—There are possibly as many failures with Cherries—perhaps, indeed, it would be safe to say there are more—as with any other fruit, Apricots excepted, where the object is to secure high-class quality in the crop as adjuncts to the dessert. Some soils, it is true, are better suited to the growth of Cherries than others, and it is not difficult to point to such districts as parts of Kent and Buckinghamshire, where they thrive so well. It is, however, equally as true that good crops of fine fruit may be had in other parts of the country with that care and attention to detail without which it must not be a surprise if the results are not what one could desire. A calcareous loam is best suited to Cherries, therefore where there is a deficiency in this respect it must be remedied. Old lime rubble or mortar will supply this want, and where this is to be had the first opportunity should be taken of incorporating it with the soil after having broken it up to about the size of nuts, or finer. It will, however, take a season or two before the real benefits are discernible. The actual benefit is seen in the amount of the crop which comes safely through the stoning process. Having had to encounter this difficulty, and not having the lime rubble at hand, I had recourse to Dicksons' (of Chester) horticultural manure, and the results were highly satisfactory, so much so, in fact, that no failure has since arisen from this cause. This artificial compound is composed throughout of fine particles, hence its action is more rapid, and it is easily assimilated with the soil; the chief features in its composition are the potash and phosphates judiciously blended with nitrogen. To employ manures in which the last-named constituent predominates would be a mistake, hence the use of farmyard manures to any extent is not desirable. If the woody

growth, however, be weakly, then recourse may be had to such with advantage. The present is a suitable time to apply this artificial manure with the hope of beneficial results this coming season, no excess over prescribed amounts being advisable in any case. The plan I have adopted has been to fork it into the top spit when digging the borders. For Morello Cherries it is equally well suited. If more attention were paid to the judicious application of manures to Cherries, there would undoubtedly be less complaint made of gumming. Where Cherries show any indications of dying off in some of the branches, an evil which is the after-result oftentimes of gumming, it is a good remedy to lay in more of the young wood, without following the strict rule-of-thumb method of obtaining a branch just in one place or nowhere else, for fear of spoiling the uniformity of the tree, a matter of far less importance than the production of a good crop of fruit. Where the pruning of Cherries is not yet completed it will be well to guard against any severe use of the knife, but endeavour to secure, should the wood be destitute of fruit spurs, a better promise for the following season by moderate root-pruning instead. It should be noted here that the foregoing remarks in most instances will also bear upon the treatment of other stone fruits, as Peaches, Nectarines, Plums, and Apricots, the great need in nearly every case being of that food which will carry each respective kind through the process of stoning with safety. It is not want of vigour which destroys our Peaches, Nectarines, and Apricots, but rather an excess of growth; hence gumming and its attendant evils. Of course, with very vigorous growth there is always the contingency of unripened wood in the autumn, and fruit cultivators who attain to success know that this is most undesirable.

WINTER DRESSING OF FRUIT TREES.—This is an all-important subject, and one which should receive its share of attention equally with pruning and nailing. There are several good insecticides now in the market that are well suited to this purpose, all of which have by one or another practical grower been found to be efficacious. There is, however, one important item to be noted in the application of any insecticide, and that is its use in a warm state, from 90° to 100° being not any too warm. Previously, however, it is an excellent practice to syringe simply with warm water. This may safely be applied at a temperature of 120°, whilst all growth is still dormant. This previous moistening of the wood paves the way for greater efficiency in the after and immediate application of the chosen insecticide. The hot water, too, will dislodge eggs, &c., deposited on walls to an appreciable extent. With American blight a thorough brushing is the better mode of procedure, and this in bad cases must be extended to the roots, if need be. Cloth and even leather shreds will harbour insect pests to a considerable degree, therefore where possible use the medicated shreds instead, or else those of the previously named materials, after having been dipped in a strong insecticide, so as to make them distasteful to insects in search of a refuge. It is better to do these winter dressings on a fine day, as any downfall of rain soon afterwards will considerably weaken their efficacy. In bad cases it is always advisable to renew the application a few days hence. The early attention to this important work of winter dressings should be well considered, and then be carried out. It will bring its own reward later on and be the means of saving many an hour when every minute even is frequently of great importance.

FRUIT-TREE PLANTING.—This important work should ere this be completed, or at the best nearly so. We may yet have some severe frosts; cold winds we shall assuredly have before many weeks; the sooner, therefore, that all this work is finished the better will it be for the future well-being of the trees. As regards the pruning of these trees, my advice is to be moderate; hard pruning oftentimes is conducive to excessive vigour, and this is not desirable. Add fresh loamy soil wherever possible with manure if the

soil be at all poor, and do not plant the same kind of fruit in any position where the previous occupant was an aged tree (which would of necessity have exhausted the soil materially) without adding fresh soil in place of the former. After planting never under any pretence omit watering, so that the soil becomes well settled around the roots, which of themselves, too, may be on the dry side by exposure. Then mulch with a few shovelfuls of well-decayed manure to preserve moisture and to keep the roots cool when warm weather sets in. Guard against hanging (so to speak) any wall trees by immediately nailing them in position, and that before the soil has settled down. In nailing any horizontal-trained trees, it is a good plan to elevate the points of the branches for a few seasons whenever any difficulty presents itself in a non-vigorous extension. Pears are examples of this, both on walls and when espalier-trained. No bare space of wall east, west, north, or south, thanks to the cordon-trained trees, need ever be left vacant, nor should it be. If no more Pears are required, a few of the best Apples may be, such, for instance, as Buckingham, Washington, and King of Tomkins Co. If it be a north aspect, then there are Red Currants and Gooseberries.

HORTS.

CHRYSANTHEMUMS.

JAPANESE NOVELTIES.

AN immense number of novelties has been submitted to the floral committees of the Royal Horticultural Society and the National Chrysanthemum Society during the past few months, and in many instances the flowers have been recognised by an award of merit or a first-class certificate. It is well to remember, however, that in determining these awards there have been degrees of merit, some sorts receiving the coveted honour being distinctly inferior to others receiving a like award. To place each certificated variety on the same level would be unfair, and yet there are persons who are perfectly satisfied with making such an arrangement, simply accepting a certificated variety as a good one, no matter what its degree of quality may be. It frequently happens that a certificate may be secured by an exceedingly narrow majority on these committees, while it is also not an uncommon experience for others to receive a similar award by a unanimous vote. This, surely, proves conclusively that there are varying degrees of merit in certificated varieties, and which fact is often overlooked. Growers also must remember that more depends upon whom the exhibitor of a novelty may be than perhaps they imagine. An indifferent cultivator may stage a novelty only in fairly good form, and yet this may represent a very handsome flower, thoroughly deserving a certificate. But the same novelty in the hands of a skilful grower would develop into a far handsomer bloom. On the other hand, a first-class cultivator may place before the committee a variety only of medium quality, yet by the skill of this latter grower the blooms may fully justify that body in recognising the variety with a certificate. Upon the reputation this variety has gained through being certificated, a less competent grower is induced to take it in hand during the succeeding season, and after months of attention to the plant and a system of culture such as his knowledge of the subject suggests, he is disappointed at the result when he sees only medium-sized blooms. The foregoing facts point to a need of reform in publishing details of the votes of committees in the first place, as this would to some extent make known to the Chrysanthemum-loving public the relative value of the certificated sorts and

the esteem in which they are held by competent authorities. A selection of the most promising of those certificated seems wanted in the second place, as by careful comparison those possessing points of extra excellence are then given prominence.

The past season witnessed the introduction into commerce of the yellow sport from Mme. Carnot, and named by one trade grower G. J. Warren. This is an exact reproduction of the parent, except in colour, which is a pale yellow, deeper, of course, in blooms from late buds. It will be interesting to see whether there is any appreciable difference in the Downside sport, and which is named Mrs. Mease. The flower exhibited at the Royal Aquarium certainly was very pale, and might be described as pale primrose, yet this may be owing to an early bud selection and the difficulty of getting a good light upon the bloom in that building. Lady Hanham, the latest sport from Viviani Morel, is very charming when the right bud can be got, and this should be an intermediate one, when the blooms are rosy cerise on a buff ground. I have seen this variety growing alongside Charles Davis, both on terminal buds, and so much alike were they that it would be exceedingly dangerous to exhibit the two sorts on the same board in competition. Of Mlle. Laurence Zédé it is safe to say much will be seen another season. It has large, handsome, Japanese incurved blooms, with broad incurved florets, of good substance, and its colour of pale rose-purple and silvery lilac reverse stamps it as a good exhibition variety. Mary Molyneux, when seen at its best this season, was a very fine flower of Japanese incurved form, and probably one of the very best novelties of the season. The florets are broad, curling and incurving prettily; colour inside deep rose-pink, with a silvery rose-pink reverse. Ella Curtis is another striking flower, resembling in form and florets that old popular sort Boule d'Or. The colour is rich golden-yellow, shaded bronze, and this should make a useful exhibition variety. Western King is undoubtedly a chaste Japanese incurved bloom of easy culture, of good substance, large size, and of the purest white. The habit, too, is excellent. Mrs. J. J. Glessner is a variety of American origin, and a flower of considerable promise. The bloom belongs to the Japanese incurved type, and on fairly early buds makes a pretty exhibition sort; as a decorative sort grown freely, the florets prettily reflex, and are of the richest shade of golden-yellow. Flowers from early buds, however, are golden-yellow, tinted apricot. The only objection to this plant is that it is tall. Lenawee, as placed before the National Chrysanthemum Society, was probably as good as it will ever be seen, and even then it was by no means large. Its unique fluted florets and form, white, tinted violet-rose, stamp this variety as a neat and refined flower. Another fine variety is President Nonin, sent out by M. Ernest Calvat this year. The florets curl and incurve prettily, and make a bloom of good substance. Chamois-yellow is a good description of its colour. From the same raiser comes Mme. G. Bruant, a very large, spreading flower, striped and flushed pale rose-lilac, passing to white in the centre, florets broad. This flower is admired by many, probably on account of its size, but it gives one the impression of being coarse and the colour rather washy. Julia Scaramanga I admired when placed before the National Chrysanthemum Society committee last year. This season it has succeeded very well, and was often in evidence at the December show, probably because of its rich colouring on late buds. Rich rosy bronze is a colour one can appreciate

the form is spreading and drooping, with florets pleasingly intermingling. Lady Ridgway is an immense Japanese incurved of splendid substance, and was exhibited in magnificent form in October last; the colour is a good salmon-buff, and the florets are of capital substance. Mrs. J. R. Tranter is seen to advantage on late buds when the blooms are refined, and the florets edged and striped rosy purple on a creamy white ground. Flowers from early buds are not at all pretty, and are creamy white. The form somewhat resembles Vivian Morel. Growers who appreciate the late display which Niveum gives as a white sort will also appreciate the value of Pride of Rycroft, a lovely soft sulphur-yellow sport from that kind, and possessing all the good qualities of the parent variety. One of the neatest of the Japanese incurved of the season is Mrs. S. C. Probin. The flowers are not by any means large, but they are pretty, refined, and of a beautiful shade of flesh-pink. J. Chamberlain is a striking flower, with long, broad, and curling florets, incurving at the ends; colour brilliant reddish crimson with light bronze reverse. As exhibited the flowers were rather thin, but with high culture this variety should give good results. Georgina Pitcher, an American novelty, like many others, does not seem to have done much in its country of production, but it promises well here. It is a massive bloom, with broad, curling, and incurved florets; colour pure yellow. Master H. Tucker is a large chestnut-crimson flower, but rather too short in the floret to be fully appreciated. Until we get something better it will be useful. C. A. H.

Feathery Chrysanthemums.—A couple of blooms of Mrs. Filkins, generally described as yellow, that came to me the other day were pure white, and show this section in great beauty. The section is so entirely outside exhibition form, that the flowers found in it can only be seen on the plants or when used for the decoration of the table, &c. There is a good number of these now in commerce, and amongst them, besides the Golden King of Plumes recently mentioned, a capital addition is found in Mrs. W. Butters, a pure white. Midget, pink; Silk Twist, rosy-mauve; and Gold Thread, golden-bronze, make a pretty half-dozen with those previously named. Vases dressed with these feathery-like flowers alone would make a pleasing feature.—A. D.

Chrysanthemum Mrs. H. Weeks.—Growers of Chrysanthemums for exhibition know the value of this variety, but may not be aware of the excellent qualities of the plant when grown to produce a large number of blossoms for cutting. At the time of writing my plants are freely flowered, the blossoms of a useful size for vase decoration, bouquets, and wreaths. The cuttings were put in at the end of December, 1896, and grown on steadily all through the summer and autumn, and the flowers developed from terminal buds. When grown for exhibition, the large, massive blooms are blush-tinted, but grown in the free manner here described they are pure white, with a nice breadth of petal. The blooms also are on footstalks of a useful length.—D. B.

Chrysanthemum L. Canning.—I have not experienced the difficulty mentioned on page 498 in dealing with the above Chrysanthemum from an annual standpoint, and just now (December 28) a batch of fifty plants is furnishing a very good supply. The plants are carrying half-a-dozen blooms of good average size, large enough for church and table decoration and work of a similar nature, the centres well filled up and of fairly good finish throughout. A similar batch of Golden Dart is doing equally well. These were all struck from late May cut-backs and ultimately shifted into 5-inch pots, in which they are flowering. I shall plant out the cut-back plants another

season, let them come away with four or five shoots, and lift as bushes in September. They should make capital companions for big stuff of *Salvia splendens* Bruanti, just now in very good form, that was treated in the same way. I see "W. S." mentions Mme. Felix Perrin as a good late pink. Is that of similar habit to the two varieties above named? If not, perhaps some grower will kindly recommend one. Tall, straggling varieties are of very little use to me, and although the late striking has naturally a tendency to dwarf the habit, there is still a lot of difference in the amount of growth made.—E. L. B., *Claymont*.

New Chrysanthemum sports.—Those that have appeared for the first time during this season have not been particularly numerous. Mrs. W. Mease, if it should turn out to be distinct from the other Mme. Carnot sport—G. J. Warren—will of course be an acquisition. Archie Ray is a primrose-coloured flower obtained from Mlle. A. de Galbert, which is white. The parent, although it has not been noted in good form this year, is a handsome and graceful Japanese flower at its best; the sport therefore should prove a nice addition. Something very fine was expected in the bronze Edith Tabor—Mr. A. J. Barnes—but to me it appears far from bright. The parent produces blooms of fine finish and has a very charming shade of yellow. An indistinct bronze from such a flower is not a great gain. Mme. Louis Remy, a white sport from the pink-coloured Mrs. C. H. Payne, is likely to give very large blooms; but as the type is wanting in graceful formation, I fail to see anything remarkable in the new one, especially as there are so many white Chrysanthemums in every conceivable shape. The pale yellow sport from Niveum, named Pride of Rycroft, should be an excellent addition. Now that that fine type has started in the direction of producing flowers of other shades than pure white we may expect a rich deep yellow, a pink, and such like colours from the same source. Nelly Brown, an orange-bronze sport from Rycroft Glory, is a first-rate new kind. Like the parent, it is early and retains the bushy, free-flowering habit.—H. S.

Late white Chrysanthemums.—This has been a grand season for Chrysanthemums, especially open-air ones. For the very late-keeping section it has been too fine and warm. I have grown a considerable number of the most popular late white kinds, and certainly for purity of colour and fine massive flowers none surpass Niveum. It is not nearly so late naturally as some others, for, grown side by side with L. Canning, it was getting past its best before the latter was fully expanded, and in the matter of keeping, the large massive blooms are far more liable to rot in the centre than flowers of looser growth. Niveum appears to me more useful for the early than for the latter part of December. Princess Victoria seems to be a true Christmas variety. The flowers open of a creamy white, but become pure white when fully expanded. Mme. Thérèse Rey is a very late variety. It has a greenish-white tinge, but is a very useful flower naturally grown. Very few of the newer kinds can excel that good old dwarf-habited variety Snowflake, that naturally flowers at this date, and keeps in good condition longer than any, for the simple reason that its pure white petals are small and quilled, giving the bloom a very light, feathery appearance. This is one of the best for planting out in summer, lifting with a good ball and replanting under cover before severe frost sets in. I have tried the other varieties both in pots and planted out and lifted, and I am of opinion that those grown in pots give far the best results.—J. G., *Gosport*.

Single Chrysanthemums.—Now that flowers for indoor decoration are somewhat scarce, we are naturally anxious that those we can obtain should be of such kinds as will last fresh and beautiful for a fairly long period. For some weeks past I have been using the various kinds of single Chrysanthemums with the happiest results. I have in a vase now some blooms that were cut three weeks ago,

and they are still fresh and pretty. Considering that they have been all the time in a room with a fire all day and gas in the evening, I think that record would be hard to beat. At the recent meetings of the Royal Horticultural Society at the Drill Hall, Mr. Wells, of Redhill, has shown these most useful flowers in large quantities and in excellent form. The variety, too, seems almost endless, many of the shades being very soft and pleasing. At this time of the year nothing can beat these flowers for table decoration, for very few are required to obtain a good effect, and in the majority of the varieties the colours look well by gaslight. The following are a few beautiful kinds which I have come across in Mr. Wells' collection: Muriel Foster, a flower graceful in form and exquisite in colour, having very long ray florets of a rosy terra-cotta shade, changing to yellow at the base; Winifred Hall, a good rosy mauve; Best of All, a small and very prolific light pink, contrasting well with the foregoing; Annie Butters, a very pleasing yellow, and a lovely seedling white, the striking feature of which is its distinct green eye, all the disc florets being green instead of yellow, as is usually the case. The white is absolutely pure, the ray florets very long and narrow, and the effect of the combined green and white is unique and very refreshing.—H.

Chrysanthemums in Belgium.—A recent number of the *Revue de l'Horticulture Belge* contains a double-page illustration in colour of a new variety raised by M. Ernest Fierens, the secretary of the Royal Agricultural and Botanical Society of Ghent. This gentleman, who is an enthusiastic grower of the popular flower and an exhibitor of repute, appears to have received from the Imperial Gardens at Tokio some seed which has resulted in giving him a very fine novelty. The name of the seedling is Afsné; it is of dwarf robust growth, and the blooms are of large size, with long drooping florets curling at the tips. The colour is pure white. The Brussels Chrysanthemum show was opened on the 6th Nov., the King and Princess Clementine being present. Among other Belgian exhibitors M. Fierens was a prominent prize-winner, while French exhibitors included MM. de Vilmorin, Cordonnier, Calvat, Rosette, de Reydellet, Chancier, &c. In consequence of this show in the capital there does not appear to have been one in Ghent. The *Semaine Horticole* for the 27th Nov. might almost be termed a special Chrysanthemum number, for it is largely devoted to the flower, and contains a number of Chrysanthemum illustrations in black and white and special articles on various subjects connected with the cultivation of it. In one of the articles entitled "A new race of Chrysanthemums," reference is made to the crossing of the Dahlia with the Chrysanthemum. M. Cahuzac, it appears, has made the experiment and forwarded to the editor six of these hybrid flowers. They are all described as being of dark colours, three of them being globular in form, two more or less flat, and the sixth having centre florets raised up, forming a kind of aigrette. Further particulars may be expected.—C. H. P.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemum Graphic.—In its large exhibition blooms this variety cannot be considered particularly pretty, and to be seen at its best it should be grown freely and allowed to blossom from terminal buds. In this way a goodly number of beautiful flowers at Christmas may be obtained, and these may be cut in sprays, each carrying two or three blooms. The colour may be described as white, freely suffused and tinted pale rosy mauve.—C. A. H.

Chrysanthemum W. Wright.—This handsome Japanese flower was seen in splendid form at the National Chrysanthemum Society's December show, but now it is also very useful. Not only does it supply a want at the end of December and early in January, but it also develops a number of handsome blooms of medium size on long footstalks of a lovely shade of light pink, tinted primrose. The plant is of medium height, and the flowers come good from terminal buds.—C. A. H.

FLOWER GARDEN.

EUPHORBIA CANARIENSIS.

This is one of the most striking and picturesque plants to be met with even amid the singular flora of the Canary Islands. It flourishes on the great lava stream in the neighbourhood of Telde, where we find it growing to a vast size, apparently without soil, amongst masses of russet-coloured rocks, painted with grey and yellow Lichens. It is said to grow only amongst lava. The plant from which the plate was taken measured about 20 feet in diameter, its angular candelabrum-like stems rising to a height of 9 feet. Numerous small seedlings were found growing around it. Some of these were brought to England and thrive well under ordinary culture. J. L.

ANNUAL PHLOXES.

I HOPE the flowers depicted on the plate published in THE GARDEN on January 1 will induce all who have not hitherto grown the annual Phloxes to do so now. Phlox Drummondii is one of our oldest annuals, and, like many other classes of plants, has been much improved of late years. For amateurs especially, its easy management makes it a very desirable plant, and I do not know of any other that flowers so long and abundantly. There may be some who have still a hankering after the old Verbena, with its uncertain habit of growth and its almost certain way of dying off before the season has ended, but Phlox Drummondii is an excellent substitute for the Verbena, with none of its failings. The seed always germinates freely, and a little packet will produce many plants. If it is sown early in March and the plants given slight warmth in a glasshouse or frame, either with or without fire-heat, they will be quite large enough to plant out in the open by the middle of May, will begin to flower in June, and not cease till November. This annual has a very free habit of growth and should not be planted in rich soil. If planted in groups in mixed plant borders or about shrubberies it will give much brightness and great satisfaction. If planted in the flower garden it is generally necessary to peg the growths down to keep it in a compact form, but let one put it where he may and treat it well it will grow and flower to perfection. In this respect it has no equal. It is a wet-weather flower, too, as no matter how much it rains and how depressed the blooms may be in a downpour, an hour's sunshine will make them appear in all their brightness again.—M.

The beautiful illustration of these tender annuals recently published in THE GARDEN should do much to popularise them. The illustration presented a very faithful and in no sense an overdrawn picture of the beautiful colours, as also of the fine form now found in the flowers. What lovely beds of mixed colours they produce! Those privileged to see the annual trials seedsmen have of these annuals readily realise how very effective all are, though some colours may in each individual case have the preference. A mass of these Phloxes in bloom, from out of which spring a few light, graceful top plants, presents a garden picture of exceeding beauty. It is best, on the whole, to raise the plants by sowing seed under glass early in April, and, by pricking off thinly into pans or boxes, have an abundance of sturdy ones to plant

out at the end of May. These will bloom profusely for several months.—D.

Increasing Senecio pulcher.—Now is a good time to take root cuttings of this. One plant denuded of a portion of its roots will give material for a score or even fifty plants if required. The larger roots are the best, cutting these into lengths an inch or more long and placing round the inside of some pots, well drained, and three-parts filled with very sandy loam. With the root cuttings in position the centre may be filled with soil so that the tip of the root is just seen. Water thoroughly and place in the greenhouse, and if possible on a gentle bottom-heat, such as a bed of manure and leaves, or even a stronger heat if at command. Great heat, however, is not a necessity, though the best results are secured by keeping the pots in a temperature of 50° or 55°. Treated quite cold in frames the roots remain a long time dormant, even if they start at all. On the other hand, root cuttings inserted now and placed in warmth will be grow-

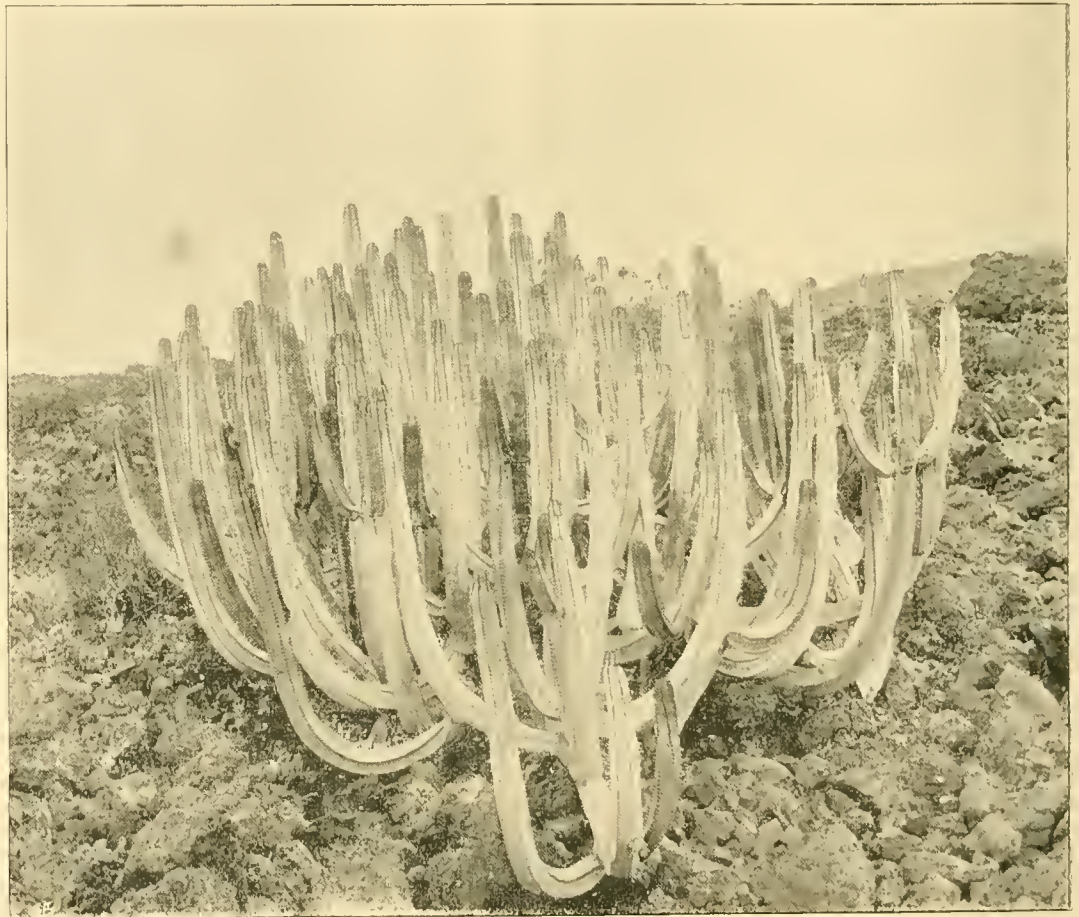
way, this fine composite would maintain a high standard of excellence in our borders. So far as my experience goes, no future flowering is equal to the first, particularly when given this sort of biennial treatment and propagated entirely from the roots and not from division at all.—E. JENKINS.

CALIFORNIAN IRISES.

MR. PURDY has made a further valuable contribution to a highly interesting subject. The sum of the result of his investigations so far as they affect European cultivators, or perhaps I may say gardeners generally, appears at present to be as follows:—

(1) There is a new Iris (*I. Watsoni*), which, being apparently distinct, must be worth cultivating, and which, being allied to *I. longipetala*, must, probably, be easy of cultivation.

(2) There is another new Iris called, or to be called, *I. Parishii*, which, although hitherto confounded with *I. missouriensis*, is deemed worthy



Euphorbia canariensis. From a photograph sent by Dr. Lowe.

ing in a month or six weeks, and at the end of two months the best will be ready for transferring to other pots, say six to a 5-inch pot. From these store pots the young plants may be potted singly, or in the early part of June planted in their permanent positions in the open. For effective gardening this latter is the best, arranging several in a group. Thus treated these will make splendid examples by the autumn ensuing, not early enough or even large enough to flower, but still grand plants for providing a rich display the following year. So good and so distinct a plant is worth these special means, and if a few plants, say only a score, were raised each year in this

of specific honours. It does not appear how far this is distinct in habit or colour from the plant figured in THE GARDEN (vol. 1. p. 186), but the presumption perhaps is rather, against its being so; moreover, its Californian habitat raises a presumption, from the life assurance office point of view, against the vigour of its constitution.

(3) The true Iris macrosiphon is not apparently in cultivation at all, at any rate not in Europe, what has hitherto done duty for it in Europe being now named (in America) *I. Purlyi*, while what has been passing for the same species

in America has now been named (in Europe) *I. Californica*. If my opinion on such a matter were not quite worthless, I should be disposed, nevertheless, to hazard a conjecture that Mr. Baker has described *I. macrosiphon* (Iridæ, p. 5) from the true plant.

(4) Mr. Purdy describes *I. bracteata* as having flowers of a deep yellow colour. This is good news, for we want a genuine yellow in this section, but it hardly coincides with Herr Max Leichtlin's description (vol. lii., p. 126), who finds no difference in colour between this and *I. Purdyi*, and describes them both as of a bright ochraceous yellow.

Several of the Irises mentioned by Mr. Purdy and others, such as *I. tenuis*, I gather from his letters to me, vary greatly in colour of bloom, though it would seem that the best chance of varieties of this sort is to be looked for in *I. Californica*, a species which, unfortunately, is among those that are hard to establish. In conclusion, let me express my satisfaction as a gardener that a new name has been found for the Iris now to be known as *I. Purdyi*. I had and have not the smallest objection to its being *I. macrosiphon*, but to call it *I. Douglasiana* was from a gardeners' point of view the very perversion of naughtiness. There could hardly be two plants of the same genus more utterly unlike in habit of growth and shape, as well as colour of bloom.—J. C. L.

— Mr. Purdy's experience about *Iris Hartwegi* is the very opposite of mine, as the following record of events will show. About twenty or twenty-five years ago Mr. Falconer, of Harvard University, U.S.A., was so good as to send me a large consignment of plants. Among the number were *Ipomœa pandurata*, *Solanum Torreyanum*, and *Iris Hartwegi*. The two first of these have gone on well from that time to this, but *Iris Hartwegi* has had a very wayward course in my hands. It arrived in the month of April, and I planted it at once in the open ground. It grew and blossomed during the course of the summer. My old friend Harpur-Crewe was delighted with it, not so much for its beauty, for it is by no means among the most beautiful of Irises, but because of its rarity and because he had never expected to see it in such good form. He asked me if I could spare him a bit, and as it seemed to me to be the easiest plant in the world to manage, I took up the whole thing in the autumn and cut it into two or three pieces, of which I gave him one and replanted the other two bits in my own borders as before. Not one of these plants did anything at all. Alike with him and with me they all came to grief, and *Iris Hartwegi* parted company with me altogether. As I always miss a good plant which I have once had doing well in my hands, I set to work immediately, as a matter of course, to repair the loss I had sustained. Both from America and from nurseries on the Continent I have had this plant over and over again. Mr. Gerard, of Elizabeth, New Jersey, has been most kind in sending me specimens of it, and I could not say how many attempts I have made to get it into my garden again during the last twenty years or so, but all have been failures, and I came to look on *Iris Hartwegi* as the most troublesome plant I had ever come across in my life. But it happened in the autumn of 1896 that I was paying a visit to the garden of Herr Max Leichtlin at Baden-Baden, and as I was looking over his treasures I soon espied *Iris Hartwegi* in a very flourishing condition in one of his borders. I told him of the great trouble which I had had about it, and I also added, "I wish you could tell me what to do." He immediately said, "*Iris Hartwegi* can only be established in safety in the spring, and the month of April is the best month in the year for it; it will not bear it in the fall." I responded at once, "If that be so, I should be so much obliged if you could let me have this plant or a part of it in the month of April next." With his usual kindness he promised to send it to me at that

time of the year, and in April it arrived, and was of course planted immediately. From that time to this it has done very well, and once more, after an estrangement of more than twenty years, it condescends to put up with me. I do not doubt that Mr. Purdy has good reason for what he says, but it should be taken with the following reservation: It is good for California, though not for this country. I cannot, in the Isle of Wight, subscribe to the statement that "*Iris Hartwegi* is best moved dormant." *Iris Douglasiana* never gives any difficulty, and *Iris macrosiphon* also is in a most flourishing condition in my garden.—HENRY EW-BANK, *Isle of Wight*.

ROOF GARDENING.

WHILE this is an interesting subject in many ways, it is, as pointed out by Mr. Arnott in *THE GARDEN* (page 2), not altogether a novel idea and only adapted to certain conditions. The plants suitable, however, will naturally be somewhat limited. In many parts of the counties of Gloucester and Worcester the cottage roofs are usually of red tiles or thatched with straw, and the variety of plants one may see in the latter is often as interesting as it is surprising. It is surprising because illustrating that even forest giants will and do exist in the merest scrap of earth, and this by no means the most suitable kind. I am pleased to note Mr. Arnott is trying the Wallflowers and Antirrhinums, because in these he will secure greater height than is obtainable from many plants suited to dry walls, and the like. One of the most useful things for walls I have tried is the common Honesty (*Lunaria biennis*), and, where space admits, *Helleborus trifoliatus*. The *Campanula* and *Erinus* mentioned will be readily established, and so also some of the alpine Pinks and the *Aubrietias*. *Linaria alpina* is another that may be introduced by seeds, and with *Saponaria ocymoides* may be expected to thrive fairly well. The *Helianthemum* I have also found well suited to very dry walls, and if introduced to the roof garden in autumn or quite early in the year, and in rather young plants, will not wholly disappoint. The common *Cerastium*, where a drooping position can be given, will also prove effective. Plants that surprised me as doing well on dry walls were two or three *Phloxes*, viz., *P. verna*, *P. divaricata* and *P. ovata*. These grew and flowered fairly well, while *P. setacea* and allied kinds were not content. Then I would venture to remind Mr. Arnott of the *Columbines*, some of which, especially *A. œrulea* and the hybrids of this and *A. Californica*, will, with *A. glandulosa*, make a fairly good display in very dry places. Often a handful or so of soil with a stone overlying it will prove sufficient for some of the dwarfier kinds at least. Nor must the alpine *Roses* be overlooked. *R. alpina* and *R. pyrenaica* are most useful on very dry walls, while any of the hardy *Opuntias* would doubtless find a veritable home in such a spot. *Linaria Cymbalaria* would of course be at home in any chink, and others that do not occur at the moment that have proved very useful for quite dry wall-tops with but a scrap of soil.

It is encouraging, in Mr. Arnott's case at least, that *Saxifraga aizoon* has been so much a success, because here in the south such things are obviously best suited in summer with more moisture and shade than are usually afforded them. In hilly districts, where such a roof could be seen from above, the arrangement should at least prove interesting, if not, indeed, an attraction. How far such an arrangement could be made attractive will depend greatly upon how much soil with safety could be employed in such a position, as with the soil limit described at page 2 the number of genera and species will be restricted also. All the plants cited above, however, have proved quite happy on very dry walls, though in some instances the growth was less vigorous than usual. In such a position, however, greater variety may be employed if such things as *Rosa alpina* and the *Columbines* were planted on their sides, so to speak, laying a flat stone over the

roots. These, of course, would add weight too rapidly if too freely used, though the benefits would more than compensate in those instances where stones may be regarded beneficially, if not, indeed, as necessary. Such *Saxifrages* as *sancta* and *apiculata* should do well thus. Other plants to be easily introduced by seeds are *Papaver nudicaule* vars. and *P. alpinum*. E. JENKINS.

Three new Californian Lilies.—Our correspondent, Mr. Carl Purdy, whose knowledge of the bulbous plants of California and their cultural requirements is unrivalled, describes in the October issue of *Erythea* three new Californian Lilies:—

LILIUM OCCIDENTALE, from boggy places in barrens and bogs about Humboldt Bay, is related to *L. maritimum*, which it resembles in habit, bulbs, leaves, and in the dark red of its perianth tips, but from which it is separated by its much larger flowers, with long revolute lobes.

LILIUM BAKERI, with a bulb similar to that of *L. Columbianum*, is distinguished from that species by the form of the perianth and the delightful fragrance of the flowers which perfume the air for a considerable distance, and is a native of sandy woods along Puget Sound in Northern Washington and Southern British Columbia; and

LILIUM PARVUM VAR. *LUTEUM*, a showy form with perianth segments revolute from the base, and clear brilliant reddish orange throughout, tipped with red and marked with small bright red spots. This variety is from Plumas County, where it was collected by Mrs. Austin.

VERY OLD GARDENS.

OUR simple forefathers used to declare that gardening is the oldest of human occupations, for Adam was a gardener. We do not rely upon the argument now-a-days, but late discoveries support the conclusion. Gardening is recorded as the second of human occupations, so far as our knowledge goes at present. The very oldest inscription yet discovered, to which a certain date can be assigned, is that upon the statue of Sharrukin, King of Agade, in Accad. "The river bore me along—to Akki, the water-carrier, it bore me. In the goodness of his heart, Akki, the water-carrier, lifted me up. As his own child, Akki, the water-carrier, raised me. He made me his gardener, and as a gardener the Goddess Ishtar loved me." This striking incident must have occurred some five thousand seven hundred years ago, for we know to a certainty that Sharrukin reigned about 3800 B.C. Water-carrying, therefore, was the first business recorded; and it must have been tolerably profitable, since Akki kept a gardener. There are mortals who will suspect, on this ground alone, that the translation is wrong. Then let them find another. We have learned to bear cavilling at Holy Writ with patience, but we will not suffer doubt upon Professor Sayce's interpretation of the Cuneiform. There is other evidence, indeed. Sharrukin was not the first of his profession whom Ishtar fell in love with. We read in the Epic of Gisdhabur how that hero taunted the goddess with her amours: "Moreover, thou didst love Isullanu, the gardener of thy father, who was for ever raising costly trees for thee." At the present time he would have propitiated his employer's daughter with Orchids. Furthermore, the Greeks report a tradition that Pul, the usurper, who refounded the Assyrian Empire, under the name of Tiglath Pileser II., was a gardener. It may have been a lingering regard for the occupation of his innocent youth which led the doughty Tiglath to collect strange trees, probably flowers also. He says: "As for the Cedar, the Likkarin, and the Ahug from the countries I have conquered, these trees, which none of the Kings, my fathers that were before me, had planted, I took and in the gardens of my land I planted, and by the name of garden I called them. Whatsoever was not in my land I took, and I established the gardens of Assyria."

But let us turn to Egypt. Numberless are the allusions and the pictures which display the love of those ancient heathen for their gardens,

Hundreds of years before Assyria was born or thought of, Queen Hatasu sent a fleet to Arabia and Smaliland to collect, in fact, curiosities, in especial the scented Fig trees of that region. And many fine things it brought back, which were duly portrayed upon the temple walls, and the trees among them, all alive, planted in the Royal orchard at Thebes. When the Pharaohs took to conquering, they did not disdain to count new plants discovered among the trophies of victory. Thothmes III., in particular, enumerates a quantity which he brought back after his campaign in Ethiopia. Among the articles of tribute imposed upon the Rutenu, the Princes of Syria, a supply of "rare plants" is inserted. And the gardeners were very clever. It seems likely that they could have given us some hints, and we long to see the announcement that a practical treatise on horticulture has been discovered. The enormous consumption of flowers in garlands and bouquets shown by the pictures is evidence of consummate skill to the initiated. But we have distinct statements. Athenæus says that in his time—but that was the era of the Ptolemies, of course—"those flowers which are but scantily produced in their proper season elsewhere bloom freely all the year round in Egypt, through the ingenuity of the gardeners; so that neither Violets, nor Roses, nor any other are wanting there even at mid-winter."—*Standard*.

ROSE GARDEN.

ROSES IN VASES.

It redounds to the credit of Mr. George Paul that he endeavours to be abreast of the times in offering good prizes for Roses to be shown in vases at the annual gathering of the National Rose Society at the Crystal Palace. If I remember rightly, the stipulation was (or is) for so many blooms of one variety and a given number of varieties. Such a class should most certainly be the means of adding to the attractiveness of these gatherings. Any new departure which has merit in it, and this most assuredly has, should receive due recognition at this the chief show in the country. The sooner all affiliated societies, and, in fact, every recognised horticultural society adopt the new plan the more will it add to the features of their shows. Bouquets of Roses are already included in many of the best schedules. Why not vases too? The illustration now depicted is an excellent example of what may be accomplished in this direction. It is suggestive of good taste, and one has only to imagine say five more varieties, and then a lovely display is at once made, as, for instance, *Maréchal Niel*, *The Bride*, *Mme. Lambard*, *La France* and *Comtesse de Nadaillac*. Possibly the strict rosarian would adhere to the foliage of the Rose only to use with its flowers, and I confess there is a good argument in its favour. But anyone would be compelled to admit that the effect here produced is excellent. The choice of the vase to commence with is correct; note also how well the trailing of the spray of *Smilax* is displayed! The sprays of *Virginian Creeper* as well as the light flowering sprays add to the effectiveness of the arrangement. A trifle more of Rose foliage might have been used.

H. G.

Rose d'Evian (Tea).—At first sight this Rose resembles too much that fine garden variety *Marie d'Orleans*, but on closer inspection there is a decided difference. It is one of the most lovely smooth-petalled Roses in existence, with an oval-formed centre almost as perfect as an egg. The rose colour, though not quite so bright as in *Marie d'Orleans*, is beautifully clear. The general contour of the flower reminds me of a perfect speci-

men of *Christine de Nouë*, and the rich deep rose-coloured buds, if they were not oval in form, would be taken for those of *Papa Gontier*, and, like this Rose, it is a fine autumnal variety. It is a worthy addition to the vigorous-growing, almost hardy Tea and Hybrid Tea varieties, of which *Marie d'Orleans*, *Grace Darling*, and *Homère* are good examples.—*PILLLOMEL*.

A query about Moss Roses.—I think if "R. U. S." had seen some old standard trees of the common Moss Rose here during the past summer he would hardly ask if there are any worth growing. The trees in question have large spreading heads, and although they were at one time closely pruned in every season they have had much more freedom during the last few years.

shoots almost impossible. Moss Roses always appear to me to be more subject to aphids than the smooth-barked types, and a good washing from the garden engine often does good. But worth growing this old favourite certainly is, if only for the exquisitely tinted buds around which so much romance is woven.—H. R.

PILLAR ROSES.

CLIMBERS on walls, fences, and arbours are very commonly met with, also groups in beds or borders, but Roses in pillar or pyramidal form are not often seen. Surely there can be no better style in which to display the graceful beauty of the Rose. One great mistake is often



Rose Catherine Mermet in a vase. From a photograph sent by Mrs. Martin, Lyndhurst, Birmingham.

I do not, however, recommend standard trees as the most beautiful, for where there is room for large bushes they have a very fine appearance. I have had this and the *White Bath* on its own roots, and the large sucker-like growths that the common form throws up show that it is suitable for this mode of culture. One reason why Moss Roses are so unsatisfactory in many places is owing to the shortening back of weak and strong growths alike, instead of cutting out the more spindly ones and allowing the stronger ones to grow almost at will. A weak shoot one year will produce poor flowers and weak shoots again, as well as crowding the trees and making stronger

made by gardeners in pruning pillar Roses too severely, the consequence being luxuriant growth, but very little blossom. As Roses of climbing habit are usually recommended for this form of Rose growing, it is necessary that the young well-ripened rods of the previous year be carefully preserved if a fair supply of flowers is desired. I do not advocate the wholesale removal of all the old growths, but my plan is to take one away now and then whenever the plant appears to have an over-abundance of shoots. Roses, like many other deciduous shrubs, have a natural tendency to renew their vigour

from the base of the plant, and in order to encourage these young growths, I cut down, as I said before, one or two as the case may require of the oldest growths. Garden Roses have enormously advanced in popular favour. My idea is to plant a very free-growing Rose, such as Ulrich Brunner, Magna Charta, Gloire de Dijon, Mrs. Paul, some of the least thornless of the Penzance Briers, Boursault Amadis, or, indeed, any really free-growing Rose of a hardy nature, and at the proper season to bud it from base to summit with the more moderate growing Roses, such as La France, Augustine Guinoisseau, Belle Siebrecht, Viscountess Folkestone, G. Nabonmand, Mme. Laurette Messimy, Mme. Eugène Resal, Marquise Litta, and many others. One-year-old plants of the strong growers should be planted in their permanent position in some good well-manured loam that has been carefully trenched. If a very fine pillar is required, two or three plants may be planted around a 5 feet or 6 feet high iron stake. Generally speaking, these plants will have two shoots from 5 feet to 6 feet long. If there are more shoots, they should be removed. About August the plants will be fit for budding. Commence at the base, and insert the buds of the variety selected about 9 inches apart, alternating from front to back of shoot or shoots, so that a uniform pillar may be formed. The following spring all the growths of the stock, save one or two at the very top, should be kept removed to enable the inserted buds to break. As the buds grow, they must be carefully tied to the shoot for the first year to prevent damage from gales. Those who have never tried this method of pillar Roses will be surprised at the very beautiful pillars they can produce in two or three years. It does not require a very vivid imagination to depict the beauty of a pillar 5 feet or 6 feet high of such gems as Mme. Laurette Messimy, Marquise de Salisbury, Camoens, or Princesse de Sagan. I do not claim that pillars of these Roses can ever equal in grandeur a specimen of Ruga, Flora, or Félicité Perpetué, but it must be admitted that the flowering season of these latter is of very short duration; whereas with the garden Roses we can have them in blossom from May to December. Some doubt may be felt that our severe winters would cripple such pyramids, but I think by employing abundance of evergreen boughs amongst the shoots they would come through the ordeal very little the worse.

PHILOMEL.

Tea Roses and Tufted Pansies.—Visitors to Kew Gardens during the summer and autumn of last year could see the fine effect produced by carpeting with Tufted Pansies the beds of Tea Roses near the large Palm house. The colours were selected with admirable taste, as, for instance, a fine mass of G. Nabonmand, one of the loveliest of Teas, and Tufted Pansy True Blue. Surely thus covering the ground is preferable to the long litter from the stable seen in many gardens, and the little nourishment the Pansies extract from the soil one can easily replace.

China and Polyantha Roses in pots.—One may visit scores of gardens, and but rarely find these lovely Roses grown in pots for winter and spring decoration. At this dull season of the year the brilliant colours of the Monthly Roses, as Cramoisi Supérieur, Mme. Eugène Resal, Mme. Laurette Messimy and Fabvier, would enliven many a conservatory. They have loose, informal flowers, gracefully borne on the plant and surrounded with richly coloured foliage. The Polyantha Roses such as Perle d'Or and Gloire des Polyantha are also suitable for the same purpose. Even in 5-inch pots they may be employed in various ways, but their full beauty is seen when

they are about 18 inches to 24 inches high and about as much through, the more so when the ugly training sticks usually employed for pot Roses are wanting.

Rose Mme. Marie Lavallee (Tea).—Even now (December 17) some very creditable buds could be gathered from this excellent climbing Rose. I am surprised it is not more sought after, for, apart from its late flowering, it is a delightful variety to plant against a wall or fence or to train on a pole in pillar form. The flowers are semi-double, with large shell-like petals of the beautiful fresh rose tint so much admired in such varieties as Blairi No. 2, Marquise de Vivens and Mme. Laurette Messimy. An additional charm of this Rose consists in the petals at the base and on the outside being almost white.—P.

Rose Waltham Climber No. 1.—This is a very fine crimson climbing or pillar Rose, and in autumn, when many other crimson climbers are flowerless, these Waltham Climbers are brightening our gardens with their blossoms. The variety No. 1 is large, with Camellia-like blossoms of a bright crimson colour. The strong growths are of a pale green colour and perfectly smooth. A fine specimen may be seen in one of the houses at Kew Gardens, and in the spring it is a gorgeous sight. The fruits of this Rose are of immense size. I know of no Rose that yields finer fruit, and if carefully hybridised this Rose should surely produce a grand race of climbers of even more brilliant colours than the parent.—PHILOMEL.

STOVE AND GREENHOUSE.

REGAL AND SHOW PELARGONIUMS.

DURING the Chrysanthemum season these plants are often, to a certain extent, shelved, and have not the attention they deserve. When this has been the case, nothing that can now be done will give first-rate results, but as there are still several months before their flowering season, they will, if taken in hand now, have a chance of making good progress for a time. Where the plants have been growing in a light, cool, and airy house, with their heads almost close to the glass, and the latter has been kept clean, they will have made nice short, stubby shoots. These are the growths that flower most freely and give blossoms of the largest size. If the shoots were disbudded—those on cut-back plants, that is—they will probably not require any thinning now, but if not, it is quite time this was done. It is weakening to the plant to carry more shoots than necessary, besides which the selected ones have not the proper amount of room, and therefore light. This thinning must be seen to, then, without delay, and as regards the number of shoots to be left, that of course depends upon the habit of the variety. The large-leaved forms, such as Duchess of Fife, must not be much crowded, for these make very dense plants naturally, and unless there is room for the proper development of the leaves, the flowers will be poor in quality, the plant also being more liable to insect attacks. The smaller-leaved, weaker-growing kinds, as Duke of York or the older Dr. Masters, may have the shoots left much closer. There is yet another distinct type of growth and foliage, of which a good instance may be noted in H. M. Stanley. So accommodating is this fine variety that it almost grows into shape of its own accord without much pinching, tying or other assistance. A little care then in observing the habit of the varieties is well repaid by their improved appearance.

As soon as the days begin to lengthen a little, the final shift into the flowering pots may be given, and although not recommending the use of very large pots, it is well to remember the

amount of growth that has to be made and the number of large flowers that have to be produced from this potting. Market growers turn out splendid plants in very small pots by careful culture in all the stages of the plant's growth and liberal feeding towards the latter end of the season. Private growers may, of course, do the same thing where the requisite light houses and other means are at command, but it is a well-known fact that such plants are not the best to grow on another season or to propagate from, and this is my reason for recommending amateurs and others not to imitate the market standard too closely, but give room enough in the pots to allow the plants to give a good account of themselves with a reasonable amount of feeding. The compost for this potting may consist principally of good sound fibrous loam and sand, a little of a good artificial fertiliser being mixed with it, and a 6-inch potful of soot to each barrowload of soil. Drain the pots well and place a few half-inch bones above the crocks, then fill up and use the potting stick freely. Loose soil means rapid and sappy growth, but bad quality flowers. After the plants are returned to the growing quarters the syringe may be used among them for a few days if the weather is fine, but when they begin to grow again this must be discontinued. No more staking should be done than is absolutely necessary, over-staked plants having a stiff, unnatural appearance. The sticks used must be thin and neat, yet strong, and the earlier they are placed the better, as the foliage then grows over and hides them. Aphides are of course a perennial complaint with growers of this class of Pelargoniums, but as fumigation, properly carried out, is not harmful to them, the way out of this difficulty is easy. There are several kinds of fumigating material now on the market that seem almost perfection as far as safety and efficiency are concerned, and one may fumigate a score of houses almost without soiling the fingers, quite a different affair from the old system which necessitated one's getting half-stifled in the operation. GROWER.

Libonia floribunda.—This is a useful and very pretty winter-flowering plant, the bright Heath-like blossoms occurring very freely in a greenhouse temperature. Its worst fault is that the flowers fall rather quickly, but as they are produced in a long succession this does not much matter. Its culture is very easy, young plants being raised from cuttings as easily as Fuchsias, and making pretty little specimens the first season. These may be nipped back slightly after flowering and will break again very freely, and the protection of a frame is all that is necessary from May until they are taken inside in autumn.

Euphorbia jacquiniæflora.—There are few more effective stove plants than this, and either grown in pots or planted out in suitable places it provides a lot of material for cutting during the winter months. The stems may be cut with about 6 inches of leaf and flower, when they make very pretty sprays, while for vase decoration they are very telling. The plants, too, during the dull winter days have a warm and bright appearance. Many fail to grow it well by giving too large pots, and consequently too much soil. The roots are not of the strongest, and in a close or water-logged compost cannot be satisfactory. The cuttings should be taken and rooted as early as possible, five or six round the edge of a pot filled with sandy soil. In a close propagating pit they soon strike, and may be potted in the smallest-sized pots at first, giving small shifts through the summer until the 6 inch size is reached. Old cut-back plants may be placed in large pots, but this is as much as can be done in one season with safety. On a light trellis or wall the plants grow to a considerable height, and these may have more

root room, a border about a foot deep being none too much if well drained. The less the plants are cut the better, but a little trimming will be necessary every season. A good compost is equal parts of peat, loam, and silver sand, some rough pieces of charcoal being mixed with it.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 11.

THE first meeting of the year was decidedly noteworthy by reason of the quality of the exhibits. The day being bright and fine added to the cheerful appearance of the Drill Hall, whilst most of the exhibits were of themselves very bright and showy. Cyclamens and Primulas were the two specially noteworthy features. The former came from two sources—Reading and Enfield. Those from Reading were perfect models of good cultivation, dwarf in growth, the foliage of a leathery consistency and the flowers supported on stout footstalks, there being no need of any artificial support, the quality of the flowers also all that one could wish. The other collection included large plants, well flowered, but the setting up was not so effective. Two specially fine collections of Primulas were staged, that from Swanley being comprised of the most select strains, the plants of medium size, but in profuse flowering condition. The other group from Croydon contained splendidly grown, but larger plants in luxuriant health, most of them being well flowered, whilst the quality was good. A fine boxful of cut trusses of the javanico-jasminiflorum Rhododendrons came from Chelsea, proving their value for winter flowering. The Wych Hazels (*Hamamelis* sp.) from the same source were most interesting. Some excellent decorative plants came from Forest Hill, and from St. Albans the new *Aucuba*-leaved *Dracena*, *D. Godsefiana*, a distinct and most serviceable decorative plant.

Before the Orchid committee there were not presented a great number of exhibits, but the quality here too was quite up to the mark. *Cypripediums* chiefly predominated, with a few *Laelias*, *L. autumnalis* being shown well. The fruit committee was not overburdened, neither was the floral committee, the latter body not making any award to new plants or novelties. There was again an excellent competition for the flavour prizes for Apples, and a finely kept collection of the same came from Amptill. Of Grapes there was a well kept selection of high class quality from Byfleet, being typical market samples. Some grand fruits of the Shaddock came from Sawbridgeworth.

Orchid Committee.

Awards of merit were adjudged to the following:—

LAELIA ANCEPS AMESIANA (Crawshaw's var.).—This is a remarkably fine form of *L. a. Amesiana*, the sepals pale rose at the base, tipped with a darker shade of colour, the petals very broad, nearly white at the base, shading to rose, and suffused with purple at the apex. The colour of the lip is much deeper than in the typical form, rich velvety crimson in front, with a prominent yellow raised disc at the base; the side lobes purple, shading to yellow, heavily suffused and lined with dark brown. A three-flowered spike came from Mr. De B. Crawshaw, Sevenoaks.

CATLEYA TRIANE SANDERE.—This is a lovely form with very large sepals and petals of a light rose tint. The lip is deep purple, beautifully fringed with light rose, the side lobes pale rose, shading to white, and bright yellow at the base. A fine plant with two flowers came from Messrs. F. Sander and Co.

CYPRIPEDIUM F. S. ROBERTS.—This is a lovely hybrid of the *C. niveum* section, the parentage not mentioned. The dorsal sepal is white, lined and spotted with bright rose at the top, suffused with rose and a little green at the base, the petals reflexed, white, suffused with rose, thickly

spotted with small purple spots, the lip white, suffused and spotted with rose. It is one of the most distinct and desirable forms we have seen. From Messrs. H. Low and Co.

Captain Holford was awarded a silver Banksian medal for a group of cut *Cypripediums* and *Laelia autumnalis*. There were about fifty varieties of the former, which consisted of remarkable forms of *C. Leeanum*, *C. Calypso*, *C. nitens*, *C. radiosum*, *C. Statterianum*, in which the dorsal sepal was entirely suffused with bright rose; a dark form of *C. Niobe*, a fine form of *C. Sallieri Hycanum*, and remarkable forms of *C. villosum* and its var. *Boxalli*. The *Laelia autumnalis* were also remarkably good, fine in substance and colour. Mr. C. L. Ingram, Elstead House, Godalming, sent *Cypripedium Magnet* (*C. insigne Chantini* × *C. Boxalli*), a beautifully spotted hybrid, resembling forms of *C. nitens*. Mr. F. A. Rehder sent *C. Rehderianum*, a beautiful hybrid, with small, but remarkably dark flowers. Mr. Isaac Carr sent *Cypripedium Elspeth* (*C. barbatum* × *C. Boxalli*), *C. Gwendoline* (*C. Boxalli atratum* × *C. Leeanum superbum*) and other hybrid *Cypripediums*. Frau Ida Brandt sent a dark form of *Laelia autumnalis*. Mr. F. Hardy, Ashton-on-Mersey, sent a plant of the true *Cypripedium insigne Sandere*, a good form of *C. Calypso*, and a pale form of *Odontoglossum Andersonianum*. Messrs. F. Sander and Co. sent a small group, which consisted of fine forms of *Lycaste Skinneri*, *Laelia anceps Dawsoni*, *L. a. Sanderiana* and the pale *L. a. Hilliana*, some good forms of *Cypripedium Calypso*, *Dendrobium Johnsoni*, the white flowers with the violet markings on the lip being most attractive. Messrs. H. Low and Co. sent a small group consisting principally of finely flowered *Odontoglossum crispum*, *O. Andersonianum*, a fine form of *O. Halli* and numerous other forms. Among the *Cypripediums* were well flowered plants of *C. Calypso*, *C. Godsefianum*, *C. Germanianum*, and remarkable forms of *C. Leeanum*. The paintings executed on behalf of the council by Miss N. Roberts of the flowers to which first-class certificates and awards of merit were adjudged during the past year were submitted for inspection. The committee expressed their satisfaction with the artist's work, which, on the whole, was executed in a high class and natural manner. As a reference, the committee have already found that the system is a most useful one, and they recommend the council to continue the work with the same artist for another year.

Floral Committee.

A handsome group of decorative plants came from Messrs. John Laing and Sons, Forest Hill. Highly coloured *Dracenas*, *Crotons*, *Poinsettias* and *Begonias* gave colour to the exhibit. There were good plants of *Caraguata cardinalis*, *Kadsura japonica*, and *Nepenthes mixta* (silver Flora medal). A very extensive collection of Primulas came from Messrs. Cannell and Sons, Swanley. The plants were dwarf and sturdy, the blooms clean and fresh, very freely produced and of fair size. Some of the best varieties were White Perfection, very pure; Pink Queen, a very charming rose-pink; Victory, rich purplish-crimson; Eynsford Red, a brilliant colour; Swanley Blue, a pretty light blue flower; Emperor Improved, bright reddish-salmon; and Cannell's Pink, a pale, but very lovely bloom (silver Flora medal). Another very fine collection of Primulas came from Mr. J. R. Box, Croydon, these being larger and more bushy than those just mentioned, and each one bearing four or more trusses of flowers. All were very healthy, flowers and foliage being equally clean and bright. A few good varieties were Cannell's Pink, Margaret, The Queen, Emperor, White Perfection, Rosamond, and Surprise (silver Flora medal). Messrs. Veitch and Sons sent a box of their javanico-jasminiflorum hybrid *Rhododendrons*, containing many varieties of great beauty, among them two which had not been previously shown, viz., *R. multicolor Triton*, a very bright rosy-salmon, and multicolor *Latona*, a lovely pale primrose.

One of the brightest and prettiest exhibits was the large display of *Cyclamens* made by Messrs.

Sutton and Sons, of Reading. The plants were dwarf, exceptionally free flowering, and the flowers needed no support. The collection consisted of seedling plants raised from seed sown in November, 1896, and illustrated the various types of this beautiful flower. Among the varieties that attracted the most attention were Salmon Queen, flowers of a bright salmon colour, deepening to crimson-purple at the base; White Butterfly, unsurpassed as a white variety, the flowers remarkable for their great substance and good form; and Vulcan, of the darkest crimson colour, and a charming contrast to Butterfly. The giant varieties were noticeable for the extraordinary size of the blooms; this strain includes Giant White, the flowers of lovely form and of the purest white; Giant Crimson, distinct and telling, brightening up the appearance of the whole group; Giant Pink and Giant White. For comparison, a few specimens of *Cyclamen persicum*, the original type, were shown to show the great strides made in this now popular winter-flowering plant (silver Flora medal). Messrs. Hugh Low and Co., Enfield, also showed good *Cyclamens* and their new Carnation Winter Scarlet. Some of the white-flowered *Cyclamens* were of great size (silver Banksian medal).

Fruit Committee.

There were not many exhibits at this meeting. Apples were shown well, also Grapes, but there were but few vegetables, and only one dish of good Pears in the flavour competition.

A first-class certificate was given to

PEAR PRESIDENT BARABE.—This variety was given an award of merit on a recent occasion. The fruits are medium-sized with russet markings on the shaded side, the flesh white, juicy, and rich. It is an excellent mid-winter Pear. From Mr. Allan, Gunton Gardens, Norwich.

A very fine lot of Grapes was staged by Mr. J. Bury, Petersham Vineries, Byfleet. A number of bunches on boards formed the background of the exhibit. There were excellent Muscat of Alexandria, Gros Colman, and Alicante, the same varieties being shown in baskets as sent to market. The bunches were good in colour and berry, well meriting the silver Knightian medal awarded. From Mr. Empson, gardener to Mrs. Wingfield, Amptill House, Beds, came thirty dishes of Apples and one of Pears. The cooking Apples were very good both as regards size and colour, Stone's, Tower of Glamis, Alfriston, Mère de Ménage, Prince Albert, and Lord Derby being the best. Of dessert kinds there were good Cox's Orange and Adams' Pearmain. There were two dishes of d'Arcy Spice, not a handsome Apple by any means, but a meritorious fruit for use in late spring (silver Knightian medal). Messrs. Rivers and Son, Sawbridgeworth, sent some excellent Citrons, one branch bearing four good fruits. The Grape Directeur Tisserand, a variety recently given an award of merit, was again sent to show its keeping qualities. The bunches were in excellent condition, berries of brisk flavour, firm, and juicy. It is an excellent winter Grape; its bright blue-black colour, in addition to its good flavour, should commend it. A bunch of Mrs. Pearson Grape was also sent in good condition. From Mr. T. Roeloford, Turnford Hall Nurseries, Broxbourne, was sent a new Grape, a sport from Alicante, with a rounder berry, not unlike Gros Colman in shape, but with a thick skin and of good quality. The committee desired to see bunches from canes on their own roots before giving an award. It promises to be an excellent winter Grape. Mr. Parker, Goodwood Gardens, Chichester, sent a seedling Apple of great merit. This was given an award under the name of Lincolnshire Pippin, but the name was now changed to Goodwood Pippin. It is a very showy fruit, and the committee desired that it be kept later for comparison. A new seedling Apple named Chilton Beauty came from Mr. Walker, Thame, Oxon. A seedling Apple, very showy and bright scarlet, came from Mr. Ballenger, Upper Al-

stone, Cheltenham, but the flavour was poor. A nice basket of Mushrooms was sent by Mr. Miller, Ruxley Lodge Gardens, Esher.

The Veitch prizes for flavour showed what a dearth there is of good winter Pears, as there were only two lots. Mr. Ross, Welford Park Gardens, Newbury, was first with an excellent dish of Josephine de Malines, the other, Passe Crassane, being past. Apples were plentiful. Mr. Tallack, Livermere Park, Bury St. Edmunds, was first with an excellent dish of Margil, Mr. Powell, Ilington House Gardens, Dorchester, being second with Claygate Pearmain. Some fifteen lots were staged, including Fearn's Pippin, Adams' Pearmain, Ribston Pippin, Blenheim Orange, Dutch Mignonne, White Nonpareil, Requette du Canada, and Russets in variety.

This being the last meeting of the year, the customary vote of thanks was passed to the chairman for presiding during the year.

Gardeners' Royal Benevolent Institution.—We are asked to state that the Duke of Portland has fixed Wednesday, June 8, as the date of the 59th anniversary festival dinner of the Gardeners' Royal Benevolent Institution at the Hotel Metropole.

Victoria Medal of Honour.—The council, having been consulted as to a proper mode of the use of the Victoria Medal by members of the trade, have decided that the only permissible method is by the letters V.M.H. following the name of the holder of a medal. No other mention of the medal can be properly made in any publication pertaining to horticultural trade or relating thereto.—W. WILKS, Secretary.

NOTES OF THE WEEK.

The yellow Banksian Rose.—Mr. A. G. Williams, in order to show the mildness of the season, sends us some flowering sprays of this gathered on Jan. 12 from a S.E. wall at Caddington, Horndean, Hants. It also comes to us from S. Wales.

Erica barbatula is a freely-flowered species, with very minute leaves and frail twigs, above which the small pure white globular blossoms hang in considerable quantity. As a small pot plant it forms a useful kind among the winter-flowering Heaths.

Dracæna Distinction.—A basket of this apparently useful decorative kind was exhibited by Messrs. Laing and Sons, Forest Hill, at the Drill Hall this week. The habit of the plant is very graceful, the leaves nearly 2 inches broad, dark green, and bordered with reddish scarlet. The leaves have a gracefully recurving habit, which is very pleasing.

Narcissus obvallaris.—This sturdy little trumpet Daffodil, always among the earliest to flower, is this season maintaining its good name in this respect. The earliest blossoms, that had been brought on in a greenhouse at a temperature of 50° to 55°, were well expanded in the earliest days of the present year. Its pretty form and good colour are always appreciated.

Flowers from Weybridge.—I bring you a few flowers which have bloomed at Oakwood in the open border the first week of the new year. The first Iris, which bloomed on the 1st, was I. Bakeriana; the one I bring, I. Histrion, soon followed it.—GEORGE F. WILSON.

* * * The gathering also included Primroses in variety, Lonicera, Christmas and Lenten Roses.—E.O.

Fritillaria oranensis.—A potful of this species in flower from Tottenham came before the Royal Horticultural Society on Tuesday last, and is of interest because of its very early flowering. It is, however, not a showy plant as this term is usually understood, the interior being of an apple-green tint. Externally a similar tone prevails, save for the margin of the sepals and petals, which are of a brownish chocolate. It is about 12 inches high.

Daphne indica in the open.—It may be of interest, as a proof of the mildness of the season, to mention that a Daphne indica, planted out of doors three years ago, has for some weeks past been full of blossom. It is in a warm corner,

formed by the angle of south and west walls, and is trained against the west wall. I picked three flowering sprays of Jasminum revolutum from a south wall yesterday.—M., Combe, Honiton.

Heliconia illustris rubricaulis.—This is perhaps one of the most attractive of fine-foliaged plants in the warm stove at the present time. Essentially moisture and heat-loving, this only attains its fullest dimensions when given these without stint. The beauty of this kind is largely due to the fine colour of the midrib, which, apart from its brilliant shade, possesses a distinctly feathered serration, and combined with the colour is very striking.

Cypripediums from Westonbirt.—A very lovely series of these was contributed by Capt. Holford (gardener, Mr. A. Chapman) to the first meeting of the Royal Horticultural Society, and was much admired. The batch included several seedlings of considerable merit as well as the best of the named kinds to be found in this group, C. Spicerianum, C. Leeanum superbum, C. insigne Unique, and C. Niobe superbum were very fine. From the same source also came spikes of Lælia autumnalis vars. of a rich and telling shade.

Narcissus monophyllus.—Several very beautiful pans of this chaste species constituted the only hardy plant exhibit at the Drill Hall this week. These came from Mr. T. S. Ware, Tottenham. The prettily frilled blossoms were very pure, and in such numbers made a most interesting display. The value of such beautiful flowers in the greenhouse at the present time cannot well be over-estimated. Even a cold house with a few such things as the above, together with winter Irises and the like, may be made interesting for a considerable season.

Senecio grandifolius.—This showy plant forms a most useful subject in the cool greenhouse or large conservatory at this season. It is attractive by reason of the bold, handsome foliage, quite apart from its huge inflorescence, which in large examples terminates a stout stem often 6 feet high. It is, however, quite possible to obtain good flowering examples at half this height by adopting a treatment less generous throughout. Under this system, however, much of the naturally noble character of the plant is lost, although the display of blossoms may be quite effective.

The Winter Sweet (Chimonanthus fragrans).—Truly a delightful as well as fragrant winter-flowering shrub that, owing to the exceptionally mild weather, is blooming freely in many gardens at the present time. Particularly attractive and valuable is this as a wall plant where, naturally, it gives the earliest display of flowers. It is surprising the far-reaching effects of only a few small twigs when placed in water in an ordinary sitting-room. At the same time the fragrance is by no means overpowering. In the open garden when given two or more positions the plants furnish a long supply of the pleasing and fragrant flowers.

Hamamelis japonica Zuccariniana.—Of the beauty and value of this there is no doubt at this early season. At the same time it is to be regretted somewhat that it has so long a name. It is quite distinct from the old H. arbores, also flowering abundantly at this time, and which is richer in tone and possibly even more showy than the new-comer. The flowers of H. j. Zuccariniana are of a pleasing yellow shade, possessing the same free-flowering qualities, and the plant will, at least, constitute a welcome companion to the old form. Both kinds were shown on Tuesday at the Drill Hall by Messrs. Veitch from their Coombe Wood nurseries.

Epacris miniata splendens.—Although a very old and attractive variety, this is seldom seen in the large examples of former years. Unlike many kinds usually of erect growing habit, this plant forms longer and more pliable branches that lend themselves to twisting into formal shapes. These, however, are the least ornamental and by no means needful, as early pruning and at least one subsequent pinching

will do all that is requisite to keep this free-growing and attractive plant within reasonable limits. The plants are very attractive now with long branches closely furnished with the tubular blossoms of scarlet and white.

Hymenanthera crassifolia.—Messrs. Dicksons (Limited), Chester, send us some specimens of this dwarf evergreen shrub, a native of New Zealand. The flowers, which are small and inconspicuous, are succeeded by thickly-set white berries, which cover the bases of the branches as well as the thick, old stems, their colour being heightened by the ash-coloured bark, and still further by minute black dots on them. With reference to its hardness, Messrs. Dicksons say: "Hymenanthera crassifolia is perfectly hardy with us here at Chester, where it has stood in the open ground in a bleak and exposed position without any protection whatever for the last ten or twelve years. As this is a particularly cold place, we think it may safely be said that it is perfectly hardy anywhere in the British Isles."

Bouvardia Humboldtii grandiflora.—Being the introducers and exhibitors of the above, for which we received an award of merit, we cannot let pass unnoticed the remarks of "E. J." in THE GARDEN, January 8 (p. 14). "E. J." says he could see no difference between it and B. Humboldtii corymbiflora except in the flowers, while as a fact the size and stoutness of the stems and foliage of B. H. grandiflora are marked characteristics compared with those of B. H. corymbiflora. "E. J." also doubts as to the plant for comparison being the genuine Humboldtii corymbiflora. We are certain it was, having purchased our stock from one of the best Bouvardia growers in the trade. Both varieties had the same treatment and soil and were grown with but little assistance in the way of liquid manure.—CRANE & CLARKE.

Veitch prizes for flavour.—In limiting the number of times any variety of established reputation may be shown, its reappearance might yet be admissible as showing its possible keeping qualities. In the competition for flavour I do not think Gravenstein has had its due. It would be instructive to find this variety, if existing, exhibited at the next Drill Hall meeting, although I should have preferred to have seen it this week. Pears on this occasion were few in number, possibly owing to their not keeping well this season. If growers of the latest ripening varieties have still good samples to show, their appearance at the next meeting would be of value, as they are so little known. These would include Marie Benoist, Olivier des Serres, Doyenné d'Alençon, Prince Napoleon, and the new variety Le Lectier.—H. H. R., Forest Hill.

Eriostemon cuspidatus.—When well grown and freely flowered, there are few plants more attractive than this well-known species. Happily, too, it is among those things that may be grown to a large size very easily. Such examples in flower are most attractive, so pleasing and elegant are the small white, flesh-tinted blossoms. With age, however, the latter are pure white, and when the bushes have attained to some 3 feet or 4 feet high and are laden with blossom, the plants become a feature in any garden. At the present time some splendidly grown bushes of this kind are flowering abundantly in the greenhouse at Kew, where they are planted out in a bed of peaty soil. One of the largest specimens is nearly 5 feet across and loaded with its pure white flowers. In smaller examples, also flowering freely is E. scaber, with small linear leaves and white flowers.

Cyclamens at the Drill Hall.—The first meeting of the Royal Horticultural Society for the present year was remarkable from the fact of its being largely composed of Primulas, single and double, in great variety, and Cyclamen also in variety. A large group of the latter from Messrs. Sutton, of Reading, was most conspicuous not only for the wonderful array of colour, but equally so for the rich and telling shades, and not least for the uniform good quality of the plants themselves. The plants were grouped in blocks of

colour, each shade forming one block, and in this way proved most effective. The pure white kinds were exceedingly fine, and from these they passed through shades of rose, pink, to those of a crimson hue. One very striking group was exceedingly bright with almost cherry-red flowers, a shade of colour almost, if not quite, unique in the Cyclamen. The plants were stated to be twelve months old, and for vigour, general compactness, and freedom of flowering were remarkable.

Iris stylosa Empress Elizabeth.—While all the forms of this winter Iris are welcome, whether as plants for the more sheltered border or in pots, it is questionable in a rather variable plant such as this whether it is desirable to name varieties having only minor differences. From seed where the several kinds are grown together it is possible to secure many interesting and beautiful forms intermediate in foliage and flowers, and which grouped together are very charming. In no position do such things tell to such advantage as when planted freely in a sheltered spot in the rock garden where they are quite safe from harsh winds. The variety bearing the above name came before the floral committee of the Royal Horticultural Society on Tuesday last, having been sent from the Botanic Gardens, Glasnevin, by Mr. F. W. Moore. It is quite distinct from the type, not only in the deeper azure-blue of the standards, but also in the heavy reticulations of the falls, and doubtless a well-flowered clump would be most effective. These beautiful Irises are really worth more attention, as by devoting a small sheltered spot to their cultivation and covering with frames temporarily in winter plenty of beautiful flowers may be secured for cutting, and which in the case of the white kind would prove of much value.

Plants in flower at Ponsonby, Torquay.—Owing to the mildness of the weather the rock garden has been comparatively gay throughout the last months of 1897, and to brighten the first month of 1898 there are yet many things still in flower. *Fuchsia microphylla* is a mass of bloom. This is growing among the larger things on flat ledges of the rock, and for such places it is a very desirable plant. *Convolvulus Cneorum* is flowering profusely, and its white flowers with pink stripes on back of the corolla are very showy. *Hypericum Moserianum* is almost as bright as it has been during any part of the summer, while *Veronica Bidwillii* is also carrying a quantity of its beautiful white flowers. *Arabis serpyllifolia* is at its best, and *Campanula garganica* with its blue flowers against the rain-washed stones has a very pleasing effect. *Daphne oleoides* with its blossoms of a pinkish shade and sweet fragrance is most attractive, and at a little distance *Grevillea rosmarinifolia* is in all its beauty, its flowers of the brightest red. This in sheltered places is a handsome little shrub. *Omphalodes verna* is sending up lovely blue flowers, and in a week or so (weather as now) will be in full bloom. The Mossy Saxifrages are pushing very fast and promise to be particularly early.—R. W. HODDER, *Ponsonby, Torquay, January 11.*

Apple Adams' Pearmain.—This appears to be a favourite Apple in Sussex, and well deserves to be planted freely, as there are few others more free bearing or that last longer in good condition. For midwinter use I consider it next to Cox's Orange as regards flavour, and for one reason at least I prefer it as it bears more freely. It is easily distinguished by its Pearmain shape and bright colour; in fact, it is a very striking variety, and always recognised when once seen. The fruit forwarded with these notes was gathered from a standard tree which has carried three bushels or more for the last four seasons. Even when other varieties proved scarce this one never failed. The trees also fruit freely in a young state, and as there is more demand for choice dessert Apples after the new year, or rather fewer kinds to supply it, those who have not already grown Adams' Pearmain would not regret planting several trees. As a standard I keep the head open, and long branches are studded with fruit spurs their full length. At

the present time there is every promise of a heavy crop again next season, judging by the quantity of plump flower-buds now to be seen. Perhaps some reader of these notes can furnish information as to its origin, and also how it succeeds in other counties.—R. PARKER, *Goodwood.*

PUBLIC GARDENS.

The Royal Botanic Society.—The usual fortnightly meeting of this society was held at the gardens last Saturday, Major Cotton in the chair. The chairman stated that the year 1897 had been a very eventful one in the history of the society, and he was pleased to be able to congratulate the Fellows upon the very excellent position upon which the society stood as compared with the opening of last year. At that time the outlook was gloomy; the lease of the gardens was about to expire; and an accumulated balance of some thousands of pounds stood on the wrong side of the account. The position, however, had been resolutely faced, with the co-operation of the council and some of the leading Fellows. He was pleased to say the society was now perfectly solvent and the debt was now swept away. A new lease for the maximum term of thirty-one years had been promised by the Commissioners of Woods and Forest. Reference was made to the great increase in the number of Fellows elected in 1897, being over eighty above the average numbers of the last ten years.

The Royal Parks and Palaces.—The First Commissioner of Works (Mr. Akers Douglas) announced last year in Parliament that the Queen had graciously approved of the Ranger's Lodge adjoining Greenwich Park being let by the Commissioners of Woods as part of the Crown Lands under their charge, and that Her Majesty had been pleased to throw into the park, for the use of the public, fifteen acres of land hitherto annexed to the lodge. We are now enabled to state that the Queen has further decided that the old palace at Kew shall be opened, during her pleasure, as a public museum under the same management as Kew Gardens; and by her wish the grounds belonging to what is known as the "Queen's Cottage" will also be utilised in connection with the Royal Gardens. Her Majesty has also directed that the State Rooms at Kensington Palace, in the central part of the building, which have been closed and unoccupied since 1760, together with Sir Christopher Wren's banquetting-room attached to the Palace, shall after careful restoration be opened to the public during her pleasure.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Mr. Bernard Gibson presiding, the draft of the fifteenth annual report, prepared by the chairman, the Earl of Meath, was considered and passed for publication after a few alterations. The record of successful work accomplished by the association during the past year included the laying out of three new gardens, the provision of gymnastic apparatus in one playground, the erection of three drinking fountains, grants of seats for twelve localities, the planting of trees in three thoroughfares, and pecuniary and other assistance rendered in the preservation from threatened encroachment or the acquisition or improvement of thirteen other open spaces. The income for the year amounted to £5200, and the expenditure to £4800, whilst the liabilities for work in progress or agreed to be undertaken were rather over £6000. It was reported that seats had been accepted for a site in Camberwell, that the laying out of York Street disused burial-ground, Walworth, had been begun, and that the renovation of St. George-the-Martyr churchyard had been completed. A letter was read from the London County Council agreeing to maintain Spitalfields churchyard, laid out some six years ago and hitherto maintained by the association. Matters were considered with reference to the

Cross Bones disused burial-ground, Southwark, which some recent purchasers threatened to convert into a building site, and to metropolitan common lands at Ham and Tottenham, which it was desirable to place under regulation. A gift of £50 was announced towards the laying out of the Paragon, New Kent Road.

COVENT GARDEN.

Owing to the mildness of the winter, flowers which we are not accustomed to see so early, have come into the market. Wallflower has made its appearance in the market and is being sold for 4s. a dozen bunches, while Primroses have been quite plentiful and realise 1s. to 1s. 6d. per dozen bunches. Of choice flowers, the *Pancreatium*, which only occasionally makes its appearance, brings its growers 6s. per dozen blooms. *Eucharises* have dropped considerably in price, being only worth 2s. 6d. to 4s. per dozen blooms. *Arums* have also shared the same fate, and from the profitable price of 5s. to 6s., have dropped to from 2s. to 3s. English Lilac is being offered at 5s. 6d. to 7s. 6d. per bunch, and French Lilac from 4s. to 5s. 6d. per bunch; the home grown is much whiter and the foliage a delicate fresh green. Of *Oreliids*, *Cattleyas* are 6s. to 8s. per dozen blooms. *Celogynes* appeared this week and realised 4s. to 6s. per dozen blooms; *Lælia anceps* 2s. per dozen; *Odontoglossums*, 2s. 6d. to 4s. 6d. per dozen blooms. *Lily of the Valley*, which is so greatly enhanced in value by having plenty of its own bright green foliage, is realising from 8d. to 2s. per bunch of a dozen sprays; *Freesias*, 2s. to 4s. per dozen. Single *Daffodils*, which have just come in, are selling at 1s. 6d. per dozen blooms; double *Daffodils*, 1s. and 1s. 3d. per dozen blooms; *Violets* from 1s. to 2s. per dozen bunches, *Parnas*, 2s. 6d. to 5s. 6d. per bunch; *Euphorbia jacquiniiflora*, 2s. to 4s. per dozen sprays; *Myosotis*, 12s. per dozen bunches; *Bouvardia*, white, pink, and scarlet, 6s. to 9s. per dozen bunches; *Geranium E. V. Raspail Improved*, 9s. to 12s. per dozen bunches. *Chrysanthemums L. Canning* and *W. H. Lincoln* are still to be had at 8s. to 12s. per dozen bunches, but the flowers are poor. An excellent late yellow, *Christmas Gold*, raised by Mr. Philip Ladds, is well worthy of note. *Roses (English)*, of which there is a large supply, are realising fair prices: *Safrano*, 1s. to 2s.; *Catherine Mermet*, 2s. to 6s.; *Niphotos*, 1s. 6d. to 2s. 6d. *Roses (French)*, *Safrano*, 1s. to 1s. 9d. per dozen; pink, 1s. 6d. to 2s. 6d.; yellow, 1s. 6d. to 2s.; and *Lilium Harrisii* is selling at from 3s. to 5s. per dozen blooms.

Pot plants, *Genistas*, 10s. to 15s.; *Cyclamen*, 12s. to 24s.; *Cinerarias*, 8s. to 15s.; *Begonias*, 12s. to 15s. per dozen. *Azaleas* (specimens), 30s. to 60s.; *Hyacinths*, 8s. to 12s.; and double *Daffodils*, 9s. per dozen. *Crocuses* and *Scillas* in boxes, 1s. 6d. a box; *Chrysanthemums*, 4s. to 12s. per dozen; *Palms*, small, from 2s. 6d. to 4s. 6d. per dozen; large, 24s. to 36s. per dozen; specimens, 10s. to 100s. each; *Dracenas*, 12s. to 18s. per dozen. T. P.

OBITUARY.

JEAN JULES LINDEN.

JUST as we are going to press we have received a telegram announcing the death, at the age of 81, of M. Jean Jules Linden, of Brussels, to whom horticulture owes so much for his introductions of new and rare plants. An account of his life, with a photograph, was given in *THE GARDEN* of June 28, 1879.

BOOKS RECEIVED.

"The Rosarian's Year-Book" for 1898. Bemrose and Sons, Limited, London and Derby.

Names of plants.—S. T.—*Garrya elliptica*.—*J. E.*—*Vanda tricolor*.

Names of fruit.—J. W. S.—Apples: 1, Red Winter Hawthornden; 2, Lady Henniker.

THE GARDEN.

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ORCHARD AND FRUIT GARDEN.

PEAR NE PLUS MEURIS.

As a rule, Pears are not nearly so reliable as Apples either in cropping or ripening in all seasons at their supposed proper date. As an instance of this I have known Easter Beuré ready for use before Christmas one season, while it may be several weeks later the following one. This is rather perplexing, especially to those who have to provide not only a choice dessert at mid-winter, but which is sometimes required in great quantities. Taking one year with another, I find Ne Plus Meuris as reliable, and probably more so, than any other kind I know, it being in a suitable condition for table about Christmas. I have trees growing on south, west, and north aspects, and probably, owing to the drought of the past two summers, the finest fruit both in size and quality was gathered from the trees facing north. Some of the fruit grew to a great size, and the uneven surface so peculiar to this variety was more conspicuous than in the smaller fruit. It is certainly very distinct, and no one could mistake it by the description given in most fruit catalogues and manuals. I have known the fruit to come gritty in other counties, and though I found a few of the small ones picked from the trees facing south in this condition, those on the north side of the wall were highly flavoured and very juicy. This, I think, points to the fact that, in the south at least, a cool, moist atmosphere suits it best, and those who are in doubt what to plant besides Morello Cherries on a north wall would do well to give this variety a trial. This, I think, proves that the grittiness sometimes found in some varieties is due more to soil, aspect, and cultural details than to any inferiority of the variety. Even Beuré Rance, which is noted for this failing, I have known come to perfection in Worcestershire. The trees in this case grew on a west wall, but they were treated liberally in every way,

while the crop they carried annually prevented any grossness of wood growth. This, together with copious syringing after a very hot day, induced the fruit to swell rapidly, which in the autumn was not gathered in the ordinary way, but allowed to remain on the trees as long as possible, mats being used, when frost was expected, to cover the fruit. The mats, placed in position before the sun receded from the wall, retained a certain amount of warmth, all tending undoubtedly to improve the quality of the fruit, which trouble was well repaid later on when good Pears, or, for the matter of that, other fruit, was scarce. I have little doubt but that the keeping properties of many of our Pears would be more nearly assured if the trees were treated liberally during the summer, especially through a spell of drought, and allowed to hang on the trees as late as possible in the autumn, even if the individual fruits or the finest of them had to be secured with strips of matting to the branch above them. By so doing we should have a better opportunity of not only having Pears of the finest quality, but a succession of them, provided, of course, that a good set is secured in the spring.—R. PARKER, *Goodwood*.

— This Pear is often advised as a good late variety, but I have never yet succeeded in keeping fruit to the season given, namely, March, or even later. Having a poor Pear soil, I do not expect to get the best results. So far with me this variety is anything but good at the season named. It would be encouraging to see a good dish of this variety in March or April: I can never keep fruits after early February. I have another objection to it—the flavour is not good, and I certainly would not advise anyone to plant it for flavour if it does not do better than with me. I have some fine trees, and I thin the fruits to obtain size. On the Quince this Pear is a failure. I have it double-worked, but even then it is none too good, and does not keep after January. On a north wall it is a failure, and I had some cordon trees on a west wall, but they were anything but satisfactory: locality may be answerable, as I hear good accounts of it elsewhere.—S. M.

PEARS NOT KEEPING.

DOUBTLESS many growers are similarly situated as myself, the Pear season with me being nearly over. This, with a large number of varieties to give a supply, is not encouraging when we are told the late Pears may be had well into April. I noticed this year some of the varieties catalogued as being in season from January to March were shown in November and December, and this is usually the case with my fruits, as after December I have few Pears worth naming. Of course, soil and position may be answerable in my case, but I fear many are in a similar position and have none too many good Pears from this date. Knight's Monarch this year kept very badly; in fact, few were presentable, owing to their shrivelling, though they were left very late on the trees. I was very much disappointed this year with Josephine de Malines, a Pear classed as in season in some catalogues from February to May. If there ever was need of a revision as regards seasons it is so with this variety. I can never keep it good after January. I have it as a bush, as a cordon, and on an east wall, the cordon trees being on a west wall. Winter Nelis kept well this year, but I allow the fruits to remain on the trees as long as possible. This is my best Christmas Pear, and though many object to its size, it is a beautifully-flavoured Pear, and the best quality fruits are those on cordon trees freely exposed; but fruits from bushes or pyramids, though smaller, are delicious. Olivier de Serres, a Pear in season next month, kept badly this year. I have none left worth anything. I regret its loss, as I had none too many Pears this season. This Pear does well in most forms with me, but needs much thinning. A new Pear, Le Lectier, promises well, but, like the others named, it will, I fear, take after one of its parents, Williams' Bon Chrétien, and not keep into March, as catalogued. It is a splendid fruit and very juicy, with melting flesh and delicious flavour. Cordon trees of this variety bore well, but the fruit was quite ripe by the end of December. It is only fair to add the fruits were grown on a south wall in light soil on gravel. I hope to grow this variety in the open in bush form for late use. My best keeping Pear this year is Nouvelle Fulvie. This proves more valuable as it attains age. I have it as a bush, as

a pyramid, and also on walls. It is somewhat rough in appearance, but well worth room in all gardens where late Pears are in demand. In cold places it should be given wall culture and left on the trees late. It will then keep good much longer. The earlier Pears kept very badly with me; indeed, were ripe quite six weeks in advance of their season, at least most of the November and December fruits were. Thompson's this year was my best October Pear. This was equal in quality to Doyenné du Comice. Doubtless the favourable autumn was answerable for the good quality of several of our early autumn Pears. I wish we could get later kinds equal in quality to Thompson's. S. M.

Apple Cox's Orange Pippin.—Although it is generally held that this Apple is over by Christmas, probably that thought is more due to the inevitable run there is upon it at that season than to any other cause. But where the fruits were well matured and finished and kept in a cool place, it is surprising how long even into the new year they will keep fresh and fit for table. This is doubtless largely due to the high quality of the flesh, which even after the best is passed is still firm and pleasant to eat. I have been tasting fruits in this month of January kept in a cool cellar that seem to be as richly flavoured and delicious as at any time.—A. D.

Outdoor Vines.—With a favourable aspect at disposal these may be grown successfully without going to the expense of preparing a border of special material. All that is needed is a little good loamy soil and some mortar rubble to afford a start, after which the soil must indeed be very poor if fairly good growth is not made. There is a deal to be said from the point of ornament as well as from utility. Verandahs with columns unfurnished and a trifle overhanging these supports, south walls destitute of any growth, and chimneys in particular will be suitable spots. The best kinds for outdoor culture are Chasselas Vibert, a fine white Grape with large berries when thinned; Esperione, a good black companion to the foregoing, with large bunches; Reine Olga de Wurtemberg, a red Grape of good flavour; and the older kinds so well known, viz., Miller's Burgundy and the old Sweetwater.—G. H.

French cider crop.—A return giving a full account of the cider crop in France has been published, and one is not surprised, given the unfavourable nature of the weather in Brittany and Normandy, where the great bulk of the Apples is grown, to find that the crop is one of the poorest recorded for many seasons. The average yield for the last ten years has been 320,000,000 gallons, but last year the total was only 150,947,065 gallons, or about a fifth of what was made in the record year of 1893. Although two-thirds of the French departments grow a little cider, it is only in the seven which constitute the ancient regional divisions of Normandy and Brittany that the quantity made can be regarded as in any way considerable, but cider is the staple drink of rich as well as poor in this region, and is put on the table without extra charge at all the luncheons and dinners in hotels. The department which made the most last year was the Ile-et-Villaine (St. Malo), 22,500,000 gallons; next to it coming the Calvados (Caen), 17,300,000 gallons; the Eure (Evreux), 14,000,000 gallons; and the Seine Inférieure (Rouen), 11,800,000. Nearly all the cider is consumed in the country.

Apple Gravenstein.—Surely "H. H. R." is somewhat at sea in relation to this variety's season when he suggests that Gravenstein might have been entered in the flavour competition at the Drill Hall so late as midwinter. Probably his note refers to the December meeting. In any case that is late, as the variety is at its best in November. It is surprising how rapidly somewhat soft-fleshed Apples become dry and woolly after their proper season has passed.—D.

— I think I am correct in stating that the above variety was shown by more than one exhibitor for the Veitch flavour prizes last autumn.

I know I was surprised it did not then find more favour with the judges, as some excellent fruits were staged. I note "H. H. R." (page 31) thinks that this variety might have been more favourably dealt with, but I do not think the suggestion that staging this variety in the middle of February will show it at its best, as my fruits were all past by the end of October. That may be owing to soil and locality. Many persons like this variety very much, but it is only fair to add an equally large number only think it a cooking fruit. I know many would blame those who placed Gravenstein first in a class for flavour by the side of Cox's Orange, Ribston Pippin and our best dessert varieties. Mr. Barron in his excellent classification places it in either class, and an early Apple it certainly is; very early with me, as the fruits can be eaten from the trees in September, being sweet and not at all hard.—G. W. S.

The white Bullace.—In seasons when Plums are scarce this is often a useful fruit, and it should be more largely planted. It makes a capital preserve and is also a welcome addition to a fruit compote towards the latter end of the season. If the trees were given a little attention in the way of careful planting and due thinning of the branches, the fruit would doubtless come much larger than is usually seen. Even in hedgerows, on the borders of game coverts, or in any out-of-the-way corners and shrubberies this Bullace seldom fails to fruit. It is more constant than the Damson and thrives where many of the smaller Plums would die, and no fruit-bearing tree is easier to raise or transplant. Old plants throw up a quantity of suckers from the base, and these may be set out in nursery rows for a couple of years and will then be fit for planting. The blossom is pretty in shrubberies, showing up nicely toward the edges, while the fruit will often hang on the trees till November or even later. There are several improved varieties of this fruit, one large-fruited black one being a general favourite where known. Soils seem to have little effect either upon its hardness or free bearing. I should say it would come true from seed, and probably many of the wild trees hereabouts are seedlings, but of this I have had no experience.—H., *Bury St. Edmunds*.

CLEANSING FRUIT TREES.

THERE is no better season than now for cleansing fruit trees either on walls or in the open. In old walls red spider, scale and other pests lay their eggs in out-of-the-way old nail-holes and between the bricks. For years I found it impossible to cope with black fly on dessert Cherries till I adopted the plan of cleansing in the winter months. To clear the pest it is necessary to unnaill the branches, tie them together, and with a garden engine to thoroughly saturate the wall, forcing the liquid into the mortar and loose places. When dry, the trees are placed in position, and will give little trouble for a long time. To destroy these pests I find nothing so efficacious as soluble petroleum used stronger now than when the trees are fruiting. For years I used quassia and Gishurst compound, but in wet seasons the quassia soon loses its power, and does not find out stray insects so readily as petroleum. In many gardens, owing to heat and drought last summer, Peaches, Nectarines, and Plums on walls were badly infested with red spider and white fly. Now is the time to prevent their reappearance next season. A thorough washing now will finish the enemy. Peaches in the early spring are often attacked with fly. This may be partially prevented by cleansing now. Scale on fruit trees is soon got rid of if given good dressings of petroleum in a weak state, but do not use raw spirit. My remarks apply to that in a soluble state, as this mixes readily, and for scale one syringing is not enough. Three are often needed, and after that if a little sulphur and soft soap can be syringed over the trees there will be few left. It is necessary to detach the trees from the walls to reach all parts. Peach trees of the Royal

George type, which often mildew badly on open walls, are much better dressed freely at this season with sulphur liquid, well covering all parts of the walls and the bark. Another serious pest to trees in the open, Apples especially, is American blight. This should be destroyed at this time of year, as though the pest is now in a dormant state, next July it will be rampant if the weather is dry and warm. For American blight many insecticides have been advised. I have used Gishurst to advantage for weak attacks, but for old trees it is not strong enough. The most efficient remedy is painting young trees with a solution of Gishurst and soft soap, adding half a pound of sulphur to the gallon of mixture, but for large trees I find soluble petroleum the best. This, well sprayed all over the trees, will kill the pest. Bush trees affected with scale or spider may be well sprayed with quassia, adding a wine-glass of soluble petroleum to the gallon; this will kill the germs and not injure the plants. Another good insecticide for trees not badly attacked is a strong soda solution. G. WYTHES.

Apple Claygate Pearmain.—This Apple has of late been shown in most of the collections at the meetings of the Royal Horticultural Society, and for the flavour prizes has been fairly successful. Few varieties do better than this grown as a standard, as it fruits freely and makes a good shaped tree on the Crab. I have this Apple in bush form on the Paradise, but it does not give such late-keeping fruits or with the flavour that I so much valued when I had this variety in standard form. It is not what one may call a handsome Apple in some soils, being of a dull greenish colour streaked with russet and at times a little uneven. Its quality makes up for any defects, as it rarely fails to crop and keeps well.—S. M.

A good Apple.—Goodwood Pippin, shown by Mr. Parker, is a promising variety. In appearance it is not unlike a very brightly coloured Blenheim Orange both in size and shape, with the firm flesh and lighter colour of a King of the Pippins. Its firmness shows it to be distinct, as Blenheim grown close by was very different in character. The flesh also is unlike that of a Blenheim at this season. I noticed it was greatly admired by those who saw it, and I was in hopes the flavour would be equal to that of the fruits sent at a later period last season. Some fruits were much better than others, notably the smallest fruits. Should this variety come into commerce it will prove a valuable addition to our dessert Apples for use in the spring, as it will keep for many months after gathering without shrivelling.—G. W.

Grape Directeur Tisserand.—Among the new Grapes, the above kind promises to make a valuable winter variety, as the berries remain sound a long time owing to the thick skin. This new variety was recently given an award of merit by the Royal Horticultural Society when shown by Messrs. Rivers, of Sawbridgeworth. The same firm sent it last week to show its keeping qualities. It is a large berry with a distinct bluish black colour, and the flavour is quite different from that of any other kind. Messrs. Rivers describe it as a round berry, but it appears to me to be more of an Alicante shape. It will doubtless prove a valuable keeping Grape when it becomes known. The fruit sent on the 11th inst. was in splendid condition, with no sign of shrivelling, and the quality was first rate.—G. WYTHES.

Apple Adams' Pearmain.—It appears, from an old book before me, that about 1830 this variety was just becoming known. It was then described as being in perfection from November to January. "The fruit is of good size, conical, greenish yellow, and varied with russet next the sun. The flesh is crisp, charged with a rich juice of a peculiar flavour. For the dessert it is passable, and for kitchen use very superior." That description seems hardly to tally with this Pearmain as we know it, because well-grown fruits, in the south at least, are very pleasantly flavoured, and amongst old Apples it is, as a des-

sert variety for mid-winter use, much more than passable.—D.

* * In Lindley's "Guide to the Orchard and Kitchen Garden," published in 1831, this Apple is described as "A dessert Apple in use from November to February. This is a very handsome and most excellent Apple, and highly deserving of cultivation. It is well adapted for grafting on the Doucin stock and for training in the garden as an espalier." The description agrees with that of this Apple as now grown. It was figured in the *Pomological Magazine* (t. 133), and was known in the Horticultural Society's catalogue as Norfolk Pippin.—Ed.

CHRYSANTHEMUMS.

LATE-FLOWERING CHRYSANTHEMUMS.

VARIETIES that will flower late in the autumn and really carry us over Christmas and well on into the new year are most valuable. Any addition to such a list is welcome because the selection as yet is none too varied. It is somewhat curious that, with few exceptions, the freshest and most lasting kinds late in the year are of American origin. Take white kinds. Niveum may be said to have replaced L. Canning in popularity. These are both from the source named. The former is much the better doer, and a greater quantity of blossom may be obtained from each plant. It is not necessary to strike the cuttings early; indeed, the best batch of it I have seen at Christmas was rooted in March of last year. Late-struck cuttings go away freely from the start, and if once topped when about 6 inches high, enough branches will spring to form a bushy plant. Western King is not particularly well known yet. This is probably the best late-flowering white in cultivation. It is, I believe, a seedling from Niveum and the growth is stronger, whilst the blooms have more substance, therefore more lasting. Its florets incline to incurve, but not too formally, and they have an especially rich appearance. Judging from the foliage, Simplicity would be a seedling from Niveum also. This variety, too, is a very fine late one. The petals in this case reflex, are long and of striking purity.

In yellows for late blooming, W. H. Lincoln deservedly holds a high place. It has a capital habit and is very free flowering. The colour is rich and clear, the petals thick and lasting. One might find fault with the formation of the blooms, these being somewhat devoid of grace when cut individually. H. W. Rieman appears to be a sort likely to surpass the last named. From the little I have seen of it we have in this a decided acquisition in late yellow Chrysanthemums. The colour is rich, the blooms nicely incurving in a loose manner, and it is a splendid sort to last. Oceana lasts well, the thick petals hanging for weeks before they become soft and fade. The shade of yellow is light. It is an excellent sort in growth, and altogether a great gain. It is of Australian origin. Major Bonaffon is a grand late-flowering yellow. It is incurved in shape and lasts a long time. Georgina Pitcher is a new variety likely to become a popular late one. It has a nice habit, well-formed blooms and lasting properties to recommend it. The shade of yellow might, however, be brighter. Golden Gate is well known as a very useful late kind, and a tint—quite a buff shade—to be found in the variety Sunstone is sure to be esteemed. This is a late kind; it grows splendidly and has a naturally branching habit. E. G. Hill is an excellent late bronze. This is well known and greatly esteemed. Tuxedo is not so common.

This is very fine indeed as a late-flowering sort. The shades of colour are bright and pleasing, and it is remarkably free flowering.

Up to this autumn I thought a great deal of Nyanza as a late red variety, shades of which are wanted to brighten the dullest season of the year. The sort mentioned has not been a success, inasmuch as the colours fade and the blooms do not stand up stiffly as Christmas approaches. G. W. Childs and Cullingfordi, although old sorts, are still the most useful as late ones of bright colours. Mme. Rozain is naturally a late kind, and in the pink shade I like it better than any other kind. Framfield Pink, which appears to be the same as Mme. Felix Perrin, is very useful for producing a wealth of bloom, but somehow there is not in it that bright shade of colour so noticeable when exhibited in quantity a year or two back. Mrs. S. C. Probin, an American variety with that characteristic noted, may well be tried as a late pink kind. Its blooms keep their colour far on into the autumn, and it is a free-flowering as well as easily grown kind. King of the Plumes is a valuable and striking late kind. The small flowers are full, of a rich yellow shade and borne on extra long stems. As a sort for cutting to supply light floral arrangements it is a gem in mid-winter. H. S.

THE BEST FIFTY CHRYSANTHEMUMS.

LAST November the editor of the *Moniteur d'Horticulture*, Paris, organised an international plebiscite in favour of the Chrysanthemum. Voting lists were received from amateurs and others residing in France, England, America, Belgium, Switzerland, Italy, Portugal, Austria, Germany, Spain, Turkey, Roumania, Greece, Tunis and Monaco. One thousand and fifty-seven persons took part in the audit, and when I say that out of these 1011 recorded their votes in favour of Mme. Carnot, it will be seen how universally high this white Japanese variety is held. The following are the names in order of votes that are considered to be the best fifty by this international plebiscite, viz.:

Mme. Carnot ... 1011	Phœbus ... 605
Le Colosse Grenoblois ... 997	Florence Davis ... 603
Mrs. C. H. Payne ... 994	Mme. M. Rieoud ... 593
Mme. Ed. Roger ... 976	Niveum ... 584
Vivand Morel ... 971	Wm. Falconer ... 578
Australian Gold ... 895	E. Forgeot ... 561
Enfant des deux Moudes ... 887	Chas. Davis ... 558
W. H. Lincoln ... 876	Philadelphix ... 557
Hairy Wonder ... 809	Deuil de Jules Ferry ... 549
W. Tricker ... 808	Lilian B. Bird ... 539
Mme. Calvat ... 767	Duchess of York ... 532
Etoile de Lyon ... 762	Louise ... 524
Souvenir de Petite Amie ... 721	Capt. Lucien Chauré ... 503
Col. W. B. Smith ... 706	Le Moucherotte ... 487
Mlle. Lucie Faure ... 701	Yellow Dragon ... 484
Reine d'Angleterre ... 659	Julian Hippert ... 481
Waban ... 682	Mme. Ph. Rivoire ... 463
M. Chenou de Léché ... 661	Ma Perfection ... 442
Louis Bohmer ... 640	H. Jacot fils ... 431
Amiral Avellan ... 643	Mme. Lucien Chauré ... 428
Ed. Molyneux ... 639	Belle des Gordes ... 426
L'Isère ... 631	Eda Prass ... 421
Mrs. Hy. Robinson ... 623	Robt. Owen ... 419
N.C.S. Jubilee ... 614	Mme. Chapuis Parent ... 417
	The Queen ... 411
	M. Pankoucke ... 408

Viewed from a percentage standpoint, this cosmopolitan plebiscite means that 44 per cent. of the total are Calvat's seedlings, 16 per cent. are varieties of other French raisers, 18 per cent. are American, 10 per cent. are English, and 12 per cent. are introductions from Japan.

The wide extent over which the voting extends is pretty conclusive proof of the general opinion of the merits of the varieties selected.

C. HARMAN-PAYNE.

Chrysanthemums from September to Christmas.—In reply to the above (page 455,

last vol.), the following should prove satisfactory. The first half dozen flower early, and the six last-named are late ones: Mme. Desgrange (white), G. Vermig (yellow), Harvest Home (crimson), M. Dupuis (bronze), Mme. Marie Masse (pink), Ryeroft Glory (bronz yellow), A. H. Fewkes (yellow), Lady Byron (white), Louise (blush), Matthew Hodgson (crimson), Mme. Gustave Henry (white), Modesto (yellow), M. Chenou de Léché (salmon-rose), Mrs. J. Lewis (white), Miss Elsie Teichmann (tinted white), Phœbus (yellow), Pride of Madford (amaranth), Souvenir de Petite Amie (white), Oceana (yellow), Nyanza (crimson), Niveum (white), W. H. Lincoln (yellow), Tuxedo (bronze), and Golden Gate (tawny yellow).—H. S.

STOVE AND GREENHOUSE.

ARDISIAS.

GENERALLY speaking, the Ardisias are principally valuable for their ornamental berries, which are for the most part brightly coloured when ripe, and under favourable conditions they retain their freshness for a long time. One of the oldest, by far the best known, and the most ornamental of the entire genus is

ARDISIA CRENULATA, which was introduced from Mexico in 1809. There are several others, though this is the only species generally met with in gardens, and even this is not grown to anything like the extent it was a quarter of a century ago. This species will grow much more freely in a stove than in a greenhouse, but at the same time the berries retain their freshness for a longer period in a cooler structure than a stove, and, apart from this, plants that have been grown, say, in the warmest part of the greenhouse are less liable to suffer when used for decoration in the dwelling-house, or anywhere in a varying temperature, than they are if they have previously been treated as stove plants. The foliage of this Ardisia is decidedly ornamental, and serves admirably as a setting to the bright red berries. There is a variety of *A. crenulata* in which the berries are white, and though it affords a change it is far less showy than the typical form. Propagation is readily effected by means of cuttings, which are not difficult to root, and young plants are also easily obtained from seeds. This latter method is generally preferred, as seedlings grow with greater freedom and make more effective plants. A second species,

A. MAMILLATA, is of far more recent introduction and a much smaller-growing plant than the preceding. It usually forms an upright unbranched plant, thickly clothed with pale green ovate leaves, each about 6 inches long and disposed in an almost horizontal manner. A peculiar feature of these leaves is that they are thickly puckered all over the surface, thus presenting the appearance of being covered with small wart-like elevations, and from the centre of each one springs a whitish hair, which gives to the leaves quite a hoary look. The small greenish flowers are borne in clusters on short stalks pushed out from the upper portion of the main stem, and are succeeded by berries, which when ripe are of a scarlet colour and remain fresh and bright for some time. It is quite a dwarf-growing subject, and will flower and fruit freely when not more than 6 inches high. *A. mamillata* is a native of Hong Kong and is essentially a stove plant. It needs to be well supplied with moisture at the roots, but must not be syringed much overhead.

A. POLYCEPHALA, which was introduced from the East Indies about ten years ago, is widely removed from either of the preceding. It forms a free-growing, freely-branched bush, clothed with dark glossy green leaves, which when young are tinged with crimson. The flowers, which are borne in umbels on the lateral branches, are whitish, while the berries are when ripe of a shining black hue, very distinct from anything else.

ARDISIA JAPONICA, which succeeds well in a greenhouse, and, in fact, is almost hardy, is a pretty little evergreen under-shrub, with oblong-shaped leaves and bright red berries. The fruits are smaller than those of *A. crenulata*, but of much the same colour. This is seldom seen little more than a foot high. Another species of *Ardisia* differs from all of the above, inasmuch as the blossoms form the most noticeable feature of the plant. This is

A. OLIVIERI, a native of Costa Rica, and introduced therefrom about twenty years ago. This forms a free-growing bush, with leaves 6 inches or more in length, nearly half that in width, and of a bright, pleasing shade of green. The blossoms are borne in crowded heads, somewhat after the manner of an *Ixora*, but individually the blooms are rather smaller and of greater substance. The colour is a kind of purplish pink, varying to a certain extent according to the time the flowers have been expanded. This species strikes freely from cuttings and grows very quickly. H. P.

MESSRS. SUTTON'S CYCLAMENS AND PRIMULAS.

No sooner has the *Chrysanthemum* ceased to bloom than the Chinese *Primula* and the Persian *Cyclamen* begin to flower. A magnificent display of these is now to be seen in Messrs. Sutton and Sons' nursery at Reading. Although the fog has been quite as thick as in the metropolis, it has not injured the plants in the least. Among both *Primulas* and *Cyclamens* there have been wonderful developments. The *Primulas* are undergoing rapid transformation from single to double, while the colours of the flowers range from the purest white to pink, crimson, rose, lavender and porcelain-blue. Among the single *Primulas* what is known as the "giant" class is particularly fine. The flowers of Giant White attract attention by their great size and purity of colour, made all the whiter by the orange eye in the centre, which is more or less characteristic of all the Chinese *Primulas*. Giant Pink has delicate carmine-pink flowers produced early in the season and in great profusion. Giant Crimson is valuable on account of its late flowering. The flowers, which at first assume a purple tint, afterwards take on a rich deep crimson, and are really to be seen at their best at the end of March. The Pearl has stood the test of several years' cultivation and still continues to improve in habit, vigour and duration of bloom. The flowers are at first pure white, later on assuming a peculiar glossy sheen. Brilliant Rose is an excellent companion to Pearl; it is an exquisite form with rose-tinted flowers. Brilliant Ruby, as the name indicates, is a distinct kind with deep ruby-coloured flowers in clusters above the dwarf compact foliage. Snowdrift is a remarkably pure variety, with deeply cut foliage, and masses of snowy white blossoms, which possess the further advantage of tightly adhering to their stalks even if the plants are rudely shaken about. Gipsy Queen is another Fern-leaved variety with charming white flowers, forming a striking contrast to the deep bronzy green foliage. Rosy Queen (also Fern-leaved) at once attracts attention by the delicacy of its rosy pink flowers. Reading Blue and Sutton's Blue (Fern-leaved) are not only remarkable for their decidedly bluish flowers (the blue being of various degrees of intensity), but also as marking a distinct advance towards obtaining a race of *Primulas* which may one day have flowers as blue as the bluest *Gentian*. Reading Scarlet is also a remarkable kind, and although it cannot yet perhaps rival in colour *Vesuvius Pelargonium*, it has a tendency in that direction. It flowers continuously from December till May. We must not omit to mention the Star *Primula*, of which a lovely coloured plate appeared in THE GARDEN in March, 1896. This represents the wild form of the cultivated *Primula*, and has become very popular, owing chiefly to its graceful habit and lovely star-shaped flowers which are borne in

great profusion, and have a great range of colour, being pure white, pink, red, mauve, &c. Among the double *Primulas* there is also great variety, and at no distant period we may expect to see flowers rivaling in form and colour those of the *Carnation* and *Begonia*. Besides the pure and well-known Double White, which is very useful for cutting and general decoration, there are also Double Scarlet, a large scarlet-flowered variety; Double Pink, which gives a wealth of blossom; Double Crimson, with lovely pink trusses; and Double Blue, which is particularly striking. Considering that the blue-flowered kinds have taken a great deal more care to produce, it is worthy of note that this double blue *Primula* is very free and vigorous. The double *Carnation*-flaked forms are excellent for decoration. The foliage is dark and the flowers are white, beautifully flaked with rose or purple or intermediate shades. What is known as the Moss-leaved section, from the beautifully crested Parsley-like foliage, contains such charming varieties as Gem, which really looks like a bunch of Parsley or curled Kale bearing pink flowers. Double Alba magna was one of last year's novelties, and has improved on acquaintance. It has lovely white fimbriated blooms, like the well-known Pink Mrs. Sinkins, and beautifully crimped foliage. Black Prince has flowers of a deep crimson like that of a *Clove Carnation*. It is curious that, although Messrs. Sutton have for years been trying to cross the Chinese *Primula* with other species, such as japonica, floribunda, cortusoides, verticillata, &c., and have even succeeded in obtaining what purported to be seeds, all efforts to raise seedlings have failed.

CYCLAMENS.

Time was when the gardener contented himself with red and white, but now he has the choice of many fine colours in addition. The same careful process of hybridisation and selection is carried out with the *Cyclamen* as with the *Primulas* and somewhat similar results have been achieved. White Butterfly is an excellent kind, which will bloom from October to April. It forms a good companion to Giant White, the huge and beautifully formed flowers of which stand well above the marbled foliage. Other attractive varieties are Cherry Red, Giant Rose, Giant Pink, Giant Purple, Giant Crimson, and Giant Crimmon and White, the colours of which are indicated by their names, but their beauty and habit must be seen to be thoroughly appreciated. There are two other forms which will immediately attract the visitor, namely, Vulcan, with its rich ruby-crimson flowers, which are quite distinct from anything else. It is certainly a most effective and pleasing addition to the group. Salmon Queen is the other kind. Experiments have been conducted for the past fourteen years to raise a salmon or scarlet *Cyclamen*, and success has been almost achieved. In the daytime the flowers of Salmon Queen are of a warm and brilliant salmon-pink, which under gas-light assumes a true scarlet hue. The original type of *C. persicum* as described in 1731 (or, as some authorities have recently preferred to call it, *C. latifolium*) is grown at Reading, and it is interesting to note the great advances made by cultivation during the 160 years that have elapsed. The typical wild form has narrow, twisted petals varying in colour from rose to lilac, mauve and blush-white, with a deeply coloured base and strongly scented. Other natural species, such as *europæum*, *comum*, *repandum*, &c., are grown for hybridising, but the chief object in view at present is to raise a race of *Cyclamen* between *europæum* and *persicum*, so as to blend the hardness of the former with the freedom of flowering, vigour, and variety of colour of the latter.

Pelargonium Raspail Improved.—Compared with the old form this variety has much larger pips and the guard petals expand to a much greater width. The whole truss, in fact, in

the doubling of the flowers is better defined, not quite so confused as in the old variety. The plants, too, when well grown for winter work appear to withstand fog to a greater extent. At least this is so with a few plants the flowers of which have expanded during a continuance of the blackest and most incessant fog of recent years. A very bright and cheerful effect is at the moment afforded by a nice flowering example of the above in association with a good sized piece of a well-coloured *Aspidistra*. Such things in the sitting-room at this season have a very bright appearance.

Carnation Miss Megan Owen.—In habit this is a true tree *Carnation*, and one of the easiest to manage, height about 18 inches. The growth is strong, continually developing laterals which flower, and well deserve the prefix perpetual. I find the best flowers come from cuttings struck in summer, as they show the delicate blush centre more, though two-year-old plants make grand specimens and carry a greater amount of bloom, and not like a good many otherwise good varieties, when the first lot of flowers is over you have to wait weeks for others. I have grown it here for six years or more, and find it the most useful variety of any for winter use. What in my estimation adds to its value is the clove scent, which so many others, although grand flowers, lack.—A. KENNEDY, *The Gardens, Ty Coch, near Carnarvon*.

Panicum variegatum.—This plant is much used and is very suitable for edgings to stages and hiding unsightly places. But there are many other ways in which it may be used, a very pretty plant being produced by placing a stake in the centre of a 6-inch pot, tying a few of the trailing stems to this, and then letting them have their own way. In a moist, warm temperature the pots, stakes and soil will soon be hidden and the points of the *Panicum* will be pushing in all directions. Those who have not tried it will be surprised at the pretty effect produced. The plants are capital for table decoration, light and elegant, requiring no moss, paper, or anything else about them, and looking very well under artificial light. Baskets may also be made up very easily for suspending in ferneries or similar places, the conservatory as usually understood being too dry for the plants to thrive. The colour of the foliage varies considerably; in a shady moist position it is very beautiful, deep green with a white variegation. In more light it also takes on shades of pink that are very pleasing, and under the latter conditions it is much more lasting. Small pots with about six or eight cuttings in each are useful where furnishing is carried on to any extent. It is much lighter in appearance than *Tradescantia* and quite as easily grown in a warm house.

Rochea falcata.—Although not much grown, this fine old Cape plant is very showy in summer when bearing its large flat corymbs of bright crimson flowers. The usual treatment accorded it is to neglect it entirely until the flowers appear and again after they are over; but it is worthy of better things, being more ornamental in my opinion than the nearly related *Crassula coccinea*. The species takes its name from the thick, sickle-shaped, glaucous leaves, and these form the readiest means of propagating the plant. They should be broken, not cut, off and laid in pans or pots of sandy soil with the broken end downwards. Keep them quite dry for a few weeks and the young leaves will soon appear, when a little more water may be allowed. They may remain here for a time until the young shoots are a couple of inches or so in height, when each may be separately potted in a compost of light loam, leaf-mould, and broken bricks or charcoal. Shift them on as it becomes necessary, and when they are about 8 inches high they will begin to flower, the corymbs of blossom getting larger every season as the strength of the plant increases. They go on lengthening every year, but the plants after getting about 2 feet high look ungainly, and young specimens should then take their place. Being very heavy a strong stake must be fixed in the pot and the plant tied securely to it.—J.

HYMENOCALLIS AND PANCRATIUM.

ONCE upon a time these two genera were synonymous, consequently they are still confused in gardens. There are, however, good characters by which they are easily separated, the most important distinction being in the seeds, *Panocratium* having many flattened shiny black seeds in the three-celled fruit, whilst *Hymenocallis* has only three or four large fleshy, green, potato-like seeds, which vegetate by developing a good-sized bulb before any leaves are formed. There is also a difference in stature and in the form of the flowers. In geographical distribution they differ too, *Panocratium* being limited to the Old World, whilst, with the doubtful exception of one species found wild in Sierra Leone, all the thirty or so

soil. Further cultural hints are given along with the descriptive notes which follow.

H. ANDREANA.—A coloured plate representing this species was published in *THE GARDEN*, 1884 (plate 442), prepared from the plant first flowered by M. André, who discovered it in 1876 in the Ecuadorean Andes at an altitude of 8000 feet. It is *Panocratium*-like in its thin linear leaves and slender scape bearing a solitary funnel-shaped flower and in the disposition of the stamens. The flower-tube is green, 4 inches long, the segments 3 inches long, and the cup is perhaps larger than in any other species, being 3 inches long and as much across the mouth. From its habitat it ought to be hardy, but, so far as my experience with it has gone, it is a most difficult plant to manage. Possibly the French gardeners have succeeded with it. It is worth attention, for its flowers are of gossamer-like texture and

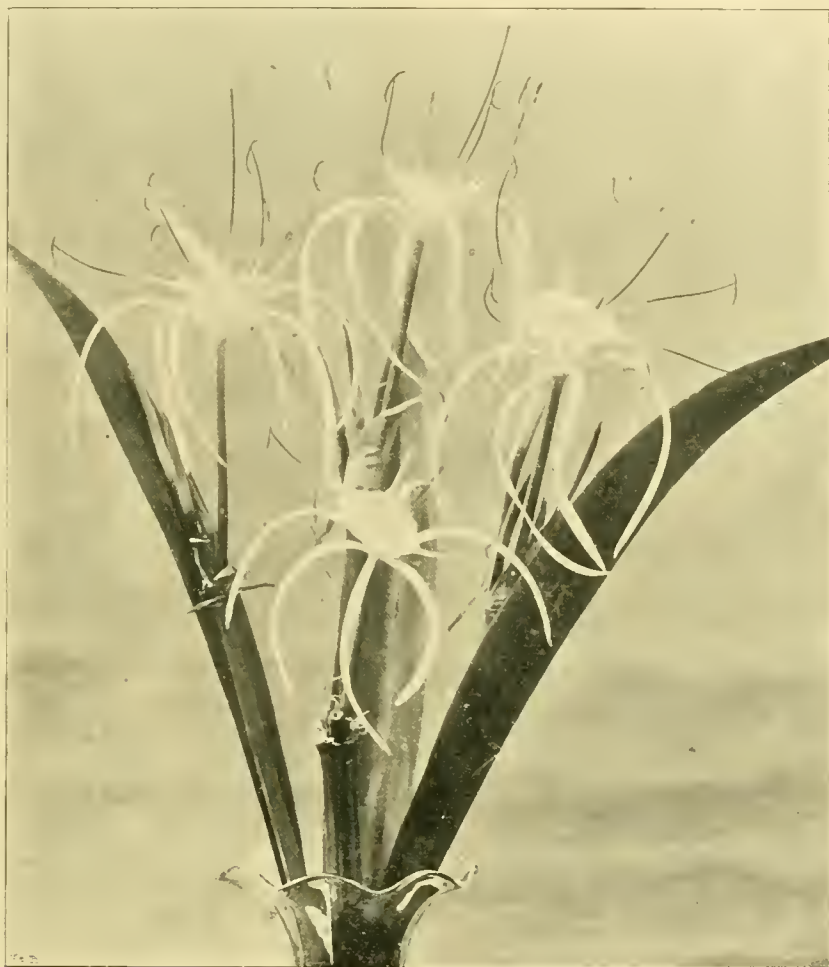
it died from some cause, and fresh bulbs were got from a Dutch nurseryman. These bloom annually at Kew, but they are not the true Peruvian Daffodil, which has flowers of a rich golden yellow, the yellow of the common Daffodil, whereas the plant now at Kew has primrose-yellow flowers. Does anyone know where the true *Amanceas* is to be had? It thrives in a position similar to that which suits the *Belladonna*. The bulb is larger than that of *Emperor Daffodil*, with a neck 6 inches long, deciduous strap-shaped leaves nearly 2 feet by 2 inches, a flattened scape 2 feet high bearing an umbel of about six flowers with a greenish yellow tube 3 inches long, a sherry-glass-like corona 2 inches long and wide with teeth round the margin, and six short, in-turned stamens, the segments being 2 inches long and semi-erect. The colour of the flower is rich deep yellow, with six green stripes on the corona. Herbert raised a hybrid between this and *H. calathina*, which is like the former, but has sulphur-yellow flowers. Possibly this is the plant supplied by the Dutch growers for typical *H. Amanceas*, and which, although paler in colour, is nevertheless a beautiful garden plant.

H. CALATHINA.—This is the *Ismene calathina* of gardens and of the *Botanical Magazine*. As a garden plant it ranks next to *H. Amanceas*, being a vigorous grower if planted against a warm wall out of doors or in an unheated frame, forming in summer masses of glossy green, *Amaryllis*-like foliage, and developing tall scapes bearing umbels of from two to five flowers with a funnel-shaped tube 4 inches long, broadening into a cup 2 inches long and deep, white with green stripes, the lanceolate segments being as long as the tube. It is one of the supposed parents of *H. macrostephana*, and Colonel Trevor Clarke succeeded in crossing it with *Elisena longipetala*. It is a native of the Andes of Peru and Bolivia, and was a popular garden plant sixty years ago. *H. Macleana* is sometimes supplied for it.

H. CARIBÆA.—A large-bulbed plant with strap-shaped leaves, each 2 feet to 3 feet long and 3 inches wide and of rather sprawling habit. The scape is as long as the leaves and it bears an umbel of about a dozen thin-looking flowers. It is not one of the best, although not uncommon in cultivation, no doubt owing to its being common in the West Indies, whence it was first introduced in 1730. *H. expansa*, also a native of the West Indies, differs only from *H. caribæa* in its narrower leaves and longer flower-tube and in being less fragrant.

H. HARRISIANA is a small plant, the bulbs being about 1½ inches in diameter, the leaves each a foot long and 2 inches wide and deciduous. It has a short slender scape, bearing sometimes only one, usually two or three erect flowers, with a green tube 4 inches long, narrow segments nearly as long and a loose film-like cup with stamens nearly 2 inches long. It is almost hardy at Kew, being quite at home in an unheated frame; it is also grown in pots in a cool house. It was introduced from Mexico in 1840, but lost again until 1879, when it reappeared in several collections, and is worth a place among greenhouse bulbs.

H. LACERA, better known as *Panocratium rotatum*, is a native of the Southern United States, where it is said to grow in swamps. It is very similar in all its parts to *H. Harrisiana*, and, like it, will thrive in a greenhouse or cold frame. It is offered by the American nurserymen under its synonym of *P. mexicanum*. Another North American species is *H. crassifolia*, which has strap-shaped leaves each 2 inches wide, and in most characters is like *H. caribæa*. According to Mr. Pike, of Florida, *H. occidentalis* is distinct from *H. crassifolia* (Mr. Baker makes them synonymous) in being hardy in the Northern States, whilst Florida is too hot for it. Its leaves are each from 12 inches to 18 inches long by 1½ inches wide, the scape a foot high, bearing an umbel of about three flowers, the tube of which is 4 inches, the segments 3 inches, and the staminal cup over an inch long. This plant is worth trying out of doors in England.



Hymenocallis littoralis. From a photograph sent by Col. Taylor of flowers grown in Messrs. Watson's nursery, St. Albans.

species of *Hymenocallis*, including *Ismene*, are natives of the west. Some notes on the cultivated species of both genera may, perhaps, help towards getting their names into order and also win for them more attention from cultivators than they have hitherto enjoyed.

The cultural requirements of *Hymenocallises* are simple, a sunny position, a rich loamy soil, and plenty of water, especially during active growth, affording all they need to keep them in health. They multiply freely by developing offsets, and they are not impatient of root-disturbance. *Panocratiums* are more difficult to accommodate. All except *P. illyricum* require a long, dry rest, and they thrive best in a sandy

snow white, with six lines of green running down the sides of the cup. It formerly bore the name of *Ismene*.

H. AMANCEAS.—The Peruvian Daffodil, Golden *Panocratium*, or *Narcissus Amanceas* of botanists and others, is one of the most interesting of all bulbs. It is such a favourite with the Peruvians, that one of their greatest festivals, called the Festival of the *Amanceas*, is held every year at Lima when it is in flower. An account of this festival is given in the *Botanical Magazine* (t. 3675) along with the picture of *H. Macleana*, the figure of *H. Amanceas* being in an earlier volume of the same work (t. 1224), and to this I would refer those who desire to know what the true Peruvian Daffodil is. It was at Kew a few years ago, but

H. LITTORALIS.—This plant is known in gardens under a variety of names, viz., *adnata*, *americana*, *Deleuilii*, &c. It is frequently sent home by Orchid collectors, and there are good reasons for believing that it has been carried from its western home to the West African coast, where it is now wild and is known to botanists as *H. senegambica*. It has large bulbs, ensiform or strap-shaped leaves, each 2 feet long, a scape 2 feet high, bearing an umbel of from four to eight flowers, the tube of which is slender, 7 inches long, the corona wide mouthed, with the slender stamens standing well above it, whilst the narrow, gracefully recurved segments are 4 inches long. The whole flower is of the most delicate, film-like texture and pure white. Herbert, who called this species *H. adnata*, says, "It is so hardy, that an offset which I set against the front wall of a stove grew vigorously there, and although the snow lay some weeks upon it the first winter, its leaves were not killed quite to the ground, and it grew into a tuft with many offsets, and flowers most summers." Has it been tried outside by any recent grower?

H. MACLEANA.—A hardy species, at any rate as hardy as the *Belladonna Lily*. At Kew it has become almost a weed, growing with a freedom which one would like to see in some of the more attractive species. It was introduced from Lima before 1838, when it flowered in the Glasgow Botanic Gardens and was figured in the *Botanical Magazine*, where it is described as "A handsome and delightfully fragrant *Amancaes*. . . . It flowers readily in the stove and makes a very handsome appearance." This is more than I would say of it, although it is worth a place in the garden where crowded, arching, glossy green, strap-shaped leaves and numerous long scapes bearing umbels of greenish white Daffodil-like flowers 3 inches across are always decorative. It is an ideal plant for a recess against a large building.

H. MACROSTEPHANA.—This plant has become almost as popular as the *Eucharis*. Large batches of it are grown in market nurseries, its bouquet-like bunches of white, fragrant flowers finding a ready sale. It is an excellent specimen pot plant for the stove, and it is equally happy when planted in a border in a warm house, such as, for instance, the new Mexican house at Kew, where a batch of it is quite at home at the base of a big *Platanus*. Its bulbs are clustered, the leaves are numerous, each 2 feet or more long by 3 inches in width, and glossy green. The flowers are borne on stout scapes, each about 18 inches high, forming a crowded umbel a foot across, each flower having a tube 3 inches long, a cup 2 inches long and wide, and linear segments 4 inches long. The origin of the plant is doubtful. Mr. Baker suggests that it is a hybrid between *H. speciosa* and *H. calathina*. M. Van Tubergen, however, crossed these two species in 1892 and their progeny flowered in February, 1896, but they were not *H. macrostephana*. It is emphatically a plant for every stove. It flowers most profusely, perhaps, about March, but I have seen it in flower nearly all the year round.

H. SPECIOSA.—A well-known stove species, very similar in general character to *H. ovata* and *H. tubiflora*, differing mainly in the length of the flower-tube and thicker leaves. It forms a large specimen if treated liberally, and is one of the best of bulbous plants for warm houses, its bold, handsome bright green leaves being persistent, whilst its large umbels of white, fragrant flowers are freely produced several times a year. The bulb, which is 4 inches in diameter, has no neck, the dozen or so oblong stalked leaves springing direct from the top; they are each 2 feet long and 5 inches wide. The scape is flattened, over a foot long, and it bears an umbel of about a dozen fragrant white flowers, with a greenish tube 3 inches long, a funnel-shaped corona $1\frac{1}{2}$ inches long, and recurved narrow segments 6 inches long. I have seen specimens with a dozen umbels of flowers. This plant is a native of the West Indies, whence it was introduced about a century ago.

H. OVATA.—This is commonly known as *H.* or *Panacratium fragrans*. It differs mainly from *H. speciosa* in its shorter flower segments; indeed, I believe the two are often mistaken for each other. For garden purposes there is little to choose between them. It is also West Indian.

H. TUBIFLORA. is not unlike *H. speciosa*, but is easily recognised when in flower by its tube, which is 8 inches long, and by the absence of teeth from the margin of the cup. Its leaves have a shorter, thinner blade too and a longer petiole than either *H. speciosa* or *H. ovata*. It is a native of South America, and was first introduced into cultivation at Kew about 1803 from bulbs taken in a captured French vessel from Cayenne. Both this and the two preceding species like plenty of water all the year round.

PANCRATIUM.

There are about a dozen species of *Panacratium*. They are characterised by a more or less funnel-shaped white flower with short segments, comparatively short stamens, a three-celled many-seeded ovary, the seeds numerous, black, usually angled by pressure, about half an inch long, and leaves linear or strap-shaped. With the exception of *P. illyricum*, they all inhabit dry, arid regions, and with this exception, too, although they all have attractive flowers and are generally fragrant, they are not popular as garden plants, owing to their being difficult to cultivate. The only gardens known to me in which these plants are persevered with are those of Sir Charles Strickland at Malton, Mr. Worsley at Isleworth, and Kew. The following are deserving of special notice:—

P. ILLYRICUM.—A coloured plate of this was published in *THE GARDEN* in 1890 (plate 769), prepared from a plant which had been for some years and is still at Kew established in a south border against a wall along with other hardy bulbs. It is one of the oldest of garden plants, and is often mistaken for *P. maritimum*. It is wild in abundance in Corsica, Sardinia, Malta, and Southern Italy, and is as easily managed in the garden as a Daffodil. It has large egg-shaped bulbs, which produce offsets freely, leaves a foot long and $1\frac{1}{2}$ inches broad, grey-green, persistent, unless cut off by frost. It has a scape a foot long, bearing an umbel of about a dozen flowers, most of them open at once, and forming a bouquet of white, yellow-eyed, star-like flowers 3 inches across; the tube is only about an inch long, and there is scarcely any staminal cup, whilst the stamens spread outwards. It flowers from July onwards, and is one of the best of the less common hardy bulbous plants.

P. MARITIMUM.—This is perhaps the best known of all the true *Panacratiums*, although it is rarely a success as a garden plant. It is a native of the region of the Mediterranean, from Spain to Syria, often growing in large quantities in pure sand close to the sea. It does not flower under cultivation unless kept quite dry for about half the year and placed on a shelf or in some such sunny position whilst growing. Dean Herbert says it enjoys an air sometimes cool and temperate and sometimes hot and absolutely dry, and that the best way of treating it is to set it out of doors late in the spring, and at the latter part of the summer to bring it into a stove in flower, removing it afterwards into a greenhouse. At Kew it is grown in a cold frame on the sunny side of a warm greenhouse. Here it is planted in sandy soil and is exposed to full sunshine and air all summer, whilst from October to May it is protected by a light. It has a brown-skinned bulb, leaves each about 2 feet long, a compressed scape a foot long, bearing an umbel of from five to ten white fragrant flowers, the tube of which is 3 inches long, greenish, widening upwards into a staminal cup an inch long, surrounded by linear ascending segments nearly 2 inches long.

P. MAXIMUM.—This is one of several species peculiar to Arabia and Egypt. Though well known to botanists, they as yet are scarcely known in

gardens. Sir Charles Strickland sent flowers of *P. maximum* to Kew last April, stating that he had received the bulb from Suakim. The leaves of his plant were 6 inches long by half an inch wide, erect and spirally twisted; scape 4 inches long, bearing three erect white flowers, with a slender tube 6 inches long, narrow recurved segments 3 inches long, a bell-shaped cup 2 inches long and nearly as wide, with a distinctly toothed margin and incurved short stamens forming a ring round the erect green stigma.

P. SICKENBERGII.—This appears to be plentiful in the neighbourhood of Cairo. Bulbs of it are now and then sent to England, and it is represented at Kew by strong plants. It is not unlike *P. maritimum*, except that the leaves are spirally twisted. It grows well in a greenhouse, but did no good when planted in a sunny position against the wall of a stove. Other species of *Panacratium* from Arabia and Egypt are *P. aegyptiacum* and *P. arabicum*. Both of these are in cultivation at Kew, where the latter flowered two years ago. It is not mentioned in Baker's "Handbook of *Amaryllidaceae*."

P. TORTUOSUM.—Bulbs of this species were collected in Nubia in 1896 by the late Mr. Theodore Bent, who presented them to Kew, where they flowered in July in the same year. The bulbs are 2 inches in diameter with a long neck, from which spring the narrow, spirally-twisted leaves and a short, erect peduncle bearing two or three flowers with a tube 6 inches long, inflated near the top, the segments linear and 2 inches long, the cup an inch long and wide, distinctly toothed between the short incurved stamens. The flower is white with a tinge of green, deliciously fragrant, and it lasts about three days. Mr. Bent said it grew and flowered where during a short period it received plenty of moisture, and for the rest of the year was very dry.

Other species of this genus which are sometimes cultivated and flowered by bulb specialists are:—

P. CANARIENSE, from the Canary Islands, with ensiform leaves each 2 feet long, a stout scape 3 feet high, bearing an umbel of about twenty medium-sized greenish white flowers.

P. ZEYLANICUM, a native of tropical Asia, with a short-necked bulb, thin, glossy green leaves, and solitary, funnel-shaped white flowers each 2 inches long; and

P. VERECUNDUM, from North India, in the way of *P. maritimum*. W. W.

Carnation Winter Scarlet.—A *Carnation* that will bloom freely during the winter is not to be despised. These qualities are possessed by the variety *Winter Scarlet*, which for the past two months has been flowering at Messrs. H. Low & Co.'s nursery at Bush Hill Park, Enfield, whither all the Clapton stock is being gradually transferred. The flowers of *Winter Scarlet* are of a deep and brilliant crimson, and are borne in great profusion just at a period when they are most likely to be highly appreciated. As a spring or summer variety *Winter Scarlet* is not so good, as with the advance of the long days and a rise in temperature the flowers show a tendency to become less compact than during the winter months.

Rust on Malmaison Carnations.—"J.C.B." (p. 442, last vol.) is right in thinking indoor culture all the year through the best. I find the rust attacks the blush variety first, this always resulting from too much water and too little ventilation. I pot my layers into 6-inch and 7-inch pots, and fill one-third of the pots with crocks. This I find to be necessary. I keep them near the glass and water and air as carefully as I do old specimen Heaths. After the flowers are cut I re-pot into $9\frac{1}{2}$ -inch pots and keep them still indoors. I re-pot the third season into 14-inch pots, and for this batch the pink variety proves the best. One thing must never be neglected, and that is feeding; feed often, but do not overdo it. To get rid of the disease, simply layer on an open place outdoors, watering late in the afternoon,

and keep cool after potting up.—J. HAMILTON, *Byrkeley Gardens, Burton-on-Trent.*

FLOWER GARDEN.

ALSINE LARICIFOLIA.

(SYN., ARENARIA LARICIFOLIA.)

This handsome rock plant is a native of Switzerland, and is suitable for a rock garden in a sunny position, where it should be placed on a



Alsine laricifolia in Messrs. Veitch's nursery, Exeter. Engraved for THE GARDEN from a photograph sent by Mr. F. W. Meyer.

rather high ledge, so that its drooping white flowers can be fully appreciated. It is easily distinguished from *Arenaria grandiflora*, which has larger leaves and whose flowers are more erect. The leaves of *Alsine laricifolia* are ciliated, very narrow, and arranged in clusters, bearing some slight resemblance to those of the Larch (hence its name). The comparatively large flowers are pure white, and appear in clusters of three to six on each stem. Its elegant drooping habit makes it a most desirable plant for the rock garden, especially as it is of the easiest cultivation. The photograph from which the engraving was prepared shows a plant growing at Exeter in the nurseries of Messrs. R. Veitch and Son, where it has been planted for about two years in gritty soil with the most satisfactory results.

Elmside, Exeter. F. W. MEYER.

Winter protective material.—I have noticed in passing by train that the chief, if not the only, protective material used in the Long Ditton nurseries for covering beds of semi-tender bulbs or roots is Heather. No doubt it is material that can be purchased cheaply. It has the merit of lying tight and open over the beds, let the weather be what it may, and does not become sodden and cold, which is far worse than no protection when very wet weather or snowfalls prevail. A few stakes or old Pea sticks thrown on here and there help to keep the Heather secure during high winds. This should make excellent material wherewith to top-dress beds of dwarf Tea Roses in hard weather, but this winter apparently the plants cannot have too much exposure.—D.

Gaillardias.—The fine perennial *Gaillardias* seem to have quite superseded the annual varieties in gardens, and *picota* and *Lorenziana* have to give place to the large spreading forms of *grandiflora*, of which there are now so many. The flowers of the plants owe very much of their popularity, first, to their singleness, and, secondly, to their varied combinations—yellow, orange, crimson, and maroon, though some have yellow only. So far no pure crimson self seems to have been produced. Then so far as form is concerned the existing flowers leave nothing in regard to closeness of petals to be desired, but some varia-

tion into ribbon, or stag's-horn, or lacinated petals may prove acceptable. There is little need, too, for any increase in size of bloom. Certainly the flowers are first rate for all ordinary cutting, and cut young they will keep some days quite fresh, whilst all varieties give seed, and a mixed selection is certain to give in return numerous fine and pleasing varieties. Yet from time to time selections have been made by raisers. Once established, the chief attention of the gardener is desired in the spring when the young shoots are breaking up, as garden vermin is just then apt to do injury. Small heaps of coal ashes put over the crowns usually furnish excellent protection. A liberal dressing of manure may be forked in with advantage between the plants during the winter.—A. D.

FLOWER GARDEN NOTES.

ANNUALS.—In last week's notes on annuals specially adapted for furnishing the formal garden I endeavoured to make a selection of a few of the best and most enduring that would give a great variety alike in colour, in height, in habit, and in qualifications from a fine-foliaged as well as a flower standpoint. Following on with the same class of plants, I shall give a selection equally good in itself that may be utilised for certain parts of the garden, although the fact that they are not so enduring does not admit them to quite so prominent a place as those things that will continue in flower right away through summer and early autumn. In the section for consideration this week the pride of place should perhaps be given to seedling Carnations, alike from the chaste beauty of individual blooms, the profusion in which they are produced, and the retention of bright attractive foliage until the end of the season. For general garden purposes to receive annual treatment strains known as Early Scarlet or Grenadin, Early-flowering Perpetual and Marguerite are the best. Seed should be sown in gentle warmth in February rather thinly to allow for lifting the seedlings without injury to the roots. They will amply repay a little careful attention until they are ready for planting, and the following treatment will produce good results. In an ordinary garden frame or an extemporised one made of boards that can be covered with some old lights, place 3 inches of old potting soil, or, failing this, a mixture composed of one half loam and one of leaf soil, with a dash of sand, and prick out the seedlings firmly into this at about 3 inches apart. The soil should rest on a good hard ash bottom, as the seedlings lift from this with splendid little balls of earth; also, it may be noted, that the same soil and treatment are applicable to all the class of annuals under consideration. At planting time the seedlings may be put out at a foot apart each way in beds that have been deeply dug and well manured. The annual Poppies, of which the Improved Shirley, Danebrog and The Mikado may be taken as examples, although so gorgeous in colouring, are withal so ephemeral in character as to be hardly worth the trouble of sowing inside and pricking off. Portions of beds destined for them should receive a deep preparation, the seed being sown in drills at 9 ins. apart and the plants thinned to the same distance, this being preferable to broadcast sowing, as it admits of easier cleaning. I notice in a catalogue just to hand the announcement that these Poppies are splendid subjects for vases; the qualifying statement should be added, if the gardener is able to change them every day. An exception to the outdoor sowing of Poppies is, however, made in favour of *P. nudicaule* and its varieties. This is sown under glass with the Carnations and pricked out with them. They like a slightly retentive soil, and if dead and dying flowers are occasionally removed, will continue in bloom all through the year. *Linum grandiflorum* is one of the best of annuals, and, it may be added, one of the most brilliant summer flowers of its size and habit we have, and for the front of borders or for small beds, a splendid contrast is obtained by planting it in connection with Pink

White Swan, Violetta Tufted Pansy, or *Veronica incana*. It can be sown under cover, pricked out, and transplanted outside where it is required, or it may be sown outside at the distance recommended for Poppies and thinned to the same. In the case of all annuals sown outside it is advisable, as soon as they are thinned, to scatter coal ashes or cocoa fibre among the seedlings to check the ravages of slugs. *Gypsophila elegans* is a very pretty and graceful annual that if sown early comes into flower before the perennial form, and although not attaining anything like the size of the latter, is very useful for small vases. It is rather short-lived and should not, therefore, be sown or planted in places where things are expected to last until the end of the season.

Besides the things already noted, Asters, Stocks, Zinnias, and Gaillardias may be sown in gentle warmth about the end of March in more or less quantities as circumstances demand. Sweet Peas may be sown in pots in February, or in the open either in autumn or early spring, and of the three methods I prefer the last named. Too deep tilth is neither necessary nor advisable on our light soil, the best results being obtained from shallow trenches into which has been forked a liberal dressing of cow manure, and on which can be placed a good surface mulching before the staking is done. New varieties are rather expensive and can only be grown in comparatively few places, at least in any quantity. Splendid material for cutting can be provided with old sorts like Mrs. Sankey, Princess Beatrice, Ignea, and Boreatton. For several years I have sown two batches of Mignonette, the one on a south-west and the other on a north-west border, and as a rule the latter on our light soil is the more satisfactory, especially if we get a hot, dry summer, growing more vigorously and lasting longer. Where a lot of cut flowers is required this is one of the most useful annuals. E. C. B.

Clarmont.

CAMPANULA RHOMBOIDALIS ALBA.

OF medium-sized Harebells there is scarcely a more desirable plant to be found for the rock garden or border than this bold and handsome



Campanula rhomboidalis alba in Messrs. Veitch's nursery, Exeter. From a photograph sent by Mr. F. W. Meyer.

species. The accompanying engraving is from a photograph of a three-year-old plant growing on a rocky slope exposed to the full sun in Messrs. Veitch's nursery at Exeter. Here it formed at the time of flowering (last July till September) a handsome bush about 15 inches to 18 inches across and of about the same

height. The individual flowers are about an inch in diameter, hemispherical, of the purest white, and are arranged in a corymbose raceme with often more than a dozen blossoms on one spike. The length of the pedicels varies from 3 inches at the bottom to about an inch on the top. The leaves are 2½ inches to 3½ inches long, with margins slightly crenate. The upper leaves are scarcely an eighth of an inch wide, with margins entire. The plant grows here in ordinary loam mixed with broken flints, and as its beauty increases every year it is evidently quite at home. Plants of the same species in a more shady position have not given the same good results. It is easily propagated by division. When planting this *Campanula* it must be borne in mind that it dies down in winter, and it should, therefore, be placed near evergreens, which would compensate for the loss of verdure during the winter months.

Elmside, Etceter.

F. W. MEYER.

TUFTED PANSIES.

WITHIN the last few years there has been an increased interest in the Tufted Pansy. More particularly has this been noticeable in the midland and southern parts of the United Kingdom. London and its suburbs, too, have in no small degree contributed to the popularity of the flower in recent years. Exhibitions of the Tufted Pansy are held in different parts of the country, and even the Scottish horticultural societies are now giving encouragement to this type of the plant in places where the show and the fancy Pansies once reigned supreme, while the different midland societies are each exercising a healthy influence. The metropolis since 1893 has been able to boast of a show of several different forms of the genus *Viola*, first under the auspices of the London Pansy and Violet Society, succeeded ultimately by the present National *Viola* Society. The *Viola* conference committee, which first met at the Botanic Gardens, Edgbaston, Birmingham, in August, 1894, and May, 1895, met again in London in August, 1896, their efforts on this occasion being supplemented by a trial of Tufted Pansies in the gardens of the Royal Botanic Society. The trial was a most representative one, and those sorts which proved suitable for the flower garden were awarded marks equivalent in value to a certificate of merit. Quite thirty sorts received this distinction. As a plant suitable for town gardens this fact was proved by the trial, the display made at the time of inspection being remarkable. One fault was to be found, and that was in the system of planting. The plants were received from different sources, consequently there were sometimes four or five plants of a variety from as many specialists. It was felt that the trial would have been a greater success had the colours been kept together. This was tried during the past year, but owing to a very late planting, followed by a long spell of very hot weather, the display fell short of what it might have been had early spring planting been adopted. The trial in the gardens of the Royal Horticultural Society, Chiswick, was very disappointing, the representation being a poor one, only a tithe of the sorts now generally cultivated being got together. If the trial of the present year is to be a success, it is important that those interested in the flower should be made aware of the fact in order that they may send their plants in good time. There is no reason why such a trial should not be as successful as many others held in the same gardens. Greater variety both in colour and form cha-

acterises the newer sorts, and it is just possible that too much attention is given to raising those sorts possessing delicate tints of colouring, margined and fancy or blotched, to the partial exclusion of the selfs. For the flower garden it is important that good selfs be given the preference.

The exceedingly trying period for these plants, so far as regards southern growers, is that between the latter part of June and the first week in August. During the past five years more particularly has this been noticeable, but both before and after this the display has been almost remarkable. It is during the very hot weather that the critical time is felt, some sorts passing through these trying conditions without any variation in their tones of colour. Then there are some blossoms which become quite bleached, others scalded or burnt, while some of the paler shades of colour, as seen in varieties during a normal season, produce blossoms quite out of character. *Ardwell Gem*, one of the oldest yellows, stands out distinctly as a flower of good keeping qualities under trying conditions, while some blue flowers, especially those of a deep shade of colouring, are the first to suffer. A liberal mulching of well-rotted manure, or, better still, peat moss litter carefully prepared, is an undoubted advantage during hot weather. The free use of this during June should save watering, and on hot and dry soils is almost indispensable if the plants are to be kept in a healthy condition. Some growers assert that the use of peat moss litter for mulching causes fungoid growths, but after careful observation I cannot support this.

While acknowledging the superiority of the self-coloured sorts for producing an effective display, more especially on a large scale, there is room also for many of the pretty margined and shaded flowers. In a normal season they are very pretty, and, planted in small beds and narrow borders, are perhaps seen to greater advantage than in any other position. *Duchess of Fife*, *Goldfinch*, and *White Duchess* are three of the best of the margined sorts, and seem to retain their colouring under trying circumstances better than most others. *Border Witch*, *Blue Cloud*, *Skylark*, *Cissy Thornley*, and *Colleen Bawn*, however, are not so good under similar conditions, but in cooler weather both early and late in the season they are much better, and deserving of a place in all gardens. There are a few striped sorts, but little can be said in their favour, the markings being always very uncertain and the habit of growth not of the best. Greater variety in the blotched and shaded flowers is now obtainable, and what is of considerable importance is the improvement in the habit of this type of Tufted Pansy. *Countess of Kintore* has long been looked upon as one of the best of the kind, but suffers in comparison with a newer sort of the same form and colour, and named *Mrs. C. F. Gordon*. This variety is also catalogued as *Cissy Mellows*. *Countess of Kintore* serves a useful purpose when associated with *Carnations* and other plants of a similar style of growth, its long straggling growths, freely flowered, looking very pretty when used in this way. There are several darker sorts of the same type of flower.

THE VIOLETTA SECTION.

Of the miniature sorts, as the *Violetta* section has been called, the variety *Violetta* for the flower garden is perhaps unequalled. The plant is wonderfully free flowering, and when used as a margin to large beds and borders is especially effective. All plants of the *Violetta* or miniature sorts which are in character possess a most robust constitution, and when largely used in the flower garden form a welcome con-

trast to some of the older types of the Tufted Pansy. The rayless character of the blossoms appears to give them a charm which those with central rays do not possess, and such flowers are very beautiful when arranged in small vases on the dinner-table and other positions in the house. Dr. Stuart, the raiser of the *Violetta* type, has also raised *Sylvia*. The progeny of this plant has given us some flowers of high quality, and each season notes some distinct advance either in form, colour, or size.

Opinions differ as to time of planting, but to determine when this should be done, the object in view, whether it be an early or a late display, must be considered. Autumn planting of pieces rooted during August and September should provide a glorious spring and early summer display, while if the planting be deferred until the early spring-time, a midsummer effect may be ensured. Locality, too, plays an important part, proving the wisdom of spring planting in low and damp situations. Often too, these plants are set out much too close together; a distance of 9 inches apart is not too much, a healthy and vigorous-rooting plant soon filling up the intervening space. The system practised in many gardens of lifting the plants just before summer bedding takes place is one to be discouraged, as the Tufted Pansy just then is at its best, and if the growths are thinned out and the oldest shoots removed, there is no reason why they should not provide a brilliant display right through the season and until September or October.

D. B. CRANE.

PEONIES.

ALTHOUGH my first notes on the above were headed "Peonies and Rabbits," in answer to a direct query on these, Mr. E. Jenkins must know that I did not confine my remarks to the rabbit question, as the following extract—"I fear that the results with these in rough herbage will only be successful in the case of strong growers, such as *P. officinalis*"—will show. Mr. Burrell's query embodied the remark, "I should like to be fairly certain on the point (*i.e.*, if rabbits would attack Peonies) before attempting to naturalise." It was this that led me to give my experience on the matter of planting in positions where the Peonies had to share the ground with other things. This has been my object all through the correspondence, and there has been none of that "alteration of the subject" of which Mr. Jenkins writes. No reader of *THE GARDEN* needs to be told that herbaceous Peonies, like all other plants, may be well grown when their requirements are fulfilled, and to say now that they will grow in the middle of a wood, provided a special clearance was made and the soil freed from roots, with everything done, in fact, to suit them, is simply begging the question altogether. Of course they may be so grown, but that would be gardening and not naturalisation, for it would still be necessary to keep the bed or plot so treated clear of tree and other roots. Mr. Jenkins talks lightly of clearing "a few feet or yards one way or another," but I doubt if he fully realises what this means, especially in the case of deciduous trees which I may be allowed to suppose that his imaginary wood would contain. Distance is very little object to the roots of these hungry subjects, especially when there is anything in the shape of a rich larder or newly turned up soil within reach. Elm and other roots will run fifty yards, and probably more, to enjoy the feast, and the Peony bed in the wood would soon become a mass of roots very objectionable to the Peonies. Mr. Jenkins is anxious to know of what rough herbage I am writing. It is hardly necessary to enumerate everything, but I may say that I have established *P. officinalis* in coarse grass mixed with Ox-eye Daisies and other indigenous growth, and if Mr.

Jenkins doubts this, I will gladly send him a photograph illustrating the result, the Peonies in fine flower surrounded by grass and by hundreds of the Ox-eye Daisy flowers. I could mention more than a dozen other Peonies which were selected for similar planting by reason of the strong growth they made under more favourable conditions, but none of these have succeeded well though planted in the same way and at the same time. I am pleased to see that Mr. Jenkins and I are in accord as to the requirements of Peonies in general, and that the word "naturalisation" has been the stumbling-block. If this means making a specially prepared bed and keeping it free above and below ground from the growth of indigenous plant life, my views are all wrong. One of the pleas for naturalising plants is that it relieves the planter of after care. Would that it were so, but many know differently. There are comparatively few herbaceous flowering plants that are not natives which can overpower the indigenous plants in the struggle for existence, and this is but natural even where space has been cleared for the former when planting. Planting in a natural manner is one thing, but naturalising a plant is another.

J. C. TALLACK.

THE GIANT BELLFLOWER.

(OSTROWSKYA MAGNIFICA.)

THE failures with this Bellflower are so numerous, that the engraving (p. 481 last vol.), with the accompanying note from Mrs. Burroughes, must have been of peculiar interest to many, especially as the note contains full details of the position and the method of cultivation adopted. It would not only be interesting, but valuable if others who have succeeded in growing this Ostrowskya would give us in the same careful way the conditions under which it was grown. It may be that Rutland is one of the few favoured localities in which this Bellflower thrives, or it may be that the success is due to the thought given by Mrs. Burroughes towards providing everything she considered necessary for the plant.

I know a good many in various parts of England, Scotland, and Ireland who, like myself, have tried and failed repeatedly to flower Ostrowskya magnifica, and from a careful collation of their experiences, I am inclined to think that much of the disappointment is due to mild and moist winters and the short period of rest the plant consequently obtains. I have had O. magnifica planted in a bed of sandy peat with the freest possible drainage and have guarded it carefully from spring frosts after it came into growth, yet it never flowered, and became weaker year after year until it dwindled away. The best plant I have seen in Scotland was one grown in good, rich, well-manured loam and in the ordinary border. It had been planted for several years and was grown in an almost due south exposure, yet it failed to flower. Unlike plants in my garden, it showed a tendency to increase a little in size, but the disappointment of seeing it flowerless year after year would try the patience of more than the grower. My correspondence with others shows how common this experience is, but, on the other hand, I believe it has done well in several Surrey and other south-east gardens. While in Ireland in 1896 I saw the Giant Bellflower in bloom in front of the range of houses at Glasnevin. Mr. F. W. Moore has, however, a poor opinion of it, and I could only too truly express my entire concurrence with the talented curator of the Botanic Gardens. The position was almost similar to that at Ketton, and it was perhaps due to this southern exposure that the colour of the flowers was disappointing and the foliage unsatisfactory. One would

like to know if the plants grown by Mrs. Burroughes were pleasing in these respects. Judging from the photograph, the foliage looks healthy, but one would fear that in a south border the colour of the flowers would soon become bleached and faded. Not far from the Ostrowskya at Glasnevin were the fine flowers of Gerbera Jamesoni and those of some of the Crinums, and it must be said that the Bellflower compared very unfavourably with these.

There may be exceptions, but I venture to express the opinion that the Giant Bellflower is not likely to succeed well in localities where it has not a fairly long resting time and a drier climate than is to be found along the western counties of the three kingdoms. No one would be better pleased than I to hear that this hypothesis is wrong, and no one would have more pleasure in again attempting the culture of this stately flower under other conditions.

Carsethorn, Dumfries, N.B. S. ARNOTT.

Winter-flowering plants.—I can add to Mr. Bean's list of winter-flowering shrubs the following, which bloom in this garden, situated two miles from the sea on the Sussex coast: November and December, Choisya ternata; the whole winter, Correa cardinalis and Abutilon vexillarium. I must, however, confess that the severe frost of January, 1895, cut back the Abutilon to the same degree as my Fuchsias, but it has been in bloom ever since.—WM. KEMP, *Lyminster House, Arundel.*

Tellima grandiflora rubra.—Mr. Burbidge has done well to direct attention to this useful winter fine-foliaged plant, which really appears to be too little known. A year ago I was much struck with its effectiveness on the rockwork at Ditton, where in a rather open position it was very conspicuous. It should always, however, be borne in mind, as Mr. Burbidge points out, that its worth in this respect is confined to the winter. With increased exposure also I find a more telling colour effect, even though the leaves individually may be smaller. Isolated examples form cushion-like tufts that are most pleasing, though perhaps the broader patches for the rock garden are the more desirable. The plant is readily increased, which is in its favour.—E. J.

Leucojum æstivum and L. Hernandezi.—The beauty of these summer Snowdrops when naturalised in bold groups or when cut, nicely arranged with their own foliage or something of similar character, is gradually being appreciated. Although among the plants recommended for growing under trees, it is hardly advisable to use them in such positions if the shade is at all dense; the growth made under such conditions is free and luxuriant, but the proportion of bloom is small. I think they are seen to perfection on a gentle slope facing about north-west. Apart from the best places to plant from a purely flower standpoint, I think a principal consideration should be as to which plants show to the best advantage with certain surroundings. Given, for instance, planting under trees where the top branches of the latter interlace and the ground below is not usually bare or covered with short Moss, plants of dwarf, compact habit and with a tendency to stiff flowers, like, for instance, winter Aconite, autumn Crocuses, hardy Cyclamens and some of the Grape Hyacinths, are seen to better advantage than Leucojums or Daffodils, the latter being at their best in the open with just enough of other things between the clumps to add to the beauty of the flowers.—E. B.

Herbaceous Lobelias and Tigridias.—As the simplest plan to keep the former safe through the winter will commend itself, I should like to state my experience. The plants are cut down to the level of the soil about the middle of October, which will accelerate a fresh start of crowns, so that the clumps will become plainly discernible

before lifting in November in open weather. They should then be placed on a layer of small brickbats in a cold frame, pressed together, and sprinkled with a little sandy loam, so that the visible rootlets are covered: a few small fragments of brick would help to keep the clumps together. In March the crowns will show growth, and if all the fairly strong ones are potted singly into 2½-inch pots in April, replaced in a frame and planted out in May, the result will be stronger spikes than if the clumps are left, as they contain decaying roots that lead to damage. Shallow pans can be used very effectively instead of a layer of brickbats, and in both cases a little sandy loam to rest the clumps on is useful. Water sparingly, and once only, when arranging in the winter quarters, and do not recommence until growth is apparent in March. This plan should suffice for the north also, but, of course, a covering of mats in severe weather will be an assistance in cold frames, giving air as soon as practicable, as damping off must be guarded against. I should prefer pans and bricks to using boxes as receptacles. As to Tigridias, I should advise that part of the bulbs be planted several inches deeper, taking care that clay is not the substance where they are expected to grow well. Several years' rest will do much towards success. In case of protracted frost a layer of leaves would be equal to several inches deeper planting.—H. H. R., *Forest Hill.*

HERBACEOUS LOBELIAS.

"S. W. F." expresses the opinion that non-success in the culture of these hardy perennials must be attributed to other causes than cold and excessive moisture. With this opinion I am in complete accord, and those who wish to make success a certainty must adopt a method of counteracting the disease which in many places is the cause of failure. It is a curious fact that this rust or canker affects plants grown where the drainage is good and the soil light to the same extent as where the conditions are apparently less favourable to fleshy-rooted things like these Lobelias. Whether the disease is induced by an excess of or a deficiency of any chemical ingredient in the soil I have no means of judging. In some places the plants will remain quite healthy from year to year, whilst in others, although the natural staple is to all appearance identical, they persistently die out. I once had to grow these Lobelias in a garden in Normandy which was situated on the slope of a hill, the soil being light loam, resting on chalk. The natural drainage was of course so good, that it was impossible for stagnant moisture to rest round the roots in winter, and yet by early spring the plants were ruined, the roots being almost completely eaten away. Happening to look through a garden in the neighbourhood in early spring, I saw a lot of these Lobelias in small pots in frames. I inquired of the gardener if he made a practice of wintering his plants in that way, and on receiving a reply in the affirmative, I asked whether he did so on account of their not being sufficiently hardy to withstand the winter. He then explained that it was by no means a question of hardiness, but that the roots were liable in that locality to the attacks of what he termed "canker," but which is identical with what we in this country call rust. As soon as the flower-stems decayed he lifted the plants carefully, washed the roots, cutting away any diseased portions, potted them in light soil, and plunged them in a gentle hotbed. This caused them to form new roots, and thus assured them against decay during the winter. The following summer I saw these plants and they were blooming grandly. About the middle of the following October I lifted my plants, and I found even at that early period that many of the roots were spotted with rust, and must have been much injured by the close of the year. Not having a hotbed at command just then, I placed the plants in the cool end of a warm house for a couple of months. By that time they had made fresh roots and had formed some new leaves, and I then removed them to a

cool house. They were in the finest possible condition when I planted them out the following spring, made a capital growth, and gave an abundance of bloom. Those who have command of a little warmth may certainly ensure themselves against failure by adopting the above method, and these Lobelias are well worthy of some trouble. It is indeed curious that in some places these herbaceous Lobelias can be grown almost without care. I once saw about 500 large plants, many of them a foot or more across, in a garden near Paris. They had remained undisturbed for some years, and had produced thousands of flower-stems.

Some of the newer varieties of *Lobelia fulgens*, such as Firefly and Huntsman, are very fine, and among the most effective of late summer and autumn flowers. The fact that they can be had in good condition at so late a period greatly enhances their value for the outdoor garden. I have occasionally seen quite a nice display of bloom late in October and when frosts had cut off tender things. To ensure lengthened blooming, the ground should be deeply dug and well enriched with rotten manure, a mulch of the same being very helpful later on. J. C. B.

LEUCOJUMS.

(SNOWFLAKE.)

A SMALL group of the most part dwarf bulbous-rooted plants that in their season, where the majority are grown, furnish flowers in spring, summer, and autumn. Formerly the more frail members of this group were referred to by the generic name *Acis*, by which they still figure in some lists. The most recent revision, however, places the whole of the species under the above head, and certain kinds, for example, the spring Snowflake, are almost as well known and as popular as the Snowdrop. Of the value of this handsome kind there is not the slightest doubt when once it has become established in any garden. Its earliness to bloom, apart from the pretty foliage and handsome, fragrant flowers, fits it for association with the earliest flowers in the rock garden or the border. At the same time it is invaluable for naturalising. Equally well suited is it for planting somewhat deeply on grassy banks or at the base of low-growing shrubs and the like. In all such places rather than placing of the bulbs is suggested, as well as rather deep planting, the latter fully 6 inches deep. Where the Primrose thrives on shady banks the spring Snowflake will generally be found to do the same, and, being perfectly hardy, will take care of itself. Of quite another pattern is the summer Snowflake (*L. aestivum*), which possesses a vigour of its own and will not only thrive in any ordinary soil, but increase abundantly also. In the border or the wild garden this vigorous plant will be quite at home. A third set, so to speak, finds its representative in *L. autumnale*. This is a charming species, possessing all the grace and elegance of the Snowdrop, though requiring a certain amount of care to grow it well. The chief point, however, is to provide a warm, sunny position, high and dry, with perfect drainage, and at least a foot deep of very sandy soil. Peat, leaf soil, and loam in equal parts, with plenty of grit or charcoal dust added, will suit these dainty kinds best. Such is, indeed, well-nigh essential to the autumn Snowflake to long retain it in health. Rather shallow planting has long been recommended for bulbous plants of diminutive growth, yet I feel assured many things would give more satisfactory results in the end were they planted nearly twice the usual depth. In many positions some such carpet as *Sedum Lydium* or its variety *glaucum* would prove of service in keeping the flowers clean, as also carpeting the

ground in their absence. Unlike the spring and summer Snowflakes, these smaller kinds multiply less freely at the root, and of some it will repay to save the seed so as to increase the stock of these frail flowering gems. In all cases sow the seed as soon as ripe, preferably in a pan or a charred box in prepared soil in the open, covering with a board or dark piece of glass. The following species are in cultivation, though some are still far from common:—

L. AUTUMNALE (autumn Snowflake).—This is the most freely met with of the autumn kinds, and when well grown attains nearly 6 inches high. The flowers are white, with a touch of delicate pink at the base of the perianth segments. When established this elegant species will produce two and sometimes three of its dainty blossoms on rather dark and slender stems, the blossoms appearing about August and prior to the slender linear leaves. Very few indeed of the summer occupants of the rock garden possess the exquisite grace and beauty of this elegant little plant with its drooping bell-shaped flowers. A warm, sunny spot and deep soil, as above suggested, is the best for this graceful little species. It is an old inhabitant of gardens, and a native of Portugal, &c.

L. AESTIVUM (summer Snowflake).—This is the tallest and most vigorous of this family, and may be planted in almost any position in the garden or woodland where a fairly deep soil exists. In moisture-laden soils the plant is especially vigorous, attaining fully 2 feet high, and often more after a season or two. Such a condition is, however, by no means essential, as in dry soil the plant grows and blossoms freely as well as increases freely at the root. This species may be planted from September to the end of the year. When established in large groups the clusters of drooping white, green-tipped flowers are very pretty.

L. HERNANDEZI is a form of the summer Snowflake usually given in lists of hardy bulbs as *L. pulchellum*. This is a smaller leaved plant and the scape less numerous flowered. At the same time it is useful, as it flowers in advance of the type. Both are of easy culture, the summer Snowflake having been at one time frequently found in moist meadows in the south of England. Withering, however, while citing several localities, casts a doubt upon its being indigenous, but seeing it was always found in moist meadows or near rivers, it should be of value when planting such spots in the garden.

L. GRANDIFLORUM.—A very pretty species with beautiful pure white blossoms somewhat larger than those of *L. autumnale*. It is extremely rare in cultivation, and, like the species just named, an autumn bloomer. The plant requires a similar mode of culture. It is scarcely 6 inches in height, and comes from Numidia.

L. ROSEUM.—This is at once the smallest as it is the rarest of these pretty autumn bulbous flowers. The pleasing rose-coloured flowers are bell-shaped and not more than half an inch long, the scape about 4 inches high, and bearing two, or sometimes three, of its miniature blossoms. A native of Corsica, only rarely seen in cultivation.

L. TRICHOPIVILLUM.—In the chaste and elegant blossoms this species somewhat resembles *L. autumnale*, though quite distinct from that kind. The blossoms are white, with a flush of rose colour at the base of the segments. This species belongs to Portugal, where it is found growing in pure deep sand. For this reason it is of doubtful hardiness in this country, and would be better suited for frame culture or growing in pots. The plant usually flowers in midwinter even before the Snowdrop or winter Aconite has dared to appear.

L. VERNUM (spring Snowflake).—For garden purposes perhaps this is the most valuable of this interesting race. The large, handsome, snow-white, drooping flowers are very attractive, and rendered more so by the peculiar green spot on the tip of each segment. In some soils this species takes a little time to become established, but

invariably in all light warm soils such as are of a sandy or peaty nature the plant grows freely. In all these it is not only an elegant garden plant, but it is well suited for cutting, and its pretty fragrant blossoms are ever welcome. Once established, the blossoms appear very early in the year, frequently in February after a mild winter. Bolder both in foliage and flower than the Snowdrop, it is well suited to naturalising on grassy slopes or beneath low-growing deciduous shrubs. Where heavy or cold soils form the staple in any garden, this should be removed to a foot deep, and sand, peat, leaf-soil and old potting material used instead. In very sandy and warm soils it is surprising how well such things grow. Indeed, it is largely due to the long-lingering moisture about the roots of such plants that many small bulbous plants are not a success. In the rock garden the spring Snowflake is always welcome. One thing in its favour is its cheapness, which permits of a variety of experiments in the garden that are hardly practicable with more expensive material. Bulbs of the spring Snowflake are largely imported each year, and should be planted as early as received. A distinct variety of this species is *L. carpathicum*, which has the flowers in pairs on the stem instead of solitary, as is usual in the type. This is also known as *L. biflorum* and is worth a place in all gardens. This latter flowers some weeks later than *L. vernum*, and thereby maintains a long succession of these useful and beautiful flowers. E. J.

SHORT NOTES.—FLOWER.

Primula floribunda, referred to p. 13, deserves all the praise there given. An appropriate contrast to the above is the mauve-coloured *P. Forbesi*, a rather taller variety. They are also effective in the rock garden, avoiding exposure to too much sun.—H. H. R., Forest Hill.

Bulbs and the weather.—The mild winter and a considerable amount of rain have caused early and strong growth on the majority of the above, and if no spell of sharp frost comes to check them we shall get an early and most probably a fine display, as the Snowdrops are already (January 10) bursting, and Tenby Daffodils in sheltered spots are pushing up their spikes. This, of course, applies to established clumps; autumn-planted stuff of 1897 is naturally not much affected by the weather.—B., Surrey.

GARDEN FLORA.

PLATE 1154.

LAVATERAS.

(WITH A COLOURED PLATE OF *L. TRIMESTRIS* AND VAR. *ALBA*.)

THERE are probably about two dozen species of *Lavatera* known, the majority of which are natives of the Mediterranean region and Western Europe. One species is found in Australia, whilst others occur wild in the Canary Islands and in Central Asia. Under cultivation in English gardens two species only can be said to be of importance, one of which, however, may be classed amongst the most beautiful and showy of the hardy annuals we possess. This is *L. trimestris*, the beauty of whose individual flowers is admirably portrayed in the accompanying drawing. The genus belongs to the Mallow family, and is nearly allied to *Malva*, from which it differs chiefly in the lobing of the outer envelopes of the flower. The name was given by Linnaeus in honour of two naturalists (brothers) called Lavater, who lived in Zurich during the last century.

L. TRIMESTRIS.—This is the best and the commonest of *Lavateras* in gardens. It is an annual,

* Drawn for THE GARDEN at Gravetye Manor, Sussex, by H. G. Moon. Lithographed and printed by J. L. Gollart.



JAVA (EPA) (P. M. S. R. H.)

and is a native of Southern France, Spain, Morocco, and most of the countries that surround the Mediterranean Sea. It was first introduced to Britain in 1633, and is certainly one of the showiest of hardy annual plants, and grows about 3 feet high. The leaves towards the base of the stem are larger and more rounded than those towards the top, where they become narrow, pointed, and lobed, as seen in the drawing. The flowers are each 3 inches to 3½ inches in diameter, and in the typical plant are of a bright rose colour with a patch of maroon in the centre. In the variety *alba* they are pure white. The flowering season extends from July to September. The flowers are charming for indoor use: the greater part of the stem, with its open and unexpanded blossoms, should be cut and arranged in vases, &c., in which the blooms will continue to open and remain in full beauty for several days. The plant is worth growing in a reserve plot for this purpose alone. The seed, which can be purchased for a few pence from any seedsman, may be sown in March or early April on the border where the plants are desired to grow and flower, thinning them out when an inch or two high. Like most of the Mallow family, the plants like a deeply-dug and well-enriched soil. The variety *malva-formis*, discovered by the late Mr. John Ball at Reraya, in Morocco, has smaller flowers of a pale purple colour.

L. ARBOREA (the Tree Mallow, or Sea Mallow).—This is a shrubby species abundant near the sea in various parts of South-Western Europe and in the British Isles. It has been gathered wild in the south-west of England, in Ireland, and on the Bass Rock in the Firth of Forth, always near the sea. Inland, in the latitude of London, it is not hardy, but in the gardens (often cottage gardens) near the coasts of Cornwall and Devon it is very often to be seen. Under cultivation and grown in rich, deep soil it reaches 6 feet to 10 feet in height and has thick succulent shoots bearing large, soft, and many-lobed leaves. The flowers are each 2 inches to 3 inches across and pale purple. A more showy and attractive plant than the type is the var. *variegata*, a form sent out some fifteen or sixteen years ago and given a first-class certificate by the Royal Horticultural Society. It is, unfortunately, no hardier than the green-leaved plant and requires protection in winter, but it is a striking plant when well grown and in full vigour, the leaves being splashed with large, irregular patches of white. It is worth growing in an unheated or cool greenhouse, can be propagated from cuttings, while it comes fairly true from seed.

The two following are in cultivation (as are also several others), but it is chiefly in botanical collections that they are to be found:—

L. OLBLIA (the Tree Lavatera).—A native of the south of France and especially common in Provence, where it is known as *Lavatière d'Hyères*, and whence it was introduced to Britain in 1570. It is now naturalised in some of the warmer parts of this country. It is naturally of shrubby appearance, growing from 2 feet to 6 feet high, with five-lobed leaves of the usual soft texture and reddish-purple flowers, each measuring 2½ inches across and produced from July to October. The variety *hispidia* is a more woolly form, native of Barbary.

L. THURINGIACA.—A hardy perennial that was in cultivation in Britain in 1732 and mentioned by Philip Miller in his Dictionary, but not of sufficient merit to be generally cultivated in these days. It grows wild in Scandinavia, Germany, the region of the Danube, Asia Minor and Siberia. The stems are annual and bear their purple flowers during July and August. B.

Primula mollis.—If this species cannot be considered so attractive as some, it certainly possesses a good deal of interest to botanists and others. To gardeners, however, it is better known for its value for winter and spring flowering and for the long profusion of deep reddish blossoms that are produced upon well-grown

plants. The foliage, too, is well marked and is pleasing by reason of its abundance and the soft down-like pubescence that covers the leaves. If freely grown after the manner of *P. sinensis* from seed this Himalayan species will produce several whorls of its distinct flowers, and being fairly hardy, is well suited to quite cool greenhouse treatment in winter with frame or even open-air culture with shade in summer.

THE WEEK'S WORK.

KITCHEN GARDEN.

EARLY CAULIFLOWERS.—In most gardens the Cauliflower is more valued in May than in July, and though some growers have neither the room nor the means to winter large quantities of autumn-sown plants, they need not lack small neat Cauliflowers for the May supplies if sown now. I adopt both systems, having autumn plants, and sow at the end of this month also. By so doing, if the autumn plants fail I have those sown now to fall back upon. The plants sown now do not produce large heads, but that is of little consequence for private use, as a small Cauliflower in May is appreciated. It is necessary to sow an early kind, those of the Snowball type being excellent, as they turn in so quickly—in fact, may be had fit for table in three months from time of sowing. We have had some splendid additions to the early Cauliflowers of late years. Early Forcing is very good for present sowing, very dwarf, and just the kind for growing under glass. Indeed, so useful is this variety, that I have grown it under glass from the start to the finish when the weather was so severe as to kill the autumn plants. Another equally good frame kind is First Crop. This sown in the open in April turns in in less than twelve weeks, and is one of the best sown in frames owing to its compact habit. Requiring vegetables in quantity, I place much importance on the spring supply, as often in May there is a dearth of good vegetables: and when one can bring the Cauliflowers to meet the Broccoli, there is no difficulty, as though at that season Asparagus will be plentiful, there is a great gain if the grower can vary the daily supply. I would advise sowing in a frame for the early crop. I make up a bed mostly of leaves. When the seedlings are large enough they are pricked out into frames, and when established, freely exposed and planted out at the end of March in rather deep drills to protect from winds. Many fail with plants given much heat at the start, as these are so soon affected in cold weather. Plants in frames from autumn sowing should be freely exposed in favourable weather, as the planting season will soon come round.

FORCING FRENCH BEANS.—Beans forced previous to this date cannot be termed profitable, but now with lengthening days there need be no failures. The choice of variety for the first crop is important. It is not wise to grow at this early period kinds noted for mere size. There are some excellent early varieties, but much depends on the heat at command, size of pots, and the quantity required. For first crop I have always found pots most reliable, 7-inch ones being a useful size. If not crowded, the plants give a quicker return than with larger pots. Sow half a dozen seeds in each pot and thin to the three strongest plants. When sown I stand over hot-water pipes. They then quickly germinate, and when well above the soil are placed on shelves near the glass. Avoid much moisture from the start, and a genial temperature is needed, 60° to 70° by day, lower at night, and in fine weather a gentle dewing over with tepid water early in the day will do good. Water with tepid water when dry and omit syringing when in bloom. If sown every three weeks there will be constant supplies.

BROAD BEANS.—These sown now will give early dishes. I find in light soils the early plants are less troubled with fly than late sowings. For a very early supply, plants raised under glass and planted out in about six weeks from time of sow-

ing give a good return. Few grow this vegetable in pots at the start, but few things force better if given the same culture as early Peas. Many used to sow this vegetable in the autumn. There is no need for this, as a few rows sown now on a warm border will give as early produce if the beans are soaked in water for twenty-four hours previous to sowing, the soil selected being well drained and not too heavy. The Early Longpod section cannot be beaten for present sowing. Those who have a very heavy soil to deal with or land much exposed may with advantage raise an early supply in cold frames. I have sown in various ways—in pots, boxes, and in the frames. If in the two latter, more care is needed when planting to secure a ball of earth to prevent the plants drooping.

LARGE ONIONS.—I am aware the sowing of this vegetable under glass to secure large bulbs does not meet with general favour, but it is much more common than it was, and is certainly worth doing as a means to get a few large bulbs for use as a vegetable either cooked whole or in slices. Many who need very large Onions sow in December, but very excellent produce may be had from January sowings; it is best to sow in heat. Avoid thick sowing, as each seedling will need careful lifting when large enough. Boxes are the handiest, though pots are frequently used if for extra large bulbs, and when the seedlings are well through the soil, give ample light to secure a strong plant. Many grow in a warm frame from the start, placing on a board over hot-water pipes, and gradually inuring the plants to the cooler parts of the frame. Ailsa Craig, Record, or Excelsior are among the best as regards flavour amongst the larger kinds.

EARLY CELERY.—I am not in favour of sowing Celery till February is well advanced, but much depends upon the time it is needed. I think the best flavoured Celeries are those grown from April sowings and eaten in mid-winter, or grown as naturally as possible. For August supplies it is well to sow six months in advance. Only a small quantity of seed should be sown, and avoid thick sowings. Much Celery is ruined in the seed pan, as often one may be doubtful of the seed germinating and make thicker sowings, and owing to pressure of work or want of space, it is left too long before it is transplanted. Far better sow a less quantity of seed, and if possible give more room. I prefer shallow boxes, keeping the surface moist by covering with glass or sheets of paper till the plants are through the soil. I find much better plants are obtained when transplanted into frames as soon as large enough, as treated thus they have more room, can be grown closer to the glass, and do not dry so quickly. In sowing, give the boxes or pans ample drainage, use a light soil in which leaf soil predominates, and sow an early kind, such as White Gem or Early Rose.

CUCUMBERS.—To get early supplies it is well to sow at this date, as with longer days and more sunshine the plants will grow more freely. Even now, unless the grower can command ample warmth, it is best to defer sowing for a few weeks, as from the time the plants are well above the soil there must be genial warmth and a moist atmosphere free of draughts. Sown now in 3-inch pots, the plants will be ready to plant out in three weeks, and if the beds have to be made of manure this should be done to allow rank steam to escape. Much may be done to forward a crop by warmth or bottom heat at the start, and if the seed pots can be plunged, so much the better. Very little moisture will be needed at the roots till they reach the sides of the pots, and none till the seeds are through the soil if it is at all moist. Many can grow a few early fruits in pots.

EARLY TOMATOES.—Few vegetables of late years have found more favour than Tomatoes, and those who like them early would do well to make a start and to sow an early variety. I find Conference and Early Ruby excellent. The former is specially good, as it gives medium-sized fruits in clusters and continues a long time in bearing. To get a few strong plants, I find sowing three seeds in 2½-inch pots three parts

filled with a light compost better than sowing many seeds in a pan, as the pricking off causes delay. When the plants are well above the soil it is an easy matter to thin to the strongest plant. It is necessary to grow in a genial heat and close to the glass. When sown in pans avoid thick sowing to allow of lifting without breaking the tender roots. Any potting on or shifting should take place in the house where grown, as Tomatoes soon suffer from exposure at this time of year. The plants sown in autumn for early fruit may now be given a shift or planted out for early fruit. Pots are best. These plants require less warmth than seedlings; 60° at night is ample, with a rise during the day, giving air freely in bright sunny weather. S. M.

HARDY FRUIT GARDEN.

STRAWBERRIES.—Although the present is not a time for the making of new plantations, there may yet be work to be done amongst the older ones. There is a deal no doubt to be said in favour of annual planting, but it is not advisable in every case to adopt it. There are other crops to be considered and also the question of labour and of space. It is, however, an excellent plan to be prepared for the next season's planting by potting up the later runners of last year where the beds have not so far been cleared and the ground forked over. These late runners, if now potted up and then plunged closely together on a spare open plot, will make the very best of plants to put out before it is possible to secure the runners of the ensuing season. Besides which, as we know from practical experience, the first and best runners go for forcing, and, should the weather be dry just at that time, the later runners, too, will be rather late in establishing themselves. With a good stock of these runners as advised above, it will often be possible to make new plantations well in advance. There will be the ground from which late Broccoli, winter Spinach and other late green crops are taken. This if immediately broken up will make suitable plots for these Strawberries during the latter part of May and early in June. A reserve of these runners may also prove of service where a large number, and early, too, has to be secured for pot culture. My plan is to pot these runners at any time convenient during this period of the year and plunge them over the rims of the pots at once. Then, should the work of clearing off the old beds not have been finished, no time ought to be lost in seeing to it. The present would be a good opportunity for giving a dressing of well-decomposed farmyard manure, merely forking it in on the surface, as no deep digging between the rows should ever be entertained.

RASPBERRIES.—Where not completed, all needful routine attention amongst these should be pushed forward as speedily as possible. Here, again, a dressing of farmyard manure, well broken to pieces and then forked into the first 6 inches of the soil between the rows, not so deeply, of course, immediately surrounding the stools, will be a capital application. Some cultivators advise no digging or forking between the rows. If they find it answer their purpose, the advice now given is to keep to the practice, but others, myself included, prefer to fork between the rows and stools, not to an immoderate extent, but sufficiently to apply the manure advised. By the latter plan the soil is in a manner acted upon by the air, and that to advantage, whilst it also affords an opportunity for removing all wandering runners. The autumn-bearing Raspberries are worthy of at least a small space being devoted to their culture. These should now be cut down close to the surface, and then be treated as already hinted. Note also that young plantations of the others are cut back to 18 inches or 2 feet if strong and planted early, but to the ground-line if weakly or late planted.

GOOSEBERRIES.—Where small birds are destructive to the buds, pruning has possibly been deferred, but any further delay is scarcely advisable, at least not beyond the end of this month.

Then it will be better to rely upon thread lightly entwined upon the upper branches. In pruning, guard against leaving too much wood towards the centre of vigorous bushes, but towards the extremities it is not so important. Spur-pruning is a good plan to prevent overcrowding, only allowing a lateral branch where there is room; the terminal of course can be left longer. The old-fashioned plan of bush culture, however, bids fair to be considerably lessened in many gardens in favour of cordon and espalier culture. These latter systems have much to be said in their favour. The pruning is far more easily accomplished, whilst protection by netting is readily applied, and it is also possible to make a more profitable use of the ground between the rows. For late dessert fruit a north wall will be found a suitable position, where either single or double cordons can be advantageously planted. There need not be any bare wall space now that cordons of various fruits are so much grown.

CURRENTS.—The notes on Gooseberries generally apply in the case of these fruits also, particularly as regards pruning to avoid overcrowding. Some of the old wood may, by reason of the depredations of birds, have become destitute of spurs. These, where it is possible to do it, can be thinned out, depending on young shoots to supply their places. It is not too late yet to make new plantations, not forgetting that here we have again excellent subjects for vacant spaces on north or other walls where it is scarcely expedient to place choicer fruits. Do not lose sight of the fact that bushes of immense size are not in all cases the most profitable, especially in gardens of limited proportions. The winter dressing of manure as advised for Raspberries will also apply to Gooseberries and likewise to Currants. Where the growth is not over-luxuriant, then it had better be omitted for a season or two.

THE LOGAN BERRY AND THE WINE BERRY.—Those who are in search of novelties should give these fruits a fair trial. Thus far it cannot be said that their culture has been fully tested. The latter is to all appearance very productive; the former has not yet been proved to this extent even. Their treatment should accord with that of Raspberries.

BLACKBERRIES.—For garden culture I have thoroughly tested the cut-leaved Bramble, and can strongly recommend it. Even if the space at disposal in the fruit border proper be all too limited, here is a fruit which may be turned to the best possible account in the wild garden, being both ornamental and useful. Many an unsightly or spare spot might easily be turned to better account by planting this Blackberry. Its berries, which ripen later than the American varieties of the Wilson Junior type, are suitable for dessert during August and early September, being by some most relished at the breakfast table.

WATERING ESTABLISHED FRUIT TREES.—With some, perhaps, this subject may not need much attention; with others it may be otherwise. All depends upon the soil and situation. If the soil be light and porous, with the subsoil disposed to be gravelly, it will often pay well to give thorough soakings once at least during this season of the year. Possibly the borders of wall fruit trees are considerably raised above the ground level; this in some cases may be advantageous, but not always so. Borders facing the sun will dry up the most, and should the trees on these walls be large, then a good watering will assist them, being possibly a means of tiding them safely over the flowering period and the critical time immediately following it. The liquid manure should not in any case be allowed to run to waste. On the lowest side of a heap of farmyard manure a hole should be sunk to receive it. Cesspools, however, are the most convenient; these, I am fully persuaded, are not oftentimes made the most of for garden purposes, and fruit trees in particular. By the judicious application of the contents of cesspools, it is possible to reach the roots of trees where solid manures could not readily be so effective. Lose no chance, even at

this time of the year, to make good use of these liquid manures, provided the ground is not frozen. HORTUS.

FERNS.

ADIANTUM CUNEATUM FOR CUTTING.

THERE is no more popular Fern for cutting than this; in fact, in many cases it is overdone and used with flowers that would look far better arranged with their own foliage, and which would often last longer. But this fact testifies to its excellence generally, and in few gardens is there any too much of it. Upon the way it is grown and the way it is cut a good deal depends, and a more reprehensible practice than that of always cutting and snipping the fronds promiscuously can hardly be imagined. I am aware that in some cases gardeners are powerless to prevent this, but in many others they are themselves the worst offenders. No fronds should be taken from any plant until there is plenty of large, well-matured ones ready, and one plant should have all these removed before another is started. The object of this is partly to prevent bruising the other fronds, but more particularly to give the plants a chance to recover themselves, and although the first year the output of a given number of plants may not be so great, over a series this will be the other way, and not only this, but the lasting quality will be improved. *A. cuneatum* is a greenhouse kind, and for the purpose indicated should be grown as cool as possible, for when the fronds are fully matured they last a long time on the plant—an almost indefinite time, in fact. This for all private places will be found sufficient without forcing, as the market men are sometimes obliged to do. A correspondent in *THE GARDEN* recently called attention to the fact that Ferns required rest just as much as other plants, and where this species is grown for cutting it is well to keep this in mind. It may not always be convenient to rest them exactly at their natural time, but to keep them always on the move is very wrong. If a plant gives one good crop of fronds in summer and another towards the end of the year, this is quite as much as can be expected of it and as much as it will do if it is to increase in size as well. Take the case of a plant cut over in November or a little later. This should be kept on the dry side for a little while in a cool, moist house, but never so dry that the pot will ring when tapped, or many of the small roots around the outside of the ball will be killed. If repotting is intended, the plants may be turned out of their pots and laid for a week or two on a moist stage or in boxes just as they commence to grow. A little rough Fern compost should be placed between them and kept moist. When the young fronds are about a couple of inches high they may be potted into larger pots than before, and it will be noticed on lifting them out that new roots will have formed and taken hold of the material placed about them. Pot only moderately firm, and there will be no check, while had the plants been left in the pots, the roots would be probably damaged in removing them. I never care to repot this Fern until it begins to grow, as it is apt to be a long time in starting new roots, and the fresh compost gets sour and close before they have a chance of getting hold of it. But one caution is needed: the plants must not be taken to a draughty cold shed for potting, and if only such an one exists, they must be potted in the house where growing. Once they feel the new compost, growth will be very rapid, and after the check of removal is

over, let them have abundance of light and air shading only from direct sunshine. Such plants need no hardening off, and taking them out of the house only checks the younger fronds. Remove the mature ones carefully when ready, and give rather less water at the roots until again moving freely, a slight rise in temperature, if it can be arranged—say by moving the cut plants to the closest part of the house—being beneficial. Next time they are cut there will be few young fronds, and each plant may be cut clean over to again go through the same routine. By this means, and by starting them successively, a good supply of mature fronds can always be had, and it may be noted in passing that the removal of these does not check the plant so much as taking away half-grown ones. As soon as cut, the fronds should be thrown into a tank or tub of water and allowed to remain there a little while before using. This will be found to greatly help their lasting qualities. Plants in the second year after potting may be given occasional waterings with clarified soot-water, with a little very weak guano for a change; but small specimens ought not to remain in the same pots more than two years. A good compost is equal parts of good fibrous loam and peat, with plenty of crushed charcoal and the coarsest silver sand obtainable added. If peat is scarce, use equal parts of this and half-decayed leaf-mould.

Propagation is usually effected by division. The proper time to do this is before laying them out as described above. They must not be shaken out, but the crown cut through and pulled apart with the hands. There are often small offshoots from the rhizomes, too, that may be taken off, potted loosely in the smallest-sized pots, and kept only just moist until they begin to grow freely, when they may have a shift and be grown on with the other stock. Propagation by spores is practised where a large number is required, and the mode has often been described in these pages. In the hurry to secure large plants growers often take the young pieces of Fern out too large, and this leads to a crowded, unshapely plant. Besides this, stronger-growing kinds often make their appearance and smother the *Adiantums*, and had the patches been smaller these could have been more easily removed.

DECEMBER IN SOUTH DEVON.

DURING the past month rain has fallen on eighteen days to the amount of 7.16 inches compared with 7.37 inches on twenty-four days in December, 1896. This exceptionally heavy rainfall, the average for the month being but 3.47 inches, has brought the yearly total up to 36.28 inches, which fell on 164 days, against a total of 26.82 inches on 159 days in the preceding year, or an increase of nearly 10 inches on the rainfall for 1896. The average for twenty years stands at 34.49 inches, which has been exceeded this year by 1.79 inches. On December 29 the gauge showed 2.14 inches of rain, the heaviest twenty-four hours' fall of the year. Although the month has been wet, it has also, curiously enough, been very sunny, 79 hours 10 minutes of sunshine having been registered, which is 27 hours in excess of the December average of 52 hours 5 minutes, and nearly double the record for the corresponding month of 1896, when the sun shone for only 40 hours 30 minutes. The total sunshine for the past twelve months is slightly below the yearly average, the latter standing at 1711 hours 15 minutes, while the past year's total is 1706 hours 25 minutes, and that for 1896 1712 hours 55 minutes. These differences are, however, so trifling that they may be practically ignored.

The mean temperature of the month has been 46°, the average for December being 42.9°, and

the record for the corresponding month of 1896 42.8°, so that the past month has been unusually warm. The highest screen temperature was 56.6° on the 16th, and the lowest 32° on the 3rd, while the lowest grass temperature was 27.4° on the same date. The highest sun temperature was recorded on the 15th, when the mercury rose to 82.1°. On five nights the grass thermometer showed readings of 32° or below. The total horizontal movement of the wind has been 10,541 miles against 8894 miles in December, 1896. With the exception of March, 1897, when the total movement reached 11,759 miles, the past month was the windiest for three years. The greatest daily run was 8.2 miles on December 29, or an average of over 33 miles an hour for the whole 24 hours; the highest hourly velocity, 42 miles per hour, was reached between the hours of 11 a.m. and noon on the 29th, but for several hours the rate exceeded 40 miles an hour, occasionally running up to 80 miles in the gusts. The humidity of the month has been 79 per cent. against 90 per cent. in December, 1896, and the amount of ozone in the air 52.9 per cent. against 55.3 per cent. In south-westerly winds the volume of ozone ranged as high as 90 per cent., falling as low as 5 per cent. during an easterly wind.

In the open garden there are few flowers that are at their best in the darkest days of the year, and their very rarity adds an enhanced value to their charms, though even if they were wont to expand their blooms when floral beauty was at its zenith in the garden, the Christmas Roses and the Algerian Irises would not lack appreciation. Of other flowers that bloom in mild Decembers the list is composed of a few stragglers that still remain as relics of the departed host of summer and autumn bloomers and the daring vanguard of the flowers of early spring. Even now in warm corners the *St. Brigid Anemones* and the *Star Anemones* (*A. fulgens*) are in blossom, while *Arabis* and *Aubrietia* are already starting their compact mats of foliage with white and coloured flowers. Of *Hellebores*, the giant Christmas Rose, which in South Devon commences to bloom in mid-October, is now past its best, but many white cupped blossoms can still be gathered for the decoration of the house, though the individual flowers are less than half the size of those produced in the preceding month, but with such excellent followers as the *Riverston* variety, *St. Brigid's Christmas Rose* (*H. juvernisi*), *Madame Fourcade*, and the *Bath* variety, the succession of bloom is easily kept up till mid-January or later. Owing to the mildness of the season, the *Lenten Roses* (*H. orientalis*) unclosed their petals before the end of the year. Of these there are many good named varieties, *H. o. Commenzienrath Benary* being one of the most attractive. Great strides have been made of late years in hybridising the *Lenten Rose*, Mr. Archer-Hind having been particularly successful in raising several beautiful seedlings, the best of which are not surpassed by any of the named varieties in commerce. A few *Chrysanthemums* continued to brighten the garden through December, and a perfect scape of *Crinum capense* in a sheltered nook, backed by a wall of rock, formed a picture of unlooked-for loveliness. Here and there the *Camellias* are studded with flowers mostly still in bud, but a few already expanded. *Crocus Imperati* has in some gardens disclosed its lilac and buff blossoms, while from *Doronicum plantagineum* excelsum *Harpur-Crewe* a goodly gathering of large gold star flowers can now be made. *Fuchsia Riccartoni* is as yet not blossoming, and the *Forget-me-not* (*Myosotis dissitiflora*) has commenced to flower, its blooms, however, possessing at present no hint of the lovely blue that renders it so exquisite in the spring garden, but being entirely pink in tint. An occasional deep blue flower of the *Gentianella* marks the spot that in a few months will be a sheet of living colour. A few blooms have remained on *Hypericum Moserianum*, and the white *Paris Daisies* have enjoyed an unusually prolonged season of beauty. Towards the end of the month I saw a large plant of this variety, fully 6 feet through, growing in

a dry position at the edge of a rockery, literally white with flower. In damp positions, however, both this and the yellow variety are out of bloom. *Iris stylosa*, or *unguicularis*, as it is sometimes named, has been most lovely throughout the month. Many a day a dozen or more exquisite blossoms could have been cut. No flower is more charming for indoor decoration than this *Iris*, and if the blooms be gathered before they are fully expanded they will be found to last in freshness for some days. Their sweet fragrance renders them additionally acceptable in the house, while the faint lavender-blue of the type and the white of *I. s. alba* form a delightful colour-scheme if arranged together. While upon the subject of floral decoration I may say that the *Hellebores*, when cut for the house, should have their stems split up with a sharp knife into four sections to the length of about 2 inches before being placed in water. This will tend to prevent their flagging. The *Lenten Roses* will be found to last better if, in addition to splitting the stems, they are totally immersed in water for two or three hours before they are arranged. I have already seen scapes of the early *Polyanthus Narcissus* which have been cut in the open garden, and *Scilla sibirica* has also shown its blue blossoms on a sunny rock bank. Perhaps the unusual amount of December sunshine experienced in this locality may have been instrumental in causing this precocity. The lesser *Periwinkle* has been blooming freely, and a plant of its double variety has also produced flowers. Early in December *Schizostylis coccinea* was in bloom in dry situations, but neither this, which is aptly named the *Winter Flag*, nor *Iris stylosa* succeed in heavy damp soil. I have lost many plants of both when planted in such a situation, whereas on a bank where rapid drainage is assured they increase and flower freely. The first *Snowdrops* (*Galanthus nivalis*) opened their blossoms before the advent of the new year, thus anticipating by two months their customary season of bloom, which has gained for them the epithet of "Fair Maids of February."

Since Dec., 1894, *Roses* have in no winter bloomed so late. In that year a plant of *Safrano* growing against a wall provided a gathering of buds and half-opened flowers on Christmas Eve, and this year the same old *Rose* has been similarly indulgent. In mid-winter, *Roses* from the open air are such a reversal of the accepted order of things, that sentiment endows them with an added charm, though the opening buds of yellow fawn, through which is infused a suspicion of pink, their outer petals stained at the base with dark crimson, are beautiful enough of themselves to evoke admiration without the adventitious aid of the imagination. Occasional blooms of *Marie van Houtte*, *Mme. Lambard*, and *Catherine Mermet* have also been gathered from the walls, and about the middle of the month a singularly perfect blossom of *Gloire Lyonnaise* opened on a standard plant. In a corner of the garden, where its grasping manners are innocuous, the *Winter Heliotrope* (*Tussilago fragrans*) has thrown up numbers of its quaint, scented flower-heads, in close proximity to which the *Water Avens* (*Geum rivale*) has not been flowerless for many months. The *Violets*, which gave a profusion of bloom in October and November, have for a time become almost flowerless, although on moving the foliage apart a promise of future flowering is given by the numerous small buds that are clustered round the crowns. The *Red Russian* has, however, just commenced to bloom, and, should the weather remain open, will flower well in January and February. The *White Czar* is also blooming sparsely, and a few flowers may be picked from *Princess of Wales*, *California*, *Wellsiana*, *The Czar*, *Marie Louise* and *Admiral Avellan*, though the blooms at present to be found on plants of the last do not possess the distinctive colour that marks them when the sun has gained more power. Wall-flowers are coming into bloom, and here and there a fully-expanded flower-head may be seen. Happening to be at Kingswear, on the banks of the Dart, in mid-December, I was surprised to see a yellow *Banksian Rose* in bloom, close to which

a large bush of *Rosa viridiflora* was covered with its curious inflorescence. The *Mesembryanthemum* were still blooming in a sloping garden overhanging the water, and a tall specimen of *Acacia dealbata* was showing signs of profuse blossoming, while *Berberis nepalensis* was in flower. This Barberry is, I believe, rather uncommon in England, probably owing to its not being sufficiently hardy to withstand many degrees of frost. One of the largest specimens in this country is growing in Lord Ilchester's garden at Abbotsbury Castle, Dorsetshire. It is about 14 feet in height, the trunk 3 feet 6 inches in circumference at 1 foot from the ground. *Solanum jasminoides* held its white flower-clusters, though diminished in number and size, until the end of the month. *Physianthus albens* against a cliff has perfected a large number of huge seed-pods, which have at present a very quaint appearance. *Jasminum nudiflorum* is everywhere strikingly beautiful, as is the Passion Flower, where it has fruited freely. In many cases, however, the crop of oval orange fruit is distinctly less than was the case last year. *Chimonanthus fragrans* is the December-blooming shrub *par excellence*. Many a time have I gone out of my way during the past month to gaze at a fine bush of this well-named Winter Sweet, some 8 feet high and as much through, covered to the tip of its smallest twig with perfumed blossoms. When it can be grown in bush form in the open, as in the case of this example, the effect is infinitely more pleasing than if it has to be trained against a wall. *Colletia cruciata* and the *Correas* mentioned in my notes for November were still in bloom during the past month, while *Choisya ternata*, *Cytisus fragrans*, *Olearia stellulata* and *Pittosporum Tobira* were in flower in many instances. The bright berries of *Cotoneaster microphylla*, where borne in profusion, make quite a spot of colour in the garden, as do the red stems of the Dogwoods. *Daphne indica* is in bloom in a secluded garden, its blossom-laden shoots distilling a subtle and delightful fragrance on the heavy air. Week by week the mantle of flower on the *Laurustinus* becomes whiter, bloom is covering more fully the shoots of the shrubby *Veronicas*, and now and again a vivid crimson blossom of *Cydonia (Pyrus) japonica* may be marked glowing on a white wall. In the lanes many a December Primrose has been gathered, while the banks were starred with the white blossoms of the wild Strawberry and the pink of the small Cranesbill, with here and there a yellow

hand, but, remembering the bitter cold that in 1895 succeeded an equally mild December, one hesitates to share the careless optimism of the rapt singer.
S. W. F.

TREES AND SHRUBS.

THE ELDERS.

(SAMBUCUS.)

THE Elders, of which there are about a dozen species in all, are spread widely over the tem-

our native Elder—have considerable economic and medicinal value, the bark, the flowers, and the fruits being all employed. These shrubs are not particular as to soil or position, although, like most other things, they prefer liberal treatment. They are not averse to slight shade, but flower and fruit better fully exposed to the sun. The finer cut-leaved varieties of *S. nigra* and *S. racemosa* are worth growing well, and should be afforded a rich, loamy soil and plenty of moisture. Most of the Elders-



Sambucus racemosa tenuifolia. From a photograph sent by M. Barbier, Orleans.



Dane's Blood (*Sambucus Ebulus*).

bloom of Toadflax. The highest shoots of the Elm trees already show signs of thickening with the rising sap, and from the topmost bough the thrush carols as though spring were already at

perate parts of the globe, but they do not appear in South Africa, and in the tropics are met with only on the cooler heights of the high mountain ranges. With the species, however, that come from such places as Bolivia, the Argentine Republic, Australia, New Zealand, &c., the horticulturist in this country has little concern. The only species that have so far proved themselves really useful shrubs here are *S. nigra* and *S. racemosa*, both of which have produced numerous varieties under cultivation; but we have also in cultivation two American species (*S. canadensis* and *S. glauca*) as well as the herbaceous *S. Ebulus*, the Danewort of Britain. The Elders vary from dwarf herbaceous plants to trees of goodly size, the American *S. glauca* being occasionally as much as 50 feet high. The leaves are always pinnate with an odd number of toothed or lacinated leaflets, and the flowers are small, yellowish, or sometimes pinkish white, and produced in dense umbels or thyrses. Several species—notably

bear pruning well, and can easily be propagated by cuttings.

SAMBUCUS NIGRA (the common Elder).—To country-bred people there are few of our native shrubs more familiar than the common Elder. Of its virtues as a medicinal agent the old herbals have much to say. According to them, there are very few, apparently, of the ailments afflicting mankind that some part of the Elder plant will not cure or alleviate. Elderberry wine is (or was not so long ago) one of the most cherished products of the rural household, and the species has been cultivated for this purpose alone. In various parts of the Continent, too, a preparation of the fruit is used for colouring wines, and even for adulterating port wine. Usually a shrub, it may sometimes be met with as a low tree, 20 feet or even 30 feet high. It is not without beauty when in bloom, being then (in June) covered with large flat clusters of creamy white flowers; or, two or three months later, when its fruits have become black and ripe. In gardens, however, it is usually relegated to the back of shrubberies or out-of-the-way corners, where its capability of taking care of itself makes it useful. Numerous varieties are now in cultivation some of which are really ornamental shrubs. The following are some of the best of them:—

S. N. FOLIIS AUREIS (the Golden Elder).—Among yellow-foliaged deciduous shrubs there are few so valuable as this. The leaves are en-

tirely of a bright yellow, and the colour is retained right up to autumn. In this respect it is superior to the yellow-leaved varieties of *Philadelphus coronarius* and *Neillia opulifolia*. It should be grown in a group, and the most effective display is made by cutting it back annually—a process which helps the development of strong and well-coloured shoots.

S. N. VARIEGATA.—This is another useful and ornamental fine-foliaged plant, and in town parks and similar places, where variegated things are popular, it is planted abundantly. It thrives well near London, and in the public garden at Aeton especially it is quite a prominent feature. The variegation is usually a creamy white, sometimes more decidedly yellow, sometimes approaching pure white. This also is improved by an annual pruning. Of the varieties differing in the colour of the fruits the most important is *leucocarpa*, with white fruits; another is *virescens*, with yellowish green fruits. Besides all these there are other varieties whose differences are shown in habit and in the shape and cutting of the leaves. Of the former, var. *pendula*, with graceful weeping branches, is the most ornamental, whilst the most curious is *pyramidalis*, with strong, perfectly erect branches. Among the cut-leaved varieties, *laciniata* (the Parsley-leaved Elder) is the handsomest, the leaflets being cut into narrow pointed segments; it is found wild in Britain, and there is also a variegated form of it. In var. *linearis* (or *heterophylla*), which is grown as a curiosity rather than as an ornament, the leaflets are very narrow and end in a thread-like point; sometimes the blade is so much reduced as to leave little more than the stalk and midrib. The variety *rotundifolia* has rarely more than three leaflets to each leaf, and they are rounded and toothed so as to very much resemble the leaf of an Elm; it has been found wild in the Isle of Wight. Several other varieties are catalogued by nurserymen who make a speciality of them, but it is not necessary to mention more than two double-flowered forms, one of the ordinary colour, the other—*flore roseo pleno*—tinged with rose. *S. nigra* is a native of Europe, Western Asia, and North Africa. Sir Joseph Hooker collected it in S. Morocco, on the Greater Atlas, at 5000 feet to 7000 feet altitude.

S. RACEMOSA (the Hart's, or the red-berried Elder).—In a wild state this species has the most extensive range of all the Elders. It occurs in Europe (not in Britain), in Kamtschatka, China, Corea, Japan, and in North America. It is a shrub 10 feet or 12 feet high, and from the common Elder is to be distinguished readily by the pyramidal (instead of flat) inflorescence, by the fruits being red, and by flowering much earlier—in April and May. Its fruits are ripe almost by the time the flowers of the common Elder are past. To bring it to its greatest beauty as a fruiting shrub a sunnier climate than ours seems to be necessary; at any rate I have never seen it really well set with fruit in this country. Near Paris it succeeds admirably, and during July it is one of the loveliest shrubs in some of the Swiss valleys. I have noted it especially in the Val d'Anniviers, above Sierre. But, although we have to forego in a great measure its beauty in that respect, it has, on the other hand, sported into quite a numerous variety of cut-leaved and other forms that provide us with some of the most beautiful of this class of hardy shrubs. Of these varieties the following are the most noteworthy:—

S. R. SERRATIFOLIA.—This variety has long leaflets, the edges of which are cut up into deep teeth. Of the cut-leaved varieties of the red-berried Elder here mentioned it may be distinguished as the one in which the blade of the leaflet is least lobed, and from it there is a gradual transition in the extent of the lobing through the following varieties down to *tenuifolia*, which has the narrowest segments.

S. R. PLUMOSA may be described simply as having the leaf margins more deeply incised than *serratifolia*.

S. R. PLUMOSA FOLII AUREIS.—Messrs. Wezelenburg and Son, of Hazerswoude, near Leyden, raised this beautiful variety in 1891. In colour it is wholly yellow, and of as bright a shade as is the common Golden Elder. Besides this it has, of course, the fringed margins of the leaflets. The Royal Horticultural Society granted it an award of merit in May, 1895.

S. R. LACINIATA and **S. R. OVATA** are varieties intermediate in the character of the leaf-lobing between *plumosa* and *tenuifolia*, the leaflets being divided almost to the mid-rib into lanceolate segments.

S. R. TENUIFOLIA, of which an illustration is here given, is, as before stated, the variety whose leaves are most deeply cut, the segments being reduced to long, narrow strips one-eighth of an inch or less wide. It is a very handsome shrub.

S. R. SPECTABILIS has creamy white flowers of a purer shade than any other variety; whilst in

S. R. ROSEIFLORA they have a pink or pale purple tinge.

S. R. PUBESCENS is a natural variety, native of North America, and kept up by some authorities as a distinct species under the name of *S. pubens* or *S. pubescens*. Its leaves are very pubescent on the under side.

S. CANADENSIS (the American Elder).—This is the common Elder of North America. It is not so strictly woody as the European species, although it grows 6 feet to 12 feet high. The leaves are pinnate, and the leaflets are often more numerous than in either *S. nigra* or *S. racemosa*, sometimes being as many as eleven, with the lowest pair often cut up into two or three segments. The flowers, which are dull white, are borne on a long-stalked, flat, cymose inflorescence about a month later than those of *S. nigra*. The fruit is purplish-black.

S. EBULUS (Danewort or Dane's Blood).—This herbaceous species is a native of Europe, North Africa, India and China. It grows from 2 feet to 4 feet high, and its long pinnate leaves consist of seven to thirteen leaflets. The flowers are white inside, reddish externally, and are followed by fruits not unlike those of the common Elder. The whole plant has a nauseous smell when crushed. The popular names of Dane's Blood or Danewort are of Saxon origin, and refer to the legend that the plant first sprung from the blood of the Danish invaders of Britain.

S. GLAUCA.—The most distinctive character of this species as seen in this country is the very glaucous covering of the fruits, giving them, although they are really black, a blue-white appearance. Judging by the dimensions given by Professor Sargent in his "Silva of North America," t. 222, it is apparently the largest of all the Elders, growing from 30 feet to 50 feet high, with a trunk enlarged at the base to a diameter of 1 foot to 1½ feet. In *Garden and Forest*, vol. iii., p. 508, there are given some particulars of a remarkable specimen growing in the United States. This tree was planted in 1859 or 1860, and seven years ago had reached a height of 40 feet; the spread of its branches was 33 feet; its girth at 3 feet from the ground was 7 feet 2 inches, and at the enlarged base of the trunk 12 feet. At Kew it is a small shrub as yet, but it fruited last year, and the fruits had the glaucous colouring very marked. In foliage it is very similar to our native Elder. It is common in California and other Western States, where its fruits are used for making pies and preserves. It was discovered early in the century in Oregon by the party which crossed the North American continent for the first time under the leadership of Lewis and Clark.

During the past year Professor Sargent has figured two Elders in *Garden and Forest*. The first of them (vol. x., p. 135) is called

S. MELANOCARPA.—This had long been confounded with *S. racemosa*, and in habit and the shape of its leaves it is practically identical with it, but the fruits are black. It is common on the Northern Rocky Mountains, where it grows in moist situations at from 3000 feet to 8000 feet

elevation. It is a shrub 5 feet to 6 feet high. The second plant figured (vol. x., p. 175) has been named

S. LEIOSPERMA.—It extends, according to the author of the name—Mr. Leiberg—from the mountains of Oregon and Washington, northward to Alaska. Its distinguishing character appears to be solely in the nutlets, which are smooth, those of *S. racemosa* being wrinkled.

W. J. BEAN.

THE PINES.

PINUS STROBUS (the White Pine) is the most valuable tree of the whole genus for the parks and gardens of the wide region which it inhabits naturally. Wherever a collection of trees was planted in the North-eastern States more than fifty years ago, the White Pine is found to surpass all other conifers, when any others have survived, in height, thickness of trunk, and health. Impervious to the cold of the Canadian winter and the burning suns and dry winds of the prairies of Kansas, the White Pine flourishes also as no other exotic conifer flourishes in Central Europe; and in the gardens of Northern Italy it is as vigorous and beautiful as it is in the forests of Michigan and Minnesota. The brittleness of the branches of this tree, which frequently break under a load of snow or frozen sleet, is the one drawback to the White Pine as an ornamental tree, the symmetry of isolated specimens being frequently ruined from this cause. The White Pine grows well on dry sandy drift gravels, but only attains its noblest dimensions on well-drained, rich soils, when its roots can reach abundant and constant moisture. In cultivation here at the north it will usually outgrow from the start almost every other conifer, but newly-planted seedlings do best when they are protected from wind and sun, for the White Pine is a shade-enduring species, and in the forest the seeds germinate most freely and the seedlings grow for many years most vigorously under the shade of other plants. No other tree breaks up so well the flatness of the forest roof, and no other tree that can be used here is so valuable to enliven the monotony of a sky-line with its dark green, wide-spreading crowns raised high on stately stems.

PINUS MONTICOLA is only surpassed in magnitude by the Sugar Pine. This is a widely-scattered species, being distributed from the western slopes of the Northern Rocky Mountains, over a large part of the elevated regions of the west, growing from the level of the sea on the shores of the Strait of Juan de Fuca to about 10,000 feet on the Californian Sierras, where trees with enormous stems and short contorted branches withstand for centuries the fiercest mountain gales. *Pinus monticola* has proved perfectly hardy in the neighbourhood of Boston, where it has already produced cones. The cultivated trees can be distinguished from *Pinus strobus* by their narrow pyramidal habit, short remote branches, and rather thin foliage.

PINUS CEMBRA (the Swiss Stone Pine) is another of the White Pines with narrow seed-wings. It is a native of the mountains of Central Europe, of Northern Russia, and of Siberia, where it sometimes forms pure forests of considerable extent. *Pinus cembra* is always a slow-growing tree, with short, slender horizontal branches which in youth form a dense compact pyramid, and stout rigid blue-green leaves clustered at the ends of the stout branchlets. This tree is an old inhabitant of gardens and is perfectly hardy in New England, where, however, it grows very slowly, retaining its dense, handsome pyramidal form until it is twenty-five or thirty years old, and then frequently becoming thin and ragged. A species, *Pinus pumila*, nearly related to the Stone Pine, covers the high summits of the mountains of Northern Japan with broad, almost impenetrable, thickets 4 feet or 5 feet high, and is widely scattered also over Saghalien, Kamtschatka and the Kurile Islands. This shrub has probably never been tried in our gardens, where it may be expected to be hardy and to grow very slowly.

In Japan the five-leaved Pines are represented by--

PINUS PARVIFLORA AND PINUS PENTAPHYLLA.—The former is one of the most attractive of the exotic Pines which decorate our gardens. It is a common inhabitant of mountain forests above elevations of 5000 feet, through which it is found scattered either singly or in small groves, occasionally growing to a height of 60 feet or 70 feet. This tree is a great favourite with the Japanese, and one of the principal subjects which they employ in dwarfing. In our gardens, where there are now specimens from 20 feet to 25 feet in height, *Pinus parviflora* grows rapidly, sending out long picturesque, persistent branches clothed with tufts of blue-green leaves and loaded with short oval cones which, after ripening, turn nearly black and do not fall for months. This beautiful tree, which is still rarely seen in this country, is admirably suited for the adornment of small gardens. The other Japanese five-leaved Pine (*Pinus pentaphylla*), recently distinguished by Mayr, is a rare inhabitant of the mountain forests of Southern Yezo. This little-known tree, long confounded with *Pinus parviflora*, has been raised in the Arnold Arboretum, where it seems to be hardy enough, although it is still too early to say much about it.

PINUS KORAIENSIS is another really valuable plant in the gardens of the North-eastern States. A native of Corea, Northern China, Manchuria, and Kamtschatka, it was long ago introduced into Japan, probably by Buddhist priests, and is now one of the plants commonly seen in temple gardens. From Japan it was brought to the United States about thirty years ago, and has proved quite satisfactory here. In the colour of the leaves it resembles *Pinus Strobus*, but it is more compact in habit and the foliage is much more dense, as the leaves do not fall until their fourth or fifth year, and therefore clothe the branches for a long distance back from the tips, while in *Pinus Strobus* the leaves mostly fall during their second year, leaving the branches bare, except at the extremities. *Pinus koraiensis* now grows freely in the neighbourhood of Boston, producing seeds, which, like those of all the five-leaved Pines with narrow seed-wings, are large and edible.—*Garden and Forest*.

Some good shrubs.—A few shrubs of large size that can be recommended as occasional plants for small lawns or for shrubberies are *Spiræa arifolia*, *Staphylea colchica*, *Colutea arborescens*, *Exochorda grandiflora*, and the double form of *Dentzia crenata*. They should in all cases be allowed plenty of head room that they may show themselves to the best advantage.—E. C. B., *Claremont*.

Benthamia fragifera.—This only attains with me the dimensions of a large shrub of spreading habit and produces its fruit sparingly. The flowers are produced in quantity, and although short-lived are when at their best very bright, and the plants give a bit of colour to shrubberies that is very welcome. There is a poor form of the *Benthamia* sometimes sold for *fragifera* whose flowers are poor and but sparingly produced, and which I have never known to fruit.—B.

Asimina triloba is a unique and interesting tree-like shrub, with flowers in shape and colour not to be found in any other outdoor plant. They are produced in great profusion on established plants, and, although by no means beautiful, are remarkable for their colour and a peculiar odour as they approach the decaying stage. They appear to possess at once an attraction and a fatal influence to insect life. I have often found them studded with gnats that, once caught, seem to have no power to make their escape.—E.

Chionanthus virginicus.—This, commonly known as the Virginian Fringe Tree, although introduced 100 years ago, is not often found in gardens. It grows here into a shapely specimen if planted in a sheltered position, the plant being

15 feet high and nearly as much in diameter. In its season there is no more interesting plant to be found in the garden alike from the wealth of bloom and the delicate beauty of spike and the tiny individual flowers. I cordially recommend it to planters as one of the finest large shrubs.—E. B., *Claremont*.

AMERICAN NOTES.

CRATEGUS CORDATA.—Fifty-years ago this so-called Washington Thorn was more frequently seen in our gardens than it is to-day, although it is one of the most beautiful of the hardy small trees available for our plantations. It is very hardy: it blooms later than the other species and its flowers are produced in great profusion. These are followed by small showy orange-coloured fruits, which hang on the branches until winter,

a delightful contrast at this season with the large oblong bright scarlet, lustrous haws, which hang on the branches long after the leaves fall and well into the winter. This interesting tree originated in the Jardin des Plantes in Paris, where it was raised, it has been said, from a seed of *Crategus mexicana*. More probably it is a hybrid of *Crategus Crus-galli*, which it resembles in many characters, and of some species not easily determined. Whatever its origin may have been, however, this is a perfectly hardy tree of good habit, and in the autumn it is unsurpassed in beauty of foliage and fruit. Altogether, it is one of the most desirable of the whole genus for the north, and a plant of first-rate merit.

CRATEGUS PINNATIFIDA, sometimes cultivated in China for its edible fruit and distinguished by its deeply divided leaves, is conspicuous in the autumn from the brilliant orange and scarlet



Sambucus glauca (syn., *S. californica*). (See p. 67.)

and in November, after the foliage of most native plants has fallen, the lustrous leaves turn bright orange colour and make a delightful contrast with the darker fruits. This is such a clean, hardy, well-behaved plant and so entirely free from the attacks of insects and fungoid diseases, that it ought to be one of the most popular of our native trees for general park planting. Hardly less beautiful at this season of the year is

CRATEGUS VIRIDIS. This is one of the largest of the American Hawthorns, and a southern species. It has, however, proved hardy in the Arnold Arboretum, where there are now a number of large plants which during the first week of November were brilliant with their orange and scarlet foliage and small bright red fruits.

CRATEGUS CARRIERI.—This is valuable, not only for the beauty of its fruit, but for the splendid orange and scarlet tints of its leaves, which make

tints of its foliage. A perfectly hardy small tree, this promises to be an important addition to plants of this class.

CRYPTOMERIA JAPONICA.—Japan owes much of the beauty of its temple gardens to the *Cryptomeria*. The Sugi, as *Cryptomeria japonica* is called in its native country, is the most generally planted timber tree of the empire, and its wood is more generally used than that of any other conifer. It is one of the commonest trees in all temple gardens and in many roadside plantations, and sometimes rises to the height of 125 feet, with a tall trunk tapering abruptly from a broad base, covered with bright cinnamon-red bark and crowned with an irregular conical dark green head. In beauty and majesty of port it has no rival except in the *Sequoias* of California. The wood of the Sugi is coarse-grained, with thick layers of annual growth, dark red heartwood and thick pale sapwood. Easily

worked and strong and durable, it is employed in all sorts of building. The bark, which is always carefully preserved when the trees are cut, is used to cover the roofs of houses. *Cryptomeria japonica* does not really thrive in Europe or in the United States, and although it was first sent to Europe more than fifty years ago, I have never seen a promising specimen of this tree outside of Japan. It is fairly hardy even in the neighbourhood of Boston in sheltered and well-protected positions, but never looks truly happy in regions which might be supposed to be much better suited to it than Eastern Massachusetts, like the South Atlantic States, Southern England, and the Italian lakes, a district where nearly all conifers grow more freely probably than in any other part of Europe.

TAXODIUM DISTICHUM.—The pride of our southern coast forests, and one of the largest and most valuable timber trees in the world, *Taxodium distichum*, in spite of its semi-aquatic habit and southern home, has proved a first-rate park and garden tree, showing the vigour of its constitution in its ability to flourish when transplanted to dry ground in climates of severe winter cold and summer drought, like that of Eastern Massachusetts, where several specimens have been growing for seventy or eighty years. Up to the present time, however, the Bald Cypress has retained in cultivation its rather formal pyramidal habit, and I have never seen a cultivated tree which showed any indication of assuming the mature form with low, broad, flat crown of wide-spreading branches which distinguishes this tree in its native river swamps, and which, raised high above dark waters on its stately buttressed trunk, makes it one of the most majestic and impressive trees of our forests. There is a form of the Bald Cypress in gardens with pendulous branches (*var. pendulum*), which is a distinct and handsome plant.

THE MEXICAN BALD CYPRESS (*Taxodium mucronulatum*), which was first distinguished from the tree of the Southern States by an Italian botanist who studied a cultivated plant in the Botanic Garden at Naples, is possibly a distinct species, although when more thoroughly known it may prove to be a mere geographical form of our tree.

A GIANT THUJA.—A portrait of the base of the trunk of a remarkable specimen of the so-called Red Cedar of the north-west coast (*Thuja plicata* or *gigantea*) is published in a recent issue of *The Pacific Rural Press*. This tree stands near Snoqualmie Falls, on the Seattle and International Railway, and the circumference of the trunk at the ground is given as 100 feet 7 inches. As this is one of the showiest-growing of the western conifers, this tree has probably lived for more than 1000 years.

WOOD OF TULIP TREE.—In the display of timbers representing 118 varieties made at the Nashville Exposition by the Nashville, Chattanooga, and St. Louis Railroad, and occupying 10,000 square feet of floor space and a large outside area, are two remarkable specimens of Yellow Poplar (*Liriodendron tulipifera*). One of these is a log 42 feet long, 10 feet 4 inches in diameter at the butt, and 7 feet in diameter at the smaller end. This specimen contains 1260 cubic feet and is about 600 years old. The other specimen is 48 feet long with an average diameter of 7 feet.

PRUNUS MAXIMOWICZI has been raised in the Arnold Arboretum from seeds brought by Professor Sargent from Northern Japan, and although it has not yet flowered in this country, it gives every hope of success here in its rapid healthy growth and perfect hardiness. At the end of October the plants were conspicuous from the scarlet colouring of the leaves, which are even more brilliant than those of *Prunus Pseudo-cerasus*, its associate in the forests of Yezo. Of the deciduous-leaved trees entirely new to cultivation, this Cherry is certainly one of the most promising and interesting.

ENKIANTHUS CAMPANULATUS, the representative of a small genus of Southern and Eastern Asia, is

one of the most beautiful flowering plants in Japan. In its native forests it is a tree occasionally 30 feet high, with a trunk sometimes a foot in diameter, covered with smooth, light red bark and abundant campanulate *Andromeda*-like white flowers borne in elongated, many-flowered, racemose panicles. Raised in the Arnold Arboretum from seeds gathered by Professor Sargent in 1892, it has so far proved hardy in the climate of Massachusetts, although, of course, it is too soon to form any opinion of its real value as a garden plant in this country. During the last week of October the plants in the arboretum were particularly noticeable from the brilliant colour of the leaves.—*Garden and Forest*.

MARKET GARDENING.

THE TROPICAL SUMMERS OF 1896-97 : THEIR EFFECTS ON THE FRUIT TREES AND FRUIT CROPS.*

IN reviewing the many-sided effects of the tropical summers of 1896-97, the facts range themselves as favourable and unfavourable. The tropical heat, combined with drying winds, and the general absence of rain during the spring months of the period under notice, dried the soil to an unusual extent; and although in 1896 abundant autumnal rains fell, in 1897 the months of September and October were the driest known for years. The effect of the heavy rains of the autumn of 1896 was felt in the activity of the sap and the remaining of the foliage on fruit trees rather later than usual, and consequently the trees did not get that rest which is as necessary for the vegetable world as for the animal creation; and I agree with Mr. R. D. Blackmore that the general failure of fruit crops of 1897 was largely due to that cause. The want of power in the trees themselves to lay up that necessary nutriment, and ability to perfect embryo fruit-buds, was arrested at a critical period, and, as reported in the gardening papers, many cases of imperfect blossoms were noted in fruits, and doubtless many more facts would have been discovered had they been suspected and looked for. To outward appearance the blossoms were perfect, the corollas being bold, as usual; but in many individuals either stamens or pistils were wanting, and no doubt also the upper or fruit-nourishing roots suffered from the want of surface moisture, and thus were prevented from doing their work—while lower anchor-roots struck deeper and deeper to gain moisture and sustenance for the development of the tree, making the subject less fertile, and adding gross wood to all garden trees. Thus trees were found to require root-pruning more than usual to restore that relative balance of fruit and wood-producing power which a well-managed fruit tree should exhibit. In orchards (especially among young trees) the want of fruit is a distinct benefit, as the trees are then enabled to grow strongly before starting to crop, and a foundation is thus laid for full development and after-success; as if a young orchard tree commences to crop in its earlier stages, its after-growth is checked for years, and in the future such checked trees produce peeks where bushels of fruit should be garnered. In the dry autumn of 1897 matters were different, and the glorious and gorgeous colours of the foliage on Cherries, Peaches, and Nectarines, the fine russet-brown of the Apple foliage, and the golden Plum leaves lead us to infer that Nature's work has been well and truly done, and with a fair spring a good all-round crop may be anticipated in 1898. Although from a nurseryman's point of view the shorter and stouter growth fruit trees made in 1896-97 meant some loss and extra expense in staking for standard trees, &c., still the growers cannot fail to be great gainers in having the wood of fruit trees well ripened, as heavy

* A paper read at a meeting of the Horticultural Club on Tuesday, the 11th inst., by Mr. George Bunyard, The Nurseries, Maidstone.

frosts tell much less severely on such perfected trees. If this is felt in the south, how much more must it benefit planters who live in the mid-land and northern counties! The pretty fruit shown by Mr. Day, from Galloway, and the grand Pears from Mr. Divers, Belvoir Castle Gardens, sent to the Royal Horticultural Society, bear out this fully.

COLOUR IN THE FRUIT.

The fruit of the Jubilee year, 1897, will be remembered more for its remarkably high colour and development than for great size. Many examples submitted to me have been more beautiful than in former years; for example, crimson Blenheim Orange Apples, Warner's King, and other green Apples with scarlet flushes on the sunny side, and Doyenné du Comice and other Pears with lovely red cheeks; while many Russets have lost their character and come out with golden skins, only broken here and there with russet. Many of the less hardy Apples, as Lord Suffield, Ribston and King of the Pippins, with Glou Morceau, Bergamote d'Esperen, Gansel's Bergamote, and other Pears, have been so handsome and good, that planters have called for them freely, forgetting that they are not to be relied upon (as a rule) for freedom from canker or remarkable for quality. Their extra good appearance, flavour, &c., point a moral, and doubtless we ought to place these and similar good but variable Apples on walls or in warmer places. Apples of the type of American Mother, Melon, Scarlet Nonpareil, Allen's Everlasting, Duke of Devon, Sturmer Pippin, with those that do not always ripen well, as Calville Blanc, Boston Russet, Calville Rouge, Chatley's Kernel, Reinette du Canada, and Dutch Mignonne, with Beurré Diel, Bergamote d'Esperen, Olivier des Serres, Beurré Rance, Beurré Baltet, President Osmonville, Easter Beurré, Zéphirin Grégoire, &c., Pears, would not be out of place on many walls which are well situated, and now devoted to a doubtful crop of Peaches or Nectarines, especially those old walls, unpainted and full of nail-holes, one often sees in gardens, where choice Pears and Apples would flourish and give good results. The extended use of large and handsome Apples for decoration should lead growers to place Peasgood's Nonsuch, Buckingham, Belle de Pontoise, the Queen, King of Tomkins County, Twenty Ounce, Gascoigne's Seedlings, &c., on walls for this purpose.

One special feature of the 1897 fruit crops was the general success of the British raised varieties, such as Nonpareil, Northern Greening, Wyken Pippin, Blenheim Orange, Devonshire Quarrenden, Yellow Ingestre, Stirling Castle, Wellington, Ecklinville, Kerry Pippin, Keswick Codlin, Winter Queening, Nanny, Hornead's, Lane's Prince Albert among Apples; and Hessele, Althorp Crassane, Hacon's Incomparable, Bishop's Thumb, Pitmaston Duchess, Crawford, Aston Town, Eyewood, and Knight's Monarch among Pears, causing a demand to arise for trees of many old and superseded kinds, which for market purposes are yet valuable. The general crops on the Codlin and early Apples and Pears need only be noted to state the fact that such kinds have time to recover themselves after the fruit is gathered, and so prove regularly fertile. Exceptional prices have been made of some fruits. In my district, Devonshire Quarrenden, Ingestre, and Ribston Apples have sold well (one grower selling 100 bushels of the last as gathered at 14s. 6d. per bushel), while Cox's Orange Pippins made up to 25s. per bushel retail; and Wellington, with a Peach-like colour, made 10s. 6d. wholesale. As might be expected, the heat and drought have caused all late Pears to ripen months before their usual season, and by the time this is in print many fruit rooms will scarcely have a Pear in them; at present Olivier des Serres and Beurré de Jonghe, with a few Easter Beurré from open trees, are all I possess. But I am inclined to think thorough ripening will allow Apples to keep as late as usual, while they will certainly not be so large examples—in short, beauty will compensate for mere size.

PEACHES AND NECTARINES.

Perhaps no outside fruit felt the grand weather of 1896-97 more than Peaches and Nectarines on walls. The trees made that reddish wood so dear to the cultivator's eye and the crop set well, and the fruit where the trees were copiously watered grew out to a fine size, and coloured to perfection, raising the almost lost hopes of many old gardeners to encourage them to persevere in their open-wall cultivation; those who had late Peaches made long prices, as the fruit under glass was forwarded by the heat, and thus made a market for the outdoor crop. Peaches and Nectarines are yearly more in demand. I attribute the failure of the Plum crop to the causes already named. Plums, by their surface-rooting nature, would naturally be affected more than deeper-rooting fruits. I cannot refrain from again cautioning gardeners against relying on a few varieties for an annual crop; and the best kinds for quality should be planted in various positions to ensure a return, and also to lengthen the season of each kind. Market growers naturally go in for the sorts favoured by the public, but I am inclined to think many less known but reliable croppers should be introduced. Strawberries, Raspberries and bush fruits generally cropped where good deep cultivation was practised.

In conclusion, it is evident that cultivators should do all in their power to utilise all the sunshine possible, and the protection they possess added to careful thinning of boughs and fruit, giving liberal encouragement to the trees that crop, and not over-feeding those that are barren.

ROSE GARDEN.

ROSES DOUBLE BUDDED.

We are frequently reminded of the advantages to be derived from double grafting certain varieties of Pears, but one seldom hears of the system being recommended for Roses that are shy flowering or weakly in growth. Cloth of Gold is probably the most difficult Rose the Rose grower has to contend with, not so much as regards its growth as the paucity of blossoms it yields. We read of it flourishing under the name of *Chronatella* in various favoured spots on the Continent and in semi-tropical climates, and this does not cause us surprise when we consider the thorough ripening the wood receives. Some years ago I budded this lovely old Rose upon a one-year-old plant of Cheshunt Hybrid that had been budded upon the *De la Griffierie* stock. The Cheshunt Hybrid had made two strong growths, and in early August the buds of Cloth of Gold were inserted at the base of these shoots. The following February all the growths of Cheshunt Hybrid were removed as far down as the inserted buds, and by the autumn two strong shoots of Cloth of Gold were produced. The plant was carefully lifted and planted into a tub in a cold house for the winter. During the summer this house was kept close and moist for other subjects, air being freely admitted by September. The result of this treatment was a splendid crop of ripened shoots. No pruning whatever was done, merely spreading out the shoots the following spring, and never have I seen such a grand crop of blossoms from a three-year-old plant as I obtained that year. The flowers were lovely, every one perfect in form and delicate in colouring. I feel convinced the double budding, aided certainly by the thorough ripening of the shoots, and the let-alone system of pruning was the chief factor in giving this superb display.

I would recommend any lover of this old variety to bud a few this coming summer on to some vigorous young climbers growing upon walls, and if possible have them removed

and grown under glass, and they will be amply repaid, for, apart from the incentive natural to every gardener of producing what has hitherto been considered difficult, he will have a Rose that even to this day is unsurpassed for beauty of form and purity of colour.

A friend of mine some years ago was always enabled to exhibit Cloth of Gold in fine form, and he said his flowers were produced from buds inserted into young, vigorous shoots of an old established plant of the yellow Banksian Rose growing upon a south-west wall. The roots of this Banksian were in close proximity to an old cesspool. It was a marvellous plant, full of vigour, and always flowered most abundantly. The young shoots that had been budded were removed as far down as the inserted buds, otherwise the Banksian was not interfered with. P.

Rose Bridesmaid as a winter Rose.—This Rose remains unequalled as the best pink variety for winter blooming. It must, however, be remembered that this only applies to the winter months from November to March, for with the advent of spring comes a demand from the florist for the pale and lovely Catherine Mermet. It becomes, therefore, necessary for the grower to retain both varieties. Some recent kinds, such as *Maman Cochet*, will never dethrone these two beauties from their proud position of being the best pink varieties for early forcing. *Maman Cochet* opens much too slow ever to be of any value to the grower for market, however grand it may be for the exhibitor.

Renovating climbing Roses on walls.—Now would be an excellent time to rejuvenate such climbers as are showing signs of becoming worn out. Remove about a cartload of the old soil, taking care to save every small fibrous root. The tap roots, or at any rate some of them, may be severed. Replace the soil removed with some good compost consisting of three parts unsifted maiden loam, one part two-year-old cow manure and a sprinkling of lime or old mortar, charcoal and crushed bones or bone-meal. Lay the roots out as carefully as if a Vine was being planted and tread soil in firmly, afterwards mulching with some well-decayed manure. The result following this treatment will quickly be manifest, and instead of small, puny flowers we shall obtain quantities approaching exhibition form.

Rose Mme. Isaac Pereire.—From this beautiful Bourbon Rose I gathered the first week in December some very good blossoms. Although perhaps Roses have been exceptionally late this year, nevertheless at the time stated there were very few other varieties yielding buds. I should mention that the plants of *Mme. I. Pereire* were on their own roots. It becomes more clear to me each year that Roses on their own roots are the best to give a succession of flowers. The colour of the blossoms is vivid carmine, and the very vigorous growth and splendid foliage single it out as a most worthy variety to grow as a standard, for it makes a splendid head, a point never to be lost sight of when planting standard Roses. It is also very successful in pillar form or for massing. As it seeds freely one may reasonably expect some good offspring from a Rose that has already given us that superb variety, *Mrs. Paul*.—P.

Rose E. Veyrat Hermanos (Tea).—New varieties of climbing Roses are very slow to establish their claims upon rosarians, for their true character cannot be developed under three or four years. Those who were fortunate to see the above Rose flower last summer immediately resolved to obtain a good stock of it. The flowers have a certain resemblance to those of *Comtesse de Nadaillac* and *Jean Dueher* when these Roses assume their best bronzy yellow tints. One cannot well give a Rose a better character than this, and I shall be much surprised if this variety does not speedily take a leading position. It

should flower well from two-year-old standards where the growths are left almost intact, but of course this remains to be proved. Generally speaking, climbing Teas are best grown as standards, the more so if wall space is limited. The raiser of the Rose under notice is *M. Bernaix*, and he has already given us some useful kinds, such as *Claire Jacquier*, *Adelina*, *Viviand Morel*, *Mme. E. A. Nolté*, and *Josephine Marot*.

Roses of l'Ideal type.—It is not surprising that these Roses invite attention. Novelty of colour in flowers appears to be the predominant attraction, and in l'Ideal we certainly have a unique shade of colour. Not content with giving us this lovely Rose, the French raisers have produced two or three varieties that somewhat approach l'Ideal in tinge. *Dr. Rouges* is one of these. Its colour is deep red with orange shading. The buds are long and handsome. Another beautiful variety is *Beauté Inconstante*, with flowers of fair size and of an intense hue suffused with coppery orange and scarlet. The blossoms vary considerably, many of them coming of a pale creamy colour on the plant that bears the coppery scarlet flowers. Yet another Rose of the same type is *Wasily Chudoff*. This is described as coppery red tinted with yellow, and as it was introduced by the raiser who sent out l'Ideal, it should prove to be a worthy acquisition. —P.

KITCHEN GARDEN.

BROAD BEANS.

THERE are now so many varieties of these catalogued that unless one is well acquainted with them it is puzzling to know which to select. There are, however, at least half-a-dozen varieties grown in our gardens now that were in existence at the commencement of the present century, thus showing that this vegetable does not degenerate so quickly as some others. The improvement has not therefore been so rapid as one would have thought, considering what a favourite vegetable it is with some. There can be no doubt that of late a much greater advance has been made, both in the long-podded and Windsor varieties, but from observations it takes a long time to make any marked improvement by selection, and this can only be accomplished by a careful study of the habits of the plants. There may be a trifling difference both in colour of foliage and habit, but it is so slight that none but a careful observer would notice it. After several years' selection of the finest pods of the most distinct character the type becomes fixed, and may then be said to be an improvement, such as is observed in the *Masterpiece Longpod*. It was once the practice to sow the *Early Mazagan* and *Dwarf Fan* in November, as it was thought the others were not sufficiently hardy to withstand the winter, but I have never known any of the Longpods suffer during winter unless they have been too forward. It is, however, well in exposed places to afford them some shelter in severe weather in case the cold, biting winds we sometimes experience should seriously injure them. I have sown Broad Beans early in November and transplanted them in February, when the weather has been mild, with marked success. This transplanting caused a check which was beneficial to the plants, rendering them less sappy. If sown in the autumn, except in favoured places, it is far better to dibble the seeds in a few inches apart each way, and afterwards transplant them in rows. I have tried many methods to get a forward crop, but have found none better than that just described. When the seed is sown in boxes, unless the plants are thoroughly hardened off before being planted out, they are sure to suffer should a severe frost follow,

while if grown in the open there is no risk of having the plants drawn up before being transplanted. It is a common practice to grow this crop too thickly together, whereas if more room were allowed them there would be a better chance for the flowers to set more freely. If a double row is planted in February or March, the two lines forming this ought not to be a less distance from each other than a foot, and a space of 9 inches should be allowed between every plant. Where the ground is in good heart this will be found none too much, as the plants will grow strongly. Early-planted Beans usually make a number of offsets close to the ground; it is, however, advisable not to allow these to remain, as they take the nourishment from the main stem, and as they would not grow so strongly are frequently broken off or fall over when in flower, the consequence being the seeds do not swell so rapidly. If they are removed early the main growth will stand upright and set a quantity of flowers at each joint. These early sowings or plantings always grow stronger than those made later in the season; for this reason a greater distance should be allowed them.

Successional sowings should be made about every three weeks till July. These late sowings, however, are sometimes very troublesome, as the Broad Bean does not thrive on a hot, dry soil. Given a stiff, retentive, moderately rich loam, good crops may usually be had till late in the autumn, but on light, dry soils in the south they make but slow progress in hot weather. When the plants have attained a height of 30 inches or 3 feet the hearts should be taken out of them, as this will induce the flowers to set more freely and prevent the black fly to a great extent from doing serious damage, as it is in the points of these shoots that they mostly harbour, the young leaves overlapping each other making it difficult to dislodge them. There are now so many good varieties of Longpods that the Windsors are but little grown. The former, being much more easy to grow, are more productive and find favour on the exhibition table, but the Windsors are certainly the best flavoured. Had there been as much improvement made in these as there is in the Longpods, they would doubtless have still held their own both in private gardens and market gardens. The ground for Broad Beans should be dug in the autumn, that it may settle down before planting time, particularly if of a light, sandy nature, as it would be too loose for the well-being of this crop if turned up in spring. Care should be taken in gathering. It is far better to use a sharp knife, and take only those that are ready, instead of pulling all off together that happen to be growing in a cluster. H. C. P.

Pea May Queen.—This is one of the very best of the early Marrow varieties and should be largely grown. It is good in the open air, or it may be grown in boxes under glass, and is sure to give satisfaction at the table. The haulm is fairly strong and reaches about 3 feet in height, and, if thinly sown and otherwise properly cultivated, will be covered almost from the ground with the characteristic long, broad pods. Such Peas are far preferable to the Ringleader type and equally early, plants raised under glass in February and planted out being ready to gather from early in May.

Potato Windsor Castle.—This popular kind is one of the few Potatoes that turn out of good quality in a heavy, moist soil. It is one of the most useful anywhere, for not only are the tubers of good quality when dry, but if kept properly they are equally as good far into the new year. Here it is far less liable to disease than Magnum

Bonum, and it possesses a hardness of constitution that is wanting in many other good Potatoes. Out of half a dozen second early kinds tried last season, this was the best in cropping and quality, though the seed has been grown in the same garden several years in succession.—H., *Suffolk*.

Sowing Radishes on early borders.—Where it is desired to make the most of small, early borders, Radishes may be sown in alternate drills with the smaller early Carrots, the Radishes being off the ground before the Carrots need much room. I know some growers object to sowing Carrot seed too early outside, but the covering necessary for the Radishes protects it, and I have never had it fail. In the west of England many of the market growers sow Parsley as well, the other crops being pulled and the Parsley transplanted, one row always containing sufficient plants to make two.—H.

Italian Corn Salad.—Where frame and house-room is scarce, this should be largely grown for salading during the first three months of the year. It may, of course, be used all the year round, but in summer, when Lettuce is plentiful, it is not always so much appreciated. The best position is on a sheltered border, and the soil should be in good heart, but not over-rich, the aim being to get strong, yet hard plants that will stand any reasonable amount of frost. For early spring use the seed may be sown thinly in drills at the latter end of August, other sowings being made at intervals from February till June if required in summer and autumn. Keeping the soil free of weeds is all the attention afterwards needed.

Dwarf kidney Beans.—Rarely do we hear of efforts to accelerate dwarf Beans for early outdoor cropping by raising plants under glass to put out on to a warm border so soon as danger from frost is over. Yet it is very evident that if seed of any good variety for the purpose—Mohawk, Ne Plus Ultra or Long-podded Negro—be sown singly in small pots early in April and placed in a gentle warmth, yet in ample light, very stout, sturdy plants may be had ready to put out by the middle of May, especially if previously somewhat hardened by exposure in a cold house or frame. Plants so treated would be fully three weeks in advance of any sown outdoors at the end of April, and being somewhat potbound, would naturally turn in to fruit early also.—D.

Size in vegetables.—Arising from a discussion as to the relative merits of large & small Brussels Sprouts, a protest was raised some little time ago in THE GARDEN as to the ever-increasing size in vegetables. I can understand anything that is coarse being shelved, but, given an equality from a quality standpoint, I think the largest productions will always stand first. The note has arisen from a few plants of a variety of Brussels Sprouts that are new to me appearing this year in a batch of Paragon, a good strain for late work. From the 300 or 400 put out I have selected, perhaps, half a dozen, the plants below average height, sturdy and compact, with very thick stems, the sprouts very large, nearly 2½ inches long and 2 inches in diameter. A peculiarity of the strain is a blue-grey tinge, pervading the whole plant. The sprouts are of excellent quality, as mild as can be desired, size certainly not being in this case allied to coarseness. Just the same conclusion was drawn in the case of the garden Drumhead Cabbage. It is a large type averaging, with good cultivation, 10 lbs. each, and yet, well cooked, every whit as mild as the best Tom Thumb Savoy or St. John's Day Cabbage. Four or five of the latter are as good as one Drumhead, that I admit, but the argument, again, as in the case of the sprouts, is that a big Cabbage is not necessarily strong, but, on the contrary, is as good as the smaller types, just as a Magnum Cauliflower is quite up to the mark of a small early Snowball, and although not holding a special brief for big vegetables, I do not think they should be condemned. Huge roots of Parsnips and Carrots are now available not from any specially prepared soil, but from seed sown

on the ground on which Celery was planted in 1896, with no further dressing. Is quality in this case sacrificed in favour of size? Not a bit of it, and the extra weight secured is a decided advantage where a large supply is required. Once again, from a big quarter of Red Globe Turnip I have pulled and tried two distinct types of roots, the one very large, the other of medium size. There is absolutely no difference in them, the extra sized roots are as firm and solid, and cook just as well as the others.—E. C. B., *Claremont*.

NOTES OF THE WEEK.

Funkia rindulata fol. var.—If started early into growth, this pretty form will be found most useful in the conservatory or elsewhere for its effective foliage, which when grown under glass protection is even brighter than is usual in the open ground.

Epacris Vesta.—This, with its spikes of snow-white blossoms that are very freely produced in quite small plants, is among the most useful of this group in winter. Plants of two years' growth, and little more than 18 inches high, are very useful at the present time.

Eupatorium odoratum.—This useful plant is grown in large numbers at Syon House, where it is found of great service by reason of its simple cultural requirements and its adaptability to early forcing generally. It is an excellent plant when grown into large bushes.

Camellia Monarch.—Though given to sport in some of the flowers, this handsome kind is among the most striking and attractive at mid-winter, when the brilliant crimson-scarlet blossoms, which are also of large size, are most effective. The fine glossy foliage and vigorous habit enhance the value of this, one of the showiest of its tribe.

Fourcroya cubensis Lindenl.—A very handsome specimen of this in the succulent house at Kew attracts attention. One of the larger examples in a square wooden box has the variegated parts most pronounced, and being raised to a good height by the receptacle containing it, forms a rather conspicuous feature. The massive leaves are of considerable length, and being well coloured are very striking.

Lenten Roses from Fontainebleau.—M. Dugourd, of Fontainebleau, who has raised many fine varieties of these, sends us some fine blooms, mostly richly spotted and handsome dark plum-purple kinds. The mild season has hastened their blooming and given the early blooms greater size, but no matter what the year, these plants are always ready to open their flowers before the winter goes.

Eranthemum pulchellum.—This old-fashioned greenhouse plant is not so often seen as formerly, though it is still worth a place for the sake of its effective colour. It also makes a capital subject for winter flowering when grown for this purpose, and being of easy culture, good plants are readily formed. The spikes of rich and bright blue flowers are very attractive among the other occupants of the conservatory at this season, and where the plants have been stopped once or twice in the season of growth are produced freely also.

Rhododendron Lord Wolseley.—In the clear orange apricot flowers of this kind there is a distinctness of colour by no means common, and which at once attracts attention. It is one of the many javanic hybrids, and evidently a free-flowering winter variety also, the heads of blossoms being of good size and compact. Very distinct, too, is one called Sybil, a sort of rose-cerise shade, while Aphrodite is of that delicate blush and pink shade that is ever pleasing to a large number. These are just now very attractive, and flowering as they do in quite small plants, are acceptable in many ways in the greenhouse, where they continue a long time in good condition.

Veltheimia viridifolia.—This is one of the most interesting bulbous plants now in flower, and a plant by no means so frequently seen as its merits deserve. Even for its beautifully undulated leaves the plant is worth growing, yet apart from this it is a very free-flowering plant also.

Quite ordinary-sized roots will produce a single spike of flowers, and with increased strength this may reach to half-a-dozen or even more. As the age of the plant increases offsets are produced about the parent root, and these in turn each produce a spike of bloom. The flowers are produced in a large terminal spike or raceme, and closely clustered together in considerable numbers. The flowers are reddish and sometimes spotted, pendulous, and borne on a stout stem $1\frac{1}{2}$ feet above the handsome tuft of wavy leaves. A very cool greenhouse is ample for the requirements of this useful plant.

Filmy Ferns.—At a meeting of the members of the Sunderland Gardeners' Society, held lately, Mr. G. W. Fowler, an amateur, exhibited a magnificent collection of Hymenophyllaceae, grown under cold treatment, showing that this lovely class of Ferns can be grown well under adverse circumstances. The following were the specimens shown: *Hymenophyllum tunbridgense*, *H. unilaterale*, *H. cruentum*, *H. chiloense*, *H. demissum*, *H. dcissum* var. *nitens*, *H. polyanthos*, *H. fucoides*, *H. caudiculatum*, *Trichomanes radicans*, *T. venosum*, *T. exsectum*, and *T. auriculatum*. I think the above worth notice, as showing what can be done with this beautiful class of Ferns under quite cold treatment—a sunk frame outside matted up during frost. These plants are easily grown in a damp frame, giving very little trouble. — P. N. FRASER, *Rockfield, Murrayfield, Edinburgh.*

Chrysanthemum W. H. Lincoln.—This still occupies a good position, not only as an early kind, but as a late variety also. Quantities of its flowers are now marketed in October in good condition, while yesterday, January 16, I cut the last of the season's supply. These were from cuttings inserted in April and May last, the last-named batch having been produced in the open, and therefore sturdy and strong. I have often had excellent blooms as late as the 10th and 12th of January by a similar method, which is worth adopting where very late supplies of blossom must be maintained. This variety, in my opinion, is a naturally late one, even though very early flowers are secured by special means. I fear many err on the side of too late stopping, and have blind buds as the result. Cuttings of the April batch grown without stopping at all yielded a good supply for the Christmas decorations.—J.

Cypripedium insigne.—While it is generally admitted that the flowers of this species with others also of the same genus last a long time in a cut state when removed from the plants, few would realise that flowers would keep quite fresh for weeks after being placed in water. On December 16 a few blooms kindly given me by a neighbouring gardener were placed in water in the sitting-room, while to-day (January 16) only two of the number are fading. Several others are quite fresh and plump, and in the two faulty blooms it was noted that the sheath of the scape first showed signs of distress. The flowers have been kept in ordinary water, to which the smallest pinch of salt was added. Once every week the water has been changed, a small portion being removed from the stem each time, the flowers being allowed to drain a few hours in a dry glass, which may possibly have assisted in keeping them so long fresh and sound.

Deutzia gracilis.—It speaks volumes for the popularity of any plant that is grown by the hundred in a private garden for the sake of its cut bloom. At Syon House the plants of this ranged from such as were suited to 6-inch pots and others up to 12 inches across. In one of the forcing houses there were at least one hundred plants in these varying sizes that quite early in December were just showing the points of the trusses. Many of the larger examples were fine bushes full of useful-sized twigs whose value can scarcely be overestimated, for whether required for cutting or for furnishing they will undoubtedly be of great service when in flower. It is one of several such batches that are each year forced into bloom. The whole of this

immense stock has been raised in the gardens at Syon, and a glance at the plants is sufficient to satisfy anyone of their value. In the large bushes there will be a long and welcome supply of material, and the graceful sprays of blossom are effective in any arrangement of flowers at this season.

Helleborus niger (Bath variety).—It is scarcely possible to conceive a more valuable variety than this from any or every standpoint. It is of excellent constitution, with pure white blossoms that are borne more freely than in any other of the generally cultivated *Helleborus niger* forms. In all these respects this valuable Christmas Rose is not only a fitting ornament for any garden, but equally so for cutting, where the large, handsome, and finely imbricated blossoms are sure to play a most conspicuous part. It may be used also as a pot plant for the cool greenhouse, but for such work it requires to be lifted rather early in August and potted so that the young roots may have an opportunity of assisting the foliage and flowers in due season. Such excellent kinds as this should not be sacrificed by lifting, potting and rushing forthwith into heated structures, but by selecting plants with good foliage and by a perfectly cool treatment allow them to prove their value to the full. Solitary clumps of this grand kind are now a feature in the garden. A fine display of its flowers may now be seen at Messrs. Barr's Long Ditton nurseries, where many hundreds of nearly snow-white flowers are at their best, several beds being devoted to this kind alone.

Californian Irises.—There still exists much uncertainty about these, and, in spite of all explanations and descriptions, we are not perfectly sure about their identity. About ten years ago I received from my friend Professor Foster, with special recommendation, two packets of seeds labelled *I. macrosiphon* and *I. bracteata*. This was late in the year, and after sowing these in pans I exposed them to frost; they germinated well in the ensuing spring, and I decided to prick them out into a border. This was a failure, and I lost a great many, only a few taking to the soil and making a little growth. Next year these went on well, and it is from one of these that the photo of *bracteata* published in THE GARDEN was taken. The description of Mr. Baker did not quite agree with it, neither did the colour of the flowers. After communicating with Mr. Purdy, he stated that he was quite convinced that my *bracteata* was a new species which Miss Eastwood was about to describe as *I. Purdyi*. He was afterwards good enough to send me a part of "Proceedings of Calif. Acad. of Natural Science," in which work *I. Purdyi* is described and exactly figured, but this figure does not by any means agree with my *bracteata*. I intend next summer to submit complete material to Mr. Baker, when the question will be finally settled.—MAX LEICHTLIN, *Baden-Baden.*

The weather in West Herts.—The past week was on the whole rather a warm one for the time of year. The 6th was one of the warmest days I have yet recorded here in January, the lowest temperature in the screen being 43°, and the highest 53°. On two nights the exposed thermometer showed 10° of frost. Both at 1 foot and 2 feet deep the ground is at the present time about 3° warmer than the January averages for these depths. No rain has now fallen for nearly a week. On the 7th the sun shone brightly for $5\frac{1}{2}$ hours, but since then dull weather has prevailed. The winter Aconite came first into flower in my garden on the 7th inst., which is seventeen days earlier than its average date of first flowering in the previous nine years, and earlier than in any of those years.—E. M., *Berkhamsted, January 14.*

— A week of very gloomy and changeable weather as regards temperature. On two days the highest reading in shade rose to 50°, but on two others it never exceeded 36°, and differences in the night readings were equally marked. At

2 feet deep the ground is now 3° and at 1 foot deep as much as 6° warmer than the respective averages for midwinter. No rain has fallen since the 5th, but on several days small measurements of moisture collected in the rain gauge have been made by fog. Throughout the week no sunshine at all has been recorded. *Crocus Imperati* came first into flower in my garden on the 18th, which is three weeks earlier than its average for the previous four years, and nearly a month earlier than last year.—E. M., *Berkhamsted.*

PUBLIC GARDENS.

Manchester improvements.—An important scheme has been propounded for widening the streets around the Manchester Royal Infirmary, and for setting out as an open space, to which the public shall have access, a considerable portion of the infirmary grounds. It is proposed that the Corporation shall purchase from the infirmary trustees about 12,000 yards of land at a cost of £286,000.

New recreation ground for Newport.—It has been decided to open next summer the new recreation ground given to the town of Newport, Isle of Wight, by Mr. Tankerville Chamberlayne in commemoration of the Queen's Jubilee. The Corporation intends to spend £1100 in making a road from the town to the ground. Mr. Chamberlayne has also sent 1500 trees from his Hampshire estates for planting round the ground.

Gift of land to Ventnor.—A meeting of the inhabitants of Ventnor was held in the Assembly Rooms on Friday night of last week to thank Mrs. Evans for her gift of several hundred acres of land on the Downs overlooking the town for the free use of the inhabitants for ever. Mrs. Evans is carrying out the wishes of her late husband in making this gift to the town. There are to be no restrictions beyond the prohibition of public-houses and the erection on the land of residential buildings. It is to be open and free to all.

Royal Gardeners' Orphan Fund.—We have the pleasure to announce that Mr. C. E. Keyser, of Aldermaston Court, Reading (formerly of Stanmore), will preside at the festival dinner of the Royal Gardeners' Orphan Fund, which will be held on April 20 at the Hôtel Métropole.

Veitch Memorial Trust.—At a meeting of the trustees, held on January 19, Dr. Maxwell Masters in the chair, it was unanimously resolved that medals for objects to be hereafter determined should be allotted for the present year, at exhibitions to be held at Bristol, Leicester, and Cardiff respectively. A sum of £20 was voted to the trustees of the Lindley Library towards the preparation of the catalogue now in progress. Medals were also allotted to M. Marliac, in recognition of his success as a hybridiser; to M. Ed. André, of Paris; and to M. le Comte de Kerchove, of Ghent, President of the Royal Agricultural and Botanical Society of Ghent, for their respective services to horticulture.

English Truffle hunters.—Will any reader in the southern counties or elsewhere kindly give me the address of an English Truffle hunter, or state the districts in which English Truffles are mostly found for the market?—R. G. C.

BOOKS RECEIVED.

"Culture of Vegetables and Flowers." Seventh edition. Sutton and Sons, Reading.
National Footpath Preservation Society. 13th Annual Report.

Names of plants.—C. J.—*Lonicera Standishi*. —T. R. Cuckney.—Your *Lavla* is a remarkable form of *Lælia anceps Sanderiana* with the colour almost wholly washed out of the lip. It is very distinct.

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FLOWER GARDEN.

NOTES FROM CARSETHORN, N.B.

ALTHOUGH the weather for a considerable time has been unusually mild for the season of the year, flowers have not made the progress one would have anticipated. The rainfall has been excessive, and the soil consequently sodden with moisture. There has also been remarkably little sunshine, so that the winter-flowering Croci have been unable to open. *Crocus hyemalis Foxii* has had its blooms destroyed by rain without opening, and, unless the weather takes a change for the better, some of the others will be in no better plight. Still, their little flowers, closed though they are, look bright and cheery amid the gloom which so much rain casts over the garden. *Crocus vitellinus* is among the deepest coloured of the yellow varieties at present in bloom. It is sometimes called the *Yolk of Egg Crocus*, but it must be said that it is even brighter and deeper than the shade we generally associate with this. Another English name might be more pleasing to the ear. The lighter yellow blooms of *C. ancyrensis*, the *Angora Crocus*, are also open, but a raid of slugs, aided by worms, made havoc in the small clump of flowers. *C. Creweii* is also ready to open with a brighter day. The fawn-coloured striped exteriors of the outer segments are not particularly noticeable in this dull weather, but the opened flowers will be pretty with their white ground, yellow zone, and black anthers. *Harpur-Crewe's Crocus* is a rare one, for which I have been indebted to Mr. James Allen. *Crocus Sieberi* is also ready to open, together with the variety *C. Sieberi versicolor*. Several of the varieties of *C. chrysanthus*, which is usually one of the earliest Crocuses of the year, would open were a bright, sunny day granted us. Among the prettiest of these in its unopened stage is *C. c. albidus*, with white and purple exterior. *C. aureus* is also very far

advanced. *Crocus Imperati* is very late, and the only flower ready to open is one on a seedling from seed I saved in 1893. This is much earlier than any from the same sowing, or any others of the same species in my garden. I observe, however, a few in a clump of imported corms which will soon follow. *C. garganicus* is ready to open in favourable weather also, as are a number of varieties of *Crocus biflorus*.

Within the past few days the Snowdrops have made rapid progress, and a considerable number have now reached what I always consider their flowering stage, viz., when they first droop their flowers. The so-called autumn Snowdrops are very late, and such as *Galanthus octobrensis*, *G. coreyrensis*, and *G. Elsie* are only in full bloom at present. *G. Elwesi*, from several quarters, is also in bloom. Among the earliest varieties of this fine Snowdrop is *G. E. muciculatus*, kindly sent me by Mr. Whittall a few years ago. Mr. Allen's fine early seedling named *Aurora* is also in flower. *G. Kilkenny Giant*, a variety more noticeable for its stature than its beauty, is also in bloom. One of the finest of all our Snowdrops, *G. Imperati* var. *Atkinsii*, is well advanced, and the pretty little Snowdrop, *G. flavescens*, with yellow markings and seed vessel, is well in flower. *G. Alleni* is well forward, too, and *G. plicatus Fraseri* will soon be in flower as well. One could considerably extend this list, but must forbear. The winter Aconite has been in flower for some time, and its simple yellow flowers are always seen with real pleasure. *Erica carnea* and its white variety are now assuming their prettiest appearance, and a few flowers on *Othonopsis cheirifolia* and *Doronicum caucasicum* add to the brightness given by the colour of the yellow-flowered Crocuses and the naked-flowering Jasmine. The pretty little *Hyacinthus azureus* or *Muscari azureum* (*H. ciliatus* of the Kew Index) is showing its azure spike through its enveloping leaves, and the bright red flowers of *Cyclamen coum* are gay, though small in size.

It is as yet hard to tell which of the Daffodils will be the first to bloom. The little *minimus* is often one of the earliest, but an examination to-days leads one to think that there may be a race between it and *pallidus præcox*, *cyclamineus major*, *Henry Irving*, and the *Saragossa Daffodil*. Any one will be welcome when it first opens. A note from Mr. Allen informed me that he had *Scilla sibirica* open in December, but here I cannot as yet see it above the soil. This is a little surprising, as Primroses have been more or less in bloom all through the winter. I have even had an almost perpetual-flowering double pink Daisy in bloom for several months, and a few Christmas and Lenten Roses and Wallflowers have been in sight as well. However, the interest of the garden has fairly begun, and soon we shall be almost overwhelmed with the beauty and variety of the flowers before us.

January 20.

S. ARNOTT.

FLOWER GARDEN NOTES.

PROPAGATING.—Some thirty years ago spring propagating for the flower garden would mean the multiplication of Geraniums, Calceolarias, Lobelias, and things of similar nature in their thousands, but this is now becoming rarer with each succeeding year, and in many cases the few tender things used are obtained by the aid of a pinch of seed. Spring or, perhaps more properly, winter propagation is now mainly confined to the increase of these particular varieties of perennials (in their respective species) that have proved thoroughly reliable for the flower garden and is carried out by cuttings, division, or from seed. Things obtained from seed were treated of earlier in the year under the heading of annuals, and embraced the majority of perennials that from various causes are in certain gardens accorded annual treatment. Of others whose propagation is accomplished by cuttings or division it may be said that the method employed will depend on the quantity required. If only a small quantity, then division is naturally the best, giving, as it does, good results at a cost of little time and labour, it being simply a question of good pre-

paration of the several places to be planted, then careful lifting, severance, and replanting. A sight of splendid masses of such things as Phloxes, Pyrethrums, herbaceous Lobelias, &c., with strong shoots pushing their way might seem to the novice to indicate that a rough-and-ready sort of division could very well be practised. If, however, the pieces are to be planted straight away in permanent positions it is well to avoid unnecessary mutilation and to cut the clumps through carefully, reserving for replanting the pieces with the strongest breaks. In all cases where cuttings are to be taken, and it is thought advisable to get on with the operation as early in the year as possible, a bit of rough litter should be thrown over the old clumps at the first sign of sharp frost. Whether the material employed be bona-fide cuttings or bits already rooted nipped off from the old stock, it is well to place them singly into pots. Soil turned out from Melon, Cucumber or Bean pits will answer the purpose admirably, and if a little on the stiff side, a bit of leaf-soil with some ordinary sand can be added. Place the pots on a firm ash bottom to avoid worms and slugs and just keep out frost with the aid of mats, Fern or some rough litter. Autumn-sown plants of hardy things now in seed boxes can be pricked out into frames as the weather will permit, making the soil firm about them and sprinkling coal ashes over if slugs are troublesome. Among the many things that can be obtained in this way I should like to refer to that very useful plant, *Statice latifolia*. I noticed a batch of seedlings flowering last autumn for the first time, and found that they varied very considerably alike as to the time of expansion, size both of individual flower and panicle, and also in the colour of same, the latter not to any great extent, although the difference in the shade was quite perceptible. There was nothing in the treatment that would account for the variation, as the plants were all growing under exactly similar conditions. Taking them as a whole, they were decidedly later than established clumps. After growing perennials in variety for some two or three seasons, the difference between those that will stand for many years with little deterioration and others that are all the better for annual, or at least biennial renewal is soon apparent. It may, however, be well to point out that there are few places in which things like the double Peach-leaved Campanula or, in larger plants, *Chrysanthemum maximum* will stand more than two seasons. Anything that during the flowering season shows signs of going down hill should by all means be renewed the following season.

SHRUB BORDERS.—I have gone through large borders devoted to small specimen conifers (as *Retinosporas* and *Thujopsis*) and a few useful shrubs to give the little pruning that is necessary to keep them within bounds, and any gaps that exist will presently be filled in with a few plants that are likely to show to advantage in company with those already established, for, given careful planting, there is no reason why borders of this description should not be rendered attractive as any other part of the garden. *Montbretias* and *Schizostylis*, for instance, are capital subjects to associate with the light and graceful foliage of *Retinosporas* and *Tamarix gallica* or the big plumes of *Hydrangea paniculata*, and occasional small clumps of *Sea Lavender* will complete the arrangement. Any pruning of the above description should be put into the hands of a man who knows his work, and, failing previous experience, he should have careful coaching. The use of the knife is often necessary, but there is a wide difference between judicious pruning and mutilation. It may be well also to give the reminder that an annual inspection is imperative; it is often difficult to make a satisfactory finish after two years' growth.

PEONIES.—The slight passage of arms over Peonies in the concluding numbers of last year's GARDEN possibly arose from the fact that my query was indifferently worded. Naturalisation in the fullest sense of the word, that is planting on turf, as we do Daffodils and other bulbs, with-

out previous preparation is impossible with me so far as Peonies are concerned, simply because with this soil they would never be satisfactory under these conditions. The aim is to form colonies of these and other families in certain portions of the pleasure ground from which old Laurels are gradually being removed. The opportunity will not offer of working in any manure, but prior to trenching the portions I shall put on a very heavy dressing of half-decayed leaves and let these be stored midway in the newly-trenched ground with the view to add moisture to the sandy subsoil. Once established, I think the Peonies will do well; the position is shady, and there will be little chance of drying out. I have as yet done very little with single Peonies. What is the duration of the flower in a cut state if the same is taken before expansion, and is there any difference from this standpoint between the different forms, such as *arietina*, *decora*, *officialis*, and *peregrina*? I am just planting varieties of each of these, also *Broteri*, and hope to report progress with the same later in the year. E. B.

Claremont.

ROOF GARDENING.

THE suggestions made by Mr. E. Jenkins on page 47 are of much value to those interested in this subject, and I hope to profit by some of the remarks made. The conditions of wall and roof gardening are, however, so dissimilar that it is necessary to proceed carefully unless prepared to lose a number of plants while the roof garden is in an experimental stage. The weight of soil and stones which can be placed on a roof without injury to the timbers is necessarily limited, and this tends to reduce largely the variety of plants which can be used with success. A thatched roof is more suited to the growth of plants making long roots than a slate one, and many flowers which would thrive on the former would be shrivelled up on the latter. Another important consideration is the water supply. Where this is ample and can be applied by means of a hose-pipe there will be little difficulty, but where, as here, water has to be pumped from a well and carried to the roof it becomes a necessity to select plants which will require watering as seldom as possible. The roof of my outhouse is fully exposed to the sun, and a few days' bright weather would shrivel up the *Aquilegias*. For the introduction of such plants as this, I believe, it is necessary in the first place to cover the portion of the roof with some of the trailing Stonecrops, and then to insert seeds or young plants in the soil below. The carpet of Stonecrop above prevents to some degree the roasting the other plant would receive were there only bare soil between its roots and the rays of the sun. Most plants grown in walls are cooler at the roots than one can secure on a roof garden such as that of which I spoke. They have also an opportunity of running their roots deeply into the wall by finding a crevice between the stones. On some walls it is difficult to establish plants other than those of the most succulent nature. I believe it is very desirable in roof gardening to see that the slates are entirely covered, so that the intense heat they absorb may not be communicated to the adjoining plants. The use of stones, as advocated by Mr. Jenkins, is, however, necessary with some plants, and we shall probably find sandstone the best to employ for the purpose as absorbing and retaining more moisture than many other stones. The weight is the great obstacle to the use of stones of any kind, but in addition to their use as warders-off of heat, they serve a good purpose in the formation of miniature terraces to prevent heavy rains from running off too quickly.

I am rather doubtful of success with *Saxifraga saneta* and *S. apiculata* in such a position unless water can be freely supplied in summer. As I have plenty of both, I shall be glad to try them, and may, perhaps, have a favourable report to make at another time. With a little additional soil, I think the *Helianthemums* suggested by Mr. Jenkins ought to do. A roof covered with these in full flower would be a picture indeed in early morning. Their beauty would be more evanescent than in a more sheltered place, however, as the wind would soon scatter their petals. In conclusion, let me thank "E. J." for giving so useful a note, which is all the more valuable as coming from one with so great an experience of hardy flowers. S. ARNOTT.

Carrethorn, Dumfries, N.B.

ERIGERON GLAUCUS.

AFTER reading Mr. Arnott's note concerning the above, in reference more particularly to the plate in Wooster's "Alpine Plants," it is obvious there is variation in foliage and flower in the separate numbers, a possible result of colour printing. In my copy, for instance, the foliage is mostly a dark green varying to a much paler tint here and there. This does not, of course, at all represent the slate-grey tone of the leaves in Nature, and which I refer to in my original notes as "glaucous." Nor does the colour of the flower-heads quite represent the true character of the plant. These, however, are details readily accounted for, and possibly difficult to exactly imitate in the past. Yet apart from these shortcomings there is unmistakable character in the ovate-spathulate leaves, and equally so in the leafy inflorescence, the sub-shrubby tendency, the woody stem so well shown, and not least the complete rosette of leaves and the manner in which the inflorescence emerges from the rosette. All this, with the rigid stem and shapely form of the flower-heads, shows *E. glaucus*. So far as absolute certainty in respect to the synonym *E. glaucus* with *Aster bonariensis* is concerned, I fear I cannot help Mr. Arnott, though it is quite possible there is confusion, seeing there is a species *E. bonariensis* noted as an annual in Loudon's "Hortus Britannicus," published 1830, as coming from Buenos Ayres in 1732. I note that Mr. F. W. Meyer refers to the plant growing at Exeter as having "long prostrate stems," which I take must be due to the position the plant occupies rather than its natural growth in the border. In the plants I have seen there is not the least tendency to a prostrate growth—rather the reverse, a character well brought out in Wooster's plate. I note the prostrate character of the example growing at Exeter, but while able to find a few leaves bearing the character of the true plant, the complete rosettes of leaves, that in *E. glaucus* can scarcely be hidden by the flower-heads, are entirely wanting in Messrs. Veitch's plant. I also observe Mr. Meyer gives July and August as its flowering period, while the plant I am referring to is distinctly a May-flowering species. Much of Mr. Meyer's note represents the plant referred to; at the same time there is such an absence of rigidity in the flower-stems and so much of the prostrate character Mr. Meyer describes that I am inclined to ask if the examples are identical. With a view to clear up the matter I have sent a small scrap to Mr. Meyer for comparison. E. J.

Feather Hyacinths.—These who have a very light soil to deal with will find the old Feather Hyacinth one of the most satisfactory things to grow. The finest display of this old hardy flower I ever saw was in a cottage garden the soil of which was almost pure sand, and which when it got dry to a depth of several inches never seemed to become moist again before the advent of heavy winter rains. In this garden there were big clumps of Feather Hyacinths, Star of Bethlehem, Tulips of various colours, and Crocuses, which had

evidently remained undisturbed for many years. They bloomed in their season in great profusion, the Feather Hyacinths being remarkably good, covering the ground with their flowers, which were borne on good stout footstalks. In many soils this pretty bulbous flower does not seem to be happy; in fact, in low-lying localities and where the soil is of a close nature it refuses to bloom. It evidently loves a warm porous soil and requires a lot of exposure to sun and air in order that the bulbs may become thoroughly matured.—J. C. B.

CHRYSANTHEMUMS.

PRESENT-DAY CHRYSANTHEMUMS.

ALTHOUGH coarseness is still to be found among the newer Chrysanthemums, it is satisfactory to see that the proportion of those which have nothing but size to recommend them is not large, and, on the other hand, there have been sent out during the past two or three years some excellent varieties which are very suitable both for exhibition and for home decoration. One point that deserves far more consideration than it gets is that of colour; there are far too many varieties boomed by their raisers and others that are very ineffective. Either they are washed-out looking flowers, or so many shades are combined in their colouring, that the result is not pleasing. Catalogue-makers go into ecstasies over the colouring of the "reverse" of the petals and how well it is shown in this and that flower, while, speaking generally, this showing of the "reverse" is a decided blemish except in flowers that are true selfs, and it is the latter which deserve most encouragement. Speaking of colour reminds me of a description which I recently saw of the new sport from Viviani Morel, named Lady Hanham, in which it was spoken of as "golden cerise with slight shades of gold, old rose, ochre and cream." Now Lady Hanham may be a most beautiful Chrysanthemum as far as I know, but such a description embodies to me a very bilious-looking object that few would care to see.

Of pure whites and yellows there are almost enough really good varieties, but clear and well formed selfs in other colours will still be welcomed. The following notes deal only with those newer varieties which I have grown, and this necessitates the omission of many that have been noted as excellent on the show-board. In writing of them as new, I hope I may not offend the susceptibilities of anyone, for I know that it is the fashion among specialists to relegate all varieties which have been in existence long enough to become fairly distributed to the "old" list. How else would they find room to boom so many new varieties, most of which only appear and disappear year by year?

I take first those varieties which have not pleased me, and among them all that much-belauded variety International is the worst. True, it is big enough, but I have not seen a flower worth looking at twice; the colour is too poor for words, and the flowers are very coarse. Lady Randolph is far too lumpy, but this is its only fault, for the plant is a good grower and the deep shade of amaranth is also good. A gracefully formed flower in this colour would prove a treasure. M. Georges Biron, generally described as crimson with gold reverse, might better be described as terra-cotta and buff; the petals turn and twist in such a way as to show too much of the latter shade, and this renders the flower ineffective. Mme. Charles Capitant is of a beautiful flesh-pink ground colour slightly

speckled with yellow, but not sufficiently so to be easily seen. The flower, however, is not attractive in form, which is a pity, as a good self flesh-coloured variety is much needed, for although we have Lilian B. Bird, Eda Prass, Comte F. Lurani, and others in the colour, these have each some trait by which they miss being perfect flowers. Eda Prass is the best grower of them all, but is inclined to be lumpy, and the colour becomes paler and less attractive as the flowers reach full size. Mrs. Briscoe Ironside I have not yet tried, but though it is of good colour, its form would prevent its becoming a universal favourite, and we seem to be getting too many incurved Japanese flowers. Silver Cloud is a finely-made flower, rather inclining towards lumpiness, but, as the petals are narrow, this defect is not so apparent as it is in some that are really no heavier; the colour, however, is poor, and I cannot imagine its ever becoming popular. H. Jacotot fils is another heavy-looking flower, with broad petals of the old Comte de Germiny type. Miss Rita Schroeter, generally described as a "glorified Belle Paule," is with me far inferior to that old variety both in colour and form.

Turning to those which are, from my point of view, as one growing more for home decoration than for show, really fine additions, Phœbus stands at the top of the list as being probably the best yellow in existence when judged from all points. Other good yellows are Lago Maggiore, rather early, somewhat like the old Sunflower in form, and also, unfortunately, in weakness of stem; Duchess of Wellington, graceful in form and of a fine deep rich shade; M. Pankoucke, which will soon rank as an old variety, but will not easily be beaten for form and habit; and Edith Tabor, a fine flower, but one which does not last well when cut. C. W. Richardson is a beautiful flower of grand colour and elegant form; H. L. Sunderbruch, greenish yellow, with long pointed petals, has a distinct form and dwarf habit, the flowers lasting well when cut, but want of length in the stems of this variety is a defect. Le Rhône, a fine late variety, I have had a good word for in former years; and last, but not least, among this already long list of yellows is Golden Gate, seldom seen on the show-board, as the best flowers come from late buds and are not fairly out in the show season. It is a grand variety, the flowers well filled, and the moderately broad, rich golden apricot petals droop gracefully and naturally, forming an ideal flower; indeed, I place it quite at the head of the dark yellow varieties. Whites, like yellows, are plentiful. Mme. Carnot takes pride of place, though it has not been seen in this neighbourhood in nearly such good form as it has been in previous seasons. Many of the early flowers came hen-and-chicken fashion, and the later ones were thin. Mrs. C. Blick is a good addition, but the flowers vary considerably in quality. Mutual Friend is a grand flower, something after the style of Mme. Marie Hoste, but more refined in form and less subject to damping. The best flowers of Mrs. W. H. Lees were too early and the later ones poor; these defects may, however, be remedied, and I liked its form and general habit very much. Mme. Ad. Chatin was lumpy on first crowns and thin on terminals, and I much prefer Mrs. H. Weeks, a very chaste flower of the incurved Japanese type and the best I have grown of this form. W. J. Newitt is a very fine white, with a general resemblance to Mme. Carnot. It is now with me (Jan. 10) at its best. Two fine additions to the scarce red varieties are Mr. A. G. Hubbuck and Khama, the former a full flower with narrow drooping petals, the latter

a grand thing; the crimson-chestnut, rather broad strap-shaped petals show a lustrous tinge of carmine, which is very attractive. Pride of Madford has been disappointing, probably because the plants were weak; the upper sides of the petals are of a rich amaranth, but my flowers showed too great a tendency to expose the under sides, and this destroyed the rich effect. Reine d'Angleterre is of a most beautiful shade of rosy mauve; flowers from crown-buds were coarse, but I think it will prove a grand variety on further acquaintance.

From the above I select the following as being not only good kinds for growing on the dis-budded system, but which are also good stayers after being cut with long stems, this being a matter seldom considered by those who write on Chrysanthemums, but one of vital importance to those who grow for decoration: Phœbus, Golden Gate, Le Rhône, H. L. Sunderbruch, M. Pankoucke, Mr. A. G. Hubbuck, Khama, Mrs. C. Blick, Mutual Friend, Lady Randolph, H. Jacotot fils and Reine d'Angleterre, and to these I may add, though I have not mentioned them earlier, M. Gruyer, Souvenir de Petite Amie and G. W. Childs. J. C. TALLACK.

BUSH CHRYSANTHEMUMS.

PLANTS to produce exhibition blooms or flowers good enough to win prizes have not ousted ordinary conservatory or bush plants, but, on the contrary, there would appear to be more of the latter grown every year. This is as it ought to be, and may be said to be largely due to the introduction of so many new and beautiful varieties. First the novelties are tried for producing large blooms; the second season both dis-budded and bush plants are grown, and a true verdict is then arrived at as to the value of the varieties for one or both purposes. Many market growers as well as private gardeners thus test the varieties as they get into their hands, and what are eventually found to give the best results in market gardens are usually equally as serviceable and popular for conservatory and house decoration. As far as my experience goes, large blooms are not so much in demand as formerly. Cut with long stems and arranged boldly either in mixture or, better still, in separate colours in large, deep vases, they are most effective, but if cut with short stems and arranged in small vases, they fail to please. Sprays or branches of flowers are the most beautiful, and more of these have been seen in the principal florists' windows than for many seasons past. Those who are wise, annually weed out a portion of the older varieties or any that fail to bear favourable comparison with the newer sorts. Whether the markets are supplied or plants and cut blooms are required for home decoration, the same rule holds good with regard to necessity for growing a good batch of each distinct colour, indiscriminate mixtures being objectionable, especially for the dining-room. This weeding out has recently been done by me, and my experience with new and old varieties may be of some service to readers of THE GARDEN.

EARLY VARIETIES.

The Desgrange family were never better than they were early last autumn, the mild, dry weather being suitable to these and other varieties planted out. Lady Fitzwygram was to have wholly superseded Mme. Desgrange, but is more likely to drop out of cultivation itself. It certainly is dwarfier in habit and remarkably free flowering, but is very liable to have all its foliage destroyed by fungus, especially if August should be wet, as with me. Mytchett White promises to be the best early dwarf white yet introduced, and it will be grown extensively next season. For pot culture Queen of the Earlies is hard to beat. It possesses a good constitution, is dwarf in habit, and produces large, solid, pure white blooms borne on stiff footstalks. It is an early October variety. Barbara Forbes is a little later and may

become popular, but I prefer the Queen. Emily Silsbury, of which I also grew fifty plants, may be briefly described as an early *Thérèse Rey*, only dwarfed. Late-struck bush plants duly disbudded gave fairly large reflexed, pearly white flowers that proved most attractive. It is only a few days later than Queen of the Earlies, and was well ahead of Lady Selborne. The last-named is still a general favourite, and will not be discarded just yet. Of early coloured varieties none has gained more attention than Mme. Marie Masse. This is grand either planted out or in pots. In habit it is dwarf and bushy, and produces a profusion of rosy mauve flowers throughout September and October. Harvest Home is also of free-flowering habit, but is better planted out than in pots. In *Roi des Précoces* we have a good early pot variety. It is dwarf, erect-growing, has pretty foliage, and produces handsome reddish crimson flowers in October. Comtesse F. de Cariel, orange, shaded bronze, is grown for October flowering, and is the best of the colour I have yet tried. The best early yellow is *Ryecroft Glory*. It does well planted out, and in pots it grows sturdily, branches freely, requiring few or no stakes and flowers profusely. This has quickly become a general favourite. Yellow Selborne is most disappointing and will quickly go out of cultivation. It lacks constitution, the flowers are small and too soft. Yellow Source d'Or has not proved such a success as desirable, but the old Source d'Or is yet hard to surpass as an October bronze. W. Holmes, rich crimson, with golden reverse, suffered from the rainy weather experienced in this district last August, but will be grown till something of the same colour and more reliable is forthcoming. What may be termed good

MIDSEASON VARIETIES

are becoming plentiful, and weeding out these is no light undertaking. The old *Mlle. Lacroix* has had to go, owing to the blooms not standing up stiffly. *Florence Piercy* is also finally condemned. *La Petite Ami* has superseded these, but even this sturdy, branching, floriferous, long-keeping variety has one serious defect: it is very liable to mildew. Ivory is sturdier still, equally good for pot culture, is free flowering and the blooms keep well—no mildew in this case. I am under the impression the comparatively new Mrs. J. Lewis will become popular for conservatory decoration and for affording superior blooms in quantity, and I have also formed a good opinion of the long-keeping *Simplicity* and the grandly incurved *Western King*. Good midseason yellows are none too plentiful. *Pallanza* and *Mons. Pankoucke* hang their heads badly and will not be grown again. *Modesto* is also weak in that respect and will not long remain popular with market growers. It is true every growth gives a solid incurving rich yellow bloom, but if next season a stake must be placed to each, and florists have to stiffen the peduncles with wire, it is easy to determine what will happen. *Phœbus* is far more likely to become a popular variety with market growers, and this season it has done remarkably well under all methods of culture. Mars, sturdy growing and branching, is a rich yellow in colour, reflexed and good. *Océana*, pale yellow, broad incurving florets, and the beautiful dark straw-coloured *Sunstone* will be given a second trial, but *Australian Gold* is distinctly disappointing. *Major Bonafon* is one of the best for conservatories and for affording cut bloom in quantity. It is of vigorous growth, branching freely, while the blooms incurve tightly, and are a rich yellow in colour. It is more serviceable than *Globe d'Or*. *Edith Tabor* and *H. L. Sunderbruch* were not successes, but *Cecil Wray* succeeded so well that it will be grown extensively next season. It is of a sturdy, branching habit of growth, every small shoot giving a good bloom; colour, pale yellow. All things considered, not one of the yellows proved so generally attractive as *Clinton Chalfont*. This variety forms straight, wiry growths closely furnished with small leaves, and surmounted with a comparatively large bloom, or head of blooms if not disbudded, with broad

reflexed florets, and of a rich yellow colour. It is particularly good for cutting. All the *Vivand Morel* family are of weak constitution, and the blooms soft, travelling and keeping badly. I have done with them other than for a few show blooms. *Miss Mary Godfrey*, of which a large batch was grown, was the best pink tried for mid-season flowering. It is of sturdy, but not branching, growth, requiring few or no stakes, and the blooms, of a good substance, silvery pink in colour, keep well and please the ladies. *Louis Boehmer*, grown as a bush plant, is most attractive, producing large sprays of incurving, hairy-petalled blooms of a pinkish heliotrope shade of colour; Autumn Leaves, white, splashed with red, is very distinct and good, succeeding well as a bush plant, also promising to last till near Christmas; *Ernest Asmile* was tried as a bronze, but succeeds better planted out and lifted than in pots constantly. *Col. Smith* is too flabby, and the lighter coloured, free-branching *J. S. Dibbins* will also be discarded, the blooms being too soft. As yet, nothing has been found to take the place of *E. Molyneux*, a variety lacking a strong constitution. The varieties of blood-red and maroon shades of colour all keep badly. *Col. Bourne*, *G. W. Childs*, *Egyptian*, *M. G. Biron*, *R. Dean*, and *Amy Shea* have all proved disappointing. Nor can I speak highly of *Australie*, *Beauty of Teignmouth*, *Miss Maggie Blenkiron*, *Philadelphia*, *Rose Wynne*, or *Hairy Wonder*.

LATE VARIETIES.

Varieties at their best about midwinter are still limited in number. Only by late stopping and retarding can *Niveum* be had fresh and good at Christmas. It is a grand variety for growing as a bush plant, and the yellow form shortly to be distributed by Mr. H. J. Jones should become equally popular. Mrs. H. Weeks also requires good management to keep it late, but the blooms on bush plants well repay for all the trouble taken with them. The large florets, pure white in colour, incurve tightly and present a most attractive appearance. *Kentish White* is very dwarf, requiring no stakes, but the blooms show too much eye. *Mme. Carnot* flowers late and does well, trained. As a bush plant it is a failure, the growths sprawling badly. *Princess Victoria*, if grown strongly and allowed to branch naturally, produces a profusion of medium-sized reflexed blooms creamy white in colour, all borne on long, stiff foot-stalks. It is one of the most profitable mid-winter varieties that I am acquainted with. *L. Canning* is both dwarf and late, and when at its best gives the impression of being invaluable. Florists who buy the flowers to sell again think otherwise. The hard stems fail to convey enough moisture to the blooms, and they flag quickly. *W. H. Lincoln* is still the most popular late yellow. Its sturdy, branching habit of growth, stout stems, and solid blooms are just what are desirable in the case of bush plants. *Golden Dart* is also dwarf, branching, and free-flowering, but though attractive the flowers do not sell so well as those of *W. H. Lincoln*. *Golden Gate* is not sturdy enough, otherwise it would be extensively grown. Each growth gives a perfect reflexed bloom, deep yellow in colour, my large batch of it presenting a most beautiful appearance during the second week in December, the display lasting till Christmas. *Miss Phyllis Fowler*, an incurving variety, with narrow florets of a primrose shade of colour, is blooming very late with me, and may prove good for mid-winter flowering in the future. *Duchess of York*, canary yellow and of good form, will not be fully expanded till late in January. *E. G. Hill*, a free-branching variety, producing neat blooms of a bronzy-yellow colour, I can strongly recommend for late flowering, and the best late pinkish-white variety is the well-known *Etoile de Lyon*. A good red variety is still unknown to me. *Elmer D. Smith* I have grown extensively, but it is disappointing. In constitution it is weak, while the blooms fail to stand up properly. *Royal Standard*, a rich crimson reflexed Japanese, with me is only just opening, and I have

good hopes that this will prove to be a valuable addition to the late-flowering varieties.

W. I.

Chrysanthemum Niveum.—This splendid variety is too well known to need any description, but I do not think I have seen any mention made of its habit of throwing up flowering suckers from the base at the time that the main shoots are in flower, and if the old shoots are cut clean away and the pots set up near the glass in a light position they develop some very useful blooms in January, a time when flowers of any kind, and white ones in particular, are in great request. I have no doubt but that if a portion of the plants were cut down late in the autumn they would develop good heads of bloom considerably later than they can usually be got. Nearly all the first made suckers appear to have bloom-buds in them, and therefore of little service as cuttings. In cutting down my old plants of this variety lately I observe the majority have more or less of these flowering suckers at the base.—*J. G., Gosport.*

Chrysanthemum cuttings from the stem.—As many will now be taking their *Chrysanthemum* cuttings, all young growths likely to make cuttings will be secured, and these may include some from the old stems. These appear all right now, but in the summer-time these stem cuttings have a persistent way of forming flower-buds, and not growing into shoots in the usual way. When the buds are picked off they may make a little more wood, and then want to flower again. I have had many plants of this kind to deal with, especially when new sorts were brought in, as I think I was in the unfortunate position of getting plants propagated from stem cuttings, with the result that until the second year I could not secure a presentable plant. This is always the case with plants propagated from such cuttings, and I strongly advise all who are now propagating *Chrysanthemums* to use the sucker-like growths that spring from the root of the plant only.—*M.*

New Chrysanthemum Frank Hardy.—A good many *Chrysanthemum* fanciers hereabouts are wondering wherein the English variety *Frank Hardy* differs from *Fuji Snow*, introduced by the *Yokohama Nursery Co.* in 1895, as a sport from *Good Gracious*. We note that *Frank Hardy* is said to be a sport from *Good Gracious*. I would like to ask which name has priority; or are we to infer that *Frank Hardy* is a provisional name, used for exhibition purposes only?—*E. G. GILLET, Cincinnati, in Florists' Exchange.*

* * *Frank Hardy* is a pure white sport from *Good Gracious*, and originated in England; at least, that is what the grower who sent it out says. That is my side of the question, if there is any question at all, which I doubt very much. Your correspondent has raised the doubt; he can also furnish the proof if he buys *Frank Hardy* and grows it.—*A. HERRINGTON.*

—There are comparatively few growers to whom the name of this variety is in the least familiar, and although catalogued for two or three years I doubt very much whether a really satisfactory flower has been exhibited in this country. The plant in question is a pure white sport from *Good Gracious*, exhibited here with more or less success for about two seasons. The pure white sport has, however, achieved wonderful distinction at the leading *Chrysanthemum* shows in America during the past season, and may fairly claim to be the most popular novelty placed before the committees there. It may interest American growers to know that *Frank Hardy* sported from *Good Gracious* in 1894. It was carefully nursed where it sported at *Ryecroft Nursery* until 1896, in which year it was sent by Mr. Jones to America. If *Fuji Snow*, which, according to the American papers, was introduced by the *Yokohama Nursery Co.* in 1895 as a sport from *Good Gracious*, is the same as *Frank Hardy*, why has it not yet achieved the distinction the English sport has? While endeavouring to settle these questions, it is still very interesting to observe how under change of climatic conditions different varieties develop.—*C. A. H.*

ORCHIDS.

THE MOCASSIN FLOWER.

(*CYPRIPEDIUM SPECTABILE*.)

AMONG the beautiful and interesting species of the hardy Lady's Slippers the above is the most valuable from a garden standpoint. Indeed, in these respects it is quite unique, since no species can in any degree compare with it in beauty of colouring, much less in the fine effects that may be, and indeed are, produced by it under cultivation. Much of its value in the garden is doubtless due to the free and ready way that it lends itself to culture in British gardens, as once it is established under suitable conditions it may be looked upon to flower freely and regularly each year. This is

passed through my hands in the years 1875 and 1879, the root fibres being well-nigh as fresh and sound as when they were placed in the barrels prior to shipment. These two consignments contained many hundreds of plants of all sizes all in fresh condition. Transit is so much more rapid than formerly, that with ordinary care in packing there is no reason why the plants, roots and all, should not reach the owner quite fresh and sound. Intending planters of this beautiful Orchid would consult their own interests by placing their orders not later than October each year with the hardy plant dealers, with a request to send on immediately the plants are to hand. The fresh root fibres of this species, which radiate horizontally from the crown, are of great length and of a straw-yellow shade. Exposure and a dry, arid condition, however, speedily alter this, and

shape of the group, it is best to remove the original soil, say a foot deep, and replace it by an inch or two of rough material for drainage, filling in the remainder with peat screenings and leaf soil in about equal parts; a depth of from 6 inches to 9 inches of this is sufficient at the start, as the Mocassin Flower is not a deep-rooting subject naturally, provided the supply of moisture is maintained. In forming the bed, space and a varied surface will permit of a quite interesting arrangement. When we remember that such Primulas as rosea and Sieboldi varieties, the Marsh Marigolds, Trilliums, and such Ferns as *Lastrea Thelypteris*, *Onclea sensibilis*, and *Adiantum pedatum* may occupy the same bed, to say nothing of such moisture-loving Lilies as *Lilium superbum*, *L. pardalinum*, &c., that would make a really beautiful display and provide variety also. In



Mass of the Mocassin Flower (*Cypripedium spectabile*) in the bog garden at Warley Place. From a photograph by Miss Willmott.

an important matter to cultivators, and, unfortunately, does not with equal force apply to several prominent as well as beautiful species of the same genus. Equally satisfactory is the fact that the above species may not only be secured in plenty, but also in good-sized pieces by those who may so desire. Frequently in a large importation many of the tufts range from 12 inches to 18 inches across, and contain from six to a dozen fine solid crowns, and not only crowns, but the old stems and leaves of the previous season's growth, that go to prove the character of the growth. I have frequently measured these old stems, to find the longest often 2½ feet in length. Much the largest tufts of this handsome plant I have seen

where the plants have for a few weeks remained unsold, shrivel and discolour, many of the worst turning black. Such roots are useless and are best removed, while the fresh fibres are best protected by moist Sphagnum, or even Coconut fibre, in a cool place till planted.

The excellent group in the illustration that accompanies these remarks speaks for itself, and affords the best proof of the conditions under which such a plant will thrive. The primary conditions are of course root moisture, with shade, or with plenty of moisture this may succeed in full sun. Shade, however, always acts beneficially, and if only for the sake of longevity of the blossoms is to be preferred. Having decided as to the size and

gardens that are favoured by moist spots there is ample material to make such among the most interesting of the garden, by including Frises as shown in the photograph, not omitting *I. Kaempferi*, *I. gigantea*, and *I. sibirica* in such an assortment; then again, some Bamboos, as *c.g.* *B. Metake*, together with half a dozen of the Meadow Sweets in variety, the brilliant herbaceous Lobelias and Himalayan Poppies, and, not least, the Royal Fern (*Osmunda regalis*). In many gardens the overflow from the terrace fountain basin, instead of being so frequently run to waste, will provide just the supply necessary to keep a small bog bed or garden in the right condition, besides offering support to other plants in the onward course. In this way

many plants that do not require saturation are immensely benefited by feeling the moisture at hand. And not only in the garden, but in and around the woodland there is no better way of permanently beautifying moist spots than by such groups as that shown in the picture or in company with some of the plants herein mentioned. For planting this fine Lady's Slipper there is no better time than midwinter, and as soon as the plants can be obtained. Even a glance at one of the imported tufts is full of information respecting the requirements of the species. In the long and clean roots we have proof that these must have been drawn from a spongy or wet bed, while in the thick accumulations of vegetable matter on the surface there is testimony of the rich nature of the food supplies. In planting, make the soil fairly firm about the roots and ensure a supply being over and above them, ultimately burying the tufts to the ordinary level. In after years an annual mulch of decayed leaves, with a little very old manure added, will supply all that is needed in this respect, and will maintain them in good condition for years. A good companion for the above and quite easily established is *C. Calceolus*, which requires a more loamy soil, or loam, peat, and leaves in equal proportions. This, with rather less moisture, is usually quite satisfactory. E. J.

Epidendrum xanthinum.—Very beautiful are the large globose heads of golden yellow blossoms produced on the top of the long reed-like stems of this species. It is worth growing by all who have room for it, and has a fine effect in large tropical houses, being in flower for several months in the year. Grown against a trellis or wall, or even on the roof, it will thrive if plenty of light reaches it. Fairly large pots and a rough open mixture of peat and Moss suit it well. It is a native of Brazil.

Bletia Shepherdi.—The flowers of this *Bletia* are very bright and effective, especially when arranged tastefully with other and lighter-coloured Orchids, as *Odontoglossums*. The spikes are freely branched and many-flowered, and the colour is a deep rosy purple, with a white or yellow centre to the lip. The foliage, too, is very ornamental when it is preserved intact, but too often this is knocked about and bruised, when it is just the reverse. It should be grown in the cool house and placed out of doors in the autumn, this treatment tending to make the plants very free-flowering.

Oncidium nubigenum.—This pretty Orchid should be grown in quantity owing to its distinct colour, that is uncommon in the genus. The plant is dwarf, the spikes containing several of the brown and purple flowers. It should be planted in small pans or pots with only a thin surfacing of compost. It may be potted when starting to grow, and all the year round may be kept in the coolest house. Rest, as usually considered, is not required, but at the time growth is least active a slight diminution in the water supply must be made. It is one of the oldest known of the Peruvian Orchids, and was introduced by Messrs. Backhouse.

Oncidium obryzatum.—The flowers of this species are small individually, but the spikes are large and branch freely. The colour is golden yellow with brown markings, but these and the ground colour vary considerably. It is a capital plant for grouping with other Orchids, and all the time the plants are in flower the blossoms emit a sweet and pleasant fragrance. It is a more compact grower than some of the other kinds with scendent scapes, and consequently thrives in medium-sized pots. The compost may consist of the usual peat and Moss mixture, and, being a native of Peru, it should be afforded a cool, moist atmosphere all the year round.

Lycaste Deppei.—This is not so large or showy as the better forms of *L. Skinneri*, but a

very pretty and interesting species. The outer segments are greenish yellow, the petals white, and the lip is yellow with red spots. It is not seen in cultivation as often as it might be, and is worthy of much more attention. In a fairly cool house it is of the easiest culture, requiring only to be potted in a mixture of peat, Moss, and a little loam. All through the year it should be kept fairly moist at the roots, more water of course being needed when in active growth than when resting. It is an old species, having been introduced by Messrs. Loddiges in 1828.

Miltonia cuneata.—The flowers of this species are large and handsome, and it is a strong, robust-growing plant well worthy of careful culture. The sepals and petals are yellowish, with distinct brown markings, the lip being usually white or nearly so. It thrives best in a mixture of peat and Moss in rather wide pots or pans nearly filled with drainage. It may be grown in a light sunny position not far from the roof-glass in the *Cattleya* house, where it will not be possible to give it too much sun if the other occupants of the house are studied. Care is necessary that the plants do not get loose in their pots, as they are apt to do when not well rooted. It is a Brazilian species, introduced about 1843.

Oncidium tetrapetalum.—Few things are more really beautiful than this delightful little *Oncidium*, which seems rather difficult of cultivation. I received it a few years ago from Jamaica, but though it flowered fairly well for a season or two, it never seems really happy under cultivation. The blossoms are small individually, but produced in considerable numbers upon the spikes at various times in the year. The sepals and petals are small, yellow, with spots of red, the lip rosy white, with a few spots about the crest. Judging by the habit of the plant, it should do best on blocks or in small pans, but it is easily checked apparently without cause.—H.

LÆLIA ANCEPS.

For producing a wealth of bloom at midwinter, few Orchids, with perhaps the exception of the *Calanthes*, can equal the above, and while admitting that the latter are most successfully grown in many gardens, my experience is that they certainly need more careful treatment than is required for this *Lælia*. The fact of this being so easily managed and flowering at the season named should be sufficient inducement to growers to increase their stock, as by a little attention many of the plants could be considerably retarded after the flower-spikes form, and so prolong their season over many weeks. The flowers being borne on long slender stems enable the decorator to use them in various ways to form graceful and pleasing designs. A few spikes arranged loosely in tall glasses, with long sprays of *Asparagus plumosus* or *A. tenuissimus* always make a striking feature. I have recently used the blooms for table decoration with great success, but instead of shortening the stems to make them suitable for filling small glasses, silver bowls were filled with plants of *Adiantum Farleyense* and the flower-spikes were thrust into these. In this way they arched over the table in a graceful manner, and the soft tint of the Fern fronds harmonised splendidly with the delicate shade of the flowers, at the same time producing a striking effect. The cool and somewhat dry atmosphere the plants are subjected to while in flower not only assists to preserve them, but the plants themselves are greatly benefited by the enforced rest. Neither is it necessary to remove them into a higher temperature and more humid atmosphere for a week or so after the flowers have been cut. Both these should be afforded gradually when it is seen that new growth is pushing out from the base and fresh roots have commenced to form. Before this stage is reached, however, attention should be given to top-dress or repot the plants if required, as this cannot be done afterwards without injury to the tender roots. Some large exhibition plants that had not been disturbed for years, but which were

still in the best of health, though somewhat unwieldy, were torn to pieces two years ago just before new growths formed, and several dozen smaller plants were made up in 7-inch pots. They grew away remarkably well and proved most useful the following Christmas, as they could be used for vases in the reception rooms, which previously they were unsuited for, owing to the size of pots they occupied as well as the contour of the plants. After repotting, the plants were for weeks simply dewed over, shading them from the sun, but as soon as the roots took to the new material frequent applications of sheep manure water were afforded. The roots appeared to relish this and the foliage made was of the largest size and deep green in colour, very different from that made by plants which are practically starved on small blocks. I have two distinct varieties, and though all the blooms are much alike as regards shade of colour and markings, those of one lot are considerably larger than in the case of the other. R. PARKER.

Goodwood.

Cattleya chocoensis.—A nice form of this is in bloom with me; the plant being small and weak, only one flower was produced from the sheath, and this, as is usual, has not expanded fully. It has pure white sepals and petals, the lip having a suffusion of rose at the base and a blotch of bright purple in front, not so clear as in the *C. Trianae* varieties. This pretty *Cattleya* is similar to the last-named in habit, and flowers about the same time and is best grown alongside it. The growths are made up early, and it should be allowed to rest from this time until midwinter, when the sheaths begin to swell for blooming. At no time must water be entirely withheld.—H.

Masdevallia cucullata.—This species is not so bright in colour as the majority of the genus, but a remarkably interesting plant. It takes its name from the hood-like bract that is produced at the base of the flower, this latter being brownish purple with yellow tails about 2 inches in length. Being a native of New Grenada, it does well under cool treatment, and as it is larger in all its parts than many other kinds, need not be so much pinched for pot room. At no time in the year should the plants be really dry at the roots, and a moist atmosphere with plenty of light in winter suits it best. Although long known to botanists, this species was not introduced until 1883, when it was received by Messrs. Shuttleworth and Co.

Compactia macroplectron.—This is a dwarf and pretty species by no means common in collections. It seldom exceeds 6 inches in height, but produces longish horizontal or pendulous racemes of about a dozen flowers. The labellum is spreading and constitutes the greater part of the flower; in colour it is a bright rosy purple. *C. macroplectron* does well suspended from the roof in the coolest part of the *Cattleya* house. The compost may consist of equal parts of peat and Sphagnum over good drainage. Water must be freely applied while growth is most active, and at no time quite withheld. It is a native of New Grenada and was introduced in 1878.

Ada aurantiaca.—It is early for this Orchid to be in flower, but I have noted it in several collections recently. The effect of a well-flowered specimen is very good indeed, the colour being very bright and effective, but the individual blossoms are small and do not open properly. The scape appears in the centre of the young growth, is erect at first, the weight of the blooms gradually bringing it to a leaning position, in which the flowers show better. The culture of *Ada aurantiaca* does not present any particular difficulty, and anyone interested in Orchids may take it up with every prospect of success. The cool house is the proper place for it, and here it should remain all the year round in the lightest available position, yet shaded from bright sunshine. When the new pseudo-bulbs are finishing—often in early summer—the plants must be allowed plenty of air and very freely watered. The roots are fairly

large and fleshy, consequently they must not be expected to thrive without an open, well-aerated compost, and for this reason the pots may be rather larger than those used for *Odontoglossums* and the smaller-growing cool *Oncidiums*. Scale is the most frequent insect enemy, and must be kept under by sponging. *A. aurantiaca* is the typical species, there being only one other in cultivation. It is a native of New Grenada, and was introduced into this country about 1860.—H. R.

WATERING ORCHIDS.

From the nature of the queries that come to hand from amateur cultivators there is still the idea among them that certain Orchids must of necessity be dried off for a longer or shorter period annually, and that any departure from this means little less than ruin to the plants. Ideas of this kind are very often difficult to get rid of, but although there are doubtless some kinds that are better for an absolutely dry period their number is very few in comparison with that of cultivated species. At one time, and not so long ago either, it was the custom to dry very severely such plants as the East Indian distichous-leaved *Vandas* and similar kinds, and in many places even now there are signs of the old treatment in what should be fine old specimens. From the base for a couple of feet or more perhaps not a leaf is to be seen, the result of injudicious resting as it was termed. A much more natural and sensible mode obtains now-a-days, and such plants are really rested by lowering the temperature somewhat and watering sufficiently to prevent any shrivelling of the foliage. *Cattleyas*, too, are even now kept far too dry during the winter, and here there is far more excuse for the mistake. For instance, a plant of *Cattleya Trianae* after the young pseudo-bulbs are mature takes little water for a month or two, and cultivators are apt to forget the forming flowers towards the end of winter. These then are made entirely at the expense of the stored up nutriment in the pseudo-bulbs, and no sooner do they appear out of the sheath than the bulbs begin to shrivel, showing only too plainly how severe the strain upon them has been. Thus small plants especially get the name of not being strong enough to flower, and the shrivelled pseudo-bulbs are instanced as evidence of this, when in reality the plants have simply been starved from want of water. A worse evil is often in wait for them; the roots as well as the other parts of the plants are weakened and rendered unable to carry out their own work. The water supply is increased, of course, when this is seen, but it is too late and the weakly parts die back by inches. Here then is another case to point out the advisability of giving each species the treatment it requires; for plants of *Cattleya Mossiae*, for instance, may be kept much drier than those of *C. Trianae* or *C. Percivaliana* without harm accruing. Another point worth noting as bearing on the amount of water needed during winter is that well-matured pseudo-bulbs or foliage will stand being kept much drier than others that are unripened and green at the beginning of the resting season. This must be kept in mind when wintering any specimens that may have finished growing so late in the season that there was not sufficient sun to ripen the growth made. With plants of a deciduous character the condition as to ripeness or otherwise is fairly easily known, but more watching is required for the evergreen kinds. Many fine specimens of *Phalenopsis* have been ruined by inattention in this way, and often in consequence the house they are

growing in, the neighbourhood, and the quality of the water are blamed when a little care would have prevented it.

Just now there is a decided waking up as it were of Orchids, and every week a more liberal water supply is needed by the plants. The deciduous *Dendrobiums*, for instance, as the days get longer and the nodes swell for flower will be found to shrivel a little if kept quite as dry as they have been for the last two months. *Cymbidiums*, of course, are never really dry, but the lengthening spikes make them dry more frequently. A plant I have in a 10-inch pot is throwing up six spikes, and as it is rather pinched for pot-room, it seems almost impossible to keep it moist enough. In watering such kinds as *Anguloas* and *Chysis*, that flower upon the young growth as it is made, a good deal depends upon the condition and strength of the plants, also upon the material they are grown in. Without a doubt they are safer on the dry side, at least until the flowers appear, and, if at all strong or well grown, they may be so kept without the least danger. *Celia macrostachya* is a peculiar plant to flower; in one place it is as free as possible, while in others it seems very difficult to get it to show a spike. Here nearly the same treatment may be advised, only the fact must not be lost sight of that it is more strictly evergreen than either of the last-named and will not thrive without a little moisture at all times. Among the most thirsty subjects at this season of the year, *Angrecum eburneum* and its varieties may be noted. The spikes are rapidly advancing and the roots are growing very freely preparatory to starting at the tops, for it will be noticed that most of the distichous kinds commence activity at the roots first, while as a general rule pseudo-bulbous kinds root most freely when a little progress has been made with the young shoots. As an instance in the opposite direction, *Odontoglossum citrosimum* may be cited, this requiring to be kept quite dry until the tips of the flower-spikes appear. Even *O. grande* and others of that class that have flowered are taking very little, as no signs of growth have as yet appeared and last season's bulbs are quite finished. The state of the weather and the quality and condition of the compost all need consideration in connection with watering. On dull or wet days the compost does not so readily dry as when brighter conditions prevail, and it will be found, too, that once the roots have taken a good hold on new material, they need a much freer water supply than others growing in an older and consequently closer compost. H. R.

***Dendrobium capillipes*.**—The blossoms of this *Dendrobe* are not very large, but on healthy plants are very freely produced, making a much finer show than some of the larger-growing kinds. They occur in pairs on very fine stalks and are of two distinct shades of yellow, the deeper occurring on the lip. It should be grown in suspended baskets or on blocks, very little compost being required. Plenty of heat and moisture, a good clear light, and abundance of air when the bulbs are finishing suit it well, and while at rest enough moisture must be allowed to prevent shrivelling. It was discovered by the late Rev. C. Parish growing on trees in the mountainous parts of British Borneo, and sent to Messrs. Low in 1866.

***Dendrobium Wardianum*.**—There are few more beautiful species than this, a good form of it having a chaste appearance possessed by few other *Dendrobes*. The earlier plants now in flower should, if the basal shoots have not made much progress, be kept as cool and quiet as possible. It is one of the worst of all to grow out of season, and several plants here that had finished their growths far too early last summer I kept in

heat, and they have produced and fairly ripened another set. This may not at first sight seem very good practice, but the stems are now covered with the bursting nodes, and I have no doubt that both the earlier and the later bulbs will flower. It is just possible that if this plan were tried again many of the nodes on the earlier shoots would start into growth instead of blooming, but this time they are all right. I have an idea that since a more rational way of treating the roots of this species has been practised, the plants are longer lived under cultivation than formerly. They appear to thrive best when packed firmly together and growing over each other, so to speak, and it is surprising what a length of stem may be grown in small pans a few inches across if kept thoroughly soaked with water during the growing season. The healthiest plants are always those that keep dormant longest, and every endeavour should be made to grow them unchecked when once they have started.—H. R.

AERIDES ODORATUM.

PERHAPS the difference between cultivated and wild specimens is in no other instance so plainly shown as in the genus *Aerides*, of which this well-known species is the type. Instead of the creeping untidy-looking stems that are characteristic of newly imported plants we have in well cultivated specimens handsome objects that grace our houses whether in or out of bloom. Nor is their culture at all difficult when care and attention are bestowed upon them. It will be noted that wild specimens have many more roots in proportion to the length of stem than those we grow at home, obviously a provision of Nature for the mechanical support of the plant quite as much as a manurial one or more so. In the moist heat of the Orchid house, these collect a certain amount of the food of the plant no doubt, but they are not required to the same extent, consequently they are not produced. *A. odoratum* is a noble flowering plant, and although every week sees new additions to the list of *Cypripediums* and other smaller kinds we could do with a few more such as this splendid *Aerides*. The racemes are extremely elegant, the colours beyond reproach, while the scent of a few flower spikes pervades quite a large house, and is of that warm aromatic kind that one does not tire of, like that of other and more popular flowers. Coming from some of the warmest parts of the world considerable heat is necessary, but not so much as is often thought. Alongside other East India kinds, such as *Saccolabiums* or even where the warmest section of *Cattleya* thrives, *A. odoratum* will usually be satisfactory. Plenty of light on all sides helps materially to strengthen and harden the plants, and if arranged at a fair distance from the roof glass, the leaves will be found to stand more sunshine than many other Orchids. Small examples in baskets, such as the tops of plants or side breaks taken off in spring, are generally placed rather close to the glass, and here, of course, more shading must be resorted to. The best material to grow it in is clean Sphagnum Moss, with lumps of charcoal added in different sizes, according to that of the pot or basket. In every case the drainage should be carefully attended to, for it is a thirsty subject when healthy and in full growth. It commences to grow in the early spring months and pushes its flower-spikes from the upper parts, and when once the roots are getting well away, it is important that they are not dry for any length of time until they lose their green tips and cloud over in autumn. While at rest keep the plants fairly dry, but avoid a high or dry temperature in the house, this leading to insects in plenty and having a weakening effect upon the plant. *A. odoratum* is a native of various parts of India and China, being, in fact, a very widely distributed plant, and has been in cultivation in this country close upon 100 years.

***Cattleya Trianae delicata*.**—The rich tint on the front of the prettily frilled lip contrasts very

nically with the pale delicate rose on the outer segments, and it forms a capital companion plant to the usually deeper tinted *C. Percivaliana*. These beautiful labiate *Cattleyas* may almost be said to flower the whole year round. As a matter of fact they do in collections where all are fully represented, the quietest time being when the old autumn flowering kind is past. The lovely form named above is one of the best of the *C. Triane* varieties and one that is not so often obtained true, as one would imagine by the frequency with which the name is heard.

Zygopetalum crinitum.—This species is not so often seen as *Z. Mackayi* or *Z. intermedium*, but it is a pretty and useful plant when seen in good condition. The flower-spikes are stout and the individual blooms large, the sepals being light greenish yellow and the lip covered with short shaggy hairs. The ground is white, veined irregularly with bluish purple, these veins running from the centre outwards nearly to the margin. The plants have roundish, light green pseudo-bulbs, the darker foliage being much broader than usual in the genus. Its culture does not differ materially from that advised recently for *Z. Mackayi*.

NOTES ON ORCHIDS.

THE days are lengthening, and preparations for a busier season with Orchids must be made. Already *Dendrobiums* are beginning to push from the base, and nearly all the deciduous kinds have the nodes swelling for flower. A little more warmth now that the turn of the year is past may be allowed in this section, but it must be very gently applied and must not be accompanied by much atmospheric moisture. *Cattleyas*, too, are on the move; many plants of *C. Percivaliana* are in flower, and the earlier forms of *C. Triane* are close behind. Later plants have the points of the flowers just appearing at the top of the sheath. All such plants should be placed in the warmest and lightest part of the house, those of the *C. Mossie* and *C. Gaskelliana* sections being kept as quiet as possible. Comfortable quarters, too, are necessary for *Cymbidiums* that are throwing up their spikes, and where *C. Lowianum*, for instance, has a large number of these pushing, encouragement may be given by a little more moisture at the roots than they have been receiving lately. It will be a saving of time later on if any plants of this description or *Sobralias* needing top-dressing are attended to now. They are often left until too late owing to the number of things requiring attention in a few weeks time, while no harm can befall the plants by doing it too early. *Laelia superbians* is throwing up its long cane-like spikes, and a little encouragement in the way of warmth and moisture is well repaid. As the earlier plants of *L. anceps* go out of flower, these and *L. autumnalis*, *L. furfuracea*, and *L. peduncularis* may be attended to at the roots. So much moisture is required by these plants while growing, and so little compost is necessary, that all should be looked over annually. But few may need repotting; in fact, if properly done in the first place and afterwards judiciously treated, they may often remain in the same pots for five or six years. A little fresh material, however, is often of great service, this being placed near the leading pseudo-bulbs within easy reach of the young roots that are annually produced. None of this class of Orchid should be disturbed at the roots if the pseudo-bulbs have been at all weakened by flowering, but if the latter are nicely plump at potting time, they may with advantage be kept on the dry side afterwards until new roots are forming. *L. majalis* must be hung up in the

full sun and not watered much until the growths start.

Lycaste Skinneri in its many forms is now making a fine show. All are fine showy blooms, but the best are undoubtedly the pure white forms and those that display a deep crimson on the lip. These and the nearly allied *Colax jugosus* like rather more warmth at this season than is present in the *Odontoglossum* house, and must be carefully, though somewhat freely, watered at the roots. *Pleiones* as they go out of bloom must be potted on the lines recently noted, also *Calanthes* and *Thunias*, as when these are attended to early it relieves the press of work later. Large plants of *Celia macrostachya*, *Zygopetalum Mackayi* and others of a like habit may also have a little assistance by top-dressing and a plentiful water supply to finish up the new pseudo-bulbs. In the warmest house there are already signs of activity among the distichous-leaved kinds, but it is too early yet to disturb any of these. The long cylindrical racemes of *Saccolabium giganteum* and *violaceum* fill the house with their pleasant aromatic fragrance, and many of the charming *Moth Orchids* are either in flower or rapidly advancing thereto. No great difference is necessary as yet in the temperature, but as daylight increases it is safer to raise rather than lower it. Avoid pressing the fire-heat much, especially at night, 60° being ample for all East Indian plants just now. The highest temperature now required is where the Australian kinds of *Dendrobiums* such as *D. bigibbum*, *D. superbians*, or any others that may happen to be growing are arranged. The *Cattleya* house and cooler departments may remain as advised in my last notes, the only advance allowable being on bright days by sun-heat. All spare time should be utilised in preparing a stock of potting materials, labels, stakes and clean pots and baskets.

H. R.

ONCIDIUM SPLENDIDUM.

THIS Orchid is aptly named and one of the very finest spring-flowering kinds. From a roundish green pseudo-bulb bearing a thick, leathery bronzed leaf the flower-spikes spring. The individual blossoms are produced in considerable numbers upon these, and are remarkable for the beautiful showy lip. This is 2 inches and upwards across, bright yellow, the sepals and petals small, with brown spots and blotches. Under cultivation the plant is becoming much more of a success than formerly. It does not like a large amount of material about the roots, especially when the plants are small or weak, but a well-divided medium about an inch in depth. The roots, though large and fleshy-looking, are very easily surfeited with moisture, more especially during the time of rest. It makes best progress in a light sunny position, this hardening and ripening the growth as it is made and rendering it less liable to insect attacks or checks from other causes. The temperature of the *Cattleya* house is suitable, and here the plants may remain all the year round. Growth starts some time during the spring months and goes on all through the summer and autumn, few plants of a similar habit requiring such a long time to make up their growths. It must not be thought that placing them in a high temperature will mend matters any, as this only tends to a soft, unsatisfactory growth. Hardly are the pseudo-bulbs finished before the flower-spikes push up, and the production and maintenance of these make a certain amount of watering necessary. But at any time when the bulbs are finished, and no signs either of growth or flower-spikes can be seen, the drier the plants are kept the better, provided they do not shrivel and the roots keep plump. In its native country *O. splendidum* is said to sometimes grow on the ground amid long rough grass, so that one might almost be led to think it a semi-terres-

trial kind, but to act on this would probably lead to disaster under cultivation. Good fibrous peat and clean *Sphagnum Moss* are quite holding enough for it, but plenty of crocks and charcoal must be mixed with it, or it settles down too closely into an inert condition. Insects, as a rule, give *O. splendidum* a wide berth, not apparently earing much for the hard foliage. Scale may occasionally be noticed on the bulbs, but is easily got rid of by the usual means. Green-fly sometimes attacks the flower-spikes and should be kept down by passing a damp sponge up each one daily. Where many of this and other *Oncidiums* are coming into flower, it is good policy to give a couple of light fumigations on successive evenings. It is a native of Mexico, introduced about 1870.

VANDA AMESIANA.

THIS is one of the most useful of the winter-flowering *Vandas*. It is usually considered a difficult subject to deal with, but when a position suitable to its requirements is found there are few Orchids that grow more freely or yield a better return than this. There are in the collection of which I have charge at the present time, in spite of the recent foggy weather we have experienced, several plants in flower, two of the largest having seven and nine spikes respectively, many of them being upwards of 2 feet long, with numerous branches. There is no doubt that a great many people fail in the cultivation of this species through over-drying and resting the plants before the proper resting season has arrived. I have noted in several collections this has been treated as a practically cool species. The result is that one usually finds the flower-spikes considerably dwarfed, and consequently only a few flowers on each. My own experience leads me to consider it a species requiring the East Indian house treatment throughout the year. It should not under these conditions be allowed to suffer from want of moisture until the flower-spikes have been removed. Being a winter-flowering plant, it should be placed in such a position in the house as to avoid as little risk of checks as possible through the variability of the outside conditions, and to obtain the maximum amount of light. I find it best to grow the *Vandas* in teak baskets, so that they may be suspended near the roof glass at the warm end of the house. After the flower-spikes have been removed I usually place the plants in a cooler position, with only sufficient moisture to keep them in a plump condition. They usually remain in a dormant condition until the end of April or beginning of May, when they begin to show signs of activity. I find this the best time to do any potting that may be required, but unless the plants have become leggy through loss of the basal leaves, very little repotting is required. If the decayed material is removed and replaced by good living *Sphagnum* (no peat is required), pressing it moderately firm amongst the roots is all that is necessary. After this season they are more liberally treated, both at the roots and with atmospheric moisture, which must be maintained well into the autumn.

H. J. C.

Cattleya luteola.—This is a dwarf winter-flowering *Cattleya* not often seen. The pseudo-bulbs are each little more than a couple of inches high, and each bears a single short leaf. The spikes bear about four or five blossoms, which, as the name implies, are yellowish, the lip having streaks of purple on a lighter ground. It likes less heat than the majority of *Cattleyas*, and as it is said to grow only in shady positions by the river banks in its native habitat, it should have plenty of shade and moisture. The plants do best in shallow baskets or pans nearly filled with crocks, with over these a little peat and moss.

Saccolabium miniatum.—This is a rare and pretty dwarf-growing species, throwing erect spikes of bright orange-red flowers like those of the later-blooming *S. curvifolium*. It requires abundance of heat and a moist atmosphere while growing, and only enough shade to prevent scorching of the foliage. It is best suited in small

wooden baskets or suspended pans, these being well drained and just large enough to take the plants easily. It must be grown in almost pure Sphagnum, a few lumps of crocks and charcoal being added to prevent closeness. The proper time to repot is directly the flowers are past. It is a native of Java, and was introduced in 1846.

TREES AND SHRUBS.

SOME FLOWERING CHERRIES.

Of all the Prunus tribe, comprising as it does the Almonds, Peaches, Apricots, Cherries, and Plums, the Cherries when in flower are, I think, the most beautiful. The delicate beauty and grace of the blossoms, marked as these characteristics are in every one of the Prunus groups, reach in the Cherries their highest development. *Neither are they surpassed elsewhere in the abundance of the blossoms, as may well be judged by the four illustrations here given. A selection of the best of them is indispensable, therefore, for even the smallest of gardens; for those large enough in size, practically the whole of the Cherries and Bird Cherries are available, containing as they do at least two dozen trees and shrubs unsurpassed in beauty and interest, as well as others which, if not in the very first rank, are still worth growing. Many of the best of the Cherries



The double-flowering Cherry (*Prunus pseudo-Cerasus*). From a photograph sent by Mr. C. Metcalfe, Mill House, Halifax.

come from Japan and China, where long periods of cultivation have largely developed the size and attractiveness of the flowers. The same has happened at home with our native flowering Cherries, the double varieties of which

almost rival the best Japanese varieties. The doubling of the flowers of Cherries is, indeed, in every way an improvement, adding to their showiness and duration without detracting in the least from their gracefulness.

The double Cherry here figured is *Prunus pseudo-Cerasus*, a native of China and Japan, and perhaps the loveliest of all April-flowering trees. In Japan, where it has been planted in great quantities along the highways and in gardens and temple grounds, its flowering marks one of the national festivals. Sargent mentions an avenue at Koganei several miles in length, where 10,000 Cherries were planted a century and a half ago. In the best varieties of *P. pseudo-Cerasus* the flowers are fully 2 inches across and of a soft rosy white. One of the best is known as *Cerasus Watereri*.

The single-flowered Cherry, a branch of which shows such a remarkable wealth of blossom in the illustration, is *Prunus Avium*, or the Gean. It is a native of Britain, and is one of the parents of our fruiting Cherries. It makes an erect tree, 20 feet to 30 feet high, and flowers about the middle of April, when its branches become wreathed with thick clusters of mostly pendulous blossoms. The double-flowered variety of it is only second in value to *P. pseudo-Cerasus*; it flowers with all the freedom of the type, whilst the doubling of the petals gives greater substance and durability to the blossoms.

Prunus Padus, or the Bird Cherry, of whose gracefulness in a cut state the accompanying picture gives so admirable an illustration, is another of our native trees. It is larger than the preceding ones, reaching a height of 40 feet, and it flowers a month later. It varies considerably in merit, as might be expected from its wide distribution, for it extends from Northern and Central Europe to Manchuria and Japan. Some of its best forms (of which that figured is evidently one) have both racemes and individual flowers much larger than in others. I remember the late Mr. Anthony Waterer a few years ago pointing out a very fine variety growing in the Knap Hill Nursery with racemes, if I remember rightly, at least 8 inches long. One still finer, perhaps, was obtained from the Continent two or three years ago; it is called *flore-pleno* and has racemes 8 inches or 9 inches long, each flower three-quarters of an inch across, double, and lasting longer in beauty than any of the single varieties. Another variety in the collection at Kew which has been brought from Manchuria may also be briefly alluded to; it has large flowers and racemes, but is more especially noteworthy as coming into bloom at least a month earlier than our British Bird Cherry does.

The beauty of the illustrations will probably lead many readers of THE GARDEN to represent the Cherries in their gardens more plentifully than they have hitherto done. To such, possibly, the following representative selection of a dozen of the best species and varieties may be of some help, especially as the planting season is now in full swing:—

TREES.	SHRUBS.
<i>Prunus Avium</i> fl.-pl.	<i>Prunus japonica</i> (sinensis).
<i>Cerasus persiciflora</i> .	Jacquemonti.
„ <i>Rhexi</i> fl.-pl.	prostrata.
<i>pseudo-Cerasus</i>	pumila.
(Waterer's).	
<i>Mahaleb pendula</i> .	
<i>Padus</i> fl.-pl.	
<i>acidasemperiflorens</i> .	

W. J. B.

Cotoneaster Simonsi.—This is perhaps the brightest berried kind in the genus and a capital

plant for winter effect. The berries are very freely produced and of a bright crimson colour, and as the leaves may be almost described as evergreen, these make a nice setting to the former. It is not particular as to soil, though, of course, growth will be most free in a medium staple where it can root freely. Here it is growing in a cold, heavy clay, badly cultivated, in fact only waste land, and though not long planted—about two years—seems already quite at home. In a light sandy soil it is easily propagated by layering the lower branches.—H.

Cornus sibirica Spathi.—This makes a very pretty shrub in summer, when the variegated



The wild Cherry (*Prunus Avium*). From a photograph sent by Mr. C. Metcalfe, Mill House, Halifax.

foliage is at its best, while during the winter months the bright red of the stems is attractive. Though perfectly hardy, it does best in a sheltered position, as if much exposed, the leaves are apt to be badly cut and bruised by hail and wind. It is very easily propagated by cuttings made from the young growing tops, these being inserted in any light, sandy soil and covered with a handlight. It may also be rooted in pots in the greenhouse and kept just free from frost during the first winter. After this the plants may be set out in lines for a season, and eventually planted out in permanent positions.—H. R.

Gaultheria procumbens.—Inquiries are often made concerning plants available for carpeting purposes, particularly such as are effective at all seasons, and many subjects have been from time to time recommended. In the front rank of suitable plants must be placed this *Gaultheria*, which possesses several desirable features. It succeeds well under conditions such as the other hardy Ericaceae delight in, and though they all do well in soil of a peaty nature, it is not absolutely necessary for their well-doing, and they may often be seen in a flourishing condition where the soil is loamy provided it is free from lime. The beauty of the plant at this season is greatly enhanced by the little glowing red berries, which nestling among the bronzy leaves form one of the brightest features of a dull winter's day. There are many ways in which this *Gaultheria* can be employed with advantage, for it is very effective in the cool moist parts of rockwork, and for carpeting a bed in which specimens of the larger

Ericaceae are planted it is just in its element. At Kew a bed containing some half-dozen plants of the winter-flowering *Hamamelis japonica* shows that beautiful Japanese shrub to very great advantage, springing as they do from a dense carpet of this little *Gaultheria*. A second species, *G. Shallon*, is altogether a more vigorous-growing subject than this last, and reaches a height of 2 feet to 3 feet. This will succeed under trees better than most shrubs, providing the soil contains a good proportion of vegetable matter and is fairly moist. In some districts it is used for covert planting, the berries being much appreciated by game. In the spring the spikes of urn-shaped pinkish blossoms are borne in great profusion, and add greatly to the ornamental appearance of the plant.—T.

Planting near the sea.—Mr. Low will have no cause to be dissatisfied with the following plants in a maritime exposure: *Pinus maritima*, *Pinus montana* (for extreme exposure), *Cupressus macrocarpa*, *Quercus ilicifolia* (Evergreen Oak), *Q. Cerris* (Turkey Oak), Ash, Sycamore, Sea Buckthorn (for extreme exposure), *Laurustinus*, *Fuchsia Riccartoni* and *F. globosa*, *Olearia Haasti*, *O. Traversi* and *O. ilicifolia*, *Escallonia macrantha*, *Griselinia littoralis*, *Euonymus europæus* and the evergreen species, and *Rosa rugosa*.—HERBERT MANWELL.

THE SCARLET-FRUITED THORN AS A STOCK FOR GRAFTING.

In grafting, there is pretty often occasion to employ the White Thorn as a stock, and it is not only commonly so used in grafting the various species and varieties of the genus *Cratægus*, but in certain cases is or may be employed in grafting some other rosaceous trees, such as the Medlar, Service Trees, various kinds of Pears, the Amelanchier, *Eriobotrya japonica*, *Raphiolepis*, &c., with all of which the common White Thorn (*Cratægus oxyacantha*) is habitually used as a stock.

Here, perhaps, it may be well to remark that very probably nurserymen most frequently employ the monogynous form of the *Cratægus*, and not the typical form which has double-stoned fruit. The former, which is sometimes regarded as a distinct species under the name of *C. monogyna* (Jacq.) and sometimes referred as a variety to *C. oxyacantha*, occurs far more commonly in the wild state than the double-stoned form, and to it we must refer most of our fine varieties which have pink, red or scarlet flowers, single and double. It also furnishes the greater part, if not the whole, of the handsome arborescent specimens which one often sees in some parts of the east of France growing singly here and there on the boundaries of fields—specimens which with age have attained the dimensions of trees of the third magnitude. Being more vigorous in growth than the common White Thorn, *C. monogyna* becomes taller in stature, and as the nurserymen naturally prefer to gather the haws for sowing from the finest and best-grown trees, the chances are very great that, without being at all aware of it, they select them from trees of *C. monogyna*. Although it possesses substantial qualities and is, on the whole, preferable to the double-stoned typical form, yet *C. monogyna* has some drawbacks, especially in being of comparatively slow growth, and also in being furnished with numerous spines at an early age and in losing its sap quickly.

The species which I desire to recommend here, namely, the Scarlet-fruited Thorn (*Cratægus coccinea*, L.), exhibits these objectionable features in a very much less degree. This is an American species, native of the United States and Canada, and one of the handsomest from an ornamental point of view. The tree grows to the height of from 16 feet to 26 feet, forming a good head. The bark is of a whitish tint; flowers white, of comparatively large size, and very numerous; fruit or haws ovoid or sub-globular in shape, and about as large as a medium-sized Cherry, of a very fine scarlet-red colour, and generally containing four, and occasionally five, stones. They ripen in Sep-

tember, when they produce a brilliant effect, which often lasts but a short time, as birds are very fond of them, especially blackbirds. On this account this species of *Cratægus* is very suitable for game coverts.*

It was somewhat accidentally that I became aware of the advantages which the scarlet-fruited Thorn offers as a stock for grafting. In the year 1885 we were shield-grafting some plants of *Cratægus* at the Muséum when our stock of the common White Thorn fell short, and to supply the deficiency we made use of a number of young plants of *Cratægus coccinea* and *C. Crus-galli*. The result was very satisfactory as regards these two species, but the Cockspar Thorn (*C. Crus-galli*), even when it is quite young, is furnished with formidable spines which are very troublesome to the grafter, so we dropped it out of our experiments, which, however, we continued with *C. coccinea*, the young plants of which up to the age of three or four years are entirely, or almost entirely, spineless.

An experience of it during twelve years has given us an increased appreciation of this species. It retains its sap for a longer time than the common White Thorn does. At the same age plants of it are stouter, better furnished and more supple, the bark is thicker and more easily raised in grafting, and the grafts grow more vigorously, at least during the first few years. We have proved that the species which are ordinarily grafted on the common White Thorn succeed equally well when grafted on the scarlet-fruited Thorn, viz., species and varieties of the genus *Cratægus*, also Pears, Service trees, Medlars, &c. Carrière's White Thorn (*C. Carrièrei*) notably when thus grafted has given very good results.

I may add that *C. coccinea* produces an abundance of fruit, each haw generally containing four stones, so that from a single tree one may raise a large number of plants, and, lastly, with regard to the soil in which it is grown, it is quite as easily satisfied as *C. oxyacantha* or *C. monogyna*.—L. HENRY, in *L. Jardin*.

The colour of English trees in autumn.

Mr. Joseph Meehan writes to an American paper describing the trees of England as "keeping up their dark green-hued foliage to the last!" He must have left us too soon, as this is a bold thing to write in a year when our woods and trees were full of colour right through the autumn, including some of the finer American trees, which for people who have the art to group and mass them in any effective way have sometimes as fine colour in our country as in their own. But it is a delusion to suppose that our native trees have not fine colour, for scarcely one of them is not remarkable for it in autumns like the past, and some of them every autumn. The Oak woods round London were superb in colour in the autumn of 1897, and the Beech woods nearly every year from Scotland downwards. In fact, we are not sure, whether to the artistic eye, open to delicate gradation and variety of good colour, the colour of British woodlands would not be thought quite as good as any other, not forgetting the winter colours, often most beautiful, from that of Alders massed by the winter stream to the Birch on the airy hill and

* *Cratægus coccinea* of Linnaeus (*Mespilus coccinea*, Willd.) has amongst its numerous synonyms that of *C. acerifolia*, Hort. This is likely to cause confusion, since the specific name *acerifolia* has also been applied to a very distinct species, viz., *C. cordata*, Ait. (*C. populifolia*, Walt., *C. acerifolia*, Moench, *Mespilus corallina*, Desf., &c.), so that as a synonym of *C. coccinea* it should be entirely renounced. In the year 1889 M. Ch. Baltet mentioned *C. cordata* of Aiton, under the name of *C. corallina*, as having yielded remarkable results as a stock under the hands of M. Dubarle, of Reims. From some specimens which M. Dubarle sent me, I was convinced that the stock in question really was *C. cordata*, and I was very much surprised at this, because at the Muséum we had found this species to be only a very poor subject for a stock. So true is it that, in cultivation, one should always take into account the nature of the soil and other external conditions, and be very careful not to generalise too hastily.—L. H.

Oaks massed close with stems silvered by Lichens.—Field.

THE SHASTA FIR.

(*ABIES SHASTENSIS*.)

THE following important article will be read with interest by English lovers of the great Pacific mountain Firs. It occurs in the last number of *Garden and Forest*, a paper which gave us the best information we ever had as to the trees of North America:—

Among the conifers of the Pacific coast, two Firs, *Abies nobilis* and *Abies magnifica*, have long been a hard knot for botanists. *Abies nobilis* was described in 1833, *Abies magnifica* in 1833, and after various bibliographical vicissitudes, during which the real distinctness of the two was seriously questioned by the highest botanical authorities both in the United States and Great Britain, the essential distinctive character of the species was considered by Dr. Engelmann in 1878* to be the exerted bracts on the cones of *A. nobilis*, a tree of the Cascade Mountains of Oregon, and the included bracts of *A. magnifica*, a tree of the Sierra Nevada of California, a position he still maintained in 1880.† Two years later, however, after a trip through Oregon and California with Professor C. S. Sargent, he expressed the opinion that the real differential mark of the two trees was the grooved leaf of *A. nobilis* and the two-keeled leaf of *A. magnifica*.‡ Now, on Mount Shasta, which is intermediate in geographical position between the Cascades and the Sierra Nevada, occur large forests of a Fir with two keeled leaves and exerted bracts. In the light of his earlier opinion Dr. Engelmann considered this tree a form of *A. nobilis*, but afterwards, in the light of his later opinion, a form of *A. magnifica*. In 1890 Mr. J. G. Lemmon took the matter up, following Dr. Engelmann's later view that the grooved leaf constituted the real character of *A. nobilis*, and ventured to describe the Mount Shasta tree as a variety, *shastensis*, of *Abies magnifica*; and in May of the present year he published it as a distinct species, *Abies shastensis*.

During the past summer the writer, in company with Mr. Elmer I. Applegate, of Klamath Falls, Oregon, had ample opportunity, on a

* Engelmann, *Trans. St. Louis Acad.*, i., 602 (1878).

† Engelmann in Brewer and Watson, *Bot. Cal.*, ii., 119 (1880).

‡ Engelmann, *Bot. Gazette*, vii., 4 (1882). I find that while Dr. Engelmann was the first, apparently, to bring this leaf distinction prominently before botanists, especially as a key to the difference between true *nobilis* and the Mount Shasta tree, this leaf character had been advanced as early as 1875 (*Gardeners' Chronicle*, page 752) by Mr. Syme, the London nurseryman, as a means of distinguishing *nobilis* from *magnifica*. In the note, written by Andrew Murray, in which this character is announced there is an evident hesitation to assert its constancy. The note reads, "There are a great many plants in this country (Great Britain) which have always been considered *Picea nobilis* (now *Abies nobilis*), which have been bought as *P. nobilis*, which have been raised from seed sent home to Great Britain as *P. nobilis* which yet have tetragonal leaves. I anticipate Mr. Syme's answer to this objection, that *P. magnifica* has been confounded with *P. nobilis* in its native country (the north-west coast of America), and that these plants with subtetragonal leaves are really *P. magnifica* raised from seed sent home as *P. nobilis* by mistake." This suggested solution of the difficulty is undoubtedly correct in the main, but the trees cultivated in Great Britain under the incorrect name of *Abies nobilis*, having tetragonal or two-keeled leaves, may be not *magnifica* alone, but some of them *shastensis*. The original importation of seeds by David Douglas in 1830 was, of course, true *nobilis*. John Jeffrey's importation in 1851-53 was a failure, as none of his seeds grew. The seeds sent by William Murray and A. F. Beardsley a few years later reached Great Britain in good condition and were successfully grown, but none of these could have been *A. nobilis*, for that tree does not grow in the region in which they got their seeds. All the trees grown from this importation must be either *magnifica* or *shastensis*.

journey from end to end of the Cascade Mountains of Oregon, to examine both *A. nobilis* and *A. shastensis*. As no botanist has made this trip before, many new facts regarding the geographical distribution of plants were observed, and among other interesting things, the most of which must be deferred for later publication, the rather startling discovery was made that the bracted Fir abundant in the Crater Lake region and for nearly 100 miles towards the north along the Cascades, is not *Abies nobilis*, as has heretofore been supposed, but is in reality *Abies shastensis*. We entered the Cascade Mountains from the east at a point about fifteen miles north of the Oregon-California boundary, and turning northward from Buck Lake toward Lake of the Woods, we came upon the Shasta Fir near the summit of the divide between these two lakes at an elevation of a little more than 5000 feet. On the following day, travelling south-westward from the Lake of the Woods about two miles on the Dead Indian Road we found the tree again, on the summit of a divide of about the same altitude as the other, and probably continuous with it. These two localities, about twelve miles south-east of Mount Pitt, are situated near the point where the great Cascade range breaks down, being separated from Mount Shasta, sixty miles to the south, by a broad gap through which the Klamath River flows oceanward from the elevated plains of the interior. From these first localities we observed the tree northward along the Cascades at points of suitable elevation as far as the mountain immediately south of Davis Lake, one of the reservoir sources of the Deschutes River, about latitude forty-three degrees thirty-five minutes. The tree has been reported by Mr. Lemmon as occurring also westward from the Cascade-Shasta gap in various smaller ranges toward the sea, including Mount Eddy, the Trinity Mountains, Scott Mountains, and the Siskiyou Mountains, all except the last lying wholly south of the Oregon-California line. . . . In the Cascade Mountains the Shasta Fir belt has an elevation of from 5000 feet to 7000 feet, and the tree is usually associated with Tsuga Pattoni, growing chiefly in the lower part of the Pattoni belt, but it often also crosses the Pinus Murrayana belt and sometimes overlaps on its lower side the uppermost edge of the Pinus ponderosa belt. In its best development, as, for example, on Huckleberry Mountain and near the summit of the Fort Klamath-Rogue River Road, it is a superb tall tree of magnificent proportions, easily the queen of the forest. Its common height is from 150 feet to 200 feet, and its trunk diameter 3 feet or 4 feet. The trunks of two large, but by no means extraordinary trees near the lower camping-ground at Crater Lake measured 15 feet 7 inches and 15 feet 8 inches in circumference about 4 feet from the ground. The crown of a mature tree is narrowly oblong in outline, usually equalling from one-half to two-thirds the total height of the tree, supported on a straight, only slightly tapering, branchless trunk, from 40 feet to 75 feet in height. The bark is of a reddish-grey colour on the outside, is regularly and rather deeply fissured, and within has the colour of Hemlock bark in alternating layers of dark red and reddish brown. The branchlets are extremely symmetrical in their ultimate ramifications, so that one standing beneath a tree can always distinguish it by this feature alone from *A. lasiocarpa*, *concolor*, *grandis* or *amabilis*. The large cones, described in detail below, sit erect upon the branches, and are continually suggestive of little owls.

In general appearance trees of *Abies nobilis* and *Abies shastensis* are to me indistinguishable, though a more intimate acquaintance with them might discover some gross differences. The cones of the two trees, though very similar, can always be distinguished by one familiar with both. The cone of *A. nobilis* is the slenderer of the two, measurements of the specimens of five collectors giving an average length of 133 millimetres, and an average thickness of .7 millimetres, giving a ratio of 2:33—in short, a typical, well-developed

cone is noticeably more than twice as long as broad. In *A. shastensis*, cones from six different places give an average of 131 millimetres in length by 70 millimetres in breadth, a ratio of 1:87, indicating that they are usually a little less than twice as long as broad. The cone scales of *A. shastensis* are usually from 30 millimetres to 35 millimetres broad and the seeds about 13 millimetres long, these measurements in those of *A. nobilis* being about 20 millimetres to 25 millimetres and 10 millimetres respectively. In external appearance the cones differ also in another way. The exposed portion of the bract is usually longer and more inclined to be obcordate in *A. nobilis*, and is abruptly reflexed and appressed to the surface of the cone, thus usually completely covering the scales. The awns of the bracts above the marginal serrations are commonly 5 millimetres to 7 millimetres long. In *A. shastensis* the awn is 2 millimetres to 3 millimetres long, and the shorter exposed part of the bract, seldom refuse at the apex, is rather loosely recurved, so that a considerable portion of the surface of the cone is commonly visible. Probably the best character of the tree, however, is in the leaves. Unfortunately, good series of the lower leaves of the two species are not accessible, but those of the upper branches, broken dead twigs from which can almost always be found underneath the trees, have been examined in quantity. In both species these leaves are thick, stiff, upwardly curved, keeled on the lower surface, and often, especially on cone-bearing branches, sharp pointed. On the upper surface of the leaves of *A. nobilis* there is, however, a sharply defined, narrow groove, while in those of *A. shastensis* the upper surface is keeled like the lower, the cross section therefore being rhomboidal like that of a *Picea*. The groove in the leaf of *A. nobilis* does not always reach all the way to the apex, and sometimes in the leaves situated along the middle of the upper surface of the twig, and therefore without lateral curvature, it is entirely wanting, but in the outside leaves of the twig it is invariably present.

ABIES NOBILIS is primarily a tree of the Cascade Mountains, the locality best and longest known for it being Mount Hood. It has been known for several years to extend as far north along the Cascades as Mount Ranier, and now it is reported by Mr. A. J. Johnson, of Astoria, Oregon, as occurring on Mount Baker, in extreme Northern Washington, close to the British boundary. Southward along the Cascades in Oregon we found it as far as Browder Ridge, on the northernmost headwaters of the Mackenzie, an affluent of the Willamette. This is about 50 miles north of the northernmost point at which we found *Abies shastensis*. Our route between these two points lay wholly on the eastern slope of the Cascades, but examination of the western slope in this region will undoubtedly show that the range of the two species approaches much more closely, if they do not, indeed, actually meet. Mr. Johnson has also reported it from the coast mountains of South-western Washington. The tree grows here, I am informed by Mr. B. E. Fernow, at an elevation of usually 1500 feet to 3000 feet, sometimes extending as low as 500 feet, as, for example, on the north slope of the divide between Grays River and Skamokawa River, about four miles from the sea.

C. V. COVILLE.

Early Daffodils.—Among the early flowers of the year there are perhaps none more refreshing and beautiful than the several kinds of *Narcissi* that so readily lend themselves to forcing. Always among the earliest is the ever-welcome Tenby Daffodil, and a few days later the somewhat larger Irish kind known as Irish King or Ard-Righ. Both these are very pleasing, and possess a value of their own, though neither can boast of a good sound constitution, a fact greatly to be regretted in such as force readily and well as do these. Ard-Righ is the larger of the two, while the Tenby has the better golden hue and a sturdy vigour in the perianth segments not easily surpassed. Later still is the far more handsome

Golden Spur, one of the finest of its tribe, and in every way a splendid flower. All these by judicious treatment may be had in flower quite early in January, and occasionally the two first named before the old year has gone. Grown in pots, too, with their pleasing foliage they are in every way more graceful and satisfactory than the gaudy Tulip or the lumpy, formal, and solid spikes of the Hyacinth, that so long held sway among the indispensable early plants for forcing.

KITCHEN GARDEN.

EARLY DWARF UNSTAKED PEAS.

As far as I am concerned the days of excessive neatness and painful trimness are over, and the aim now is to produce good crops at a minimum cost in labour and money. It is not a question of growing for profit, but rather of having abundance of Peas in close succession and of the best quality for my own use. Those extra small podded, round-seeded sorts of the Ring-leader type are not in my estimation worth garden room. On the other hand, many of the tender, wrinkled-seeded kinds, some of which mature very early if the plants are raised under glass and duly set out in rows on a warm border are unsuitable for sowing early in the open ground, owing to the liability of the seed to decay in cold, wet soil. William Hurst, otherwise Chelsea Gem, has long been a favourite with me for sowing under glass and planting out, and it succeeds admirably when sown in the open ground about the first week in March. It is far superior to American Wonder, and deservedly popular, but has now been replaced by Springtide, a variety that may be briefly described as a dwarf improved form of William I. Sown on February 22 quite in the open, on level, light, and not particularly rich ground, and not staked, a surprisingly good crop was produced. The first gathering was made during the third week in June. No fault could be found with the quality of this excellent early Pea. Early Morn was sown at the same time as Springtide, and is truly a fine variety. Unstaked, the haulm was scarcely 2 feet in length, but the crop was remarkably heavy, the pods nearly the size of those of Duchess of Albany, and closely filled with Peas equal in quality to anything I had on my table all through the season. It was only three days later than Springtide. For weight of crop Dwarf Favourite gave the greatest satisfaction. It is dwarf, early, heavy cropping, and the long, narrow pods are densely packed with good-sized Peas of excellent quality. Gradus and Daisy completed my list of dwarf early and second early varieties to be grown without stakes, and both sorts succeeded admirably as in previous years. They are second early, large podded, and of superior quality.

If Peas succeed well in the open fields grown without stakes, why not also in private gardens? Because the varieties form much haulm when staked it does not follow that they will make haulm equally long if unstaked, and become a confused, inseparable mass accordingly. On the contrary, it is the staking that fosters the formation of tall haulm. Left on the ground the growth is much shorter, turns up at the ends, and comes into bearing earlier than does the staked haulm. Growing without stakes is certainly the best plan where birds interfere seriously with the pods when filling, while plants on the ground do not suffer so much from excessive heat and drought as do those staked, though they may get slightly the worst of it during a dull, wet season. No special preparation of the ground need be made for Peas

A free-working, medium soil should be manured and dug one good spit deep for unstaked Peas. Seed sowing may commence, if the weather is dry and open, during the first fortnight in February or as soon after that time as the weather will permit. Where the soil is of a clayey nature it ought already to have been dressed with strawy manure and laid up roughly in order that it may break down finely during the second or third week in February. Make a successional sowing directly the first sown lines are showing through the soil. If the Peas are not to be staked, sow in single lines, rather than in broad drills, 30 inches apart. Mould up the plants in good time, and all that is further necessary is to keep down the weeds.

W. IGGULDEN.

Pea May Queen.—This Pea did so well when forced that I gave it a trial last year for first sowing in the open, and it was really good. I had previously grown it in pots and planted it out, and seeing its robust haulm with earliness combined, as I gathered the last week in May, it is well named. This variety is only from 2 feet to 3 feet in height, pods large for so early a variety. It is as early as the small round Peas, with the advantage of a full Marrow flavour, and having a robust habit it is not readily affected by frost; indeed, frost does less harm than wet soil. For early sowing well-drained soil is important.—G. WYTHES.

American Potatoes.—"A. D." (p. 35) is not quite correct when he states that *Beauty of Hebron* is the longest-lived in this country of the American introductions, for it was many years previous that *Early Rose* came over, and is still grown in large quantities. We were among the first to bring it into general notice, and have still the original stock on our seed farms. As proving that there is still a market for it we may state that we have already disposed of a large quantity of seed this season. Most of the American varieties serve us best here in a dry summer, and give the most satisfactory crops on light and well-drained soils.—JAMES CARTER & Co., London.

Cabbage Little Gem.—For two seasons I have grown *Little Gem* as a summer Cabbage, and it is all one may desire, as the quality is equal to that of a well-grown *Rosette Colewort* in autumn, and there is an absence of that strong flavour which large cabbages in summer often possess. It is recommended as a very early variety, and doubtless it would be valuable for early cutting where small Cabbages are needed, but with *Ellam's* and *Mein's No. 1* so good I have not required better. I have sown *Little Gem* in the spring for summer use and been much pleased with its good quality. Sown in April, there will be nice Cabbages in July, and a later sowing in May will provide a September supply. Its great value is that when fully grown it remains good so long a time and does not split. There are scarcely any outer leaves. The plants are compact and the colour a beautiful green.—G. WYTHES.

Lettuce in winter.—Though we have had a remarkably mild winter, Lettuces left in seed beds, if sown at all early, are very poor. I am aware many growers have a certain date for sowing their Lettuces to stand through the winter, but even then they cannot be relied upon, as after a hot, dry summer, with the soil in a warm state, growth is so quick that the plants get too large and are soon injured with a few degrees of frost. It is surprising what few losses there are among the plants put out in October. This is often a risky proceeding, but with a mild winter it is best, as transplanting gives a check and prepares them for our variable climate. I am aware excessive damp is equally as injurious as frost, and this is the reason plants at all thick in the seed beds winter so badly. My best plants are those sown rather thinly in well-drained soil, and not protected in any way. So far, *Lee's Hardy Green* is superior

to all others. This is distinct from the *Hammer-smith*, though probably a selection. At any rate it is a splendid winter Lettuce.—S. M.

CROPPING ARRANGEMENTS.

THE season so far has been a most propitious one for all kinds of work in connection with the kitchen garden, and work should in consequence be in a forward condition generally. Gardeners will now be busy consulting last year's notes and making preparations for the forthcoming season. To carry this out in a thorough manner demands a great deal of consideration, particularly when the establishment to be supplied is a large one and a full supply has to be maintained the year round. In the first place the nature of the soil to be dealt with has to be considered, as it frequently happens that it varies considerably in a garden of large extent. When such is the case, the best plan is to select sites best suited to the needs of each particular crop, and then prepare them accordingly. When the soil is of the same character throughout matters are much simplified, and the only thing needed is to so arrange the cropping that a complete change of ground is effected. This is assuming that the ground has not been dug, or if it has, that due regard has been paid to the nature or wants of each crop that it is likely to have to carry. Indiscriminate manuring and digging of plots regardless of the crops which it is desired or necessary to grow upon them are bad practice and cannot be too severely condemned.

When from various causes a particular crop is found to succeed better in one portion of the garden than in another, it is folly to abandon it simply for the sake of effecting a change of ground. A compromise can be effected in this case by devoting a portion or one half of the plot to the growing of whatever the crop may be for the one season, utilising the other portion the next year, and so on. Such crops as Carrots and Parsnips sometimes have to be dealt with in this way in order to secure serviceable, well-shaped roots. Borders under south and west walls should be reserved for the earliest crops, and those under east, and particularly under north walls, for things that require a cool and shady position during the summer months. The same thing holds good with regard to the arranging of the plots in the open by utilising the warmest and sheltered portions for early crops, and the cooler and shaded parts for those things which need it in the summer time. When all these matters have been well thought out and a final decision arrived at, a rough plan of the garden should be drawn and the crop that it is intended each portion shall carry should be marked thereon. If this is thought too irksome, short notes respecting the site each crop is to occupy, together with the area to be devoted to each, will do equally as well. Whichever plan is adopted, the man who has charge of the kitchen garden cropping should have access to it, so that he may know how to proceed in the absence of his chief, or without his having always to be troubling him for the necessary information. The adoption of a carefully considered plan in the manner indicated leads to the saving of much time later on, and leaves the gardener's hands free when there is generally great pressure in other departments.

A. W.

Cauliflower Early Forcing.—It is important to get Cauliflowers for May and June supplies, as at that season I find there is a greater demand than later with abundance of other vege-

tables. Many have not convenience to winter autumn-sown Cauliflowers, and here the value of the early quick growers comes in. *Early Forcing* is a splendid variety for sowing in heat at this season. It is not a large grower, being somewhat like *Early Snowball* in habit, but with a dwarfer stem. The plants, if not forced hard, are medium-sized and have a beautiful white curd. This variety with me, sown the last week in January in a bed made up of leaves and again pricked out when ready into a cold frame, was fit for use in the middle of May, and at that date was most useful, as it followed the late Broccoli. The best results are obtained by sowing in frames and planting out in a sheltered border. Plants raised in strong heat suffer when planted out should cold winds follow.—S. H. B.

Globe Beets.—The note on deficiency of colour in these early round-rooted Beets at page 36 recalls an incident which occurred at a local flower show in August last, when there was a special competition for a collection of vegetables. A market grower in a large way of business took exception to the placing first of a collection that included some handsome globe-shaped Beets, as against collections that included tapering-rooted Beets, on the ground that the round-rooted ones would not be even looked at in the market. Just to test the matter from a table point of view, for the market custom had no reference in this case, I, being one of the judges, cut roots of all the Beets shown, with the result that the one dish of round roots had by far the best colour and texture of flesh. It was of the *Blood Red* stock, a superior one considerably to the original Egyptian Turnip-rooted variety. But, then, whilst this stock was well in season in August, the tap-rooted ones were not, and could not have attained proper colour. Seeing that each has its season, it is not desirable to place the two forms into competition. That there is still room for improvement in the round-rooted strain there can be no doubt. I found in a trial of Beets during the past year that whilst *Dell's Crimson*, *Nutting's Dwarf Red*, *Pragnell's Exhibition*, *Cheltenham Green Top*, and one or two others were as good as it seems possible they will be in character, habit, and quality of flesh, yet the Turnip-rooted stocks came irregular, varying as regards leafage, root and flesh. I selected two roots marked for depth of colour of root, also excellence of form, and with dwarf foliage like that of *Dell's Crimson*, and hope next season, by growing them remote from all other Beets and seeding them, to secure a good true stock. Tap-rooted Beets have long been well fixed. They are now quite reliable, but Turnip-rooted ones are still in the throes of evolution and will yet much improve.—A. D.

GARDEN FLORA.

PLATE 1155.

ROSE MARIE D'ORLEANS.

(WITH A COLOURED PLATE.*)

WE do not think that among the little-known Roses of the English garden there is one more worthy of a place than this. We got it some seven or eight years ago, and every year since it has been a source of great pleasure from its hardy, vigorous growth and masses of large flowers, which are best of all perhaps in autumn. Those who have it and treat it fairly well will not see a flowerless bush in autumn, but will find it, perhaps, the handsomest plant in the garden. We bought it in the usual way worked on the seedling *Dog Rose*, but in planting it placed the union of the *Rose* and *Dog Rose* just below the earth, so probably—

* Drawn for THE GARDEN at Gravetye Manor, Sussex, by H. G. Moon. Lithographed and printed by J. L. Goffart.



TEA ROSE BRANCH, 'DUPLEANS'

we cannot say certainly—the plant rooted itself, as it very often throws out vigorous flower-laden shoots from the bottom in the autumn, a habit of Tea Roses on their own roots. As to cultivation, it has grown in deep, heavy loam for seven years, but no manure on the surface during that time has ever been given; in fact, it has been growing all the time out of a mass of mossy Rockfoil (*Saxifraga hypnoides*). This covers the surface of the bed winter and summer, and may have done a little harm; but covering the surface of the ground with a light rooting living mulch like that in very hot weather prevents the loss of water from the ground, and the foliage of the Rose is just sufficient to shade the moss a little and save from the exhausting effects of the sun this cool mountain plant. In some way we have come to call this Rose *Princesse Marie d'Orleans*, but

carmine. The wood is strong, the spines large and of a reddish colour; foliage beautiful shining dark green: the young shoots bronze-red. It is a very stout grower, forming a compact bush, reaching over a yard in height and of equal width after three years' growth.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

EARLY VINES IN POTS.—Under the most favourable conditions these should soon be in flower where started at the beginning of November. When the first capsules are seen to be liberated the right temperature for cold or windy weather may average 65°, less if it be very cold, rather than exhaust the humidity of the house to an excessive degree, but a trifle higher should the

fluos bunches, taking care still to keep a margin for bad weather contingencies. If there be any indication of curling up and a cessation of growth, a slightly increased temperature will in a measure remedy it, and so also will a less degree of humidity. Pay close attention to the watering; it is yet too early to water freely without closely examining the state of the soil.

PERMANENT VINES.—Those started with the new year will now be swelling their buds, but it will yet be too early to disbud with safety. The regular continuance of the use of the syringe is advisable up to the period of disbudding, when it may be gradually discontinued. It should, however, be noted that in the case of vineries with large inside borders the syringe need not be employed so freely as in those where all the surroundings tend towards a dry, arid condition of the atmosphere. In houses at this stage the night temperature should not exceed 52° to 55°, with 10° rise during the day, otherwise oftentimes the earlier buds will advance too rapidly for the more backward ones. Now is the time, if mealy bug be prevalent on the Vines, to keep a close watch for its first appearance; five minutes now will be worth fully five hours later on. When this pest is seen issuing from its winter quarters, all that is needed is an extra strong application of the insecticide already recommended for its extinction.

MUSCAT GRAPES.—The present is a good time for starting the earlier of these with every prospect of securing a good set when the root action is in a healthy condition. Of course, these fine flavoured Grapes may be started with the new year, but it is not advisable to adopt it generally. I am now thinking more particularly of the Muscat of Alexandria. For earlier purposes Madresfield Court Muscat is by far the best Grape to grow. The early small Grapes, as represented by the White and Grizzly Frontignans, are, unfortunately, not popular with many growers. The fact that they are not so well suited (to catch the eye) for the exhibition board has, in my opinion, something to do with this prejudice. For the first few weeks the temperature of Muscat vineries need not be advanced beyond that of Black Hamburgs.

LATE GRAPES.—These, if still kept on the Vines, will need as close attention as ever, whilst if it is contemplated to still retain them in this way, it will be advisable to shade the house with a thick mixture of clay and water, a plan adopted by some of the large market growers. This will prevent a rapid rise of temperature and also check any tendency towards an early start into new growth.

PEACH AND NECTARINE HOUSES.—The first flowers in my case, under steady forcing, were open a fortnight back, and artificial fertilisation has been performed on every favourable opportunity. In doing this, it is most essential to use all possible care not to injure the stigma, a side touch being better than a direct one. During the flowering period the direct use of the syringe should be avoided, but the floors and the pipes, too, may be freely damped once or twice a day, according to the state of the weather. To keep an absolutely dry condition of the atmosphere is as undesirable as it is unnatural. The best plan to adopt at this period is that of warming the pipes early in the morning, when the first damping down may be given. Then as the temperature rises, the ventilation can be attended to, guarding at all times against a sharp or direct current of exterior air, the object being to render the atmosphere light or buoyant, and in this manner to make it possible for the pollen grains to be more effective. The first Nectarine to unfold its flowers is again Cardinal, and the next, Early Rivers, whilst of Peaches, the first is Early Grosse Mignonne, and the second, Stirling Castle, which, although only a second early variety, is useful for its prolific amount of pollen. There are many complaints this season, and that from the most expert cultivators, of bud-dropping to a serious extent. This, in my opinion, goes to prove that for early forcing it is never advisable to prune the trees to such an extent as in later houses: fore-



A double-flowering Cherry tree in Victoria Park, Bath. From a photograph by Mr. Walter Rossiter, Elm Place, Bath. (See p. 81.)

believe its true name is Marie d'Orleans. It was raised by MM. Nabonmand at Golfe-Juan, and if these raisers had only given us what we think are among the most precious Roses of all—Georges Nabonmand, Marie d'Orleans, and Papa Gontier—they would be entitled to the gratitude of all English Rose growers, for these three Roses suit our climate admirably and cannot be left out of any beautiful Rose garden. They not only grow vigorously, but, blooming from Rose time as we know it, carry us through with noble Roses the fair autumn days, and in mild districts may even gladden the coming of winter with their buds and bloom.

We append here the raisers' description, which we think quite a just and modest account of such a Rose:—

Large, full, fragrant flowers of a deep bright rose colour. The buds are long and of a brilliant

weather be mild, say 67° during the evening, falling to 65° or so at daybreak, and rising during the day from about 7° to 10° by fire-heat, or 15° by sunshine in addition. Whilst in flower avoid steaming the pipes and also for a week or two afterwards; the leaves used as a fermenting material will give off ample moisture. Look closely also to the condition of the pipes as regards sulphur, should it thus far have escaped notice, as the slightest amount of sulphuric fumes will be fertile in producing rust, which is invariably to be dreaded more than that at any other season, the tender condition of the skins of the berries being even more sensible to injury under early forcing. Attend to artificial fertilisation daily with a camel's-hair brush or a rabbit's tail, either of which is greatly to be preferred to the use of the hand, as the very slightest amount of perspiration will have the same effect as the sulphur fumes. Remove to a moderate degree the super-

shortening rather than thinning out too much wood is the most rational method, for the buds which escape are oftentimes those seated at the base of the shoots. The actual causes (the plural is used, for undoubtedly there is more than one) want some fathoming, so as to be safeguarded in the future. Dryness at the roots in the autumn and noxious fogs both operate to a serious degree. During the flowering time it is not advisable to increase the temperatures to any extent. During the daytime 60° by fire-heat is ample, 5° in addition being allowed by sunshine, in both cases, however, with ventilation. At night 50° is enough at any time, a few degrees more or less being countenanced according to the state of the weather.

STRAWBERRIES.—Where the first batch is in flower, pay close attention to artificial fertilisation, this being needful thus early in the season to a far greater degree than it will be in a few weeks' time. For these the best place is a shelf near the glass and where there is a free play of air about them. These will give better satisfaction if kept in a house where the night temperature does not exceed 55° and during the day a rise of 10° or thereabouts. Vicomtesse H. de Thury will bear a few degrees more—at least such has been my experience. A large batch should now be got under glass, some, if possible, being accorded more warmth than the rest, so as to extend the season. Royal Sovereign started now will yield reliable crops at the end of April. La Grosse Sucrée shows its spikes rather earlier than the preceding, hence I find it better in some small measure for the first early kind. Wherever there is any spare room in fruit houses at rest it will be advisable to fill up with pot Strawberries from pits and frames; the free currents of air will benefit the plants, and the space thus vacated will readily be put to a profitable use for bringing early vegetable crops forward. Let all the drainage be examined closely, and the surface soil be pressed down firmly when sufficiently dry. Wherever mildew is prevalent, either dust the plants with sulphur or apply it in a liquid form by the syringe or by dipping. This will also safeguard the plants in some degree against red spider.

HORTUS.

KITCHEN GARDEN.

MUSHROOMS.—There is no better season than the present to obtain an abundant supply of Mushrooms, but it is necessary to prepare materials some weeks in advance so as to keep up a succession. The modern Mushroom house is usually a heated building at the back of fruit ranges, and in many cases is not the best, as it is often too dry and the heat fluctuates. To avoid this in a mild winter such as we are now experiencing, I have done without fire-heat at all, preferring to place heaps of heating material on the floor. By so doing there is a moister atmosphere, and though growth is slower the beds last longer and the Mushrooms grown thus are more succulent. To produce the best Mushrooms, and as long as possible, the manure must be sweet, and when placed in bulk there must be an absence of dry white heat, as violent heat soon fails and the spawn may be spoiled at the start. Though I advise well-prepared manure, I do not in any case advise delay so that the heat declines, and the bed is in such a condition that it is too cold to cause the spawn to run. I find the best beds are those spawned when the manure is nearer 100° than otherwise. A much lower temperature is often advised, but I prefer this heat if the house is not kept at a high temperature. In no case do I advise a high temperature for the house, 50° to 55° is ample with plenty of moisture in all parts. I much prefer an underground Mushroom house that does not need artificial heating. In such a house one may secure good crops all the year round, whereas the modern house fails for nearly six months, as from April to October this structure is too dry and the Mushrooms, if any, are infested with small worms. I have seen splendid crops in disused stoke-holes, and anyone who intends to make a winter Mushroom house will find the

underground one the most profitable. Old beds beginning to fail may be assisted by watering with tepid water to which has been added some salt, but to be beneficial it must reach the spawn, not merely wetting the surface. A little fertiliser in the shape of guano or fish manure will do good. Anyone who desires to get new beds into bearing quicker than by ordinary spawning may do so by transferring living spawn from bearing beds. Such beds, however, do not last so long.

RHUBARB FORCED.—With a poor Apple crop forced Rhubarb will be more in request, so that it is well to cover roots in the open air to form a succession, and in some cases rough coverings have to be made use of. If only a few sticks are bent over the crowns and long litter placed over the sticks earlier produce may be had, and of a nice colour. Where pots and manure are used it is well to avoid rank steam, as this spoils the stalks and gives them an earthy flavour. On the other hand, if boxes or other materials are used as covers and only litter employed to cover, there will be fine stalks in a few weeks and of good quality. Lifting roots for forcing, as is often done from November to February, unless there is plenty of material, greatly reduces the open-air supply, and it is well to provide for future forcing. I do not advise replanting roots that have been hard forced, as much better results may be procured by dividing old roots, these being grown on specially for early lifting in rich soil on an open border and well fed.

RHUBARB FROM SEED.—One rarely sees this mode of culture advocated, but it has its merits both for lifting, for forcing, and for permanent quarters. As Rhubarb soon exhausts the soil, it is necessary to make new plantations, say, every half dozen years, as then less ground will suffice for the stock, as better produce is secured. By sowing seed now or at any time till the end of March one may secure good forcing roots in two seasons. By sowing in boxes in frames and pricking out the seedlings when large enough into boxes and planting out in rich soil in May 3 feet apart, there will be excellent forcing roots after the second season's growth. There is an advantage with roots raised from seed, as the plants have much vigour, and I have found them force quickly. For forcing, Johnston's St. Martin is very early, as is also Royal Albert, and for general use or late supplies in the open Hawke's Champagne is one of the best; indeed, for preserving I do not think it can be equalled for colour. Many dislike old Rhubarb roots because they throw such a number of seed stalks. This may be prevented by growing younger plants. One of the best non-seeding varieties is Paragon. Rhubarb should not be sown in the open air till April.

CARROTS IN FRAMES.—For some years I used to force Carrots in frames in much greater quantity than I do now, as then I relied upon roots sown in April for latest supplies, and these were past by the early spring. I now sow in June or July for winter roots, and though small, they are a great saving, as this plan does away with hard forcing. Carrots raised under glass are valuable, as they give a supply weeks in advance of the roots in the open. Now is a good time to prepare a frame, and those who can spare a brick pit will find it superior to ordinary frames or manure, as the heat can be better maintained. If movable wooden frames are used, it is well to employ a good body of manure that will heat slowly. That with a goodly portion of leaves mixed is best, making it as firm as possible to prevent shrinkage. In any case it is necessary to sow near the glass, keeping close till the seed germinates and avoiding thick sowing. The soil, though light, should be made firm and at least 6 inches in depth. Early Nantes and Early Gem are excellent for frame culture, the former being the earlier.

FRAME RADISHES.—These are at times sown with Carrots, but it is not a good plan, as Radishes do the Carrots harm. I would not mind sowing between rows of early frame Potatoes, but with this reservation, let there be no Radishes left when the Potatoes are about 6 inches high, as they

obstruct growth and prevent tubers forming. The safest plan is to devote frames to these plants and grown thus one can force them on more quickly and soon clear the crop. For these roots little bottom-heat is needed, but a rich light soil made firm when sowing the seed. If sown in pits, it is well to have the soil as near the glass as possible, as then there is quicker growth. There are some good varieties for frame culture, and some have so little top growth that they may be sown quite thickly. The White Olive is a very small grower, but a tender root with excellent flavour. Forcing Carmine is equally good, and sown under glass it may be had fit for use in four weeks. The well-known French Breakfast is one of the best, and of the longer roots, Wood's Frame is also good.

HERBS.—Mint is in constant demand from the early part of February in most places, and it is well to be provided with a liberal supply. It is immaterial how it is forced, provided it is near the glass and not too much heat employed. Young roots give much stronger shoots. I propagate yearly for forcing; the shoots are taken from open-air beds when from 4 inches to 6 inches long, and dibbled in 6 inches apart into rich soil. This is much better than dividing the roots and gives less trouble, the only care is to give sufficient water to the cuttings at the start. Roots may be placed in front of fruit trees in houses, and if kept moist will soon give a supply. If only small quantities are needed shallow trays may be used. These are handy, as they may be transferred to cold frames. Old beds in the open should now be cleaned, lightly forking away weeds and giving a top dressing of light, rich manure to encourage strong top growth.

TARRAGON.—Much the same treatment is needed to produce this herb as in the case of Mint, but the demand is not so great. Roots lifted now and placed in a temperature of 50° to 60° will give a cutting in three or four weeks. I prefer cold frames if a large supply is needed, as though it grows slower the growth is stronger and the flavour better. Tarragon is best propagated by division of roots, and the plants if not much forced grow again, but it is better to make a new quarter yearly, and thus secure strong roots. A light, rich soil will be best, and if very early supplies are not needed it is a good plan to place some light material over the crowns and uncover in bright weather.

PARSLEY so far has wintered splendidly, so that the usual advice as to lifting is not needed. It is well to be on the alert and preserve a portion, as the plants often suffer later. Though lifting may not be necessary it is well to cover with a frame some of the best plants, and to dress others over freely with soot and wood ashes to prevent losses in the early spring. Old plants that have given the winter supply, if cut closely over and given a dressing of a rich fertiliser, will soon furnish new growths in spring.

S. M.

Pampas Grasses re-named.—In his revision of the genus *Arundo* and its allies, published in the *Gardeners' Chronicle*, Dr. Stapf, of the Kew Herbarium, has separated five of the species of *Gynerium* from the sixth, *G. saccharoides*, which is now monotypic, the other five constituting a new genus for which the above name is proposed. Only one of the five is generally known in cultivation, namely, *Cortaderia argentea*, the Pampas Grass of gardens, hitherto known as a *Gynerium*. It is common in some parts of Brazil, and extends from Southern Brazil to Patagonia, but nowhere crosses the Andes. The name Pampas Grass was first used without stated reason by Paxton in his "Flower Garden," 1850, p. 175, where the plant is mentioned as a new introduction into horticulture by Dr. Moore, of Glasnevin. Dr. Stapf says "all the evidence tends to show that this plant is confined to the neighbourhood of watercourses and to depressions where there is a constant and sufficient supply of underground water, and that it is absent from the greatest part of those vast grassy plains which we gene-

rally call Pampas. The grasses which form so prominent a part of the Pampas vegetation belong rather to very different genera." A second species, named *C. Quila* by Dr. Stapf, has been in cultivation for some years under the names of *G. jubatum*, *G. roseum*, and *G. Rendatleri*, but it has failed to win much notice from cultivators, probably because of its comparative tenderness, although it is a most beautiful plant, the plumes being longer, looser and more elegant than those of the Pampas Grass. It is a native of Bolivia at high elevations, "in wet places among cliffs." The Kew plants of it are grown in pots in a cool greenhouse, but it is hardy in the south of Ireland. The three other species of *Cortaderia* are *C. araucana*, a native of Chile, Valdivia, &c., and described as a very fine species with rather narrow, dense and exquisitely lustrous panicles; *C. speciosa*, also a native of Chile, and *C. radialis*, from the Argentine, &c. This species resembles *C. argentea*, but is smaller and more slender. These three are not known to have ever been in cultivation.—W. W.

STOVE AND GREENHOUSE.

NEGLECTED GREENHOUSE PLANTS.

PIMELEA DECUSSATA.—The culture of *Pimeleas* generally is not to be undertaken with any prospect of success, except by those who have had some experience with what are commonly called hard-wooded greenhouse plants. Such species as *spectabilis* and *Hendersoni* require the hand of a master to bring them to perfection. *P. decussata*, on the contrary, is one of the most easily managed things of its class, and may be taken in hand with confidence by amateurs having a fair knowledge of plant culture. It is a charming object when well grown and covered with its bright rosy flowers, and is well adapted, by reason of its neat, compact, dwarf habit, for decoration. It is one of those things that should be rescued from oblivion, for it is really better worthy of a place in the greenhouse than many of the newer introductions that have thrust it into obscurity. It requires good sandy peat, good drainage, plenty of sun and air when growing, and a temperature of about 45° in the winter.

ACACIA ARMATA, very largely grown some thirty years ago, even now one occasionally comes across a nice healthy lot of this *Acacia*. It is, however, by no means popular at the present time, and one may go through a score of private gardens without seeing a single specimen of it. Probably a large proportion of the younger generation of gardeners are unaware of the exceptional merits of this *Acacia*, which in former days was to be found in good condition in 90 per cent. of gardens where greenhouse plants are cultivated. It is very showy, the abundant yellow blossoms contrasting well with the foliage, which in a healthy state is rich green. It will bear a lot of rough usage without suffering perceptibly, and may be kept in the same pot for several years without loss of foliage. Good loam with a little peat and leaf-mould will induce a strong growth, which must be matured by full exposure to the sun in the open air from July to mid-September. The only enemy this *Acacia* is liable to is scale, which, however, is rarely troublesome when the plants are not coddled or starved in the growing season and are kept well supplied with moisture at the roots. Affected plants can be effectually cleansed by dipping them when at rest in Gishurst compound. After blooming the long shoots should be cut back hard. Plants kept more than one year in the same pots should get nourishment of some kind in the form of top-dressing or weak liquid manure from the time they start into growth. In the form of good-sized specimens a yard or more through, this *Acacia* is of much service for conservatory decoration.

ERICA SPENCERIANA.—Some thirty years ago this Cape Heath was frequently seen in the form

of large specimens at the London exhibitions, but at the present time it is but rarely met with. It is a free-growing kind, effective in the form of good-sized plants, and it is not liable to go off in the way that so many of the family do. In habit it resembles the stronger-growing members of the *ventricosa* section, and I should imagine must have resulted from crossing one of them with a soft-wooded kind. Plant growers nowadays fight shy of that class of plant, which requires several years' careful culture, and for this reason principally the large and varied family of Cape Heaths gets so little attention from private growers. It is a pity to leave out in the cold a class of plant so distinct and beautiful, and in good-sized gardens where pretensions to good plant culture are made some of the more easily-grown kinds might find a place. *E. Spenceriana* is one of the most easily managed of the genus, only requiring good peat with plenty of white sand and cool treatment, with careful watering in the winter and strict attention in the growing season.

TETRATHECA ERICOIDES.—If not a striking, this is certainly a very pleasing object when in bloom. The soft-coloured flowers are produced in great profusion even on small specimens in 6-inch pots, and they are very lasting. It grows with much freedom, and is not liable to disease of any kind. With ordinary care it may be kept in good condition for years, the Heath-like foliage not being so liable to suffer and fall prematurely as is the case with many things of this class. After blooming, the main shoots should be cut in moderately, any repotting being done just as growth commences.

HOVEA CELSI.—Blue-flowered greenhouse plants are by no means common, and, if only for this reason, *Hovea Celsi* should find much favour with plant growers. It is of easy culture, and the flowers are produced in such abundance as to render a good-sized specimen a most attractive object. I do not know of anything finer among greenhouse flowers than this *Hovea* when in good condition. A good many years ago there lived at Twickenham a nurseryman who grew this *Hovea* remarkably well and in a way not generally practised. Unlike other things of its class, it is more easily raised from seeds than from cuttings, and this way of increase was at that time invariably employed. Cuttings are a long time rooting, and never go away freely, whereas seedlings make vigorous growth from the first. The grower above alluded to allowed the plants to run up with a single stem to heights varying from 18 inches to 4 feet, thus forming standards with heads from 1 foot to 3 feet through. When in bloom these standards had an imposing and remarkably attractive appearance, the fine colour of the flowers being displayed to the best advantage. After flowering they were pruned in rather hard to keep compact leafy heads on them. For dotting about in the conservatory good-sized specimens grown in this way are very serviceable, and, as before mentioned, the colour of the flowers affords a fine contrast to other things usually employed for decoration. J. C. B.

Acacia pubescens.—There is a fine old specimen plant of this *Acacia* now flowering in one of the large greenhouses at Bush Hill Park Nurseries, and although rather cramped for room, the pretty pinnate foliage has a light and graceful effect, which will be greatly heightened when the whole of the flowers are open. The cultivation of all these beautiful *Acacias* is so simple, and they flower at so useful a time, that it is strange indeed they are not more grown. No great amount of heat is required at any time, and during their summer-growing season they may be stood outside with advantage.

Statice profusa.—Among the many greenhouse plants well grown by Messrs. Low at Bush Hill this fine plant takes a leading position. Owing to its lasting properties it is a favourite market plant, and there is a large and healthy stock of it in various sizes. Other species or

varieties are grown, but the above is, apparently, the most popular. *S. profusa* is not, perhaps, so much grown in private places as formerly, but during the later summer months it would prove extremely useful, the light graceful spikes being probably unrivalled among greenhouse plants for the tops of epergnes and similar uses. It is propagated by offsets and thrives admirably in a cool light house all the year round.

Dracæna indivisa.—On p. 32 of THE GARDEN (Jan. 8) there is a paragraph on this plant, which, however, is now more correctly known as *Cordyline australis*. The true *Cordyline* (*Dracæna*) *indivisa* is a very rare plant in gardens and quite different and distinct from *C. australis*, which is very common, being easily raised from Cornish or Irish seed by the thousand and from root-cuttings very freely. The finest specimen I now know of—*C. indivisa vera*—is at Tresco, which flowers now and then and has borne seeds. I have had imported seeds from New Zealand several times, but could never rear a plant, nor could those friends with whom I divided the seeds. The true *Cordyline indivisa* is figured in Lowe's "Beautiful Leaved Plants," plate 52, and is there said to have been introduced by Messrs. J. and C. Lee, of Hammersmith, in 1852. Mr. Howard, Messrs. B. S. Williams and Son and others used to grow and exhibit fine specimens in their collections of stove and greenhouse plants years ago, but the plant never has been commonly met with in our gardens; in fact, I and many others would be much obliged to hear where even small plants (true) can be purchased at the present time.—F. W. BRIDGE.

TWO MID-WINTER WHITE IRISES.

(*MORÆA IRIDOIDES* AND *IRIS ASSYRIACA*.)

IRISES are not superabundant at Christmas, and even in May and June, amid the innumerable purples, lilacs, and yellows, white varieties can hardly claim to be common; consequently a note on the above species may be of interest to some of your readers, to whom the *Hyacinth* and *Polyanthus Narcissus* are not the *alpha* and *omega* of greenhouse culture in winter. *I. assyriaca* is, I believe, of quite recent introduction, but both are to my mind of exceptional beauty. *Moræa iridoides* is, of course, strictly speaking not an Iris at all, and can only be called so by taking liberties with the Equator and violating the botanical integrity of the Southern Hemisphere; however, its remarkable likeness to an Iris seems to have struck even the most orthodox of its godfathers, while during its chequered career it appears to have figured under at least seven other aliases, including those of *Iris crassifolia* and *Dietes compressa*. There is also a garden form, *Dietes Macleani*, which I fancy I noticed in some catalogue not long ago. The petals or falls of this species are a beautiful ivory-white (like that of *I. orientalis*), while the keel is rich yellow. Mr. Baker describes the inner segments or standards as "concolorous." I am not a good enough botanist to understand this expression if it has any technical meaning, but in their relation to the rest of the flowers the standards in my plant are certainly not "concolorous," for they are of a bright lilac, thus making the whole flower pre-eminently tricolorous. *Moræa iridoides* belongs to the sub-genus, which also comprises the famous (though surely not well known) *M. Robinsoniana*, the Wedding Flower of Australia, and it is conceivable that the plant itself might prove hardy in favourable situations—hardy, that is, to the extent of not being absolutely killed by frost—but it seems to me, judging by the time the blooms take to open even in a greenhouse, that it would be practically impossible to get it into flower in the open. *Iris assyriaca*, in the white of which there is a larger admixture of the blue or grey tint, has the growth of an *Orchis*, and is evidently closely related to that lovely plant *I. sindjarensis*. If any of your readers, not in especially favourable localities, have successfully established either of these last-named species in the open, I should be interested

to hear of it. They would be a great addition to the interest of the spring garden if they could be induced to postpone their blooming period till March. *I. orchoides*, a more expensive plant than either of those named, seems capable of being treated in this way. With regard to *I. sindjarensis*, I think I may have made some cultural mistake. I flowered this well in a greenhouse last year, but when I came to look at the bulb with a view to re-starting it in the early autumn, I found it shrunk to a small size and shrivelled. It may have been over-dried, but it also may be that this, like some other bulbs, will not stand any sort of forcing, and practically dies after flowering under such treatment. This year the bulb has only thrown up a leaf or two.

J. C. L.

Tuberose after flowering.—In THE GARDEN of November 13, page 379, an article appeared giving the culture of Tuberose up to the flowering stage, but not stating what should be done with the bulbs after blooming. I have always thrown them away as soon as the flowering was over. I have been recently told that by putting them on a stage in a cool house, and drying them off, they will continue to flower for several seasons. Is this so?—A. T.

* * The bulbs are of no value whatever, and no one would advise keeping them. I fear drying off the bulbs and resting on shelves has not been tried. I have tried bulbs not forced, but obtained very poor results, so poor, indeed, that I would not advise anyone to follow my example. I fear your only course is the one always adopted, viz., to throw away the bulbs when done flowering.—G. W.

Cyclamen Bush Hill Pioneer.—This is doubtless a fine addition to the list of Cyclamens and a striking and effective novelty. The crested form of Cyclamen has appeared in other places, it is true, but in none is it so regular as in the Bush Hill strain, which comes quite true from seed. There is not the least tendency to doubling, which would spoil the contour of the flower, but the crest is more like that seen on the lip of some Orchids, notably *Odontoglossums* and *Oncidiums*, running from a broad base to a feathered tip and greatly enhancing the appearance of the flower. At present the white form only is offered, but no doubt future seedlings carefully hybridised will show considerable variety. There is practically no limit to what may appear, and one can easily imagine future forms showing a deep-coloured crest on a pure white ground, or *vice versa*. The crested form appeared some years ago, since when the Messrs. Low have, by careful selection and weeding out of the worst forms, obtained the fine variety above named. It is evidently quite as vigorous and free as the ordinary strains now so popular.

Greenhouse plants and the fog.—On page 31 mention is made of the fact that Camellias are proof against the heavy sulphur-laden fogs experienced in the neighbourhood of London during the winter season, and of which we have had a considerable amount of late. As a rule, plants with firm, glossy leaves are much less injured than those whose foliage is thinner in texture and more or less hairy. Among the commonly grown plants of a shrubby texture may be mentioned the Azaleas, which suffer terribly, for the young leaves shrivel up as if burnt, while the mature ones drop wholesale, and frequently leave the bush nearly devoid of foliage. Even among the Indian Azaleas some varieties resist fog much better than others, one of the best in this respect being *Mme. Van der Cruyssen*, which is seldom affected to any extent, while another, *Sigmund Rucker*, is often killed outright. Both these kinds are very popular with the Belgian cultivators, and are sent here in considerable numbers, but the latter is useless in the London district. Greenhouse *Rhododendrons* that have originated from the intercrossing of *R. ciliatum*, *R. Edgeworthii*, and *R. formesum*, and which now constitute an extensive section of for the most part

white-flowered varieties, all suffer somewhat, and frequently the flower-buds are killed, while, on the other hand, the Javanese or tube-flowered section is quite indifferent to fog, for the members of it will even flower throughout the winter in the London district. The charming little *Rogiera gratissima* suffers terribly, nearly as bad in fact as the *Bouvardias*, which are quite scorched up. Most of the different species of *Eucalyptus* suffer considerably, but none other to the same extent as *Eucalyptus citriodora*, which frequently loses every leaf and dies outright. If the foliage is kept clean, that pretty shrub *Thibaudia acuminata* does not seem to mind the fog, but there are very few subjects that are not more or less affected by it. Soft-wooded plants of course suffer greatly, the members of the various sections of *Pelargoniums* often losing nearly all their leaves, while *Primulas*, *Cinerarias*, and other things look as if burnt, in addition to the foliage being blackened with soot. *Cyclamen* leaves are seldom affected, but the flowers quickly perish.—H. P.

POINSETTIAS AND EUPHORBIA JACQUINLEFLORA.

I HAVE a few plants of the above. The bracts of the Poinsettias are about over, and the Euphorbia has likewise finished flowering. Would any propagator of these plants tell me how to treat them from now so as to get cuttings from them, and also how to strike them, as I understand neither is easy of propagation? The Poinsettias are single-stemmed plants.—A. E.

* * Both the Poinsettia and Euphorbia are propagated from cuttings of the young shoots, but the treatment differs in some respects. The Euphorbias that have done flowering, though somewhat shabby, should have a good place in the stove assigned them, and be kept sufficiently moist to encourage the formation of new shoots, but an excess of moisture must be guarded against. Early in February, or at least during that month, the first crop of cuttings will be sufficiently advanced to be separated from the plant. When the young shoots are about 3 inches long they should be cut off close to the old stem and inserted into pots of light sandy soil, such as a mixture of loam, peat, and sand in equal parts. The cuttings may be put singly into small pots, or about half a dozen around the edge of a 4-inch pot. By this latter method they do not take up so much room in the propagating case, and they can be potted off without any injury to the roots if carefully done. The cuttings must not be put in too deeply, otherwise they are liable to decay, or an excess of moisture will have the same effect. They should be inserted as soon as possible after being separated from the parent plant, otherwise they quickly flag. If placed in a close propagating case or under a bell-glass in a stove temperature they will not need any water for a few days. Under such treatment they will soon root, when they may be gradually hardened off. The old plants will give several crops of cuttings, and the early struck ones may after a time have their tops taken off for the same purpose. If possible, the propagating case in which these Euphorbias are struck should be given entirely up to them, as they will often need more air than is suitable for many other subjects, for, as above stated, too much water is likely to prove fatal, and surface moisture may be kept down by tilting the lights. The late-struck cuttings make the most effective plants when put three in a pot, as they will not need so much stopping in order to produce well-branched specimens.

Poinsettias may now be placed under the stage in the coolest part of the stove or intermediate house and kept dry, just giving them an occasional watering to prevent them becoming parched up altogether. Generally they may be allowed to remain there till the end of March or even later, when they may be put up on the stage in a warm house and more water given. The result of this treatment is shown in the plants starting freely

into growth, and when the young shoots are about 4 inches long they may be taken off as cuttings. These should be put singly into small pots, using the same soil as recommended for the Euphorbia. The cuttings must be taken off close to the old wood. They should then be placed in a close propagating case in the stove, where they will quickly root. Poinsettia cuttings are not so liable to damp off as those of the Euphorbia.—H. P.

BROWALLIA ELATA.

BADLY grown and drawn plants of this species are not very attractive, but nice sturdy specimens in 6-inch pots grown for winter flowering are among the prettiest of greenhouse plants just now. They are useful for conservatory or house decoration, and the little deep blue flowers are elegant when cut. The culture depends entirely upon timely attention and care, and it is one of the best amateurs' plants in cultivation. Seeds are offered by most nurserymen, and these may be sown at midsummer for early winter flowering, a later sowing being made for successional plants. Sow thinly in pots or pans, just covering the seeds with fine sandy soil in a greenhouse or frame. If the pans of soil are well soaked with water before sowing and afterwards covered, no more water will in most cases be required until the plants appear. Shade them for a few days, baring them as quickly as possible to induce nearly full exposure to sunlight. Prick them off 2 inches apart when large enough to handle, and eventually pot singly into 3-inch pots. The roots are rather easily damaged, but if carefully handled will take no harm. When established give air on every possible occasion and dew the plants over with the syringe twice daily. Never close the frame entirely until the nights are getting cold in September, by which time the plants will be in their flowering pots. A sound fibrous loam mixed with leaf-mould and peat in equal proportions is the best compost, but, as a rule, one has to make the best of what is to hand. Drain the pots well and make the soil moderately firm, replace the plants in the frame and keep a little closer for a few days. If kept well up to the light from the first and never crowded either in the pots or against each other, it is possible to obtain nice shapely plants without stopping, nor will the flower-buds appear if always kept growing freely. Rather than let them get drawn, the points of the shoots may be taken out once or twice. The frame should never be closed just as the plants are syringed, as this causes the drawing complained of. If space allows, the plants should be housed in a light, sunny greenhouse in October or grown in pits where a little warmth may be turned on at night to allow of ventilation. This will harden the stems and make the plants more free-flowering. After housing, a little weak soot water may be given at intervals, this helping to keep that dark glossy green tint in the foliage that is so much admired. Dryness at the root must be avoided while in flower, or this will cause the blossoms to drop. There is a white and also a blue variety of *B. elata*, but the latter is, I think, the more popular, as it is a favourite colour, while the white is not exactly pure. GROWER.

The best white Azalea for forcing and cutting.—Unlike the Camellia, the Azalea has not been superseded by any other class of plant for cutting and using in various decorations, and from Christmas till early summer few flowers are more acceptable than a pure white Azalea. Some varieties are shy in forming new growth, and the wood is so scarce that little or none of it can be cut off with the flowers, which is a disadvantage, as the Azalea blooms never look so well as when they are surrounded with some of their own foliage and with a little bit of wood attached. But there is only one variety that will afford this, and that is the old Fielder's White. This is the freest-growing of all the Azaleas. If all the small shoots are cut off it in winter and it is placed in a genial growing atmosphere afterwards

it will produce an endless number of them again, which will form bloom-buds in the summer that will furnish flowers in the winter again. It is the easiest to force of all Azaleas. The flowers are of the purest white and their form is most pleasing. Other varieties of white-flowered Azaleas have been tried for mid-winter forcing on a large scale, but they have all been discarded in favour of this old variety, which is so easily managed.—M.

Acacia Drummondii is among the neatest of this rather extensive genus when grown into small bush form. Particularly distinct and neat is the pinnate foliage of this kind, and equally so the pale lemon-coloured, cylindrical drooping spikes of flowers. It is an easily-grown species, and rooted cuttings in the second season make compact little bushes. To secure, this, however, it is necessary to pinch the growth quite early after rooting, and again when 3 inches more growth have been made. After this the growth may run unchecked for the first year, when the young plants may be rather closely cut back. This may be done in January and the plants given a shift into 5-inch pots in March and grown on without further pinching. After this the plants are easily kept to a moderate size, such as is suitable for conservatory or room decoration. When grown in quantity by the trade the cuttings are rooted over a considerable period; but amateurs and others requiring but a few plants will find short cuttings with a heel will root readily in a cold frame in July and August when covered by a bell glass, or again in February or March in the greenhouse. A dozen or so of such things rooted each year will provide a useful batch when they have reached the requisite size. Quite cool treatment, very firm potting, and a soil almost wholly of peat are the best for these plants.

Epiphyllums in bloom.—Flowering as they do in mid-winter, the different varieties of Epiphyllum are particularly valuable, owing not only to their brightly-coloured blossoms, but also to the fact that they are so totally distinct from anything else in bloom. These Epiphyllums are not grown to anything like the extent they were a generation ago—why it is difficult to say, as their cultural requirements are very simple. They are usually grown as standards, being grafted on to stems of the Pereskia, and in this way their semi-pendulous style of growth is seen to advantage. Still, it is not the only method of culture available for these Epiphyllums, as they are well suited for growing in suspended baskets, in which case cuttings are far better than grafted plants. They strike root readily under almost any conditions, hence should a basket prove at all faulty anywhere the defect can be easily remedied by sticking a few branches in the weak places, where they will soon root and grow away freely. Epiphyllums do not need too heavy a compost, yet the major portion of it should consist of good loam, which must be lightened with sand, mortar rubbish, and a little well-decayed manure. Good drainage is essential, and care must be taken not to use too large pots, as the roots are not particularly numerous, and large specimens can be grown in comparatively small pots. When this is the case, a little liquid manure will be of service.—T.

Nerine Manselli.—I have lately observed several articles in THE GARDEN about Nerine Manselli. Perhaps it may interest some of your readers to know the origin of this beautiful Nerine. In March, 1880, I purchased three seedling Nerine bulbs from Messrs. E. G. Henderson and Son, of St. John's Wood, under the names of Nerine elegans, N. cinnabarina, and N. sanguinea. N. sanguinea died, the other two did well and flowered. I was so charmed with the blooms of both these seedlings that I wrote to the person I understood was the raiser of these Nerines, viz., Mr. James O'Brien, when he was with Messrs. E. G. Henderson and Son. We had a long and interesting correspondence on the Nerine family, and I sent some of the blooms of Nerine Manselli to Mr. O'Brien, who afterwards sent them to Mr. G. Baker, of Kew, who thus

wrote: "It is a fine plant, just about halfway between its parents, with a very broad fleshy leaf, and bright red, slightly irregular flowers. A decided acquisition to the series of garden forms." I sent some of the blooms of Nerine Manselli on December 18, 1887, to the Royal Horticultural Society, South Kensington, and was awarded a first-class certificate under the name of Nerine Manselli. I have several bulbs of this Nerine, although I lost some during the severe frost three years ago. As regards Nerine elegans, I have always cherished it. I consider that it ranks next to N. Manselli. It blooms rather earlier, but it is neither so free-flowering nor so vigorous.—JOHN L. MANSELL.

Chorozemas in bloom.—Several different forms of Chorozema are quoted in the various lists of this class of plants, but through the whole of them there runs a strong family likeness, so that two or three sorts will be sufficient for general purposes. One of the best is C. Lowi, which Messrs. Low brought prominently forward seven years ago, at which time it attracted a good deal of attention. Its style of growth is more bushy than in some of the others, while the colour of the flowers is particularly bright. The dark green Holly-like leaves also form a pleasing feature. C. cordatum with lighter tinted blossoms, and a much looser habit of growth, is also a very desirable kind, and for the sake of variety the yellow-flowered C. flavum is worthy of a place. This last is far less common than the others. The little acicular leaved C. Henchmanni is very pretty and distinct, but it is seldom met with.—H. P.

GREENHOUSE RHODODENDRONS FROM ORMSKIRK.

THE recently published portrait of Mr. Davies, of Ormskirk, appeals strongly to all admirers of greenhouse Rhododendrons, for he raised many beautiful varieties, and one group especially, viz., that obtained by crossing R. multiflorum with the Himalayan R. Edgeworthii, includes some of the very finest varieties that we have. In this group are Countess of Derby, Countess of Sefton, Duchess of Sutherland, Lady Skelmersdale, and Mrs. James Shawe. Though all are beautiful and most deliciously fragrant, the first place must I think be assigned to Countess of Derby, which is, however, less vigorous in growth than one or two others. A variety raised by Mr. Davies, and an extremely pretty one, which I did not see mentioned on page 26, is Rosy Bell, a small, sturdy-growing bush that flowers very freely. Judging from the general aspect of the plant, one of the parents is I should say the Indian R. ciliatum, which has been largely employed for hybridising. In the variety Rosy Bell the flowers are rather blunt in shape and widely expanded at the mouth, being from 1½ inches to 2 inches in diameter. In the bud state they are of a deep reddish pink colour, but after expansion they become much paler. The interior of the flower is a delicate blush, almost white. The blooms, which are borne in clusters well above the foliage, are slightly drooping or arranged in a nearly horizontal manner, and a pretty effect is produced by the contrast in colour between the unopened buds and the expanded blossoms, as well as by the crisped edges of the petals. It is extremely useful for greenhouse decoration early in the spring. The little compact-growing, free-flowering varieties Queen of Dwarfs and Pixie Queen will force almost as readily as an Azalea, and so will another of the same section, Bridal Bouquet, which does not seem to be much known. Mr. Davies sent me a plant of this some three years ago, and I was extremely pleased with it. This variety is even more compact than Queen of Dwarfs, and the flowers are also borne in closer clusters. The edges of the petals are much crisped, which adds greatly to the attractive appearance of the plant. With regard to R. Daviesi, a hybrid between R. retusum and R. javanicum, I scarcely know what

to say concerning its culture. It does not adapt itself to circumstances so readily as those previously mentioned, and is somewhat difficult to grow into a shapely bush. The foliage, too, is more or less curled, as if it had received some great check. I am not alone in my experience of this variety, for Mr. Davies himself used to complain of the same thing. It certainly needs somewhat more heat than the others, which is easily understood, by reason of the native country of its parents. R. Daviesi was not the first hybrid raised between these two kinds, for Messrs. Rollisson many years previously sent out one known as Prince of Wales, which was much in the same way, including the tendency to bear unsatisfactory foliage at times. I have not grown Prince of Wales for some years, but the flowers, I think, were not quite so bright as those of R. Daviesi. This latter is extremely showy when in bloom, the rich orange-red blossoms being really brilliant. It was certainly a great pleasure to visit Mr. Davies and inspect his many pets, whose history he knew so well. H. P.

Rhododendron jasminiflorum carminatum.—Of the numerous hybrid Rhododendrons belonging to the Javanese section this is an especial favourite of mine, possessing as it does many desirable qualities. It is a hybrid between two of the original species, viz., R. jasminiflorum, and R. javanicum, with white and orange flowers respectively. R. jasminiflorum is naturally of a free branching habit, with small deep green leaves, while R. javanicum is very apt to run up spare and tall. The newer form partakes very much of the habit of R. jasminiflorum, but it is rather more vigorous, while the flowers are in shape much like those of that kind. In colour, however, it differs widely from either, the blossoms being of a rich carmine tint, with the exterior of the tube somewhat paler. It is very free-flowering, and a plant of it in London has, despite the dull foggy weather, been blooming for some time, and every new shoot terminates in a flower bud. Some of the brightly tinted forms have a tendency to run up tall and thin, but it is not the case with this variety. It is by no means a novelty, having received a first-class certificate from the Royal Horticultural Society in the autumn of 1886.—H. P.

Acacias at Bush Hill.—Messrs. Hugh Low and Co. have a large and varied stock of these useful greenhouse plants, and a look round their nursery at any time within the next few months will prove very interesting to lovers of greenhouse hard-wooded plants. There is no need to mention all that are in bloom, but a few of the more prominent kinds deserve a note. The handsome Swan River Acacia, A. Drummondii, is chiefly represented by standard specimens, and very beautiful it is when grown in this way. The bright lemon-yellow blossoms occur on drooping axillary racemes, and have an extremely fine effect upon the prettily cut foliage. The distinct A. armata is very largely grown, but is not yet in flower, though it will be very fine in a short time. A. ovata, A. dealbata, A. longiflora and its variety magnifica are all well represented, the plants in all sizes, but in every case healthy and vigorous. The propagation of these greenhouse Acacias is best effected by cuttings of the half-ripened wood taken in summer and struck in sandy peaty soil. If well watered at first and placed under bell glasses in a greenhouse or frame they root readily, but take some time to callus. When well rooted air should be freely admitted until the plants are potted singly, when a closer atmosphere is required for a time. Pinching and stopping should be done in accordance with the habit of the species.

SHORT NOTES.—STOVE & GREENHOUSE.

Sollya heterophylla (mentioned p. 12) and other sorts that have come under my notice are less pleasing than S. Drummondii, which I grew twenty or thirty years ago, but which I have failed to find in

nurseries in more recent years. Its flowers are of a much richer blue.—H. H. R.

Begonia Gloire de Lorraine and Begonia Gloire de Sceaux.—Having a few plants of the above recently purchased and still in flower, I should be greatly obliged if you would publish a reply to my query. I wish to know how to treat the plants from now onwards in order to have them in bloom next autumn or early winter, but more particularly would I like to know how to treat them now so as to obtain cuttings from them.—ANXIOT'S.

ORCHARD AND FRUIT GARDEN.

THE MELCHET COURT VINE.

THE Black Hamburg Vine at this place is (so far as I can gather) 120 years old. Some twenty-five years ago it occupied the centre house of the range (size of house, 26 feet by 15 feet). Lady Ashburton, finding the Vine had not sufficient space, pulled the whole range down and rebuilt the present structure, a three-

one or two good dressings of Thomson's Vine manure, thoroughly washing it in.

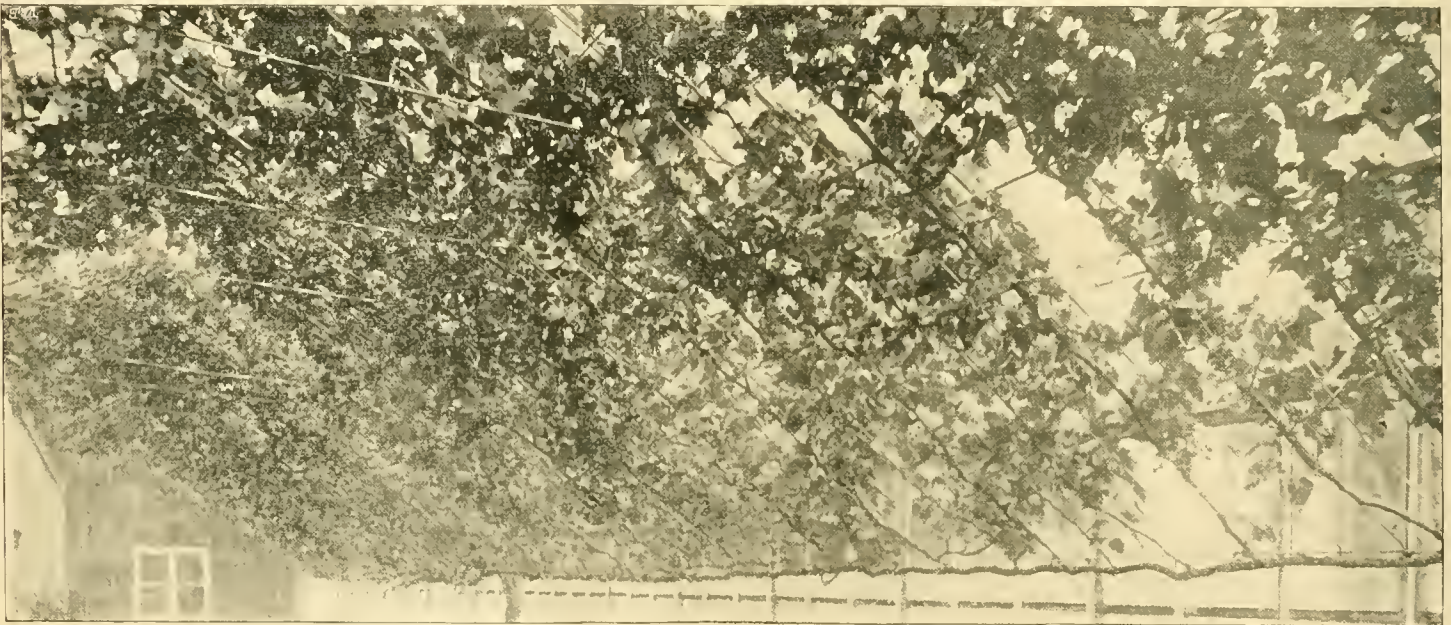
Melchet Court, Romsey. GEORGE HALL.

Pear President Barabe.—A new Pear which is fortunate to get an award of merit at one meeting, to be first also in the prizes for flavour and get a first-class certificate the following meeting the second week in January, will doubtless be considered one of the best in cultivation. I have this variety in cordon form, and it promises well. Mr. Allan's fruit when first staged was much above medium size, of a good bright colour with rich russet markings, and free of the roughness late Pears often have. The flavour is very good indeed, and, though I did not think the fruits staged on the 11th equal in quality to those staged four weeks previously, the flavour was excellent for so late in the season. We have so very few good late Pears that an addition, if of good quality, is welcome. I am aware we have plenty of Pears, but they lack quality at the season named, as, though many are described as melting and good well into spring, I find there are few which come under this cate-

of its acidity. On the other hand, many persons like a brisk-flavoured fruit. The compact growth, freedom of fruiting, and long-keeping properties make Fearn's a profitable garden variety. Few winter dessert Apples are more pleasing than this. I have seen very heavy crops on small standard trees, the fruit also being of a better colour, and richer in flavour.—S. H. B.

PEAR NAPOLEON.

I NOTICE (at p. 50) "H. H. R." refers to a Pear named Prince Napoleon. Does he refer to Napoleon? A variety named Prince Napoleon was grown at the society's gardens at Chiswick, but it was quite distinct from the Napoleon I refer to. I have always classed Napoleon as poor in quality, in fact on an equality with Beurré Bachelier, a much overrated variety. Napoleon with me is decidedly second-rate; in fact, I have recently destroyed some large trees on a south wall, giving the space to later kinds of recent introduction. The skin is smooth, soft, and greenish-yellow, flesh watery. It is in season with me through November and December. This cannot be the variety "H. H. R." refers to at p. 51. As I have



The Black Hamburg Vine at Melchet Court, Romsey, Hants. From a photograph by Mr. Stuart, Southampton.

quarter span running east and west, 116 feet long by 16 feet wide, which the Vine has filled some time since. It generally carries from 600 to 700 bunches, varying from 1 lb. to 3 lbs. each, good in berry and well coloured, with exceptionally fine flavour. A few years ago the Vine furnished 1000 bunches, but I now prefer to reduce the bunches to 600 or 700, gaining thereby in quality and size of berry. It is planted outside in a prepared border, 75 feet by 15 feet, but its roots doubtless extend to a considerable distance in the adjoining pleasure grounds. No attempt is made at early forcing; it is left to break naturally about the end of March, when the house is shut up and helped on with a little fire-heat and sun. No fire-heat is used from May until September. I light the fire in the early part of September, or earlier if the weather is wet, and keep a nice warm, dry atmosphere till the end of October to thoroughly ripen the fruit and wood. From June till colouring commences I give copious supplies of water, first well mulching the border with farm-yard manure. I also give during the season

gory. President Barabe is certainly a splendid midwinter Pear, and I should think by its habit and the freedom with which it makes fruit spurs it would make a shapely pyramid on the Quince. I am aware Mr. Allan grows Pears grandly in Norfolk, as some of his Marie Louise were the finest I ever saw. The newer variety grown under ordinary conditions may not be so fine as Mr. Allan's, but even then if only medium-sized it will be a welcome addition to our winter Pears. I have no knowledge how the fruits in question were grown, doubtless on cordon trees.—G. WYTHES.

Apple Fearn's Pippin.—This variety at one time was a great favourite in the market on account of its good colour, shape, and exceptionally attractive appearance. In many old gardens it will still be a favourite, but the foreign importations have in a measure pushed it aside for market, as unless one can send in great quantities the prices are poor. The flavour of Fearn's Pippin in some soils is not so good as one may desire, but much depends upon the soil and locality. Being a firm fruit it keeps well into April; indeed, I have kept it till June. If gathered late and kept till spring it loses much

it, it would stand no chance for flavour with Olivier des Serres and the newer Le Lectier. The one I have described is well known. Will "H. H. R." give us more particulars, as good-flavoured Pears in February are scarce, and I fear there will be but few at the meetings during February and March if there was only one good dish in January. In Mr. Barron's excellent classification of Pears Prince Napoleon is described as a large roundish fruit, skin rough bronzy-russet, a late stewing Pear. This cannot be the fruit "H. H. R." notes, as Mr. Barron does not mention flavour. There is a Pear named Napoleon Savinien, a January fruit. Is this the variety in question?

One of our leading fruit growers in his catalogue omits Napoleon altogether, whilst another gives us a Prince Napoleon as a large January Pear, a seedling from Passe Crassane, melting with a rich aroma. Is this the variety "H. H. R." refers to? It may be a new introduction since Mr. Barron completed his notes in 1885. If so, it is misleading to have it named Prince Napoleon. I note another large firm of fruit growers gives the ordinary Napoleon as very juicy, rich and well flavoured, far too good a character. Le Lectier, the new Pear alluded to by "H. H. R.,"

I fear will not be seen at a future meeting, as, though classed as a January to March fruit, with me it was ripe in December. It is only fair to add the fruit was grown on a south wall in light soil on gravel, and the past hot summer may in a measure be answerable for its earliness. It is a very handsome fruit, not unlike one of its parents, Williams' Bon Chrétien, but of course later. The flavour is excellent, flesh melting and highly perfumed.
W. S. M.

PRUNING YOUNG PEACH TREES.

For many years past readers of THE GARDEN and its contemporaries have been repeatedly blamed for wasting so much time and labour over their trees, and time after time instances have been given of large, profitable trees having been grown in about half the time that would have been necessary if the old-fashioned methods of pruning and training had been adopted. Judging from what I see in my visits to various private gardens—in the western counties more especially—not much heed has been paid to the advice tendered in the direction of adopting quicker methods of bringing the trees into a profitable condition. In most instances the initial mistake is made in planting comparatively large trees, or those that have been pruned at least three times before leaving the nurseries. These trained trees are attractive in appearance, not unfrequently highly creditable to the skill of the growers, and expensive. Under favourable circumstances newly-planted, trained trees make good progress in their fruiting quarters, but more often than not they prove disappointing. They miss the rich nursery soil, and when pruned, all too severely in most cases, they break irregularly and are apt to produce one or more very gross shoots near the surface, which, if not nipped in the bud, soon gain the ascendant, and a one-sided, rank-growing tree is the result. Some few people cut the gross shoots clean out, but by far the greater portion take every care of them and do their best, unthinkingly, to make them fatter. Strong growths on young trees invariably push out various side shoots, and these are carefully cut out, with the consequence that at the end of the summer these strong growths are from 3 feet to 4 feet long, with few or no fruit-buds, and "blind" joints wherever the laterals were cut out. They have to be pruned back hard then, or to below where they commenced branching, with the result that three or four rank shoots are formed where only one existed before, and the old round of taking care of shoots that will not pay for keeping is commenced. The remedy that occurs to those responsible is root-pruning, and after this, to a certain extent, unnatural and uncalled-for method of making a tree form wood of a fruitful character has been put into operation, there is a possibility of a crop being obtained.

It is maiden trees that ought to be planted, and by maidens I mean trees that have made one clear season's growth from the bud and this wood not pruned in any way. Not only are these much the most economical to buy, but curiously enough, they are the quickest to arrive at a productive state and to develop into large trees. Trained trees are frequently selected because it is thought that these would be the first to give fruit in quantity. No greater fallacy could be imagined. Maiden trees planted in March, 1896, gave two dozen fruits apiece, and this season should produce five or six dozen fruits each. Maidens planted by Mr. Challis, Wilton House, Salisbury, are expected to do even better than this, as these are actually fruited the same season as planted, and yet make satisfactory wood growth. What Mr.

Challis can do—and it is only fair to state that he was one of the first to break away from the old practice and to plant maidens, as being the most profitable in every way—other people can also accomplish. It never occurred to me to fruit the maidens till I heard of the Wilton House practice, but that mistake will be remedied in the future. At all events, the experiment will be tried this season on a large scale, too, as I have 250 maiden Peach and Nectarine trees either planted under glass or in pots. All of them have branched strongly, while the side shoots are firm and abundantly furnished with what appear to be perfect flower-buds. Instead of cutting the wood away, it is, in the case of pot trees, merely shortened to form pyramids, while those to be trained have the best placed shoots only reserved and laid in and the leaders cut back to good triple buds. The young main stem rarely fails to produce four or more strong shoots, and these are enough to lay the foundation of a well-balanced head. There are no rank growths and no necessity for root-pruning to cause the trees to become fruitful. Being allowed to bear a crop of fruit is the best and most natural way of checking over-luxuriance, and if the trees fail to make satisfactory progress, it is owing to starving them at the roots. Those who have tried the cordon system of training Peach and Nectarine trees are well pleased with the results, but as I am only just giving this plan a trial, I can only state maidens have been planted, and that I hope to have a few fruits from each, partly because the fruits are wanted, and largely because lightly cropping the trees will obviate any necessity for root-pruning.

TREATMENT OF MAIDEN TREES.

Hitherto my plan with maidens has been to cut them down to just below where they commenced branching. Usually a length of from 4 inches to 9 inches of clear stem is to be found. As this is well furnished with wood-buds, four shoots—two on each side—are saved and laid in at an easy angle and all the rest rubbed off before they have made much progress. The two uppermost of these branches are nearly certain to take the lead, but instead of allowing them to grow unchecked, only to prune them severely and of necessity the following winter, they are topped when about 30 inches in length. This causes them to break strongly, but only from four to six of the shoots are saved and laid in on either side of the branch and the rest cut out. Thus favoured, the reserved shoots attain a length of 18 inches to 2 feet, and become firm and well set with fruit-buds. At the winter pruning the two lower growths, which have attained a length of 30 inches or more without becoming gross, are lightly shortened, and the secondary shoots formed on the topped branches pruned to a length of 12 inches to 18 inches, cutting the weakest hardest. In this manner a respectable tree is obtained, and this when trained is kept slightly open in the centre. Every shoot is set with buds, and a crop of two dozen or rather more fruit is produced by them the following summer without prejudice to the wood growth. Extra strong wood has been sent to me this winter by readers who have taken my advice as to what to plant, but who failed to top the stronger branches. When this important detail is omitted a bad start has been made, and it is not much fruit that the trees will yield for another year; whereas when topping is early resorted to, both the primary growth and the secondary shoots will produce fruit the following season. Rivers' Early Nectarine possesses a robust constitution, and has disappointed cultivators owing to the trees growing too rankly to be

fruitful in a young state. My trees that were topped last summer are well furnished with fruit-buds at the present time. Much of the fruit obtained from open-air wall trees is produced by late-formed wood, and in the case of maidens the bearing wood is developed under still less favourable circumstances. Why, then, should there be any hesitation about topping strong growths early formed under glass, especially seeing that these may be depended upon to prevent the increase of grossness and of the production of a good supply of fruiting wood?

My experience with a tree of Peach Crimson Galande, that has covered a roof area of 8 feet by 13 feet with fruiting wood of the best description in two seasons, is worth recording as showing the good results of topping strong leading growths. When about three years old and doing well, this tree unfortunately got injured, and I had to saw off the head 4 inches above where the stock was budded. From the shoots that were pushed forth by the stem one only was reserved and trained up rightly till the roof trellis was reached, and then up the roof for another 4 feet. It was duly topped, this strengthening the side shoots already forming, the best placed of these being reserved and trained. Many of them, thanks to the healthy state of the roots when the accident happened, attained a length of 30 inches. At the winter pruning the shoots were shortened lightly, leaving them about two thirds of their original length, and were disbudded, saving only as many shoots as could be found good room for. Some of these took an undue lead and were topped at a length of 3 feet, the resulting growths reaching the ridge of the house. Last summer eighteen fruits only were gathered from that tree, but there ought to be a full crop this season. On measuring the new stem just above where it started I find that it is nearly 6 inches in circumference, and better wood I do not wish for.
W. IGGULDEN.

Apple Margil.—For the first time this winter the above variety found a place in the competition for flavour at the last meeting of the Royal Horticultural Society. Though an old variety, it is certainly one of the best mid-season dessert Apples we have, as when well grown it approaches the Ribston in flavour, and keeps well into March if left late on the trees. I believe Mr. Tallack, who secured the first place with this variety, grows it as a standard, and it is certain that in some soils it is quite at home grown thus. On bush trees on the Paradise stock I have found it very poor as regards cropping, and though not a gross grower, it cannot in my soil be termed a profitable variety. My fruits are less juicy than those noted above, of a dull green colour, and not so sweet. In Gloucestershire this was a favourite variety, but most of the trees were standards. Doubtless this is the best mode of culture, as it appears to me the severe pruning does not tend to promote its free-fruited properties.—G. WYTHES.

Apple Court Pendu Plat.—This is an excellent variety for midwinter and spring use, it being much appreciated by those who relish a firm-fleshed, crisp-eating Apple. To have this variety in perfection it should be grown as a standard, when the fruits attain a brilliancy of colour such as they never assume on garden trees. It is a good grower, but on the Paradise stock it is rather subject to canker. When worked on the Crab and grown in standard form it is quite free from this defect. Another point to be advanced in favour of this variety is its late blooming. Its flowers do not expand in a general way until most other varieties have bloomed and set, and they invariably escape the effects of late spring frosts. It is on this account that it is called in some parts of the country the Wise Apple. Other names which it is known by are Wollaton Pippin

and Gannon's Pippin, but the name at the head of this note is the one under which it is generally known and grown. It is a very free-bearing Apple and a first-rate sort to grow for market, its brilliant colour greatly enhancing its value. Last year it was very plentiful, and as might be expected after such a hot summer and fine autumn the fruits were fine and richly coloured. It is an Apple which sells readily at remunerative prices, and quantities have been seen in fruiterers' shop windows during Christmas and since, the price being 3d. per lb., or the same figure at which Blenheims have been retailed.—A. W.

Apple Tom Putt.—Although at the best this can only be termed a second-rate Apple, it is astonishing how readily it sells and what good

there is a demand for the fruit. It is a capital grower and standards soon make good heads, which when established bear very freely. It is of Devonshire origin, but is grown most extensively in many parts of Herefordshire.—A. W.

Young Vines barren.—In this age of forcing and feeding it may well be asked if we do not do too much of this work. This year I note a failure in consequence of over-feeding and too much anxiety to get strong wood. My early Grapes are usually obtained from canes specially grown. Last season the canes, owing to a favourable summer, made a much stronger growth. Though well ripened, this gross wood has only given me one bunch where there should have been four. This I attribute to excessive feeding and undue

a young state. This variety grown on walls is a sure cropper, and in places where Pears succeed it does well in bush or pyramid form. My best fruits are obtained from trees on the Quince stock. I think it is not at all particular as to stock, as in poor soils I have seen good results on the Pear. This variety does grandly in the north. At the Edinburgh fruit show this variety was a few years ago exhibited in splendid condition. I never saw finer fruits. It is certainly deserving of extended culture.—S. M.

Peach buds dropping.—I am aware this is an old cry, but there is no cessation, and growers in certain localities are in a fix to know how to prevent it. This year I am inclined to think the cause is fog, as for the last few years, with more



The Bird Cherry (Prunus Padus). From a photograph sent by Mr. C. Metcalfe, Mill House, Halifax. (See p. 81.)

prices can be realised for it. The reason for this is not far to seek. In the first place the individual fruits are from medium to large in size, according to the age of the trees, and they are always brilliantly coloured. This latter fact alone secures a ready sale, and no better Apple than Tom Putt can be grown for sending into mining districts and other industrial centres, where appearance is the first consideration and flavour only a secondary matter. This Apple is eagerly bought up by the dealers in the autumn, who give fair prices, but much more remunerative prices can be obtained by those who take the matter into their own hands by gathering and despatching the fruit themselves. Growers continue to plant this variety, and they are wise in doing so so long as

anxiety to produce finer fruit than usual. Some Young Vines in a house adjoining will give a good return though the wood was much poorer. I have found the same failures occur by using fertilisers to excess in previous years. One can certainly over-feed the Vine in a young state, and a cane the size of one's thumb is not always the best.—GROWER.

Pear Marie Benoist.—This is one of our best Pears this season, and the quality is really good. It is a handsome Pear, fruit large, with white melting flesh, and rich for a late sort. I am just finishing the supply of this variety (middle of January), and this season the quality is better than usual. It is a fine fruit when grown on cordon trees. The tree bears freely in

freedom from fogs, there has been little bud-dropping. This autumn we have had more or less dark weather and fog since October 20, and this season it has affected those kinds which rarely suffered previously; indeed, all the early trees are alike, while previously it was only the American varieties. I fear there is no help for it, as at the time I write, trees in the open are black with the deposit from heavy fogs, and before one can wash all the glass once round it is necessary to do the work over again. Well-known kinds we could rely upon in pots and borders are quite as denuded of buds as the much-blamed Early Alexander. It would be interesting to know if there is any trouble with trees in the country, or if bud-dropping is local this year.—WEST MIDDLESEX.

SOCIETIES AND EXHIBITIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE fifty-ninth annual general meeting of the above charity was held at Simpson's, 101, Strand, W.C., on Thursday, January 20, when Mr. Harry J. Veitch occupied the chair. The secretary (Mr. Geo. J. Ingram) read the report, which had received the approval of the committee, and also presented the accounts for the year 1897 as examined and passed by the auditors (Messrs. Thos. Manning, Thos. Swift, and Jesse Willard). Both the report and the accounts are undoubtedly the most satisfactory of any previous year. The success of the special appeal towards establishing the "Victorian Era Fund" is in itself remarkable; the total amount thus raised is up to the present nearly £4100. The object, he it noted, of this fund is to provide assistance for those candidates for the pensions who have themselves been subscribers to its funds, but who have thus far in their candidature been unsuccessful. The assistance thus given is *pro rata* to the years they have subscribed, with the proviso that no one candidate receive more than £10 in any one year. By this means some of the candidates (eighteen) will immediately be assisted up to the amount specified, and others will receive various sums down to 16s., which is the lowest amount, and which represents one year's subscription. The working of this particular fund surely deserves the notice of gardeners who are (not to their credit be it said) not already subscribers. This is essentially a self-help fund, to which no impartial person can take exception. It is still open, we are glad to learn, it being the desire of the committee to raise it to £5000. They deserve every encouragement in so doing.

At the recent meeting there were ten candidates, who were all elected without the anxiety and trouble, not to mention the cost, of a contested election. These candidates were all old subscribers of from thirty-six years down to fifteen years, the average number of years per candidate being twenty-two and a half. This to even a casual observer must carry home conviction, if it is possible to do so in mere facts alone. There are others who, being non-subscribers, have stood the contest of five and even six elections, and are still not successful. One can scarcely imagine what this anxiety means, and the regrets beyond a doubt that these candidates must have in not having been themselves subscribers when they were able to be such.

To say more on these subjects, *i.e.*, the *pros* of subscribers and the *cons* of the non-subscribers, seems to be superfluous, for surely no sane person who is a gardener can now afford to neglect an institution which is so admirably arranged to render assistance in calamity and old age.

Nine other candidates were elected who polled the highest number of votes, *viz.*: Henry Ellis, 4249; Thomas Bundy, 3900; Robert Begbie, 3878; James Baker, 3868; William Wood, 3790; David Cornell, 3663; George Hewitt, 3651; Edwin Thomas, 3550; and Lydia Rose, 3534. By the special stipulations of the Thompson Bequest of £457 odd—which was left to the institution by the late Mr. J. M. Thompson, who was gardener to His Majesty King George III.—the interest of which is to be devoted annually to the next widow who is an unsuccessful candidate at any election, the candidate elected was Elizabeth McCulloch, who whilst she lives will be the recipient of this special pension, being known as the "Thompson Bequest Pensioner." (It should be noted as regards this candidate that her husband was a life member of thirteen years, and also paid during that time eight annual subscriptions. Hence she started with 500 votes to her credit, as per rules.) This candidate received in all 3031 votes. For fuller details, as contained in the report, we would refer our readers to the secretary, Mr. G. J. Ingram, at the office of the Institution, 50, Parliament Street, Westminster, S.W.

It is satisfactory to note in the balance-sheet that the legacies left to the institution in 1897 were larger than usual. The annual dinner held in May last, when Lord Rothschild presided, was an unprecedented success, and added largely to the funds, notably the Victorian Era Fund.

The number of pensioners now on the funds exceeds that of any previous year, whilst in no two previous years have forty candidates (twenty each year) been elected. This involves an increased expenditure, and the committee are justified in appealing to the patrons of horticulture and to gardeners for additional help to meet these heavy liabilities.

It is a regrettable feature that there were again so many voting papers which were rendered useless by the non-attention to that most important item, *viz.*, the signature of each subscriber, by which means 1035 votes were lost to the candidates for whom they were intended, whilst through neglect of payment of the annual subscriptions 117 more votes were nullified.

The annual friendly supper took place the same evening after the declaration of the poll, when Mr. Arthur W. Sutton, of Messrs. Sutton and Sons, Reading, took the chair.

National Chrysanthemum Society.—On Monday evening last the general committee of this society held a meeting at Anderton's Hotel, Fleet Street, Mr. T. W. Sanders being in the chair, and supported by a fairly full attendance of members. Much of the work was purely of a formal nature, the report of the rules revision sub-committee being one of the principal items on the agenda. These are to be laid before the members at the annual meeting on February 28 for final adoption. Among the alterations the most important is perhaps the proposed appointment of a finance committee, and in future the general committee will be known as the executive committee. A list of special prizes was read out, and a rough financial statement submitted. Several new members were elected.

Horticultural exhibition in Cairo.—The annual horticultural and agricultural exhibition was opened on the 14th inst. by his Highness the Khedive. In several of the sections a distinct advance was shown. A new feature was a collection of pottery exhibited by the Egyptian Pottery and Faience Society, many of the pieces being tasteful and artistic in design and colouring. The exhibits of timber-woods showed the great capabilities of the Egyptian soil and climate for their production, and the Finance Ministry is now making experiments in forestry on a considerable scale, and planting out 190,000 young trees of about 100 varieties. A novelty was seen in a substance called cerosie. It is extracted from the scum which rises to the surface of liquid sugar after the cane is crushed. The resulting substance is stated to possess the qualities of ordinary beeswax, which it resembles in appearance though darker in colour.

The Japan Society and flower arrangements.—An interesting gathering took place on Wednesday evening in the galleries of the Institute of Painters in Piccadilly, the occasion being the conversation of the Japan Society. The guests, who numbered about 400, and included a considerable proportion of natives of Japan, were received by the Japanese Minister and Madame Kato, and there was an exhibition of flowers arranged in bronze bowls or vases of water in the Japanese fashion. There were some beautiful vases among those sent, especially those shown and arranged by Mr. Washburne and by Mrs. Trower, but on the whole the show was not equal to what might be looked for from such beautiful flower vases and such graceful arrangements. We hope some more serious attempt will be made to show Japanese skill and resources in flower arrangements. Even the flowers of the season that come from Japan and China, such as the Winter Sweet and Wych Hazel, were not seen at all, though in fine bloom freely round London;

nor did any of the exhibitors make use of the pretty growths of Lichen and Moss on small or gnarled branches that adorn both British and Japanese woods in winter.

NOTES OF THE WEEK.

Galanthus caucasicus.—Though a neat and pretty as well as early species, this has not the merit of a good robust constitution, an item that greatly detracts from its usefulness.

Rhododendron arboreum in Sheffield.—My *Rhododendron arboreum* is covered with buds on the south side, and if this mild weather continues it will shortly be in bloom. The small birds are rather troublesome in picking off the leaves of this and some other kinds of *Rhododendron*. Others they do not meddle with.—M. E. CHAMPION.

Mildness of the season in Co. Cork.—The Potato stalks are green in open air. Early Bird Daffodil, Crocuses, Snowdrops, *Ribes sanguineum* and *Prunus pissardi* are in flower. All sorts of double Daffodils are in bud. Blackbirds and thrushes are pairing. *Narcissus maximus superbus longivirens* is a foot high and in bud.—W. B. HARTLAND.

Begonia pruinata.—If less showy than some of the species, this is certainly not without its value when in flower. The leaf character and the growth generally have some of the style of *B. maculata*, the flowers produced on nearly erect and forked branches fairly freely. In the bud the flowers are of the most delicate pink, changing to pure white when expanded. It is a graceful and pretty kind.

Galanthus nivalis.—It is quite possible that points of interest or of merit may be unearthed with every new species of this genus when first introduced. At the same time it is doubtful whether for its beauty, apart from its adaptability to the garden and woodland generally, this beautiful old species has ever been equalled. If a common, it is still a very precious flower and seen in fine clumps lovely in the extreme.

Lilac Marie Lemoine.—Compared with the older forms of Lilac there is little doubt about the superiority of this variety. Not only is it among the purest, but the individual blossoms also are of good size and form and produced in a well-proportioned pyramidal head. Even small plants of this are satisfactory when forced, and the snow-white heads very chaste and beautiful.

Flowers from N. Wales.—I enclose a few sprays of *Cytisus racemosus* grown in the open at Baron Hill, also a few Rose buds, showing the mildness of the season.—WM. HUNTER, *Baron Hill Gardens, Beaumaris.*

*** A beautiful gathering of this *Cytisus*, the spikes quite as good as we see in London in house-grown plants. The Roses included both Teas and H.P.'s.—ED.

Iris japonica is quite a gem among those winter Irids that require a cool house to grow them well. It is when the plants attain to a good size and flower profusely over several weeks at this season that their value is best demonstrated. The blue of the flowers is of a most pleasing shade and, coupled with the fringed petals, very attractive. In the case of large plants the beautiful arching leaves form a perfect setting for the numerous flowers.

Rhododendron multicolor Curtisi.—If only for its remarkable colour this is indeed a valuable kind, as it is in this respect well-nigh unique. The flowers also are not large, but the intense crimson-lake that prevails throughout is very effective. One point in its favour is the fact that medium-sized plants such as may readily be grown in 5-inch pots produce one to three and sometimes more of these trusses that last a long time in perfection.

Magnolia Campbelli in bloom at Exeter.—The enclosed flower of *Magnolia Campbelli* has been cut from a plant about 10 feet to 12 feet high growing in the open in our nursery, and which is now in full bloom. It was planted in its present position about twelve years ago, and although on several occasions it has produced flower-buds, it has never before brought them to maturity.—R. VEITCH AND SON, *Exeter.*

*** A full description with a coloured plate of this handsome Sikkim *Magnolia* will be found in THE GARDEN of August 21, 1895. So far it generally

blooms in April, its flowers in many seasons being browned by early spring frosts.—ED.

Violet Marie Louise.—I am sending you a few blooms of Marie Louise Violet to show you the result of a careful study of the various articles which have appeared in THE GARDEN on Violets during the past three years.—F. C. SHERGOLD, *Horsington House, Templecombe, Somerset.*

* * A beautiful gathering of flowers, the blooms as fine as we have seen.—ED.

Orchids from Burton Closes.—Mr. Taylor Whitehead sends us from his garden at Burton Closes, Bakewell, a fine form of *Cypripedium insigne* Chantini, as also a spike of *Laelia anceps Dawsoni*, in which the sepals and petals are pure white, the inside of the lip having purple lines radiating from the base, the yellow crest under the lip prominent, the front of the lip undulating, deep rosy-purple near the extremity, and broadly margined with white.

Sansevieria Ehrenbergi.—A very striking and distinct species of this genus from Somaliland, apparently a recent importation, may be seen in the succulent house at Kew, where in a group it has been planted in the open house. Some of the longest of the stem-like leaves of this species are more than 5 feet, nearly erect, and solid, tapering to a point. The stem-like leaves are greyish-green and quite devoid of the distinct markings characteristic of some other species, as *S. zeylanica*, *S. guineensis* and others.

Agave Morrissi variegata.—A very handsome specimen of this, quite near the entrance to the succulent house at Kew, is very conspicuous at the present time. The handsome leaves are of great size and substance and fully 6 inches broad, possibly even more. The example in question is a magnificent one and finely proportioned, while the broad margin of gold, here and there striated, as it were, upward towards the centre, presents a very striking appearance. The golden hue of the variegation is also exceptionally deep. This handsome form belongs to Jamaica.

Prunus floribunda.—This is certainly one of the most delightful of deciduous plants when brought into flower in the greenhouse at this season. The rose-pink and white flowers, a mixture that approaches Apple blossom perhaps more closely than aught else, always appear to good advantage at this season, particularly where subjected to judicious treatment when being forced into bloom. A few plants are very attractive in the coolest conservatory just now, where for the time being the bolder, fine-foliaged plants hold sway.

Cineraria maritima variegata.—This is a popular market plant, but might also be grown in small pots for furnishing in the house or conservatory, where it would stand well. Being nearly hardy it should be grown entirely out of doors during the summer months, and when brought inside in winter should not be placed in heated houses. The soil used should not be too rich, as the poorer it is in reason the better the variegation. Cuttings root freely in light, sandy soil, and should be stopped once or twice and then allowed to run, being kept a little pinched for pot room.

Cytisus racemosus elegans.—In this variety we have a distinct break-away from the common Genista, as it is popularly called. The foliage is larger, with distinct trifoliate form, and the flowers are borne in long racemes over a much longer period than in the typical form. For keeping up a display in the conservatory or greenhouse it will be very desirable, and it may be as easily grown and is quite as hardy as the common form. When grown from cuttings the plants should be potted into small sizes at first, freely stopped in the younger stages, and grown quite cool with abundance of air. A fine lot is now coming into flower at Messrs. Hugh Low and Co.'s nursery.

Brownias in flower at Kew.—*B. grandiceps* is now in flower in the large Palm house at Kew, though it should be noted the flower-

heads are on stems between 20 feet and 30 feet high. At this distance, however, the vivid colour renders it a conspicuous object. The habit of the species is somewhat thin, the flowers being produced in a large and dense head and of a scarlet hue. Another kind, *B. Crawfordi*, is also in bloom, the flower-heads in this instance being of a salmon-scarlet and very effective. Quite recently in the same house *B. coccinea* was noted in flower. Not only is this of dwarfer growth, but the flowers are borne in a fasciculate head and incline to droop. *B. grandiceps* in its native home, Venezuela, is said to attain 60 feet in height, and if at all freely flowered, would constitute a very striking object. The most unfortunate item with regard to these magnificent flowering shrubs of the tropics is the size to which they attain. Could such things be induced to flower in a smaller state their value would be greatly increased.

Winter Aconite.—The golden cups of the Winter Aconite (*Eranthis hyemalis*) now carpet the ground freely in many places. The plant is charming in almost any position in the open garden, though more particularly in those places where a fair depth of soil is at hand. As a carpet plant beneath dwarf deciduous and evergreen shrubs it is ever welcome, and equally so in the grass beneath the larger trees in places where it can be induced to live. The extreme poverty of the soil, however, coupled with dryness, does not afford it an opportunity of gaining strength in the latter instance, and as a rule it becomes weaker each year. In the hardy fernery, too, the value of the Winter Aconite is considerably enhanced by the russet-brown of the over-mature fronds, and as in these positions the soil is usually good and deep, the Aconite is frequently seen in fine form. There is no occasion, when endeavouring to naturalise this, to plant too thickly where light and warm soils prevail, as in these it is usually a success. Quite recently we noted a group of the Siberian Dogwood carpeted with the golden blossoms of the Aconite, giving a very pretty effect so early in the year.

Sternbergia Fischeriana.—This is one of the most beautiful of winter-flowering bulbous plants, and if more reliable in its flowering would be of great value in the garden at this season. In colour and generally in habit it is of the style of *S. lutea*, differing, of course, in the time of blooming as in some other details. But just now, with only the Winter Aconite to give this shade of colour, the clear golden yellow of the above plant is pleasing. Not only is it a rather shy-flowering species, but it lacks the vigour of the older kind, as also its freedom of growth. It is not likely that our climate will agree with the native haunts of this beautiful plant. Seeing there is so great a season of inactivity, above ground at least, a spot should be given it where special treatment may be meted out to this or others of like habit. Large established bulbs are of course desirable before much can be done, yet its merits are so obvious that the plant is worthy of special care in any garden. Should any reader of THE GARDEN possess established clumps of this lovely species, I would be grateful to know the treatment accorded. In any case where home-saved seeds are possible, such are likely to be of the greatest value in securing a more permanent or reliable stock.—E. J.

Narcissus pallidus præcox.—Already this rather early kind is showing for bloom in a warm position on a south border, where with a slight inclination of the soil it appears fairly well suited, at least for a time. A few years back I remember a severe frost setting in just as the flowers of this kind were ready to expand, and continuing for about a fortnight, though varying in intensity. The soil was, however, frozen to some depth, and the flower buds, then in the drooping stage and many showing colour, remained ice-bound the whole time. The most curious point when the frost had gone was that the flowers opened freely as though nothing had happened, some of them expanding on the third day and giving no

evidence of the fact that for days they had been laid level with the earth and apparently lifeless. In most soils this pretty Pyrenean kind is not reliable when planted permanently, though in very sandy or light warm soils it often produces the best results in the second year of planting. As a pot plant it is very charming, and being among the cheaper kinds may be more largely grown. Speaking of early Narcissi, I am reminded of how well suited is *N. Leedsii* to pot culture under glass. If potted at the end of September it may be had in flower in the second or third week in January. Thus grown it is nearly pure white and a most beautiful object in a vase.

SOME GARDEN ENEMIES.

RATS AND CHILLIES.—In December a brick pit, 20 feet by 8 feet, in a neighbouring garden, in which Chillies had been grown during the summer, was cleared of the plants, which were covered with vermilion seed-pods, and I noticed, much to my surprise, that between 200 and 300 ripe pods had been bitten off and lay on the soil. From the centre of each pod a piece from half an inch to an inch in length was eaten away. Indications rendered it evident that rats were the culprits, though even in midwinter one would have supposed that Chillies would have proved rather too highly seasoned for the palate of the omnivorous *Mus decumanus*, especially as in many cases the pods had been eaten right through the seed-centre. However, from the amount consumed, it appears that the hot morsels proved appetising.

MICE AND SPARAXIS.—During December, in a garden on the banks of the Dart, I saw a bed of Sparaxis, then about 6 inches high, from which mice had taken heavy toll. Many of the corns had been eaten, the grass lying prone on the soil.

WATER RATS AND IRISES.—In my garden the water rats have pursued their destructive tactics with a little variation. This year, in addition to eating off the leaves of the variegated Water Flag, they have destroyed a fine clump of Iris Kempferi, and have rooted up and devoured bulbs of *Iris orientalis* (*ochroleuca*). S. W. F.

South Devon.

Williams Memorial medals.—At a recent meeting of the Williams Memorial trustees, Dr. Masters in the chair, it was decided to offer two silver memorial medals at the summer show of the Royal Botanic Society to be held in May, and two silver memorial medals at the York gala to be held this year.

The weather in West Herts.—The past week was a remarkably warm one for January. On three days the temperature in shade rose to 53°, and on three nights the lowest readings in the screen were 6° higher than would be seasonable at mid-day. There was one moderately cold night when the exposed thermometer showed 6° of frost. On the 22nd the temperature at 2 feet deep rose to 44°, and on the 21st, at 1 foot deep, to 46°—the former being 1° and the latter 2° higher than any reading previously recorded here at these depths in the month of January during the thirteen years over which my records extend. No rain worth mentioning has now fallen for nearly three weeks. Taking the last eighteen days, the sun has shone brightly for altogether less than six hours—indeed, on fifteen of them no sunshine at all was recorded. Iris Histro first came into flower in my garden on the 18th, Galanthus Elwesi ochroleuca on the 19th, Iris Bakeriana on the 21st, Crocus Sieberi on the 23rd, and Leucojum vernum on the 25th. The double Snowdrop was first out on the 26th, or a fortnight earlier than its average date of flowering in the previous eleven years.—E. M., *Berkhamsted.*

Names of plants.—E. P. Anderson, [1, please send complete Acorn; 2, the Turkey Oak. We will try and find out the name of the gull on the Acorn sent,

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FLOWER GARDEN.

FLOWERS IN THE ISLE OF WIGHT.

TO THE EDITOR OF THE GARDEN.

SIR,—I wish you could have paid me a visit the other day, for I think I could have shown you a January garden which goes beyond your widest experience. Of course, I am referring only to the effects of this very strange and exceptional season. It may be said that things are always early in the Isle of Wight as compared with other places, and mine is such a very sunny spot that we must be well on in the race; but earliness is no word for the condition of things we now have here. They almost seem turned upside down, and summer in winter is the best expression I can find so as at all to describe them. As you were unable to come to me the other day, I will give you a few names, and I will send you a few specimen flowers that are in blossom just now. They are in some cases about two to three months before their time. Sternbergia Fischeriana, about which "E. J." inquires in last week's issue, is a very charming flower. It does well here in a rather raised bed of sandy loam. At present it is one of the greatest ornaments of the garden. Iris sindjarensis is fully open in two or three places, and I see the month given for its flowering is March in Professor Foster's "Notes on Bulbous Irises." I had it from Herr Max Leichtlin at Baden-Baden. It would be interesting to me to know if he ever looked upon it as a January flower; it has an air about it of a balmy April day. My friend "J. C. L." records its blossoming with him in a greenhouse last year (*vide* your last impression, page 88). I am afraid he will think I am labouring under some strange delusion when I say that in several places it is now in blossom here in the open ground. But, speaking of Irises, I cannot too strongly recommend the whole section of bulbous Irises for any sunny place. Late in the year Iris Vartani gladdened me with its

very pretty appearance. Then, hard upon it, Iris Histrio came into flower, then Iris Vogeliana from Persia, as the name was given to me, then I. Bakeriana, then I. histrioides in great number, and soon I. Danfordiæ will follow in support of its congeners. I cannot praise all these enough for a winter garden. Narcissus minimus is by a long way the first to the front of all its race. Corydalis ruthæfolia is coming out. Snowdrops are in evidence in great quantity all over the place. Galanthus lutescens, G. Fosteri, G. plicatus, G. caucasicus grandis, G. robustus, G. Cassaba, several of Mr. Allen's beautiful seedlings, and others besides these are now very pretty indeed. Chionodoxa Lucilæ is in full flower. Cyclamen coum by the hundred, I may say, enlivens the borders just now. Leucocjum æstivum and L. vernum go hand in hand with it. Daphne Blagayana is well on in bud, and I may mention Crocus Imperati, C. Korolkowi, C. sulphureus striatus, C. Sieberi, C. Weldenii violaceus, C. minimus and some others as being very happy at present. But my list is not at all exhausted by all this. Muscari lingulatum is a very delightful spring flower of a sort of turquoise-blue colour, and it has now come quite to the front. Anemone stellata alba has been out for the last three weeks, and, together with it, Anemone fulgens and the different varieties of Iris stylosa should by no means be forgotten, for they are among the very best of all winter flowers. A very large clump of Iris stylosa alba has often during the last few days had a dozen spikes of blossom at one time. The type also, which I think I like as well as any of them, has enjoyed the sunny days we have had.

But I think I may as well stop here, and by comparison with the above take no heed of the Ficarias, the Aubrietias, the Primroses, the Hepaticas and Hellebores, and many other things which at present accompany them, though perhaps it may be worth while just to say that Mr. G. F. Wilson's blue Primrose is in blossom and very greatly admired by some persons

But of all the above, Iris sindjarensis is the most out-of-the-way thing in my garden. While the birds are singing all about me and the buds are bursting, I have a sort of feeling which I should think Alice in Wonderland must have had in her unusual circumstances.

H. EWBANK.

Pleasure-ground work.—A special feature in pleasure-ground work, now that leaf-raking, sweeping, and carting are once more at an end, is what may be described as an expansion of the better class and the partial or total extirpation of common things. This takes two forms; in the one case the rooting out of brakes of Laurel in variety and common Rhododendrons, and preparations for future planting with better things, and in another an inspection of the surroundings of high-class shrubs, both deciduous and evergreen, with the view to give plenty of room on all sides to allow of full development. In this latter direction a great deal may often be done to brighten up pleasure grounds originally well planted, but that from various causes have, perhaps for years, had little labour bestowed on them, and whose best things are gradually crowded out. An instance of what I mean may be mentioned in the case of opening up some years ago a lot of grass walks on which huge bushes of Rhododendron ponticum had much encroached. In cutting back and layering these, large plants of Azaleas, Exochorda, Forsythias, and other things were disclosed originally in line with the Rhododendrons, but completely smothered by them and naturally miserable objects, with long, ragged shoots. These were taken in hand, some shoots pegged down, some shortened, others tied in, and the result, after a little annual attention and keeping the Rhododendrons well back, is in the season of the flowering shrubs a very pleasing display. Few brighter contrasts are obtainable throughout the year than the masses of white and yellow, flanked and backed by the dark foliage of the evergreens. Large clumps of Azaleas growing in rather shady positions are inclined to get a bit weedy, but this, too, can always be remedied with the aid of a few pegs and an occasional tie. Among the better things brought to light after the onslaught on the rough stuff were several

plants of an evergreen *Myrica* that I take to be *cerifera*, a shrub very seldom seen in modern gardens. Of very slow growth, it was a longer matter getting them into decent form, but they proved amenable to the treatment accorded to others and are now fine bushes. Writing of this shrub reminds me to notify intending planters of the same that it is a true evergreen, although catalogued with *M. Gale* in more than one instance as deciduous.—E. BURELL, *Claremont*.

PAEONIES.

NOTWITHSTANDING that Mr. Tallack has established *Paeonia officinalis* and Ox-eye Daisies in coarse grass, as stated by him, and which I have not in the least disputed, there still remains the fact that all other Paeonies have failed under the same treatment. Now my contention throughout has been that scores of the varieties of *P. sinensis* are equally vigorous in growth and equally robust in constitution as *P. officinalis*, yet where the latter succeed the former are a failure. This is very significant and curious also, the more so when we remember the Chinese Peony would have a considerable start in growth over the grass or the Daisies mentioned by Mr. Tallack. In short, by the middle of May the Paeonies should be nearly or quite 2 feet high, and therefore quite masters of the situation. On the other hand, *P. officinalis* is the much dwarfer plant in all its forms, and should therefore have been the first to suffer, assuming all the plants were of equal size at the original planting. From what I can gather from Mr. Tallack's remarks, I should incline to the opinion that some local influence, as, e.g., exhausted soil by previous occupants, has more to do with the failure of the named Paeonies referred to. I am the more strengthened in this view because Mr. Tallack expressly states (page 482, vol. li.) "the surface herbage has been cleared away twice a year since planting" to give the Paeonies a better chance. In these circumstances, therefore, the rough herbage would be but little detriment, and we must look for failure either wholly or in part in another direction.

Again, planted in August in the woodland or similar place, the soil would be very dry, and where trees abound especially so. One very important item which Mr. Tallack appears to lose sight of in his endeavour to naturalise these Paeonies is the exceptional length of time such things take to establish themselves in well trenched and enriched soils. Yet what is a most essential item to continued success in the open garden in rich soil Mr. Tallack views with alarm when such things are relegated to the woodland for purposes of naturalisation. It is not so much the after attention, but of this I am certain, that for success to attend deep-rooting and gross-feeding subjects like these Paeonies, they must at least be well planted in deep and good soil even in the woodland.

In my references to clearing, &c., I had no "imaginary wood" at all in my mind's eye, as Mr. Tallack suggests, unless indeed one of many acres in extent could be so termed. In this wood I have had from time to time pleasurable experiences as opportunity offered in this very work of clearing, trenching and naturalising, and I may say at once that the soil was invariably worked 2 feet to 2½ feet deep as an essential to success, and this for many things far more easily accommodated than are Paeonies. Oak was the prevailing timber in the wood I have referred to, with occasional Oak stools, whose stems had been cleared previously. Nut bushes also abounded, with Brambles, Bracken, and rough weeds galore. All this useless material was cleared, and it was not regarded as too much trouble not only to well trench the soil, but to add a few loads of additional material. Paeonies in woodland scenery are not impossible, but they must be catered for. The majority of those who succeed at all in furnishing the woodland and its vicinity with garden plants do make special preparation by deep digging and a first clearance of the worst impediments to success. If we would successfully plant the woodland with

garden subjects it must, if we court success at all, be first gardening and naturalisation after.

E. JENKINS.

Lilies failing.—I wrote some time ago to THE GARDEN to ask what I should do with various Lilies (*auratum*, *speciosum*, *Batemannæ*, *Leichtlini*, &c.) which grew very well for a bit, but whose leaves and buds turned yellow and brown later on. I have since then examined the bulbs and find them perfectly healthy. Is it possible that they can suffer from the same disease that has affected Potatoes so much in this country (Ireland), and would it hurt the Lilies to try the spraying mixture which has proved so successful in checking disease in their case?—HIBERNIA.

Leucojum aestivum.—I have now had the Summer Snowflake in my garden for five years, but although I have tried it in different positions, it has up to the present declined to bloom. It makes vigorous leafage in its various quarters, but its good health does not apparently act as an inducement to flower-formation. I am led to pen this short note by the perusal of "E. J.'s" article on the Snowflakes (p. 62). I notice he writes that the bulbs should be planted 6 inches deep. In my case they are only at a depth of 3 inches, which shallow planting may have a detrimental effect, yet I know cases in my immediate neighbourhood where they bloom well planted at this depth. The soil is heavy and moisture-retaining, and the leaves, as "E. J." says is the case under such conditions, attain a height of about 2 feet. *Leucojum vernum* flowers freely with me.—S. W. F., *South Devon*.

Bulbs for cutting.—Now that Narcissi are imported in such enormous quantities and at such a low price, one would hardly think it worth while to grow any bulbs of these kinds for the purpose of supplying cut flowers. There is a vast difference between the blooms of those that have been crushed into pads or boxes and those of the same variety that expand in one's own glasshouse. There is yet another advantage about growing them at home, viz., the beautiful foliage that can be gathered with them, without which no flower can possibly be seen to advantage. As the bulbs of such kinds as the Paper White, Double Roman, Grand Monarque, Soleil d'Or, &c., are very cheap, I like to have a few hundreds in boxes of light rich soil for cutting, as the foliage is, in my opinion, worth as much as the flowers, for the imported ones come to us without a vestige of leafage.—J. G., *Gosport*.

Early Gladioli.—"Delta" remarks (p. 483) that the early Gladioli are only suited for greenhouse culture. Over a great portion of the British Isles this statement, doubtless, holds good, but there are favoured spots where they flourish permanently in the open air and increase as rapidly as they do in the Channel Islands. Last year on the banks of the Dart I saw several clumps that had not been disturbed for two years which were in the most vigorous condition, and which had evidently quite trebled their number of corms. The situation of the bed in which they were growing was high, the drainage perfect, and the soil light. In my garden, twelve miles distant, they die out and must be added to every year if effect is to be maintained, but the conditions of soil and situation here are the direct opposite of those which obtain in the spot where they are evidently so much at home.—S. W. F., *South Devon*.

The Spring Snowflake.—The first of the Spring Snowflakes is now in bloom here. It is one which I bought a good many years ago as *Leucojum vernum carpathicum*. There is some difference of opinion as to the true *L. v. carpathicum*, but, according to Mr. J. G. Baker, that variety has yellow spots, while the one to which I refer has these green. It also flowers earlier than the yellow spotted one, and, besides producing more than one flower on a stem, is more robust in its growth. There is, however, more variation among the Spring Snowflakes than most

people suppose, and those who wish to grow one of the most pleasing spring flowers would do well to endeavour to secure as many varieties as possible. There is, for instance, a small-flowered variety known as Miss Hope's which is later than any of the other spring-flowering Snowflakes. A well-informed correspondent tells me of much variation among seedling Snowflakes in his garden, and states that yellow-spotted and twin-flowered varieties appear. While this is so, Mr. Baker names a tall robust form with two flowers as var. *Vagneri*, Stapf ("Handbook of Amaryllideae," p. 19). This seems the one I now mention.—S. ARNOTT, *Carsethorn, Dumfries, N.B.*

Montbretias.—Young growth of Montbretias had pushed up some 4 inches or 5 inches, but in all cases where old foliage and consequent shelter afforded had been removed this was cut down by a frost of 17 degrees experienced on Christmas night. I should like to suggest that in all cases where the removal of this old foliage is not absolutely necessary it should be allowed to remain until all danger of sharp frost is over; not that the corms are tender, as they will come safely through the sharpest winter, but the cutting down of the earliest formed growth naturally means retarding the flowering season to some extent, and as the graceful spikes are so much appreciated for vase work the sooner the clumps bloom the better. Vigorous clumps will continue in flower nearly three months. They will succeed in rather dense shade, but are not so vigorous or free as on sunny borders. *M. crocosmiaeflora* is the most vigorous of the family that I have tried, but a selection of its different forms gives a splendid variety from the primrose-yellow of *Solfaterre*, to the intense shade furnished by *Etoile du Feu*. When making preparations for Montbretias, planters should not forget a batch of *Schizostylis coccinea*, another flower in great request for autumn cutting.—E. B.

VIOLET MARIE LOUISE.

IN the correspondence relating to this useful and beautiful Violet in THE GARDEN recently I have not noticed any reference to one important point in its culture. This is the fact that the plants are lifted just at the time when they are least able to bear the strain—that is, just at the commencement of the flowering season. I am sure that this has a lot to do with the foliage damping, or rather decaying. I always grow more plants than I can find frame room for; some of those left are potted and grown in a cool Peach house, a few are usually lifted and transplanted to the base of a warm wall, while others—and these naturally the weakest and worst plants—are left in the beds where grown until the ground is required. Should the autumn prove mild, I generally pick the best flowers from the plants that have not been disturbed, while most of the foliage needed is also taken from them. Decayed leaves are never seen, and this proves that the disturbance has something to do with it. If it were possible to grow the plants in beds just the size of the frames that are to cover them, this would be a ready way out of the difficulty, but this is not convenient for one or two reasons. The use of very shallow boxes with only height enough to clear the plants would facilitate matters, and as long as severe frost held off, no doubt plenty of blooms could be had, but later the plants miss the sheltered warm positions that are usually allowed the frames, as these would not exactly suit the plants in summer. Still, where there is room to spare and a few shallow boxes with well-fitted lights are at command, I think it would be possible to obtain a lot of first-class flowers in most seasons up to Christmas, and often later. The boxes would be quite sufficient to ward off the earlier frosts, while the plants, not being disturbed, would respond readily to the application of a little of a good artificial fertiliser. Although in many gardens the same plants are grown on for years, I think a fresh stock occasionally is desirable, especially in small places where there is not much chance of chang-

ing the ground for them annually. Where hot-beds are made up for the plants, a good deal of care is necessary at first, but in nine cases out of ten these do more harm than good. If a nice gentle warmth could be ensured in winter to keep the roots gently moving without the steamy vapour entering the frame, it would do good, but in many cases the heat is violent at first when not wanted, while afterwards there is but little. Taken all round, good light, well-glazed pits, with a single 4-inch pipe running round, are best for keeping up a succession through the winter.

H.

Herbaceous Lobelias.—The notes that have appeared on the above during the past few weeks appear to emphasise the contention that these handsome plants thrive better in a damp, heavy soil than in a light and dry one. Doubtless Mr. E. Burrell's plan (p. 503) of mulching "to retain moisture" is that best calculated to ensure success in light soils. Mr. Gordon Cooke's note (p. 3) is seemingly conclusive. The Lobelias here mentioned "grew splendidly in a very wet, heavy soil." They were taken up, planted in a dry place, and died. Mr. S. Arnott (p. 20) tells us that in his light, dry soil it is impossible to keep them alive through the winter, while "J. C. B." (p. 61) relates a precisely similar experience. With regard to "H. H. R.'s" note (p. 61), I would venture to suggest that if the plants remain in the open without any protection winter after winter and continue in vigorous health, there is no necessity for pursuing any other method of culture. If the clumps "contain decaying roots," it is, I take it, proof positive that they are not in good health, and would be benefited by being lifted and treated either as "H. H. R." or "J. C. B." advises. My clumps have shown no signs of decaying roots or of deterioration since the first of them was brought into the garden from the village six years ago, and they annually send up spikes from 4 feet to 5 feet in height.—S. W. F., *South Devon*.

SHORT NOTE.—FLOWER.

Erigeron speciosus.—I note that in the article upon the family of Erigeron (p. 484 last vol.) the inference given is that *E. speciosus* is quite hardy. I find, however, that in heavy, damp soil in a low-lying position plants of this Erigeron disappear each winter, though in the contiguous garden on a trifle higher elevation none are lost. I was under the impression until a few years ago that *E. speciosus* was capable of withstanding almost any amount of frost and damp with impunity. Doubtless on warmer and drier soils it would do so.—S. W. F., *South Devon*.

STOVE AND GREENHOUSE.

GREENHOUSE HARD-WOODED FLOWERING PLANTS.

It is not at all improbable that many young gardeners have never had the opportunity of becoming acquainted with the cultivation of hard-wooded plants, amongst which is included a portion at least of the finest of all flowering plants. With some of us it has become a popular notion (in some respects decidedly a mistaken one) that this class of plants is not suited to present-day gardening, whilst many no doubt have been prevented from embarking further in their culture from the idea that they are difficult to manage. To the former of these reasons we are having more and more proofs in the admirably-grown small examples of *Ericas*, *Leschenaultias*, &c., which are being sought after in greater numbers, that they are so suited; whilst the second is in many cases but a poor excuse. Some are, it is true, rather difficult plants to manage, but should that be a reason why they should be kept, as it

were, out in the cold? I think if we had a few more of the best of this class of plants and a few less of soft-wooded plants, as *Geraniums*, *Cinerarias*, and the like, we should not be making a mistake, nor should we detract in the least from the display created in cool houses and conservatories, but rather add variety instead.

For some years past I have noted the decline, and that with great regret, of the interest taken in this section of flowering plants. There must be reasons for this, and some of these are not, I think, very difficult to be understood. One, no doubt, is the very great increase in the numbers of decorative plants either as small examples for indoor use or for cutting, and that to a great extent of such subjects as are easily propagated and rapidly grown. For both of the aforesaid purposes many of the plants now under consideration might, with certain limitations, be advantageously grown, these limitations being chiefly as it relates to a moderate use both as plants in the house and in a cut state for decoration. Another cause, no doubt, is the decline in the number of classes at flower shows which has resulted in a lack of interest in their culture—just as if they were not of as equal value at home as in the exhibition tent. The extension of fruit culture under glass has also had something to do with their decline in numbers. Yet, whenever we see well-managed plants, be they small, medium-sized, or as specimens, what an amount of interest is created in them. Note, for instance, the plants that have been exhibited and over which the visitors (practical and amateur) have so often lingered at the Royal Horticultural Society's Temple shows in May of recent years. I allude to the *Leschenaultias* and *Boronias* from Mr. W. Balchin, Hassocks Nurseries; to the *Aphelaxes* and *Pimeleas* from Messrs. H. Low and Co., of Clapton; and to the well-managed plants, small, it is true, of *Ericas* and *Epacris* from various sources. It is easy to make out a case in favour of some of these plants. Take, for instance, the *Epacris* family, which are most profuse flowering, lasting from first to last for months in good condition. The long spikes of these are admirably adapted for cutting, lasting fresh for nearly a week in water. These plants have the additional advantage of a wide range of colour. *Ericas* of nearly every description can also be cut in small pieces at least, whilst some of these with more spike-like growth may be taken in greater lengths. What a useful plant in a small state is *Erica Cavendishi*, lasting fresh for weeks! Take *Tetratheca ericifolia* as another case in point; there is nothing like it in colour. It is as unique as *Leschenaultia biloba major* in this respect. Then there is *Dracophyllum gracile*, a singularly beautiful plant of slender growth with its white, sweetly-scented flowers. Very dissimilar to either of the preceding are the *Chlorozemas* and the *Eriostemons*, both handsome and distinct and no mean subjects for cutting either. I have often used flowers of the latter as a substitute for Orange blossom. What is there like unto the *Aphelaxis* when well grown, or to the *Boronias* or the *Hedaronas*? They are all distinct and handsome, too. The marvel is that such a class of plants with so great a diversity in colour, form, and habit should ever have ceased to have been popular.

GROWER.

A new Passion Flower (*Passiflora prunosa*).—This new species was discovered in British Guiana by M. Everard in Thurn, who sent seeds of it to Kew in February last. It belongs to the *Granadilla* section of the genus, and in habit and foliage it most resembles *Passiflora violacea*.

The flowers are solitary on long stalks, 3 inches across, petals rather shorter than the sepals, pale violet, sepals green outside, white within. The corona is large, and composed of wavy filaments of varying length and coloured yellowish. For gardens the plant may equal *P. violacea*. The Kew examples have grown very freely in a stove.—W. W.

Forcing Lilacs.—Few plants respond more readily to heat and moisture than Lilacs, and where a large quantity of cut flowers is required they are amongst the very best of things that a gardener can get to fill his flower basket. I well remember the enormous bushes we used to lift at this time of year from the woodland drives, and, after tying the heads together with a rope, carrying them to the forcing houses and setting them in any vacant corners, simply covering the roots with soil and keeping the tops syringed until they burst into flower. If shaded with mats and in a high temperature the purple variety will come quite white, and for table decoration during the London season the flowers are invaluable.—J. G., *Gosport*.

PITCHER PLANTS AT SYON HOUSE.

THESE plants are grown at Syon not merely for the part they play in the ornamentation of the plant houses alone, but for their actual worth for decoration generally. In this way being far removed from the usual run of such things, these *Nepenthes* come in each year, or at least all those that are at the required moment in a fitting condition, for a good share of interest and of admiration. Of interest to those who know them and can enter into their culture and peculiar structural details, and of admiration from all, whether interested in gardening or not, because of their many and varied characteristics, and not least the fine colour of the mature pitchers. On a recent visit I was attracted by the numbers of fine plants representing this interesting group. Of even greater interest was the remarkable profusion of the pitchers in many stages of growth. That the collection is a rich one may be gathered from the fact that some three dozen species and varieties are grown in the collection at Syon, many kinds being represented by several examples. This affords an opportunity of utilising the plants with a free hand, for, as I have said previously, these things are grown here for other purposes than for merely ornamenting the green-houses all the year through. Especially are these picturesque plants in request each year when the gardens at Syon are gay and guests abundant. At such times these Pitcher plants greatly enhance the attractions of the groups, whether in hall, reception room, or marquee. Too cold frequently for such things and too draughty, yet they play their part, and the gardener has to do his best to restore them after. In some of the plants, however, this is a tedious business, particularly where by long exposure to a very low temperature and draught especially the plants receive more than an ordinary check. In all cases where possible, however, the plants are cooled down or hardened off to meet this exceptional strain. There is plenty of plants ready for such emergencies, while the general collection is maintained in a high state of efficiency. The majority, if not all the kinds are grown in baskets in rough peat and Sphagnum with charcoal, and are brought to their present state of excellence in the warm moist stoves. In this large collection it need scarcely be added that the best and most worthy of the genus are to be found here mainly in good-sized examples, some of the older kinds being represented in still finer plants with many handsome pitchers. Among those of which special note was made were the somewhat rare *N. Veitchii*, a very distinct species from Borneo, with its handsome cylindrical pitchers, strongly ribbed at the mouth, and *N. Hookeriana*, a well-known handsome kind. Very striking is *N. Amesiana*, one of the finest and showiest of the group. The pitchers in this kind are very freely produced and of a distinct bulky rotundity, the extended rib

being often 2 feet in length. *N. Mastersiana* is very handsome, with many well-coloured pitchers, *N. Morganæ* has large and richly coloured pitchers, and others in the younger examples beautifully mottled making it a most conspicuous form.

N. mixta and its variety *sanguinea* were in splendid form, also *N. Wittei*, with long narrow pitchers. *N. Rafflesiana*, still one of the handsomest and most remarkable of this truly wonderful family, is well represented. Of this species alone there are many fine examples, all bearing pitchers of large size. This picturesque kind is always among the most attractive, and in isolated positions one of the most valuable in point of effect.

The above are but a few of the many lovely kinds that are grown in these gardens.

E. J.

Carnation Mme. Therese Franco.—Probably no so-called winter-flowering Carnation has received so great a measure of praise as this, and no variety of its colour has deserved it less. Indeed, it does not appear to possess a solitary redeeming feature, being weak in growth, decidedly weak in constitution, and flowering only at rare intervals. In short, as a winter kind it is worthless, as between the beginning of December and the end of February the plants scarcely produce a flower at all, and the few that appear burst open from the side of the calyx and never properly expand. In the early autumn it behaves somewhat better, provided the cuttings are well rooted and have a start in the old year. But when the few autumn flowers are gathered there is a break of some four months before any more appear; in fact, it has but the smallest claim to perpetual flowering of any pink variety I know. A really good reliable variety of the shade of pink so much prized is still wanting. In Miss Joliffe growers of these winter flowers had a most reliable kind for many years, a beautiful shade of pink, an exquisite flower, with every claim to perpetual flowering. Miss Joliffe is of that bushy, compact growth that flowers abundantly and well when good plants are secured, and it is still a charming winter kind where it is yet grown with success. Unfortunately, many growers have been compelled to discard this old favourite by reason of its deterioration. The same remark applies to *Mme. T. Franco*, the largest growers having found it quite useless for winter work.—E. J.

Richardia Elliottiana Rossi.—This has been announced as a new golden-flowered *Calla*, but whether it has yet blossomed in this country I cannot say. If any reader of THE GARDEN can give a few particulars concerning it I shall feel much obliged. The advertisement of it states that the superintendent of the Botanic Gardens, Cape Town, says it is distinct from *R. Elliottiana* and a decided improvement. The following sentence also occurs: "The bright variegation of the foliage, combined with the large golden blooms, makes an exceptionally handsome species." Not having seen the plant in question, I can of course say nothing concerning it, but I have grown some hundreds of these golden-flowered *Richardias* from imported tubers, and find there is a certain amount of variation amongst them, more, however, in foliage than in flower. My experience of these imported plants is that they all consist of *R. Pentlandi*, for amongst them I have never met with the true *Elliottiana* as flowered first by Captain Elliott, and of which the stock was sold by auction some two or three years after. True, some of the imported plants have the foliage variegated after the manner of *R. Elliottiana*, but in their case the blade of the leaf is longer and more pointed and the stem less mottled; in fact, they are the exact counterpart of *R. Pentlandi*, except that the leaves are spotted. In *R. Elliottiana* the blade of the leaf is rounder and of greater substance, while the stem is marked with brown in such a manner as to remind one of an *Alocasia*. I have met with imported plants bearing spotted leaves grown under the name of *R. Pentlandi*

maculata which seems to me quite correct, as, except the variegation, they have all points in common with the typical *R. Pentlandi* and are quite distinct from *R. Elliottiana*. Though I am not aware that this last has been imported since Captain Elliott was fortunate enough to obtain it, yet it produces seed so readily, that it is now pretty well distributed throughout the country.—H. P.

HYMENOCALLIS.

To lovers of this really choice genus of bulbous plants "W. W.'s" notes in THE GARDEN of Jan. 22 will undoubtedly have been very welcome. Considering the intrinsic beauty and easy cultivation of most members of the *Hymenocallis* family, it is surprising that these plants are not more generally met with, and what is also surprising is the fact that where one finds them in collections it is rarely that they can boast of being correctly named. That the plant figured in the above issue really represents the beautiful *H. littoralis* will be doubted by many to whom such classical botanical works as the *Botanical Magazine*, the *Botanical Register*, Baker's "Refugium Botanicum," and Redouté's splendid volumes are accessible, and who themselves have the opportunity of comparing the live specimens. Clearly the species figured on p. 57 is not *H. littoralis*, but the plant of which excellent coloured plates may be found in the works above cited under the name of *Panocratum rotatum*. Flowering specimens of the true *H. littoralis* have always three to six flowers open at the same time, a number of buds following in succession; whereas the plant figured on p. 57 has only one flower open on each stem, three or four buds only following. The rotate staminal cup, style over-topping the anthers, and erect foliage also point to the species *rotata* (lucida if one sticks to the priority rules of nomenclature). A luxuriant form of this plant—not of *littoralis*, as "W. W." says—was distributed a few years ago by a French nurseryman under the name of *H. Deleuilii*. To be frank, neither *rotata* nor *Deleuilii* are worthy of a place among choice collections, the flower-stems containing so few flowers, which are also of a very fugitive character. *H. Harrisiana* is a widely different plant, and not at all similar to it, as "W. W." says. That the beautiful *H. Amancaes* can, happily, still be supplied true will appear from the fact that a very good figure of a strong specimen of this very distinct species appeared in these pages not very long ago (p. 168, 1895). The hybrid form between *Amancaes* and *calathina* may be plentiful in England; it is not so here, and my only means of getting it has been to reproduce the cross effected long ago by Herbert and also more recently by Col. Clarke. It is quite curious in what a short time the *Amancaes* forms ripe seed. Of a specimen flowered by me in a pot in a cool greenhouse the seeds were ripe within four weeks after the flowers had faded. These on planting in the same pot around the maternal bulb had formed nice little bulbs of 2 inches in length, which completed their growth even before the large bulbs had shed their leaves. The raising of bulbs from seed usually being a most tiresome and tedious process, this exception is well worth recording.

C. G. VAN TUBERGEN, JUN.

Zwanenburg, Haarlem.

Sparmannia africana.—The pretty flowers produced at all seasons by this old greenhouse plant are always welcome. It thrives in any fairly moist greenhouse. Cuttings of young wood form a ready means of propagation, and as soon as these are struck they should be potted very firmly in good loamy soil and pinched once or twice in the younger stages to induce a bushy habit. There is not everywhere room to grow this into the fine specimen plants that show best the beauty of the species, but even neat little bushes with a few bunches of flower on each are remarkably pretty.—H.

ARUM LILIES.

I was greatly interested in the remarks of "R." at page 14 concerning these valuable winter flowering plants, and am further pleased to find that he favours an all-round system of pot culture, for, as is well pointed out, the rich soil and the trenches "are about the worst thing possible if early and continuous blooming is looked for." I would like to advise "R." not to permit his plants to have a drop of water for several weeks in succession, for I am sure he will be more than repaid for so doing by the extra blooms. Many gardeners object to keeping the plants in pots the year through, because it is thought to entail more trouble in watering in summer, whereas water during summer is absolutely unnecessary. "R." has come very near to proving the truth of this when he says, "and often I am afraid were none too well supplied with water, but no harm was done." For fully fifteen years I have both advocated and practised the summer drying off for these plants with the best results, and always with large numbers of plants. When the plants are finished with in May, they should be stood out in a sheltered spot or a cold pit till all fear of frost is past, withholding water by degrees. A month of this usually suffices, and by the first week of June the plants, pots, and all are laid on their sides or stacked in a heap. In this way during June and July they are not permitted to have any water at all. Early in August the plants are stood up, and if no rain comes by the middle of that month a good watering is given, more with a view to soften the soil prior to repotting than aught else. At this time a solid spiral crown 2 inches or 3 inches long is all the life visible above the corm. Repotting is done about the middle of August, one to three corms according to size being placed in an 8-inch pot. Annual repotting is much preferred, and the bulk of the soil is removed regardless of any old roots that remain. A thorough watering follows the potting and afterwards as required. A fairly rich compost is given with soot and bone-meal added, and firm potting always indulged in. The plants are housed by the middle of September, by which time the first good leaves are unfolding, and by the end of the same month splendid spathes are obtainable. It is always a pleasure to see the clean, firm, vigorous growth these plants make compared with the gross, lank, and flabby leaves and stems of those planted out all the summer. The crop of spathes is also largely increased by the drying off, more particularly due to earliness and there is a greater profusion hereafter. If this be not sufficient, there is still the labour-saving clause of the summer to be added. E. J.

Tremandra verticillata.—The fact of many of the Australian hard and soft-wooded plants going out of cultivation, or nearly so, is a distinct loss to gardening, and to a certain extent a slur on present-day gardeners. This pretty plant, for instance, and lots of others that might easily be named would make welcome additions to our greenhouse flowering plants. It is a graceful, erect-growing, *Boronia*-like species with light and elegant foliage and pretty blue flowers produced on slender stalks during the present and few succeeding months. Like all of its class, it wants careful growing from the first, and from the time the cuttings are inserted until the fully grown plant is in flower, a cool, airy, and moist atmosphere is required. The cuttings should be made of half-ripened wood, and placed fairly thickly in small pots, using a sandy soil and keeping close until rooted. Small shifts are necessary, but the growth is more free than that of some similar plants. During the summer months the plants may stand out of doors in the full sun, but a little shade to the roots is advisable. In all stages of growth water must be carefully supplied, and any hard water strongly impregnated with lime is bad for the roots. Any light and well-ventilated house will suit the plants during winter and early spring. It is a native of South-west Australia, and received an award at Chiswick as far back as 1846.

MARKET GARDENING.

MUSHROOM CULTURE IN FRANCE.

In passing through the outskirts of Paris, and especially in the low grounds which lie to the south and west of the city, there comes into view a constant succession of wooden structures of rather singular appearance, in the form of square towers rising from the ground in the most unexpected places—in waste land, cultivated fields, gardens, and even on the glacis or slopes of the fortifications. Sometimes a cloud of smoke will issue from the top of one of them, increasing the curiosity of the passer-by, who is puzzled to understand where this smoke can come from. These mysterious-looking structures, however, are really nothing more than draught chimneys constructed for the

grating certain organic compounds. But this is exactly where the obscurity commences. Not one of the hydrocarbonaceous or nitrogenous substances which serve as food for the Mucedineæ and others of the lower orders of Mushrooms is capable of being assimilated by the species of which I am speaking. We cannot consequently "cultivate," in the scientific application of the term, any of the higher orders of Mushrooms. Brefeld, it is true, succeeded with a "culture" of *Coprinus stercorarius* in manure in a glass vessel, and Hartig with one of *Agaricus melleus* on Plum tree roots. But these savants, in reality, did little more than to introduce into the laboratory the empirical practices by which in Italy they grow *Agaricus caudicinus* on dead roots of the Black Poplar, or *Polyporus avellanus* on singed branches of the Hazel Nut tree. What would be particularly interesting is to know why these special habi-

I.—COMMON METHODS OF CULTURE.

The common edible Mushroom (*Agaricus campestris*) is (with the *Coprinuses*) of all the higher orders of Mushrooms the most particular in the choice of its habitat. It always displays a marked preference for half-decomposed stable manure, and consequently it frequently finds in gardens a medium suitable for its growth. In this circumstance obviously we may find the origin of Mushroom growing as a special branch of culture, the cradle of which was a Melon bed. What gardener of genius—the expression is, perhaps, not too strong—conceived the idea of taking up the Mushroom spawn from one of these beds in which Mushrooms had made their appearance spontaneously, in order to insert it in a fresh bed in the hope of thus obtaining a new kind of crop from this special process of sowing? The name of this originating genius has not come down to us, but it is



View in Mushroom cave at Montrouge.

purpose of facilitating the ventilation of the extensive subterranean quarries now devoted to Mushroom culture, a branch of industry but little known, although it deserves to be, both on account of its intrinsic economic importance (the value of its produce in the outskirts of Paris alone amounting to several millions of francs annually) and on account of the interest which it possesses for the biologist. At the present day, in fact, one of the great defects in vegetable biology is our total ignorance of the elements which constitute the food of the higher orders of Mushrooms, especially the entire order of the Basidiomycete and that of Discomycete. It is very evident that these vegetable growths, which are devoid of chlorophyll, must, when they do not exhibit a parasitic or symbiotic mode of existence, acquire the food material necessary for the building up of their tissues by destroying or disinte-

tats are adapted for the Mushrooms I have just named, and to be able to reproduce in a purely artificial medium the chemical conditions of their natural growth.

With this object in view I have for several years been engaged in experimental operations with the common edible Mushroom (*Agaricus (Psalliota) campestris*) as my principal subject. This species of Mushroom is particularly well adapted for experiments of this kind on account of the readiness with which it is propagated in farmyard manure and the comparative rapidity of its growth. The results which I have so far obtained, although incomplete, are, nevertheless, calculated to throw light on and improve in many particulars the common practice of Mushroom growers, and these results I now place at their disposal. I shall first, however, briefly describe the technicalities of this branch of culture.

certain that the culture of Mushrooms in hot-beds commenced in France in the latter half of the last century. It was at first only a very accessory branch of market gardening, and was only carried on in spring and autumn. In the beginning of the present century a nurseryman named Chambry thought of growing Mushrooms in the underground quarries, which afford the equable conditions of temperature and moisture which all cryptogams require. Having succeeded in establishing a very profitable business in this way, he had many imitators, who quickly took possession of all the vacant spaces from which stones had been quarried. At the present day Mushroom culture, although extensively practised in France and other countries, has its chief centre in our Parisian underground quarries. These quarries were formerly almost exclusively confined to the left bank of the Seine, in the circuit which

extends from Meudon to Ivry-sur-Seine, comprising the district of the communes of Vanves, Clamart, Châtillon, Montrouge, Bagneux, Arcueil, and Gentilly. Thence they extended their ramifications, even under Paris, as far as the Val de Grace quarter, where they are well known to the Parisians under the name of "Catacombs." At a more recent period, fresh excavations of a no less extensive nature were made under the plain which reaches from Mont Valerien to Saint Germain-en-Laye and Argenteuil, around Nanterre, Houilles, Carrières-Saint-Denis and Montesson. I might also mention the less important groups of Maisons-Alfort, Romainville, Noisy-le-Sec and Ville-tanouse. Eventually, as the means of transport became more available, quarrying operations were carried on at a greater distance from Paris, and are now located in the valley of the Oise near Méru and in the neighbourhood of Creil. The quarries are excavated in coarse limestone, a few being worked in chalk, as at Meudon, or in gypsum, as at Argenteuil. The most ancient of them are simply labyrinths of low, narrow galleries in which there is often some difficulty in walking erect; but in the quarries of more recent dates the galleries are lofty and wide, are supported by strong pillars hewn from the limestone, and have a picturesque and even imposing appearance. The adaptation of one of these quarries to the culture of Mushrooms is a very simple matter. The cultivator provides for ventilation, if that has not already been done by the quarry-men, by means of draught-chimneys placed where they will be most effective. He also sinks a well in order to have on the spot the large supply of water which his work requires, and, if the quarry is too dry, he covers the floor of the galleries with finely-broken limestone, which he then waters and beats flat, and which thus forms a sort of reservoir of moisture. The

MANAGEMENT OF THE MANURE

in which the Mushrooms are to be grown next claims our consideration. As near as possible to the mouth of the quarry the cultivator marks out a certain space on slightly sloping ground from which water will readily flow off. This space is intended to receive the manure, which the cultivator should be able to obtain in large quantities at a time—a necessity which explains why the profitable cultivation of Mushrooms can hardly be undertaken except in the neighbourhood of large towns. The quality of the manure is a matter of the first importance. The only kind that is suitable for the purpose is horse manure, and, moreover, there are great differences in the quality of supplies of this manure coming from different sources. The richer the manure is in excrement and urine the better it is. The manure from gentlemen's stables is worth nothing, because it is not left long enough under the horses. The best manure of all is that which comes from stables in which draught horses are kept. These horses do a great deal of hard work and are fed on highly nitrogenous food; their urine is, consequently, more highly charged with urea and hippuric acid. Certain alterations in the rations of the horses produce changes in the quality of the manure which are sometimes disastrous to the Mushroom grower, as in the case of horses which are fed with Carrots and of horses that are frequently dosed with purgatives, &c. I mention these details here because further on we shall see the bearing of them. When a sufficient quantity of manure has been got together, it is turned over with a fork in order to properly mix the manure, the dry straw, and the straw that has been soaked with urine; it is then watered and made up methodically into large

heaps or masses, which are termed "planchers." The dimensions of these "planchers" are very variable, some of them containing from 500 yards to 1000 cubic yards of manure. In order to obtain good results, a bulk of at least 20 cubic yards is necessary, but cultivators seldom employ less than 100 cubic yards to form a "plancher." The only thing which is invariable in the dimensions of the "planchers" is their height, which is fixed at about 4 feet. Less than this would not allow the manure to heat sufficiently, while a greater height would cause the central parts of the mass to heat too rapidly, with the result of drying them up and arresting the fermentation. As soon as the manure is made up into these heaps and beaten firm, fermentation commences. The temperature at the central parts of the heap rises in a few days up to from 178° to 195° Fahr. At the end of eight days the manure is turned over, care being taken to moisten it in order to make up for the water lost by evaporation, and to place the outer parts of the heap in the centre so that they may in their turn undergo fermentation. It takes three weeks and three successive turnings of the manure to bring it into proper condition, when it presents a characteristic appearance. The straw is not blackened, as in farmyard manure heaps, but is of a uniform tawny-brown colour; each stem appears distinct and intact, except in so far as it has been twisted and triturated in the process of turning the manure; nevertheless, if it is examined more closely it will be found to have entirely lost its rigidity and power of resisting pressure, and when rolled between the finger and thumb for a moment or two it resolves itself into a bundle of fibrous matter, exactly as hemp or flax does when taken out of the steeping-pool. The odour of this manure also is quite peculiar to it, and somewhat resembles that of the Mushroom itself. At this period the heap appears to be not much more than half its original height, and it should contain just so much water as that, when a handful of the manure is squeezed tightly, it will moisten the hand without allowing a drop to escape. The manure is lowered into the quarry, where the workmen receive it and make it up into long, narrow beds with sloping sides like the roof of a house, which run through the entire length of the galleries, and, where there is room enough, are placed side by side like the ridges in a field. These beds are made as regular as possible, well beaten down, and all protruding straws are carefully removed from the surface. Experience has shown that the proper dimensions for these beds are a width of 16 inches at the base and a height of 16 inches in the middle. Thus made up the manure will again become slightly heated and attain a temperature of from 60° to 70° Fahr., which it does not exceed. When this temperature is reached it is time to spawn the beds.

SPAWNING THE BEDS.

The pieces of Mushroom spawn are inserted, in quincunx order, in each sloping side of the bed and completely covered with the manure, which is then slightly pressed down to bring it into contact with the spawn as closely as possible. Provided that the spawning has been done at the proper time, that is, while the manure is still warm and moist, the spawn, in which the vital power was previously dormant, soon starts into active life, emitting filaments which spread in every direction, and eventually pervade the entire bed in a period of time which varies with the conditions of heat and moisture that produce in each quarry a climate of its own. The regulation of these conditions, although facilitated by the depth of the quarries

which protects them from the effects of sudden changes in the over-ground temperature, is the nicest point in the operations of the Mushroom grower. The difficulty is especially owing to the fact that Mushrooms consume an enormous quantity of oxygen in the process of respiration. In this respect these plants can only be compared to animals. When fresh air is not sufficiently supplied, the growth of Mushrooms is arrested as soon as it commences, and the Mushroom growers then say that they are "sulking." Hence it is necessary to provide the quarries with some means of maintaining a thorough ventilation. On the other hand, it is equally indispensable to success in this branch of culture to keep the air moist almost to the point of saturation, and to avoid irregularities of temperature. To reconcile these conflicting requirements the Mushroom grower has hardly any resource except the action of the draught-chimneys of which I have spoken; sometimes he increases the draught of these by lighting a fire at the bottom, and sometimes he diminishes the draught by closing doors and partitions which have been set up for this purpose here and there throughout the galleries. Mere routine work does not suffice to make a skilful Mushroom grower. He must also possess innate qualifications, an observant mind, good judgment and ingenuity. The spawn, if left to itself in the bed, would produce only a poor crop, and in order to obtain an abundant yield of Mushrooms, the surface of the bed must be covered with a layer of calcareous soil or sand. The necessity of covering the bed in this way arises from a physiological property of the Mushroom spawn, which is well illustrated by the following experiment: In a large glass vessel layers of manure and covering material are placed alternately, and in the uppermost layer of manure spawn is inserted. The spawn when germinating strikes downwards towards the bottom of the vessel, and it is then seen to change its character completely accordingly as it passes through a layer of manure or one of covering material. When it is passing through the manure it takes the form of a felt-like substance, the very fine filaments of which more densely envelop every straw-stem like a sheath. When it is traversing the covering material, on the contrary, it appears in the shape of thick, cylindrical cords, which have few ramifications and which seem to draw the sap from the surrounding filaments, as these soon dry up and wither away. The explanation of this is that the spawn on getting into a material which contains no nutriment for it prepares itself for the process of fructification in accordance with a very general law in the biology of cryptogamic plants, and, following another equally constant law, the protoplasm, which was primarily diffused throughout the entire vegetable structure, then changes its position and becomes accumulated at the points where the fructification takes place. This is, in fact, what occurs in the Mushroom beds. As soon as the filaments of the spawn have penetrated the covering material, they group themselves together into cord-like collections, the extremities of which on coming to the surface of the soil expand into clusters of small tubercles, in each of which the outline of a Mushroom may be traced. The action of the covering material is entirely physical in its character, and it is a mistake to add to it, as some often advise, nitrate of potash or any other mineral manure whatever, which I am convinced is not of the slightest use in Mushroom growing. Mushrooms will be produced from the same bed for a period of two or three months on an average. Their growth, however, is not continuous, but

occurs with intervals of non-production, during which, no doubt, the spawn is extracting from the manure a fresh supply of nutriment. Of cultivated Mushrooms there are a good many varieties, which may be referred to two principal kinds, viz., the white and the blonde-coloured Mushrooms, so called from the colour of the pileus or cap. The pure white kinds always command a somewhat higher price in the markets. The most important distinction, however, from a commercial point of view is based on the differences in the weight or, more properly speaking, the density of the Mushrooms. Some varieties have a slender, hollow stem and spongy tissues, while others have a thick, solid stem and dense or substantial flesh. It is evident that a certain number of these last will weigh appreciably more than the same number of the others of the same size, and as Mushrooms are sold by weight, the profits of the Mushroom grower depend to a large extent on the quality of the variety which he cultivates. Unfortunately, his profits also are influenced by other matters which tend to make the success of the crop always uncertain, and render Mushroom growing one of the most risky operations known to cultivators. Without touching on the difficulties of a physical nature which the Mushroom grower, as I have already stated, must overcome almost every day in keeping the atmosphere of his quarry in a proper condition for the Mushrooms, I shall here only treat of the causes of failures that are to be found in the bad quality of the manure, the special physiology of the Mushroom spawn, and, lastly, of the diseases from which the Mushroom is not more exempt than in any other plant in cultivation.

II.—THE PREPARATION OF THE MANURE.

In the whole of this subject the two following points are cardinal: (1) The manure is rendered capable of supplying nutriment suitable for Mushrooms only by means of fermentation. (2) This fermentation is of a specific character and different from the ordinary fermentation of the farmyard manure heap. Fermentation is necessary, because if we take fresh manure, sterilise it and sow in it Mushroom spores which are ready to germinate, the Mushrooms will never become fully developed in this material. The spawn will germinate and emit filaments, which may be developed to a large extent, but there will be no Mushrooms. It acts, in fact, like seedling plants which live on the store of food which is contained in the seed without absorbing nutriment from any other source. All the higher orders of Mushrooms, the spores of which I have succeeded in causing to germinate, have a sterile spawn of a similar nature which only requires the conditions of a moist substratum to enable it to exist for an indefinite period and to propagate itself to great distances from the point where it commenced to grow, the older portions of the spawn drying up and withering away as the more newly-formed parts push forward their growth. If the fresh, sterilised manure does not afford to Mushrooms the conditions under which they are naturally produced, still less is this the case with composts formed with only some of the constituent elements of manure. It is only in good plain stable manure properly fermented that Mushrooms can find a favourable growing medium. In the process of fermentation the manure becomes peopled with microbes, and from this a preliminary question arises as to whether the presence of these myriads of microbes is not essentially necessary for the normal development of the Mushrooms—whether between the latter and one or other of the

species of microbes which, in the combustion of the hydrocarbonaceous matters existing in the straw, set in motion such a large amount of active energy, there might not be an intimate union of existence, such as prevails between many others of the higher orders of Mushrooms and chlorophyllous plants of all kinds trees, herbaceous plants, algae, &c. Such a supposition is easily disposed of in the following manner: In large glass vessels covered with a sheet of tin place prepared manure so that the vessels may be two-thirds filled with it; cover the surface of the manure with a layer of soil, sterilise the whole, and spawn the manure with Mushroom spawn just germinating, taking care to keep the culture pure to the end. In this way it is proved that the spawn, in the absence of living microbes of any kind, develops itself just as well as it does in the beds of the Mushroom growers, increases manifestly in bulk, and produces Mushrooms in the course of a few months. The hypothesis of the existence of a "symbiosis" (or intimate union of vitality) properly so called is thus exploded. If the microbes are of any use to the Mushrooms, they are only so through the elaborated products which they place at their disposal, and this subject brings us into the domain of chemistry. Ever since the investigations of MM. Deléran, Gayon, Schlesing, and others, it has been known that the changes which take place in manure heaps are of two kinds, one being produced by the fermentations caused by microbes, and the other being the result of chemical combustion, which never fails to occur when cellulose substances (such as hay, tobacco, &c.) in a sufficiently finely divided form and sufficiently moist are heaped together in large quantities. M. Schlesing, experimenting simultaneously on sterilised and unsterilised quantities of manure, discovered the part which each of the two kinds of transformation plays under the ordinary conditions of a manure heap, and he has shown that the fermentations due to microbes, the acid fermentations of matters originally soluble, and the formic fermentation of cellulose matters which follows commence on the third day and continue as long as the temperature does not rise as high as about 178° Fahr. As soon as this degree of temperature is reached, all these fermentations cease entirely and are succeeded by the process of chemical combustion, which, on the other hand, increases in intensity in proportion to the elevation of the temperature. These data have already given us grounds for suspecting that the microbes do not play the principal part in preparing manure as the Mushroom growers use it. In fact, it is only in the central parts of their beds that the straw undergoes the specific changes which I have described. Now in these parts of the beds the constant temperature ranges from 178° to 195° Fahr., and amongst the gaseous matters which I have drawn off from them I have never found any combustible gas. In order to carry the demonstration further, I have made a variety of experiments, in which I employed chemical combustion alone as the active agent. In doing this, I placed in bags or in large glass vessels straw finely broken and moistened. These bags or vessels I then deposited in the centre of a manure heap in full fermentation and with a temperature of not less than 186° Fahr. in that part of it. After twenty days, those quantities of straw which had not been exposed to the air during that period appeared to have undergone no perceptible change. On the other hand, those which I had taken care to expose to the air several times had lost from 25 per cent. to 30 per cent. of their weight, had

assumed a brown colour, and presented nearly all the characteristic qualities of the best Mushroom manure. In one point only was there any difference, viz., the fragments of straw had not become disintegrated in their cellulose substance, but still preserved their cohesion and rigidity. It was evident that this straw had undergone chemical oxidation, at least superficially, but as the high temperature to which it was constantly exposed did not allow the cellulose ferments to destroy the pectic matters which serve as an intercellular cement, the effects similar to those in the retting of flax or hemp (mentioned above) could not be produced. In the straw thus prepared I planted some pieces of Mushroom spawn, which did perfectly well and produced Mushrooms just as well as in the ordinary Mushroom manure, only not quite so plentifully, which is easily accounted for by the fact that the transformation of the straw in the experiment was not so complete as in the case of the Mushroom manure. In order to study more closely the conditions of the practice, I added to some of the quantities of straw a large proportion (5 per cent. to 10 per cent.) of ammonia or carbonate of ammonia. The results were still more marked. Combustion went on more rapidly and thoroughly, and the straw treated in this way formed quite a superior kind of food for Mushrooms. I cannot explain how the ammonia acts so favourably in the oxidation of the straw, but its action is exceedingly well marked and is of itself sufficient to account for the heating of manure heaps without bringing in the aid of microbes even to set the process a-going. Thus, I have proved that a bag of broken straw, moistened with a solution of ammonia and closely pressed together, will in twenty-four hours attain a temperature of from 85° to 105° Fahr. With somewhat larger quantities of straw a temperature of 178° Fahr. can be very easily obtained. It is to be observed that this heat-generating property belongs only to ammonia and carbonate of ammonia. The neutral salts of ammonia do not possess it, neither do the nitrates, which excludes the supposition that this ammonia might act by affording nutriment to microbes.

To sum the matter up, in order to prepare straw so as to render it suitable for Mushroom growing, all that is necessary is that it should undergo a certain amount of chemical oxidation, a result which can be fully attained without the intervention of microbes, especially if care is taken to pulverise the straw, as I did in carrying out my experiments. This gives us the key to the *rationale* of the practices followed by Mushroom growers. The straw, broken by the trampling of the horses, saturated with their urine, in a state of complete ammoniacal fermentation, kept in an equable condition of moisture by judicious waterings, heaped in a compact mass and aerated from time to time by turning it over as often as this is necessary, is brought into the most favourable condition that can be imagined for furnishing a ready support of chemical combustion and bringing it rapidly to its maximum degree of intensity. This combustion, in fact, commences in the manure heaps almost as soon as they are made up, and if the temperature which is generated in them seldom exceeds 195° Fahr., it is because, when it reaches that point, it is checked by the rapid evaporation of the moisture and the desiccation of the straw. As for the microbes, their office is confined to assisting chemical combustion by raising the temperature during the first few hours after the manure heap is made up, and also especially by disintegrating the straw and laying bare its fibrous matter, which is chiefly effected by the

formenic ferment. The manure after undergoing

THE FERMENTATION

remains, as it was before, in a chemical point of view, a compound of infinite complexity, the immediate complete analysis of which would not be possible in the present state of the science. We should, therefore, for the present give up the idea of learning from it anything more about the nutriment of Mushrooms, except for the following fact. If we take some Mushroom manure and make from it an extract with either hot or cold water, or, better still, if we squeeze from it some of its native liquid, it will be found that neither of these liquids contains any nutritive matter suitable for Mushrooms even when it may be incorporated with material of a porous nature like that of manure. On the other hand, the manure after it has been drained of all its soluble matters by the waterings which it received, is found to have lost none of the elements which afford nutriment to Mushrooms, as in it they grow and come to maturity in a normal manner. From this experiment we learn that it is some substance which is insoluble in water that is utilised as food by the Mushrooms, and consequently it is certain that it is amongst the cellulose matters that this substance must be looked for. This idea of an alimentary substance which is in its primitive form insoluble in water is, moreover, no novelty in vegetable biology, and especially in the biology of cryptogams. I need only mention starch, which is so closely allied to cellulose matters in its origin and properties. With respect to the cellulose substances themselves, we are in possession of numerous facts which prove that these substances are capable of being assimilated not only by the herbivorous animals, but also by numerous cryptogamic plants. It is true that we do not know the conditions under which such assimilation takes place, whether the cellulose matter requires to be hydrolysed by some agency independent of the Mushroom, whether it is necessary that it should be transformed into oxy-cellulose by oxidation, or still further resolved into its constituent particles, amongst which occur some sugary matters such as the pentose elements. We cannot, therefore, clearly explain the process by which fresh manure is changed into manure suitable for Mushrooms. The destruction of all the soluble organic matters, which disappear through the agency of bacteria or are consumed in the process of oxidation, is certainly an important factor, because it does away with the notion of the co-operation of microbes and mould-fungi and sterilises the manure to the advantage of the Mushrooms alone. We may, however, also believe that the oxidation of the cellulose matter of the straw has the direct result of rendering it more capable of being assimilated by the Mushrooms. On this subject I shall refer to the works of MM. Cross, Bevan and Smith, who have demonstrated that oxy-cellulose substances, that is, cellulose substances in which oxidation has commenced, continue to be oxidised under the slightest inducing conditions, such as a temperature of 212° Fahr. Now, the great amount of oxygen consumed by the Mushrooms, as well as the evolution of heat, with the formation of water and carbonic acid which accompany its growth, testify sufficiently that the production of nutriment suitable for Mushrooms depends above everything else on the action of oxidation. In any case, it is certain that if we prepare a quantity of pulverised straw and deprive it completely of its soluble or extractive matters by drenching it with hot or cold water, alcohol or ether, sterilising it also, Mushrooms will not be produced in it,

although they will grow abundantly in the same straw after it has undergone chemical oxidation. Observation of what occurs in Nature teaches us the same lesson, as, although it is not unusual to find *Agaricus (Psalliota) campestris* growing on half-decomposed roots, leaves, and sawdust, and even in paper-paste that has been left for a long time in a damp position, yet it is never found growing on fresh wood. It is not rash to suppose that the majority of the higher orders of saprophytic Mushrooms live, like the cultivated Mushroom, on cellulose matter. If this is really the case, we can understand how it is that all attempts to cultivate them have so far failed—viz., because the experimenters have always tried to prepare a nutritional compost for them from the soluble matters contained in their natural growing medium instead of directing their attention to the insoluble constituents of the same medium. I must add that, in order to cultivate a Mushroom of any of the highest orders, it is not sufficient to supply it with the particular cellulose which it prefers. We must also—and here lies the difficulty—supply it in a form in which it can be assimilated by it. Although we have reason to believe that in the case of the cultivated edible Mushroom oxidation alone is sufficient to modify the cellulose to the desired condition, on the other hand, I am in possession of facts which afford grounds for the opinion that, in the case of other Mushrooms of the higher orders, the preparatory transformations which the cellulose must undergo are of a more complex nature, and are probably brought about by the agency of microbes. In any case the complex nature of the cellulose molecule and the infinite number of different kinds of cellulose which occur in the vegetable world allow us to understand the minute specialisation exhibited by many of the higher orders of Mushrooms in the matters of their habitats and the affinities which are observed between some of these Mushrooms and some species of phanerogams, the organs of which, living or dead, appear to serve as hosts for these species of Mushrooms. In this order of ideas it may be said that the progress of our biological knowledge of the higher orders of Mushrooms is intimately connected with an increased knowledge of the chemistry of cellulose matters. I will not delay here in dwelling on theoretical considerations, but I cannot avoid drawing a comparison between the mode of nutrition, thus understood, of the higher orders of the saprophytic Mushrooms and that of the species of the same group which live in a condition of intimate union with living plants. This parasitic condition has been already demonstrated in a great number of cases, and it is allowable to suppose that nearly all the Basidiomycete, which have their habitat in the immediate vicinity of certain kinds of trees, have their spawn attached to the rootlets of these trees in the form of mycorrhizae. Carbon is, consequently, assimilated by the higher orders of Mushrooms in two distinct ways: some of them connect themselves with living plants and share with them to some extent the benefits conferred by the action of chlorophyll, while others of them choose for food certain hydrocarbonaceous compounds, the chemical combustion of which supplies them at the same time with carbon and also with the energy necessary to fix the carbon. Now it is a curious fact and well calculated to show the relation which unites the two conditions of existence, viz., saprophytism, or living on decayed matter, and symbiotism, or a parasitic mode of existence, apparently so different from each other, that in certain cases they are interchangeable. This is certain at least in the

case of *Agaricus (Psalliota) campestris*. I have proved, in fact, that in the pastures where this Mushroom is gathered in abundance its spawn is constantly attached to the roots of grasses with which it forms mycorrhizae analogous to those found on the rootlets of the *Cupulifere*. This spawn, instead of taking the form under which we find it when vegetating in manure, is thus reduced to a few scarcely perceptible filaments, which occupy the position of radical hairs, and can hardly be distinguished except by the characteristic odour and by the appearance in autumn of carpophores, the dimensions of which seem out of all proportion with the hair-like growths on which they are produced. The proof that this is plainly a case of symbiotism is that the grasses on which these mycorrhizae are produced are distinguished from all others by the greater size and the dark green colour of their leaves. They are seen from afar in the pastures, where they form rings or circles which increase in size every year, and are similar to the rings formed by *Marasmius oreades*, another Mushroom which lives on grasses. The grass, in its turn, is affected by its union with the Mushroom, and profits by the nitrogenous aliment which the latter elaborates probably by fixing nitrogen derived from the atmosphere. By carefully removing to the manure bed these mycorrhizae of the field Mushroom, or, better still, by placing manure in long-continued contact with the roots of the grasses as they grow, the spawn is easily acclimatised in this new growing medium. In this we have an instance of a Mushroom which supplies the absence of the action of chlorophyll sometimes by a symbiotic and sometimes by a saprophytic mode of existence, and which passes from the one to the other without any apparent modification except a large increase in size and growth in the latter case. To return to the manure of the Mushroom growers. From what I have just stated, it appears that the

CHARACTERISTIC OF GOOD MUSHROOM MANURE

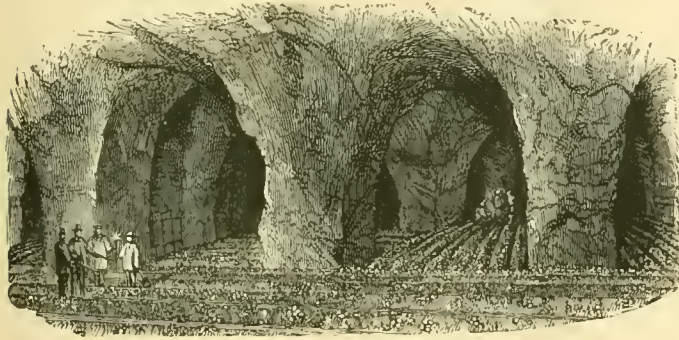
is that it is the product of the chemical oxidation of the straw, and that it is not produced by bacterian fermentation. In fact, not only has the action of bacteria no effect in rendering the cellulose on which they act capable of being assimilated by the Mushrooms, but their presence in excessive numbers is detrimental on account of the putrefied matters produced by them, which are in a high degree poisonous to Mushrooms. The causes which tend to check combustion and to favour the action of bacteria, which means the decomposition of the manure, are chiefly the three following, viz., an excess of moisture in the manure, a deficiency of ammonia, and the presence of putrescible organic matters. The water which is contained in a free state in the manure dissolves the extractive or soluble constituents of the straw and becomes transformed into a veritable "culture broth," in which bacteria rapidly increase in numbers; moreover, it has a physical action in preventing chemical combustion from commencing, for if we repeat the experiments in spontaneous heating, which I have mentioned above, using straw not merely moistened, but soaked with water, these experiments always fail, no doubt because an excessive amount of water filling up the spores of the straw renders it impermeable to the air, and so prevents oxidation from taking place. It is necessary, therefore, to be careful as to the quantity of water which is added to the manure, and it would be entirely a mistake to imagine that the same results will follow the giving of it in large quantities at long intervals, instead of a moderate supply administered frequently.

Accidents, unfortunately too common, also occur, which prove the disastrous effects of too much water, and it has frequently happened in some very wet seasons that all the manure heaps in process of preparation have been entirely ruined thereby. Ammonia, as we have seen, is a powerful factor in the spontaneous heating of manure; moreover, its presence in a large proportion favours the formic ferment to the detriment of the bacteria of putre-

mousseux" by the Mushroom growers, and we might describe it as amorphous mycelium or spawn. But we have seen that as soon as it is preparing itself for the production of Mushrooms, the filaments unite to form cylindrical cords of comparatively large size. This is the first step towards a higher and more complicated organisation, which, by means of root-like processes furnished with a cortical layer, which are also found with some other Agarics, leads

directly to the stems and roots of the vascular cryptogams and of the phanerogams. The cells of which these cords of spawn are composed have by this time reached a certain degree of modification. Now, we know that the more a vegetable cell becomes modified, the less adapted it is to reproduce a new plant when it is detached from the plant of which it formed a part. While the amorphous spawn can propagate the Agaric for an indefinite period without any loss of vigour in the plants, the

in which spawn is produced for future use placed in the open air, or, at least, never to lift any spawn for this purpose except from beds in the coolest parts of the quarries. In spite of these precautions, the cultivated Mushroom always manifests a progressive degeneration, which leads at first to the diminished market value of the crops and eventually to a cessation of production. In the case of a flowering plant being exhausted by repeated cuttings, the cultivator can resort to seeds, but the Mushroom grower cannot avail himself of this radical method because he has no means of raising Mushrooms from spores, and must content himself with less natural methods. He tries to renovate his spawn by cultivating it in a low temperature, or he exchanges it with a brother grower in the hope that in a fresh growing medium it may turn out better, but he tries, above all, to procure some virgin spawn—that is, spawn which has grown spontaneously from chance-borne spores in farmyard manure heaps which have remained undisturbed for a long time. The searching for this virgin spawn has become a kind of branch of industry with certain individuals, who make it their business and traverse the country for 15 leagues to 20 leagues round, turning over manure heaps, old Melon beds, &c., in the hope of finding some deposit of spawn in them. They sell this spawn to the Mushroom growers at a pretty high price, which, however, is not so objectionable as the fact that the article is very variable in quality.



View in old subterranean quarries devoted to Mushroom culture.

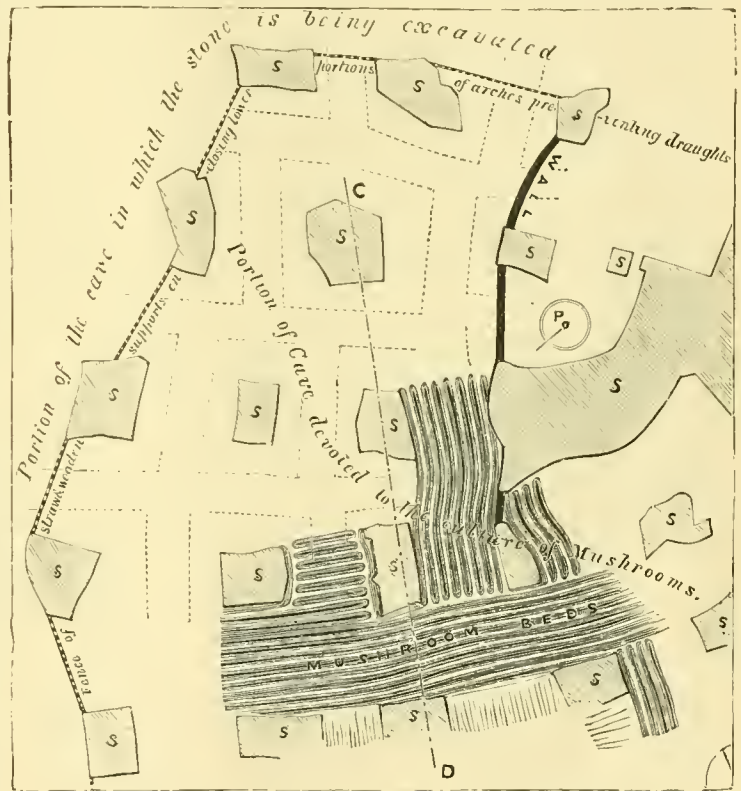
cord-like spawn, when transplanted, produces at every fresh generation only a more diminished growth and a poorer crop of Mushrooms. In the case of Mushrooms grown in the quarries, the modification of the spawn takes place very quickly, and it remains in the amorphous state only in its youngest parts, that is, in a surrounding zone only a few inches wide. It is, then, almost exclusively with spawn which has changed into the cord-like condition that the Mushroom growers spawn their beds, and this is all the better, since, in order to be able to judge the merits of the variety, they are accustomed to wait for the appearance of the first Mushrooms before they lift any of the spawn for future planting. To this first cause of deterioration of the race is added another. In the growing beds the spawn meets with a temperature much higher than that of the soil in which it grows naturally and sometimes finds itself exposed to sudden elevations of temperature up to from 85° to 95° Fahr. Now, the experiments which I have made on this subject have shown that when a temperature of 85° is reached the spawn suffers from it, and that if this temperature is kept up for a few days, its vitality is sensibly diminished and it becomes attenuated. The Mushroom growers are well aware of this evil effect of a high temperature, and their rule is to have the beds

fact, because that ferment can endure a much higher degree of alkalinity than is tolerable to most microbes. For these two reasons, manure heaps which naturally contain but little urine and those which have been washed out by rain become heated with difficulty, and are always more or less liable to undergo decomposition. A tolerably practical method of remedying a deficiency of this kind in a manure heap would be found in adding to it some pure Peruvian guano, which is rich in uric acid, but that for many years past such guano has not been in the market. On the other hand, the employment of ammonia pure and simple would be too difficult a matter for anyone to think of undertaking it. I have, therefore, reflected whether it would not be possible to supply its place to a certain extent by using carbonate of soda, which, it is true, has not, like the ammonia, any direct influence on the intensity of the chemical combustion, but may, nevertheless, be usefully effective in bringing the manure into a condition of alkalinity sufficient to check the action of the bacteria of putrefaction and to allow the formic ferment to get the upper hand. This mode of treatment, which as yet I have had only one opportunity of testing, has afforded me results so encouraging, that I think I can recommend it to Mushroom growers, should occasion for employing it arise. It is essential that the soda should be applied to the manure when it is being made up in the heap, as if it is delayed to a later date, the bacteria will have already done their work.

I might here speak of the alterations of a secondary nature which may take place in the manure of the growing-beds during the period in which the spawn is running. Here we should find the explanation of many failures for which the most expert Mushroom growers have been unable to account, but the subject requires a treatise to itself, and would carry me beyond the limits of the present article.

III.—THE PHYSIOLOGY OF THE SPAWN.

The spawn is the vegetative or growing part of the plant, of which the Mushroom, properly so called, represents the fruit. At first it is composed of simple filaments only, which anastomose with each other in an irregular manner. In this condition it is called "Blanc



Plan of subterranean quarry at Fortes Terres, Frepillon.

The purchaser, in fact, is not only liable to be imposed on by the very common fraud of passing off old spawn for virgin spawn, but he is also hampered by the diversity of varieties and the differences in their cultural value, so that he is sometimes obliged to test spawn obtained from eight to ten different sources before he can find a satisfactory sample. Such as it is, virgin spawn has long been the only resource

of which the Mushroom grower could avail himself for the purpose of keeping up the cultivation of his crops, and, from what I have stated on this subject, it will be easily understood that the question of spawn is, as it were, the vital point of this branch of culture. The idea of raising virgin spawn by sowing the spores must have occurred to many minds; in fact, it has often been mooted both by cultivators and botanists. Nothing is more easily obtained than

MUSHROOM SPORES.

All that is necessary is to place a full-grown Mushroom on a sheet of paper, and in a few days the spores will be found to have fallen on the paper in the shape of a brown-coloured impalpable powder. The difficulty is to get the spores to germinate. Chevreul appears to have succeeded in doing so; at least, the process which is attributed to him is certainly capable of yielding good results. However, it does not appear that this process has ever been continuously followed up, and it is only recently that the subject has been revived independently and simultaneously by MM. Costantin and Matruchot on the one hand, and the author of the present article on the other. There is no mystery in the germination of Mushroom spores. It can be brought about on any of the nutritive media which are employed in bacteriology, on damp sand, or simply in moist air, as well as on manure. Undoubtedly this germination does not take place with the same spontaneity and rapidity as that of the spores of the lower orders of Mushrooms; it requires to be stimulated by some artificial means or contrivances which vary with the ideas of the operators, and which are discovered after some fruitless experiments have been made. The spores that will germinate (and these are always the fewest in number) commence doing so by becoming swollen and assuming a lighter colour. Then they emit at one of their poles a very fine germinating tube, which quickly increases in size and branches out in every direction from buds. In this way a small tuft of spawn is formed, which only requires some favourable medium, such as manure, to enable it to grow to an indefinite size. This very simple method enables us to obtain virgin spawn at will, and is employed commercially in the manufacture of Mushroom spawn from spores, which I have established as the outcome of my researches in conjunction with some improvements which have added a better appearance and quality to the product. For the practice of producing spawn in beds, which only yields spawn that is not of a very homogeneous character, exposes it to sudden rises of temperature and favours the inception of the cord-like form, which we know to be destructive to the vitality of the surrounding spawn, I have substituted the following process. The manure is distributed in layers of uniform depth, on the top of which plates of sheet-iron are placed, when they are put into a press and subjected to a pressure of 110 lbs. to the square centimètre. When they are taken out of the press the manure is found to be in slabs about half an inch thick, almost as hard as wood, and therefore very easily handled. These slabs are then sown with Mushroom spores and placed under conditions most favourable to the growth of the spawn, care being especially taken to avoid any rise in the temperature. The growth of the spawn is moderated in this way, but its vigour and activity when it is transported into the warm atmosphere of the quarries become wonderfully increased. When the slabs are thoroughly pervaded by the spawn, they are divided into small rectangular por-

tions about 3 inches long, each of which forms a set for planting. This operation is rapidly effected by means of a special cutting machine, the use of which constitutes a set-off to the extra manual labour required in the preparation of the slabs. In the result we have a product as reasonable in price as the ordinary spawn of the Mushroom growers and more convenient for use. It is hardly necessary to allude to the favourable influence which this new introduction cannot fail to have on the business of Mushroom growing. Not only is the problem of renovation by means of virgin spawn—a question cropping up continually—now solved once for all, but henceforth the Mushroom grower will be able to select the variety which does best in his own quarry and is also a profitable one to grow, as spawn raised from spores faithfully reproduces the slightest morphological and physiological peculiarities of the original race. Lastly, this spawn is not liable to be attacked by diseases, a consideration which, as we shall see, also possesses in a high degree an interest of its own.

IV. DISEASES.

Mushroom beds are frequently ravaged by diseases which are caused by some of the lower orders of cryptogams, amongst which we must distinguish the true parasites, which live in the very tissues of the Mushroom, from the saprophytes which content themselves with a struggle for existence in which they more or less completely crowd out the Mushrooms from the soil in which they were intended to grow. Of the former class the most formidable representative is *Mycogone rosea* (Magnus, Prillieux), which produces the disease called "la molle." Mushrooms when attacked by this disease assume an abnormal appearance before they reach their full growth; the pileus or cap becomes deformed and wasted, and the stalk changes into a globular form. As the Mushroom increases in size it becomes covered with a rosy-coloured down formed by the condiferous filaments of the parasite. Finally, at the time when it should be fully grown it softens and melts away, exhaling an infectious odour. The losses caused by this disease are very serious, being estimated at a million francs yearly by the Parisian Mushroom growers. Amongst the saprophytic enemies of the Mushroom are *Myceliophthora lutea* (Costantin), which produces the condition of the soil known as "vert-de-gris"; a species of oïdium which covers the surface of the beds with its creamy-white, flat fronds, known as "le plâtre"; *Monilia fimicola*; and, lastly, *Clitocybe candicans* and *Pleurotus rutilus*, which, according to M. Costantin, produce the net-like growth of filaments to which the Mushroom growers have given the name of "chanci." Few inquiries have hitherto been made as to the nature and origin of these diseases. M. Costantin thinks they are propagated in the Mushroom beds by means of spores, and he recommends that the quarries should be disinfected by sprinkling a solution of lysol about. In this matter I think a distinction should be made between the saprophytes and the *Mycogone*, as I do not believe the process of disinfection would be of any service in the case of the "vert-de-gris," the "plâtre," or the "chanci," since in most cases these conditions are entirely the result of a bad preparation of the manure. Sometimes, however, the manure is of good quality, and in that case the disease has been conveyed in spawn taken from a diseased bed. Exclusively of these two circumstances, the Mushroom spawn

always keeps sufficiently ahead in growth to dispute the possession of the soil successfully against the saprophytes which I have mentioned. The intervention of the spores of these cryptogams which may occur in the quarries is not very obvious, especially when we reflect that a good supply of them is always brought in with the manure. The matter is certainly different as regards the *Mycogone*, a true parasite, the propagation of which is independent of the quality of the manure. Here, two very distinct cases have to be considered: (1) When the spawn has been already infected with the *Mycogone* before it was planted, and the disease shows itself at the first gathering. This means the total loss of the crop; and (2) when the spawn is free from infection, but the quarry has been infected with spores originating in previous Mushroom beds. In this case, the Mushrooms, having the start of the enemy, will generally yield, especially in winter, one or two gatherings before the "molle" disease has spread to any considerable extent and the loss sustained will not be so great. These two cases are observed in practice, and I have, more especially, seen striking examples of the disease being introduced with the spawn in beds which were ravaged by the disease from the first, side by side with other beds made with the same manure, but free from the disease and bearing a fine crop of Mushrooms. The reason of this difference is that the latter were spawned with virgin spawn, while the others were furnished with spawn taken from quarries in which the disease was rife. The Mushroom grower, therefore, is assured of success in combatting the "molle" disease if he will only use precaution in two points, viz., (1) only to use spawn which is certainly not infected by the disease, and in this respect spawn raised from spores offers him a guarantee which he will not find elsewhere, and (2) to purify the recesses of his quarry, after the beds have ceased to yield, by immediately removing the used-up manure and the soil used for casing the beds, after which the whole place should be disinfected, as M. Costantin advises. I do not think, however, that the sprinkling of a solution of lysol which he recommends is a very practical method of disinfection. Anyone who knows the difficulties attending a thorough disinfection of some localities will admit that it is hardly possible to disinfect, by means of sprinklings, a subterranean passage with a superficial area of many thousands of square yards, together with the irregularities and crevices which abound in the walls. In my opinion it would be better to employ the fumes of sulphuric acid. By burning sulphur in a quarry, after having closed all the outlets and openings, we might not certainly destroy all the germs of the disease, but we should, at least, check it and prevent it from spreading.

V.—STATISTICS.

There are in the department of the Seine 250 disused quarries which are devoted to Mushroom culture. Formerly there were nearly the same number of other places in which Mushrooms were grown, but from the tendency to centralisation the number of these is now reduced to seventy or eighty, to which may be added twenty more which are found in the adjacent departments. On the other hand, these Mushroom-growing establishments are now generally more flourishing than formerly. One of them employs as many as 100 workmen, others from forty to fifty each. The total number of workmen employed must exceed 1000, and the total value of the produce ranges from six to seven millions of francs. Mush-

room growing, it will be seen from this, is by no means in a state of decadence, but, on the contrary, is every day becoming more extensive in proportion as the enlargement of the quarries supplies more room for this branch of culture. In many places it has become the chief branch of industry, the proprietor of land excavating quarries (the stone from which he sells at cost price) for the especial purpose of growing Mushrooms in them. The cost of the manure constitutes the most serious expense of the Mushroom grower. Times are very much changed since the period when the manure of the Parisian stables was given away for nothing to anyone who would remove it. At the present time it is bought on a yearly agreement by contractors, who sell it again to the Mushroom growers at the rate of from 7 francs to 10 francs per 1000 kilos (= nearly a ton). Half of the manure made in Paris goes to the Mushroom-growing establishments, and after it has been used there is disposed of to the cultivators of the surrounding districts, who find it a most excellent manure for forage plants. All expenses included, every yard in length of the Mushroom beds represents an outlay of from 2½ francs to 3 francs. To cover the expenses and allow a profit to the grower, the crop should produce at the rate of from 6½ lbs. to 9 lbs. of Mushrooms to every yard in length of the beds, and that the market price should not fall below about 5d. per lb. Unfortunately, of late years it has often happened that this minimum price has not been attained during a great part of the summer. This, no doubt, is due to the circumstance that the consumption of Mushrooms is indirectly affected by the abundant supply of vegetables at that season, but also, and especially, because the manufacturers of preserves, who ordinarily demand large quantities of Mushrooms, then discontinue purchasing them, in order to devote themselves exclusively to making up preserves of green vegetables. To protect themselves from the effects of such a trying state of things, which recurred periodically and threatened a fatal blow to their business, the Mushroom growers, setting an example of taking a very interesting initiative, have founded a kind of co-operative society of producers, and erected, from subscriptions amongst themselves, a preserve factory in which they make up a portion of their crop of Mushrooms whenever the market price of these falls below a certain figure. Notwithstanding all this, it is not likely that they will ever again see quoted in France such prices as 2 francs and 2½ francs per kilo. (=2½ lb.), which still prevail in countries where Mushroom growing in quarries is not much practised, England and the United States for example. But if the French Mushroom growers are thus less favoured than their foreign fellow-cultivators in the sale of their produce at home, they have the resource of exporting it in the preserved form at a price which is not only as good as what they would receive for fresh Mushrooms, but also challenges competition in all the foreign markets. Moreover, this export trade, already considerable, has every prospect of a continuous increase.

We may, therefore, hope that the Mushroom growing branch of industry will go on prospering, especially if the growers, by giving it a more scientific direction, succeed in freeing it from risks and ensuring the success of their crops, which are still so uncertain; and I shall be delighted if the investigations on the subject which I have detailed in this article should help to bring about such a result.—DR. CH. REPIN, of the Pasteur Institute, in *Revue Générale des Sciences*.

TREES AND SHRUBS.

THE WHITE FIR.

ABIES, the name now given to the Silver Firs, is one of the widely distributed coniferous genera with a larger number of species than any other except Pinus. Abies, which is usually found on the slopes of high mountains, is represented in North America by ten species, seven of them belonging to the flora of the Pacific States and one to Mexico; it is common in Japan with several species, and is widely scattered over Siberia, the Himalayas, Asia Minor, Central and Southern Europe, and Northern Africa. The Silver Firs are pyramidal trees with small branches arranged in regular whorls and usually thin bark filled with large conspicuous resin vesicles; some of the species grow to a very large size, especially those of Western America, and others are valuable timber trees. No genus of conifers probably has contributed more to the beauty of gardens, for nearly all Fir trees are extremely handsome while young. Their tendency, however, to become thin and lose their lower branches early when they are taken from cool mountain slopes makes the first thirty or forty years of the lives of these trees the most attractive period of their garden career.

The species which grows in the swamps and on the mountains of the north-eastern part of this continent from Labrador and the shores of Hudson's Bay southward to the high mountain peaks of Virginia, the so-called Balsam or Balsam Fir (*Abies balsamea*), is a beautiful tree while it is small, with lustrous foliage and dark purple cones. Its beauty, however, is short-lived in cultivation. Of the Silver Firs of Western America the most valuable here as a garden plant is

Abies concolor, the White Fir of the Southern Rocky Mountains, of the California Sierras, of the Pacific coast ranges, of many of the interior mountains of the South-western States, and of Northern Mexico. No other Abies flourishes in such hot, dry regions, or has been able to sustain itself among such climatic hardships; and it is not surprising that a tree, which is equally at home in the sea-fogs which sweep in from the Pacific over the California coast ranges as it is on the mountains of Lower California, Southern Arizona, and Central Colorado, should find little to fear from the cold blasts and hot summers of New England. Both the Californian form, with its rather shorter and greener leaves, which in England is still called *Abies Lowiana*, and in this country sometimes *Abies Parsonsi*, and the handsomer Colorado form, with longer blue leaves, are perfectly hardy in New England. The oldest specimens here of the California tree are already becoming somewhat thin and are beginning to lose their lower branches. The largest of the Colorado plants, however, in eastern gardens, which are now probably 25 feet in height, are still perfect in habit and density of foliage, surpassing in vigour, lovely form and colour all the kinds of *Abies* hardy in New England, and are still as full of promise as trees of the same age in sheltered ravines of the Rocky Mountains. However ugly and unsatisfactory old trees of this Fir may become here later, it deserves a place in every garden for the beauty of its early years.—*Garden and Forest*.

The Evergreen Oak as a town tree.—

While in Exeter lately, the first thing that struck me was many excellent specimens of Evergreen Oak that are growing in some parts of the town. They are trees with long stems, finely developed heads with a luxuriance of dark green foliage, which was displayed to great advantage, and gave their positions an agreeably furnished appearance exceedingly pleasing to those only accustomed to see leafless trees in the streets from October till April.—M.

Cedrus Deodara.—A recollection of a recent note on the above tree occurred the other day when I heard that some 8000 had been ordered for a single estate. Evidently some one has faith

in the Deodar Cedar, and, as with Pears, is planting for his heirs. "W. O." may be right in the suggestion that on some soils the tree is short-lived, but I am glad to say that here there are at present no signs of failure. A more careful inspection shows the largest tree to be 9 feet in girth and close on 70 feet in height, and a special point is that growth last year from base to the highest point discernible was very kindly, all extremities of branches averaging 9 inches, and back growths from 3 inches to 6 inches, invariably clean and healthy.—E. BURRELL, *Claremont*.

Golden-leaved shrubs.—Mention of the Golden Elder on p. 67 and the fact that it retains the rich tints of its foliage till the end of the season remind one that we have two totally distinct classes of shrubs with yellow foliage—firstly, those which are in their attractive stage soon after their leaves develop and by midsummer have lost a good deal of their richness of colouring, and, secondly, those whose foliage when first expanded is a kind of yellowish green, which tint gradually becomes more golden, till by July the entire plant will be of a rich deep yellow hue, that is if it is in a position well exposed to the sun, as a good deal of the depth of colouring will depend upon this. Among the most prominent in the first group are *Philadelphus coronarius aureus*, *Ribes alpinum pumilum aureum*, and *Spiræa opulifolia aurea*. These three have at one time or another attracted a considerable share of attention, and in the first half of the season they are decidedly attractive, but lose a good deal of their beauty as the summer advances. On the other hand, the Elders, *Cornus Spathi*, *Catalpa aurea*, and *Weigela Looymansii aurea* become much deeper in colour, and are at their best in July and August provided they are in the full sun and not too much dried up, as when this is the case red spider is apt to attack the foliage and quickly disfigure it. The *Weigela* is particularly subject to this insect pest.—T.

Pruning *Pyrus japonica*.—I should be grateful for some directions respecting the pruning of *Pyrus japonica*. I have one on the front of my house which has become so rampant that it must be pruned. It has flowered so well untouched, that I have always been afraid to meddle with it. I should like to know also which is the best month for pruning a Holly hedge.—AMATEUR.

* * *Pyrus japonica* will always flower in a far more satisfactory manner when allowed to grow naturally than it will if closely pruned. Such being the case, the plant should be cut back only as far as is absolutely necessary to keep it within the assigned bounds. No pruning to particular eyes or buds is required in this case, the main consideration being the space at disposal. At the same time any old or exhausted shoots should be cut out, as by so doing the young, clean growth upon which depends a good deal of the future display of bloom is thereby encouraged. A good time for carrying this out is directly the flowering season is over, as the specimen has then a long growing period before it. The best season for pruning the Holly hedge is in the latter part of April or in May, as the new growth then quickly takes off the otherwise bare appearance.—T.

Wier's Cut-leaf Maple (*Acer dasycarpum laciniatum*).—The following note in an American contemporary calls attention to a very fine variety of Maple, and also shows the folly of the now too common practice of grafting in the case of trees and shrubs: "This is one of the very best trees for the lawn, and looks well against a background of evergreen trees. Although it does not throw out such sturdy, sweeping arms as *A. dasycarpum*, it is a fast grower. In autumn the tree stands second to none among the Maples, its colouring combining, as it does, the scarlet of *Acer rubrum* and the gold of the Sugar Maple. Although it has been in cultivation nearly a quarter of a century, fine trees are rare, owing to a habit the tree has of making several strong branches close together, which, as they get heavy at the extremities, are liable to split or become twisted off by strong winds. Much, however, may be done to obviate this by carefully stopping

any extra vigorous shoots or by judicious pruning in spring. It is usually propagated by grafting on *A. dasycarpum* (Silver Maple) stock, which fact, when unknown, may be the cause of some disappointment and sometimes surprise, when it is found that the entire tree is broken off at the union as if rotten. I have had trees 3 inches in diameter blown out 4 inches below the surface. Disappointment is also caused by the vigorous shoots which are almost certain to start from the stock, and if the bark is cut or broken, the tree being planted where attention is not given, these shoots will quickly starve the cut-leaved part."

KITCHEN GARDEN.

VEGETABLE GROWING UNDER DIFFICULTIES.

NOTES as to the selection of vegetables and the cultivation of the land for their growth are often given in the pages of *THE GARDEN* by our leading growers. These are of incalculable value, but such of necessity to become generally practical deal with culture under favourable circumstances of soil, climate, and situation, but they are valueless, especially in a district such as this, which might be termed experimental in many respects. Perhaps a brief note on the methods of cultivation which obtain here may be of interest to some, and applicable to those similarly situated. The elevation of the kitchen garden here ranges from a few feet to 100 feet above sea-level, about three miles inland, and occupying a steep southerly slope at the foot of densely wooded, high hills, which effectually shelters it from the north, but little from the east winds. These hills also deprive it of the benefit of sunshine early in the afternoon. Owing to this comparatively low elevation and proximity to the sea, there is no great amount of frost about 18° or 20° being about the severest in very hard winters—and snow only lies on the land a short time, but the keen and piercing easterly winds are far more destructive to vegetation than any incurred by frost alone. Westerly gales, to which the garden is much exposed, blow up the narrow valley from the sea with great force and play sad havoc, especially during the autumn months. There is in addition a liberal share of humidity in ordinary seasons.

The medium in which to cultivate the produce is a shallow, stony and hot material. On account of the sharp inclination of the ground, necessitating immense labour in the applying of farmyard manure, I have long discontinued its use for enriching the so-called soil, relying entirely on chemical manures, selecting those which contain the nearest approximate constituents for the necessities and feeding of the various crops, and so well satisfied am I with their use and results even under such unfavourable circumstances, that after many years' experience I would be sorry to have to rely on farmyard manure alone, even under more favourable conditions. Under this mode of cultivation and on such a site everyone is aware that mulching to prevent rapid evaporation becomes a necessity, and this I manage chiefly by utilising Moss as far as available, this being plentiful in the surrounding woods. Should a deficiency of this arise, the mowings from the lawns and any light materials are brought into requisition. Contrary to the orthodox teaching,

DIGGING AND TRENCHING

are left until early spring, and I wish to emphasise this, for, so convinced am I of the advantages accruing from the practice where the winter rainfall is generally heavy, that I have adopted it for many years, solely because

the continuous winter rains batter the surface of soft-dug ground until a crust forms, which is impervious to either wind or sun; consequently the labour at such a season here would be worse than useless; whereas turned over in the early spring it is friable and quickly becomes workable, frost (if any), wind and sun penetrate through and pulverise the whole. I may be wrong, but my impression is that far too much winter digging is carried out, when spring digging would prove far more beneficial. By the same token and for the same reason, crops planted or sown late in the summer to withstand the winter follow others without the ground being dug but merely drilled—for instance, Cabbages on Onion ground, late Broccoli and winter stuffs following Strawberries, Turnips and Spinaeh following Peas or Potatoes, and so on. With these exceptions, bastard digging is the rule here. The soil is too thin to go much deeper in many cases, and if but one spit were dug, crops would more quickly suffer from drought than they do with double-digging.

Treading the ground to solidify it as much as possible before and after either sowing or planting is invariably done. Owing to the exposure to gales, all the Brassicas are planted in rather deep drills, so that when mature the ground is level. I thus obviate having ridges, and the plants have a firmer foothold, which is necessary, or they would be blown out of the ground. Potatoes are planted with the dibble, the holes over the tubers filled with leaf-mould or some prepared light material, for the soil being so stony is unsuitable for the purpose, and would break the buds by pressure on them. Onions are raised in an earth pit, and when ready planted out. Before adopting this method the maggot was ruinous, whereas now the bulbs are practically free from its ravages. Carrots I can do nothing with on account of the grub, unless sown late—June onwards—but Beet is always good and winters in the open, and so do Turnips. Peas—a very important crop—are sown thinly in wide drills; 3-feet to 4-foot varieties predominate, and Beans of each section in the usual way. Lettuces and salading are grown in pits.

Such hungry soil must of necessity have good feeding to produce vegetables in abundance and of good quality. I am fortunate in having a fair supply of house sewage easily applied to the greater part of the kitchen gardens. This, together with strong and good artificial fertilisers judiciously but amply applied, timely attention to mulching, and the usual details of culture, enable me to supply a heavy demand even from among the hills and rocks.

JOHN ROBERTS.

The Gardens, Tan-y-bwlch.

Leeks.—Even well blanched Leeks seem not to have fixed exhibition values in the estimation of judges. Some prefer stems of exceeding thickness and of moderate length, others favour stems of medium thickness and blanched from 12 inches to 14 inches. It would be well if exhibitors of these products always knew judges' partialities, or else that show committees indicated their own desires and instructed judges to act upon them. I have seen the most diverse judging at the same show. Without doubt judgments so far have encouraged the production of far too big Leek stems, and because so big, also coarse, tough eating. When wanted for table a selection less in dimensions is invariably provided. Stems may be blanched to as great a length as they can be, but they should never be too thick, because fitness for table should be as much considered as any other element in Leek production. The stems should be very white and clean, free from stain or abrasion, and all the stems in an exhibit should be equal in thickness and length.—A. D.

GARDEN FLORA.

PLATE 1156.

FANCY CARNATIONS.

(WITH A COLOURED PLATE OF CARNATION LADY ARDILAUN.*)

"FANCIES embrace all flowers with markings on coloured grounds, and also those too distinctly marked on white grounds." The object of this paper is to elaborate somewhat the brevity of this statement, which is an extract from my "Hints on Carnation Culture." The subject is a very large one, and therefore, notwithstanding its great interest to all amateurs of these beautiful flowers, cannot be other than superficially treated, as a book could be written on the subject did space permit. A Carnation is called a fancy if it cannot be included in either of the following classes—bizarres, flakes, Picotees, or selfs. It may consist of any mixture of colours or any number in combination; in the combination of course depends its beauty.

Let us take the German kinds first. There are few fancies from that country that can be considered in the first flight. Stadtrath Bail is perhaps the best, and Geist is very pretty, but is very subject to sporting. Monarch is an excellent variety, and Stambuloff, Climax, and the German President Carnot are good, but beyond these there is nothing very striking in German fancies. The colours given as representing different varieties are not understood by the English grower. What, for instance, is the meaning of "Isobel, yellow, with rose and steel-grey," or "chamois-yellow, with cinnabar-scarlet?" These are merely instances of colours given in the list of a leading German raiser, and are taken haphazard from a catalogue before me. The German varieties are clearly not fertilised on scientific principles, but are left to the tender mercies of bees in the open border; hence the varieties thought worth preserving in a large breadth of seedlings are fancies certainly, but of very little value. Moreover, they are not particularly strong growers, and cannot compare in this respect with French Carnations. For the last ten years I have grown large quantities of Carnations received from France, and, taken as a whole, they are the best border varieties that can be grown—that is if you do not require plants exclusively for exhibition in first-class society, and are only wishful to have such as are strong growers, with clear, bright and beautiful colours, for the embellishment of your garden or for cut flowers for your table, then there is nothing that will give better results in all soils than French Carnations, and as my subject is fancy Carnations, I will name a few that are particularly worthy of culture. Comtesse d'Archiac is a very large red and white fancy; Duc de Blacas is a dark red striped maroon; Corniquet is a very lovely fancy, spotted scarlet; Poet Huet is a splendid fancy; Mme. Albert Koehler, rose and heliotrope; Litterateur

* DRAWN FOR THE GARDEN by Mand West from flowers sent by Mr. H. W. Weguelin. Lithographed and printed by J. L. Goffart.



LAFAYETTE L. W. LEITCH, JUN.

Marinaux, a yellow ground fancy; P'Eden, lavender and pink; Gassaudi, Grippimorde, Emilie Savoie, &c., are all good. But a state of things has arisen these last few years, owing to the great improvement in English Carnations generally (thanks in a great measure to the efforts in this direction of the president of the National Carnation and Picotee Society), that fancies must be very good indeed for them to stand any chance of a first prize in first-class company.

Of course there are two ways of looking at the subject. If you are only growing for your own pleasure, you may roam about amongst the most lovely English, French and German varieties, but if, on the other hand, you wish to see your efforts crowned by the first prize card at a good exhibition, you will have to be very careful not only in the varieties you select, but that those varieties comprise the particular points that are considered at the present time essential by the judges as worthy of consideration. For instance, many of the most beautiful fancy Carnations have serrated edges, and many of these are delightfully perfumed (which is a great advantage to any Carnation), but, however lovely such a Carnation in itself may be, it has not the remotest chance of even a passing glance from a first-class judge. The petals must be smooth, symmetrical, and perfectly flat to be of any use at all, whether the flower be a self, fancy, Picotee, or what not.

But now we will come to the subject of this paper more particularly, that of English fancy Carnations. I have no doubt your readers will have often remarked when walking through the avenues of a large Carnation exhibition how the flukes and bizarres are passed without comment; the white ground Picotees are glanced at, but when the yellow ground fancies are reached a halt is at once made, with the exclamation, "How lovely!" And that many of the yellow grounds, and some of the English white grounds also, are lovely there is no doubt. I am glad to see that in first-class shows now the mixture of the yellow ground Picotee and the yellow ground fancies is not tolerated, although the line is not quite so clearly defined as can be desired. Take, for instance, Mrs. Robt. Sydenham and Voltaire; there is no doubt that Voltaire looks like a fancy; but take any of the individual petals, and you will find they are clearly marked with the edging of colour on the yellow ground, but, taken as a whole, it has the appearance of a fancy. There are only really about a dozen true yellow ground Picotees; the rest are fancies; and these being the subject of my paper, I will give a few good varieties of the very first class lower down; but although there is any number of white ground Picotees, many of them of great beauty, there are very few white ground fancies. Perhaps Duchess of Portland (Lamb) and Lottie Collins (Weguelin) are about the best of this class; they are both strong growers and excellent border varieties. But when we come to yellow ground fancies we have a class in which,

to my mind—and I do not think that I am singular in my taste—we have the most beautiful combinations that these lovely flowers can produce. May Queen, The Gift, The Dey and President Carnot (the English, not the German variety of the same name), Cardinal Wolsey, Cowslip, and Voltaire are all from Mr. Martin Smith's garden at Hayes. Charles Vickery is a good one of mine, and H.E. Lady Cadogan is a novelty of my raising not yet sent out; but of all the lovely fancies I have seen for some time there is no more beautiful combination of pomegranate and lavender than in the new variety Lady Ardilaun, figured in this number of THE GARDEN. This variety was sent to me from the Emerald Isle for an opinion some four years ago. I was greatly struck with it, and recommended the fortunate raiser to grow all he could of it. This has been done, and I have grown a good many myself, and can recommend it as an exceptionally strong-growing border variety, whereas it is equally beautiful under glass. It is hardly necessary to touch on American fancies, as they are not much grown in this country, and most of the Americans that we have over here are selfs. Both Buttercup and Bouton d'Or are pretty yellow ground fancies and flower well during the winter months. There is one great advantage the American Carnations possess, and that is they are all sweetly scented, whereas ours, particularly the yellow ground fancies, have little or no scent at all. It would be a good thing if the leading florists and amateur growers of choice Carnations were to direct their attention to this great desideratum. In our own Tree or perpetual-flowering varieties for winter blooming, the greater portion of them are selfs, and so are the Malmaisons, with the exception of Lady Middleton, which is a striped red and white variety, but a very indifferent flower according to my ideas. There is a very pretty French perpetual which I have grown for some years that can be recommended. It is of rainbow hue, a mixture of all sorts of colours, and a very showy button-hole flower, and is called Folie Bergères, and Jean Sisley is also very pretty and a plant that always does well, but of English Tree Carnations for winter flowering there are hardly any fancies. H. W. WEGUELIN.

St. Mary Church, Torquay.

An attractive Rose walk.—In any fair-sized garden a Rose walk is always a pleasing feature. I am afraid a common mistake is made in covering these walks instead of leaving them open at top to admit the sun and air. The best Rose walk I have ever seen was very simply formed. A number of iron rods were driven into the ground about 4 feet apart, and some iron wire was laced on to these rods, forming when finished a network with meshes about 1 foot square. The ground each side of the walk had previously been well trenched, working in at the time some good decayed cow manure. Some good plants on own roots of the best Ayrshire and Evergreen Roses were planted together with the Boursaults and some of the strongest hybrid Chinese varieties. The long shoots were tied on to the wires, no pruning whatever being allowed. In a very short time a wall of lovely Roses was formed each side of the walk, and as it was a

good wide path, the plants received plenty of sunlight and air; consequently they made marvellous growth. The only drawback to this otherwise beautiful picture is the dearth of blossom in autumn. To remedy this, some of the long shoots of the Ayrshires and Evergreens could be budded in June with autumnal varieties, such as General Jacqueminot, Bardou Job, and other free-blooming kinds. Several buds may be inserted on one shoot. The following year a pretty sight will meet our gaze, for we shall have interspersed patches of brilliant colour when the Ayrshires are in bloom, together with a promise of an autumnal display from these inserted buds. The only precaution to take is to keep the young shoots rubbed off above the inserted buds. Of course, sufficient of the natural and graceful shoots of the Ayrshires must be preserved intact, so that the effect generally produced by these lovely Roses may not be impaired.—PHILOMEL.

THE WEEK'S WORK.

KITCHEN GARDEN.

EARLY VEGETABLES.—Several things may be forwarded by sowing early in February, and there is no better plan than preparing a frame for the various seeds needing attention. I use leaves largely for the purpose, as though the heat is not so strong, it is more lasting. On the other hand, it is a simple matter to sow in cold frames, but here more care is needed, as if sown at all thickly the seedlings damp off badly and the season is lost. Whatever plan is adopted, thick sowings should be avoided, as I find in most cases every seed germinates under glass, and this should be considered. A movable frame on a gentle hotbed is excellent to raise early vegetables, and the heating materials should be made as firm as possible to retain warmth. In case there is a shortness, it is a good plan to sink a bed or place longer litter round the outsides to retain the warmth as long as possible. The bed should be prepared some little time in advance of the sowing to be in condition and prevent steam making the soil too moist. A light soil should be employed, the frame facing the south. The soil should be within 6 inches of the glass, using mats or other covering material to ward off frost at night.

BRUSSELS SPROUTS.—These claim first attention, and are best sown under glass as advised to secure a long season of growth and a strong plant. I am averse to sowing in strong heat. Many sow in boxes, but so far I have always secured the best results by sowing broadcast in a frame as advised above, as grown thus the plants get more natural treatment and are more freely exposed as growth is made. There are some excellent varieties, and in private gardens doubtless the medium growers, such as the Gem or Paragon types, are the most suitable. It may be thought large growers are more productive. I fail to see this, as the smaller kinds may be planted closer. I have found some very large kinds give a heavy percentage of open sprouts at the base. No matter what kind is grown, much heavier crops are obtained by starting under glass, pricking off again on a warm border and planting out early in May. The transplanting makes a dwarfer plant and the sprouts are superior. For later supplies I always sow in the open.

CABBAGE.—It often happens there are none too many Cabbage plants for what is termed spring planting and for the summer or early autumn supply. A little seed sown now in a frame will furnish plants for April planting; such plants grow very quickly and are of delicious quality. Many growers do not trouble to grow summer Cabbages, leaving the plants that were put out in autumn to produce sprouts. I do not advise it, as the young plants give better returns and the ground can be given better cultivation. For summer cutting Mainerop and Favourite are excellent varieties. Large quantities are not needed, so that it is well to sow now, and again in six weeks' time in the open. This will provide a sup-

ply of small tender hearts up to the end of August or later. Plants left over in autumn in beds or that were pricked out in rows may now be planted out, making each plant quite firm and drawing the soil up to the lower leaves. These will form a succession to the earlier or what are termed spring Cabbages. For autumn use few varieties are better than Christmas Drumhead and St. John's Day.

SOWING CAULIFLOWERS.—Cauliflowers should receive attention, and though a few weeks ago I advised sowing a pinch of seed in heat if the autumn supply had failed, with the mild weather we have experienced this winter many plants sown at all early will button and be useless. Seed sown in a frame now will give nice plants for the June cutting if an early variety is sown. There is an ample choice for the season named. Such kinds as Early Foreing, a small variety, is the earliest, but Dwarf Erfurt, Mammoth and Pearl are excellent for succession crops to the autumn plants. The plants should be grown as sturdy as possible from the start, and as mildew at times affects the plants in a close frame, it is well to water sparingly at the start and dust over the seedlings with dry wood ashes and sulphur to arrest it. Cauliflowers in frames or pots should be given free exposure in favourable weather and the quarters got in readiness for planting. The soil should be fairly light for the first crop and well enriched with decayed manure to promote rapid growth. Plants in frames at all thick should be thinned.

LEEKs.—To get good Leeks it is well to sow in a frame as advised. Even for ordinary use a thick, well-formed root is best, and to obtain this it is advisable to make a small sowing under glass, as the Leek, in a young state I mean, for the first few weeks grows slowly. But sown thus there must be no coddling. Avoid thick sowing, as this prevents the plants being lifted with a fair amount of roots, which is necessary at the start. The Leek delights in a light rich soil and more moisture than many other plants. The seed should be sown on a firm bed, or in boxes if room is not plentiful. The boxes are best placed in cold frames when the plant is growing freely. The large roots raised thus are best for early winter supplies. Probably the Lyon is one of the best for sowing as advised. It is not so long as many, but its thick, sturdy growth with mild flavour makes it a favourite in the kitchen.

SALADS.—Owing to the damp and fogs, many autumn-sown Lettuces have been destroyed. I always make a point of sowing in a frame at this season. The plants give a welcome supply even in a plentiful season, as they follow the autumn-sown plants. There is always a demand for Lettuce in the spring, and few plants repay for culture under glass better, as if sown now and given shelter at planting they soon turn in with longer days and more warmth. So far the best early Lettuce I have grown is Golden Queen. As it may be had in three months fit for table, it is specially suitable. Seedlings raised in a frame with a little warmth, and when large enough pricked out and protected for a time, will give good heads in May, and of just the size liked for salads. It may happen that Lettuces are needed earlier than May and to get them thus it would be well to transplant to a warm bed with frame protection as soon as the plants are large enough to handle. For salads in a small state I have sown an early kind in boxes and cut over when large enough. This is a quick way to get cutting material.

TURNIPS IN FRAMES.—These force well if given ample time and not too much heat. I find leaves and manure in about equal proportions the best for forcing, keeping the plants near the glass. Sow in a light soil, but made as firm as possible to assist bulbing. The seeds sown thus may be relied upon to give a supply at the middle of April, a time the old store roots have lost flavour and become dry. Few vegetables in the early spring are more useful than frame Turnips. An early variety is needed for the purpose; the Extra

Early Milan is one of the best. There are two kinds, the White and Purple Top, but both are alike in quality and earliness. For years I grew the Early Paris Market, but the above are earlier and better. With frame culture it is essential to grow thinly at the start, also to give air in fine weather to prevent the plants getting drawn. The best roots I have had were from movable frames on a hotbed, as the plants could be kept cooler than where hot-water pipes are employed.

SEAKALE.—There is no difficulty in getting regular supplies of this vegetable from roots lifted and forced in a dark, warm place, but to get flavour the crowns should grow quickly and not suffer from want of moisture. Now is a good time to cover over roots in the open with pots or other protection, placing over this a quantity of manure. Avoid over-heating, as too much steam causes an elongated, weak growth and decay, also poor flavour. It is an easy matter to keep the top temperature from getting too high by having a thinner layer of manure, or in a strawy state mixed with leaves. I have seen equally good Kale with leaves alone where these can be obtained in quantity. It will be well at this date to prepare the quarter to give the latest supply of Kale in the open, as owing to the mild season growth is more advanced than usual. I use soil well ridged over the crowns. A depth of at least 2 feet is necessary, and to do this it is well to have the plants a fair distance apart in the row to allow of the moulding up. In heavy soils or where slugs are troublesome it is well to cover the crowns over with fine ashes before adding the soil. Plants covered now will give a supply through April and May. Kale grown thus is far superior to that lifted and hard forced.

S. M.

HARDY FRUIT GARDEN.

ORCHARD TREES.—The orchard trees are oftentimes the last to receive what needful attention they require in the way of pruning, top-dressing and cleansing. In addition also it should be added that from want of time, more often than actual oversight, this necessary work is altogether passed over. Let, however, some effort be made to do at least what is the most pressing work in this direction. In one case it may be pruning, in another it may be symptoms of an impaired constitution, and in yet another it may be insects that cause annoyance, whilst in some cases it may be the non-productive character of the trees that is at fault, over which possibly the patience of years has been expended to no purpose.

PRUNING.—I have proved after several years of testing that a moderate amount of pruning is a decided boon to all orchard trees of whatever kind of fruit they may consist, and other writers of practical experience have done the same. What I advise is a moderate course, even in cases where the trees have become very dense, as it is better to do the work gradually than by extreme treatment more, so to speak, in the way of wood cutting than anything else. For fruit tree pruning two tools are necessary, that for the outer or extreme branches being the long branch pruners as represented by the "Standard" tree pruner. A more important tool, however, particularly where the undergrowth is dense, is the fruit tree pruning chisel. This handy tool with a little practice in its use is infinitely better in all respects than the pruning saw or large branch-pruners; the pruning is more expeditious and the cuts are made in a much cleaner fashion. Besides which, its use is more convenient for the operator himself, as he can see whilst upon the ground what wood can be taken out of any tree to the best advantage far better than he can when in immediate contact with the branch itself. If the trees have in the past been neglected, having in all probability become too dense towards the centres, then I advise for the first year that the thickest of the branches be thinned out by the removal of the weakest ones and those which have no

chance of developing good fruits. For this work the pruning saw is not to be compared with the pruning chisel in expert hands. All that is needed with the latter is a keen edge, the chisel itself being mounted upon a stout Ash handle of some 5 feet or 6 feet in length, the operator being provided with a mallet as if he were a carpenter. Three branches with this tool may be taken out of any tree whilst anyone is looking at one and taking it out with the aid of a ladder by means of a saw. In some parts of the country these chisels are but little used, in others more so. The chisel with practice will make a clean cut, needing no more trimming, whilst with the saw the knife around the edges is afterwards called into requisition to complete the work. If any large branches have to be taken away, I always advise the use of a little dark paint or tar to cover over the wound. The regular appearance of the trees from the exterior should also be noted, and any branches which appear to be taking up too much sap to the weakening of others should be partially removed. In the pruning of smaller trees, those, for instance, which are only in the process of development, a deal of judgment is necessary so as to regulate and modify the growths. Too much pruning is a decided evil; but, on the other hand, too many main arteries leading from the stem are also bad. These latter should be taken out before they become any too large; then there is every possibility of the wound healing over in process of time. Keep an eye at the same time on all sorts of Apples and Pears which are liable to produce fruit-buds at the apex of the young shoots of the past year's growth—such, for cases in point, as Waltham Abbey Seedling from amongst Apples, and Josephine de Malines of the Pears. Newly-planted orchard trees require but little pruning at the start; a mere tipping of the shoots is oftentimes quite enough.

IMPAIRED CONSTITUTION.—This may in the case of orchard trees even be successfully treated. It may arise through the roots having gone to too great a depth in search of food, and hence be drawing up an excess of moisture, thereby causing canker, or it may arise through the soil being impoverished. Searching out the main roots at a good distance away will be an assistance in the former case, whilst in both a liberal dressing of manure to the surface, so as to encourage the roots upwards, will be a decided gain. If the soil be light or shallow, a dressing of farmyard manure is about the best application; on the other hand, if it be heavy, with a tendency to sappy growth, the best stimulant to apply is bone-meal or any other manure, as lime rubble, in which the same chemical properties are in some measure to be found. Bone-meal will tend towards a solidified growth and the after-production of fruit buds. Under this heading it might be noted that an "impaired constitution" in a Pear or Apple tree can be checked and acted upon successfully by again grafting the tree in question. I had abundant evidence of this only lately wherein the vigour of old trees has been greatly increased by regrafting a stronger grower upon the old branches. This goes to prove that it is not always the stock that is at fault, but the non-suitability of the scion (original) to the stock itself.

INSECTS.—These should be carefully noted, and be dealt with according to each individual case. It should be borne in mind that if a large number of trees has to be dealt with, a simple and at the same time efficacious remedy is imperative. This is afforded in the case of a paraffin or petroleum emulsion. Guard, however, against any injury from unequal mixtures. This, if applied with warm water, which may be heated in a portable copper on the spot, will have greater penetrating power. Other remedies will be noted as occasion requires.

NON-PRODUCTIVE TREES.—It is not always the best plan to remove these root and branch, but to consider first what may be accomplished by regrafting. For the present do not touch these trees, but secure the grafts of other kinds and lay them in in soil until required. HORTUS.

ORCHIDS.

NOTES ON EPIDENDRUMS.

As at present constituted, this genus contains, perhaps, a greater number of species than any other in the order. Many are very beautiful and useful garden Orchids, while there is a number that may be described as mere botanical kinds and as garden plants of little use or beauty. The habit is as varied as the flowers, some exceedingly minute, many of medium size, with a *Cattleya*-like habit, but the majority, perhaps, have tall, reed-like stems clothed more or less with foliage and varying in height from a foot to a couple of yards or more. The plants are found growing naturally over an immense area in continental and insular America, embracing a wider range of temperature than any other genus. What *Dendrobiums* are to the Old World, *Epidendrums* are to the New, many of the species bearing a strong resemblance to the former. Their cultural requirements, then, are naturally varied, some needing the warmest possible treatment, while representatives will be noted that are suited to every house devoted to Orchid culture, from this to the coolest compartment. The under-mentioned kinds are probably the best known and most useful:—

EPIDENDRUM ATROPURPUREUM has pseudo-bulbs each about 4 inches high, bearing very much longer leaves and flower-spikes containing several flowers, the sepals and petals of which are incurved at the tips, brownish, with a yellow base, the lip spreading, of various tints of rose and purple. This species should be strongly grown to obtain the best results, and though a quiet season occurs with it, at no time should the roots be very dry. It likes a very rough, open compost, and must be shaded from strong sunlight. It grows well in the cooler part of the *Cattleya* house, but while at rest it may be placed with the *Odontoglossums*. It is a native of New Grenada and Mexico, and first flowered in this country in 1836.

E. AURANTIACUM was introduced about the same time as the preceding by Mr. G. Ure Skinner. It has long stem-like pseudo-bulbs from which the spikes issue after the manner of a *Cattleya*. From six to ten flowers are usually produced, and these are deep orange-red. It thrives well in the *Cattleya* house all the year round in small pots or baskets; it comes from Guatemala.

E. BICORNUTUM is perhaps the most beautiful in the genus, and also one of the most difficult to keep in health over a long series of years. For a few seasons after being imported it grows freely and produces racemes of a dozen or more of its beautiful pure white blossoms from the apex of its hollow bulbs. It comes from Trinidad, and consequently must have a hot and very moist atmosphere. At the same time it delights in copious supplies of fresh air when these can be arranged without unduly lowering the temperature. Good drainage is an absolute necessity, for the roots will perish by scours in a badly aerated, close compost. If an inch or so is left and filled with three parts of clean Sphagnum Moss to one of good fibrous peat, it will be ample for all but the largest plants. Yellow thrips is its worst insect enemy, and is best subdued by fumigating and the frequent use of tobacco in the form of powder or juice. It first flowered in this country in 1834.

E. BRASSAVOLE is a pretty and interesting species bearing short spikes with about six flowers on each, these having narrow outer segments of a dull yellow with a pointed purple lip. The colour varies considerably, and to a less extent the size of the blossoms. It thrives at the cool end of the *Cattleya* house in pots of peat fibre and Moss, and must be kept fairly moist all the year round. It is a native of Central America, and though first discovered in 1848 did not flower until 1867, in the late Mr. Bateman's collection.

E. CILIARE is a pretty Orchid common in collections, and widely distributed in tropical America. For cultural purposes, *E. cochleatum*, *E. fragrans*, *E. inversum*, *E. glumaceum*, and *E. radiatum* may be bracketed with it. All do best in an intermediate or *Cattleya* temperature, and should be allowed a rough open compost and not too much pot room. *E. ciliare* has pretty whitish flowers with a fringed lip, this latter in all the other kinds named taking an inverted position. Clear light must be allowed, but shade from the brightest sunshine and water must never be entirely withheld.

E. ERECTUM is a stout-growing New Grenadan kind, attaining 5 feet or more in height, and having round leafy stems. The colour of the flowers is a bright magenta-purple, the fringed lip being very ornamental. This and *E. Frederici Gulielmi*, which bears larger and deeper coloured flowers, do well in large, roomy pots, and may be grown in the *Cattleya* house. The roots are persistent and dislike disturbance; consequently when repotting let it be thoroughly done, and perfect drainage allowed. The latter was named in honour of the King of Prussia, and was discovered by Warszewicz in Peru.

E. NEMORALE is a beautiful plant that should be much more grown. It may be cultivated as advised for *atro-purpureum*, but may be almost entirely unshaded. It produces a long raceme of most attractive blossoms, these having a large showy lip and narrow outer segments. It is a native of Mexico, and was introduced by Messrs. Loddiges in 1844. With two more well-known kinds this list must close. These are

E. VITELLINUM, a beautiful showy cool house kind that has often been noted in these pages, and *E. xanthinum*, a loose-growing Brazilian species, bearing large, dense flower-heads of a brilliant yellow. It remains in flower for many weeks on end, and, though requiring plenty of room, should be grown wherever this can be found. It is one of the oldest known kinds, and thrives well in a light house and intermediate temperature.

H. R.

Odontoglossum Kramerii album.—This is a pure white form of the species, and a nice lot of it is now flowering at Bush Hill with Messrs. Low. In the habit and shape of the flower it is identical with the type, but all traces of the violet-purple tint are lost. About three or four flowers occur on a spike, and these are each about $1\frac{1}{2}$ inches across. It is a native of Costa Rica, and requires more warmth than the other *Odontoglossums*. The plants do best suspended from the roof in an intermediate house, and, owing to the fact of the roots being none too vigorous, a thin compost only should be allowed.

Cypripedium Curtisii.—This is certainly one of the finest of the *Cypripedium* species and an excellent garden Orchid. The habit is good and the leaves are prettily marbled with deep green on a lighter ground. The dorsal sepal is not so showy as that of some other kinds, being green, with markings of purple and white. The petals are drooping, purplish white in ground colour, with veins of green and heavily spotted with dark purple. The lip is brownish in front, the mouth much lighter, with spots of bluish purple. It is a native of Sumatra, and was sent to Messrs. Veitch, of Chelsea, about 1882 by their collector, whose name it bears. Plenty of heat and moisture and a shady position suit it best.

Dendrobium nobile nobilium.—A small plant of this superb *Dendrobe* is now flowering with Messrs. Hugh Low and Co., and is interesting as being part of the original plant purchased many years ago by Mr. James, of Norwood. This plant, it is said, was one of a bundle of twelve bought at a shilling or so apiece, but so seldom has it appeared since, that one seldom finds it quoted at less than a guinea even now. The blossoms are large and most beautifully coloured, the segments almost entirely covered with a rich rosy purple suffusion, becoming a crimson-purple towards the tips. The lip is white in ground

colour, but little of this is seen, the blotch in the centre being a dark and rich crimson-purple.

Odontoglossum grande.—It is getting late for this plant to be in flower, but I noted it in good form during the week. Like *O. Ingleayi* and others of this class, it is now at its quietest time, and though not requiring to be absolutely dry, no more water than is needed to keep the pseudo-bulbs plump should be given, and the atmosphere may with advantage be kept slightly drier. If in bad condition at the root the plants may be repotted after the shoots at the sides of the bulbs have begun to lengthen, using a rough and open mixture of peat and Moss over good drainage. When growth is most active, *O. grande* and its allies like rather more warmth than the *crispum* section.—H. R.

Cypripedium Victoria-Marie.—I shall be much surprised if this Orchid ever gets very popular, or even as popular as the now better-known *C. Chamberlainianum*, which in some respects it resembles. Still, it has its good points, and, as a well-known cultivator recently remarked to me, "if we could by hybridising get something bright and showy of the same vigorous habit it would be an acquisition." It has doubtless a good habit, but the long ungainly-looking spikes, with seldom more than a couple of flowers open at a time, leave a lot to be desired. *C. Victoria-Marie* has a greenish dorsal sepal flushed with red, and the twisted petals are each about 2 inches in length, the lip purple.

Dendrobium undulatum.—This plant is not often seen in cultivation, not being cared for by the majority of Orchid growers. Still, where a representative collection is sought for it should be included. Not unlike *D. taurinum* in general appearance, the flowers of *D. undulatum* are much lighter in colour, the sepals and petals more twisted and the spikes not so strong. I have noticed it in bloom in several collections recently, and the colour of the flowers varies a little, though the characteristic bull's head shape is the same in all. *D. undulatum* is more difficult to grow than the majority of *Dendrobes*, and should be planted in pots or baskets of limited size and kept well up to the light.—H.

Phalænopsis denticulata.—This is a rather uncommon Moth Orchid, not so showy as *P. Luddeemanniana*, which it resembles in growth. The blossoms, which appear on few-flowered spikes, are each about a couple of inches across. The sepals and petals are creamy white with faint brown markings across, the lip purer white with a yellow centre, and lines of light purple on the side lobes. *P. denticulata* thrives in company with the species above named, and should be grown in small wooden baskets. Considerable care is required with all these small-growing kinds during winter. I noted it in flower in Messrs. Low and Co.'s nursery the other day.—H. R.

Dendrobium Waltoni.—This beautiful hybrid *Dendrobe* has more names than most, and although *D. crassinode Wardianum* is presumably correct, the older designation comes more naturally. A fine plant of it with over fifty blooms open is now to be seen at Messrs. Hugh Low & Co.'s nursery, the flowers not showing quite so much of *D. crassinode* in them as is sometimes the case. The growth is exactly intermediate between its supposed parents, the nodes not being so fully developed as in *D. crassinode*, but still more so than in *D. Wardianum*. The bright and telling colour of the blossoms gives such a fine specimen a very showy appearance. The plant is a native of Burmah, and thrives well when treated as described for deciduous kinds generally.

Odontoglossum Andersonianum.—This pretty plant is now in flower, a good form of it being among the best of the *Odontoglossums* of supposed hybrid origin. Although the segments are usually narrower than those of such as *O. crispum* or *O. triumphans*, this in no way detracts from its beauty. The spikes often bear a very large number of flowers, and these are usually of a creamy yellow in ground colour, all the seg-

ments spotted more or less with chestnut-brown. In some forms there are no spots on the lip, but these are uncommon. Under cultivation it likes a cool, moist atmosphere all the year round and a plentiful supply of fresh air. It is a native of New Grenada, and was named by Reichenbach in compliment to Mr. James Anderson, of Meadowbank fame.

Oncidium serratum.—This, one of the earliest to bloom of the section, with long, twining flower-spikes, is a very useful and beautiful plant when well grown. The spikes attain considerable length, often as much as 10 feet or 12 feet, and are clothed at short intervals with small side branches of golden yellow and brown blossoms. Like all others in the same class, it should be thoroughly healthy before it is allowed to flower, but it is perhaps as good a grower as any of them. The roots will be found to spread laterally a good deal, and for this reason the small pots and pans used for others in the genus are not suited to it. But, on the other hand, a great bulk of compost is undesirable, so the pots used, though fairly wide, may be almost filled with drainage material. This will also allow of several additions to the compost in the form of top-dressings without unduly thickening it, and these are desirable just when the flower-spikes are pushing up. A cool, moist, and rather shady position suits it best, being a native of Peru, whence it was introduced in 1850.

Platyclinis (Dendrochilum) glumacea.—This is no doubt the most useful and attractive of the numerous varieties of this species. It produces its flowers with the new leaves when the latter are about half their natural size. It is an early-spring flowering species, and should now be growing and developing its flower-spikes freely. It requires to be grown in the hottest house available, and should receive a liberal supply of moisture both in the atmosphere and at the roots. As soon as the spikes begin to show prominently, the plants should be placed in such a position that the maximum amount of light may be obtained. When the flowers are fully expanded the plants may be removed to a cooler house, where, if the atmosphere is kept moderately dry, they last in perfection a considerable time. The best time to pot this species is when the new roots commence to make their appearance from the base of the new growths. The potting compost should consist of good fibrous peat and living Sphagnum Moss in about equal proportions with a liberal supply of rough sand or finely broken crocks to keep the material open. It is one of the most tractable Orchids in cultivation, and as it can be bought very cheaply it should have a far more prominent position, not only in the Orchid house, but also in the stove.—H. J. C.

Cattleya Lawrenceana.—This species when well grown is one of the finest Cattleyas in cultivation. During the last season I had flower-scapes carrying as many as seven, eight and nine flowers each. It is a species that requires considerable care during the winter months, which, unfortunately, in this country is its season of growth. The exceptionally dull, foggy and sunless winter we have had has considerably added to the usual difficulties one has to contend with in the neighbourhood of London. I have found it necessary to place this species in a warmer division than the ordinary Cattleya house to enable it to finish its growths in a satisfactory manner. Where this has been accomplished, it is advisable to keep the plants in a somewhat more friable condition, and they should be placed in such a position that they may obtain all the light available. This not only assists in properly maturing the new bulbs, but it will be found to have considerable effect in the proper development of the flowers and the colour will be better. As soon as the flowers are observed in the sheaths the plants will require more liberal treatment as regards moisture at the roots. It, however, needs considerable care in this matter at all seasons of the year. Considering the short time since its introduction, it has received a good deal of attention from the

hybridist, judging from the fine things that have resulted therefrom. Owing to the difficulties of importing from the region of the Roraima, it is fast becoming a scarce and valuable Cattleya. To illustrate the difficulties in procuring it, a collector friend of mine, who collected it a few years ago, recently observed to me that if he were offered £1000 to collect it again he would not undertake the journey. But as it has now become such a common occurrence to hear of big prices being paid for ordinary things, perhaps the refusal of the collector should receive as much attention as the fairy tales about the Dendrobium that thrives best on dead men's skulls and other tales that have appeared in the Press.—H. J. C.

MOTH ORCHIDS AT CLAPTON.

It will not be possible to write of Orchids at this famous nursery much longer, and that there was abundant need of a change to a clearer air is evident by the ravages of the fog on the splendid collection of *Phalaenopsis* now in flower here. Perhaps the worst of all to suffer is the beautiful *P. Schilleriana*, and, as Messrs. Low's grower was careful to point out, the spikes of this kind cannot be shortened in the way advised for *P. amabilis* and others in order to make them flower later. Nor will early pinching, with a view to later spikes, do, as this is apt to cause the production of central spikes at the expense of the lead of the plant. So the splendid spikes have to be left to take their chance against the fog, and a poor chance it is for any that happen to be expanded or on the point of expanding. Yet there were many fine flowers to be seen of all the leading varieties, and a little later, when the retarded spikes of *P. amabilis* open and the many fine varieties of *P. intermedia* Portei, *P. i. Brymeriana* and others come on naturally, there will doubtless be a grand display, though possibly we shall have to go further afield for it. The plants are one and all in capital health, finishing up fine thick leaves every season, and many are large specimens. I noticed some grand examples of *P. intermedia* and *P. Stuartiana*, the foliage of the latter very similar to that of *P. Schilleriana*, though quite distinct when seen side by side. The plants are already on the move at the roots, the long green points showing remarkable vigour. Though they have just passed through their resting season, the Sphagnum about the roots is still fresh and green, as it should be to obtain good results. There is nothing worse for the roots than a lot of sour, decayed Moss, and if duly cut back a little as winter approaches, it is easy to keep it from holding too much moisture on the one hand, or decaying and dying on the other. There need be no hurry yet in repotting, surfacing, or whatever is needed by the individual plants. The later it is left in reason, the better the atmosphere the plants will have to recover in, light and sun-heat being important factors in their well-being after disturbance. Hybrids are now getting fairly numerous, and there are many healthy young plants in all sizes. The strongest are throwing up their flower-spikes, and every care is being taken with these to prevent the fog reaching them, not by hard firing to drive the fog out, as has elsewhere been advised, but by placing the plants under large bell-glasses as far away from the roof as possible every night, and also by day when necessary. Broad, healthy-looking foliage and a vigorous habit are characteristic of these hybrids, and it is to be hoped that as time goes on more cultivators will take to raising these beautiful plants, which, although taking longer to flower than *Cypripedes* and others much affected by hybridists, are well worthy of the extra care. H. R.

Cattleya Trianae Backhousiana.—This fine variety is now flowering at Messrs. Hugh Low and Co.'s nursery, where there is a large number of plants of the species coming into bloom. One long house at Bush Hill is filled with it, and there are many hundreds of plants,

some showing much more than ordinary merit. The variety named has large flowers, the segments bright blush-pink, the lip having a large purple area in front and a white throat. Some of the other forms have the outer segments nearly pure white, with very rich and deep blotches on the lip, and the contrast here is very striking and beautiful.

Phalaenopsis Sanderiana.—This is one of the best in the genus and a remarkably fine Orchid. It comes nearest in general character to *P. Schilleriana*, having, however, shorter leaves. The flowers are pale rose in colour on the outer segments, the lip is white, tinged at the base with yellow and spotted with purple. It is a free growing plant that flowers abundantly, and certainly one of the easiest of all to cultivate. In its native habitat it is found growing in proximity to *Vanda Sanderiana* and other heat-loving kinds, and this points to its management under cultivation. Heat and moisture, shade in summer and light in winter, with careful attention to cultural details will ensure its well-being.

Oncidium sarcodes.—Flowers of this bright and pretty kind come from a correspondent who has a spike 4 feet long and strongly branched. This shows good cultivation, but "*R. R.*" must be careful not to flower his plants to death, the pseudo-bulbs not being nearly so large as those of some others that throw much smaller spikes. The flowers are each about 1½ inches across, of the clearest yellow, excepting a few spots of brownish red. It thrives under *Cattleya* or intermediate house treatment, and is best accommodated in baskets of limited depth. Three parts of Sphagnum Moss to one of peat suit it well, and it must be sparingly watered until well established. Afterwards plenty of moisture both at the root and in the atmosphere is necessary.

Laelia cinnabarina.—This bright and effective *Laelia* I have noticed in flower in several collections this week. The blossoms are produced in plenty from near the top of the flask-shaped pseudo-bulbs or racemes. The colour is a bright cinnabar-red, and the effect of a few plants in flower arranged with lighter-coloured Orchids is particularly striking. It grows freely enough when once the young shoots are well away from the base, and does best in a full *Cattleya* temperature. The pots used for it may be fairly large, but must be well drained, and the compost, consisting of a mixture of peat fibre and Moss, should be used in a rough open condition. *L. cinnabarina* is a native of Brazil and was introduced to this country in 1836 by Mr. Young, of Epsom.—H. R.

Cypripedium Niobe (Short Hills variety).—This, a distinct and lovely variety raised in the Short Hills nursery of Messrs. Pitcher and Manda, New Jersey, U.S. America, has been in flower in the collection of Mr. R. B. White, Ardarauch, for some weeks past. The dorsal sepal is much broader than in the typical form, white at the top, suffused and heavily veined with bright rose, pale green at the base and spotted with brown. The petals, with the deflexed character of those of *C. Fairieanum*, are pale green, suffused with brown, spotted and heavily lined with a darker brown, the lip brown, shading to pale green. It is the result of crossing *C. Spicerianum* with the pollen of *C. Fairieanum*. This is certainly one of the finest forms of this desirable hybrid I have seen.—H. J. C.

Odontoglossum Uro-Skinneri.—This usually flowers with me during late summer and autumn, but I noted a fine spike of it open during the week. It is nearly allied to *O. bictonense*, but a superior Orchid to most of the varieties of the latter. The greenish yellow outer segments are almost covered with chestnut-brown markings, the lip is rosy white, prettily crisped and frilled. A shady, moist position with rather more heat than suits the *crispum* set is best for *O. Uro-Skinneri*. Where *O. grande* thrives it will usually be satisfactory, and the cultural requirements in other ways are very similar. *O. Uro-Skinneri*, a native of Guatemala, was sent by Mr. Skinner

to the Messrs. Veitch as far back as 1854, and has frequently been imported since, though even now it is far from common.—H. R.

ORCHARD AND FRUIT GARDEN.

STRAWBERRIES IN N. WALES.

FROM the numerous and interesting notes on Strawberries from all parts of the country which appeared in THE GARDEN during the autumn months, it is apparent that soil and situation have a great effect on this valuable fruit, and probably taste accounts somewhat for the many varieties lauded or condemned, as the case may be. In some instances cropping qualities, irrespective of quality, are held in high esteem. As I am peculiarly situated as

croppers, but lacking the quality of the four named above. Sharpless is highly valued by my employers, both forced and in the open, for its flavour, but personally I consider it soft and mealy—an instance how taste differs. It is an enormous cropper. The other two varieties are so well known and widely grown, that comments of mine are unnecessary. Noble, Competitor, Sensation, Keens' Seedling, President, and others have been discarded, some of them years ago, as they proved unsatisfactory, chiefly from lack of quality. Sir Chas. Napier has at last shared the same fate, owing to the tendency of the young fruit to scald during hot sunshine. A limited number only of Waterloo is grown, the colour being objected to. Having for years selected kinds that thrive and suit my purpose tolerably well, I do not experiment much with new sorts, and have not extended the trial of even Royal Sovereign and Latest of All long enough to form a decided opinion on their merits and demerits.

CULTURE.

I plant a quarter and clear one annually, taking three crops off each, and owing to a heavy winter rainfall generally I defer planting until the spring, having selected the earliest and strongest runners from the plot planted the previous spring, but not cropped, and laid in over the winter. As previously noted, Loxford Hall is an exception. The method of planting I now adopt is in beds, four rows in a bed, 2½ feet between the rows, the plants being 2 feet apart in the rows, with 2-foot alleys between each bed for the convenience of cleaning, gathering, &c. Having no straw litter available for mulching, I use Moss (Sphagnum and Wood Moss as raked in the woods), and find it answers well, and most valuable in a dry season in conserving moisture in the soil. Strawberries follow any crop that has received liberal treatment, and generous feeding in the way of regular and repeated applications of good and suitable artificial manures is continued while the Strawberries occupy the ground. The first summer all blooms are pinched off, and only the requisite number of runners for forcing and planting a similar quarter the following year are allowed to remain. Spring-sown Onions are planted between the rows and in the alleys the first season. JNO. ROBERTS.

Tau-y-bwlch.

Apple Adams' Pearmain.—

Permit me to add my testimony to the value and usefulness of this fine Apple, though to add to "D.'s" or the editor's testimony may seem like painting the Rose, &c. I never, however, met with it in East Anglia under the synonymm of Norfolk Pippin. But as to the quality and usefulness of this fine Apple for dessert from December to February, or even well through March, too much can hardly be said in its praise. It may seem almost a waste to cook such a useful eating Apple, but the crispness, hardness, juiciness, and colour of its flesh make this Apple specially valuable for this purpose.—D. T. F.

Pears not ripening in season.—The few facts stated by "S. M." in a recent issue (pp. 53 and 54), and many others that might be given, show the need for a complete revision of dates of ripening, especially among Pears. As this writer shows, the old year carries few good Pears into the new. "S. M." is fortunate in having had a good keeping stock of the Winter

Nelis. It is also pleasing to have his favourable verdict of the keeping qualities of the promising new Pear Le Lectier, though its pronounced Bon Chrétien blood is not reassuring as to its keeping sound till March. This writer also refers to the keeping properties of Nouvelle Fulvie from bushes, pyramids and walls. It is also pleasing to hear of the well-proved Thompson's being his best October Pear, and equal in flavour to Doyenné du Comice. No wonder "S. M." calls out for later kinds equal in quality to Thompson's. I have the greater pleasure in quoting this high estimate of this fine old favourite Pear, as it was raised by Van Mons, who sent it to the Royal Horticultural Society without a name, and Mr. Sabine, long and honourably known for his distinguished services to horticulture, named the then new Pear Thompson's, after the late Robert Thompson.—D. T. F.

PEAR NE PLUS MEURIS.

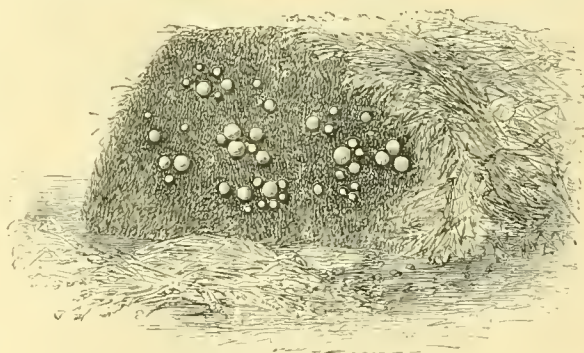
I WAS much interested in Mr. Parker's note on this and other Pears (p. 33). Ne Plus Meuris has seldom been grown so generally as it deserves. Possibly its somewhat uncomely appearance is partially responsible for this. I quite agree with Mr. Parker's high estimate of its good quality and serviceable character. It is also a mistake to suppose that grittiness in Pears can always or generally be prevented or grown out of them by semi-roasting on south walls. On the contrary, it often happens that dryness and harshness of flesh, running into something akin to or sheer grittiness, may be produced or aggravated by an excess of sunshine above and a dearth of water at the roots. Most of the more famous old fruit growers had far more faith in the watering-pot, syringe and garden engine than their modern successors. Daily, and not seldom twice a day through dry spells of weather, Peaches, Pears, Plums and other fruits were flooded with water overhead. This treatment did much to keep them clear of insects, to supply their water wants, and to create and sustain a local atmosphere around the fruits and foliage, thus preventing sudden checks of growth, probably the most fertile sources of grittiness in Pears and inferior flavour in other fruits. A good many years ago I had a large garden mostly fur-



Passage in Mushroom cave. (See p. 99.)

regards soil, situation, and climate, perhaps a few notes on their behaviour here will be of interest. Some of the varieties grown and appreciated here seem to be little grown generally, but the soil is hot, thin, and stony—far from an ideal one for Strawberries—and what I cultivate are practically all used for dessert, hence flavour and colour are of more importance than cropping qualities, and late sorts are more valuable than extra early ones. For flavour combined with fair cropping qualities I consider Pauline, La Grosse Sucrée, Maréchal McMahon, and Loxford Hall Seedling, the best. It is difficult to account why the first-named finds so little favour with private growers, unless it is owing to the peculiar shape some of the fruit assumes, for it is very early, of good colour, a heavy cropper, and of superb quality.

La Grosse Sucrée is better known and more generally grown. Maréchal McMahon is also an excellent variety for succession, producing enormous crops of large, solid fruit of good flavour, and is satisfactory in pots for April and May work. Loxford Hall Seedling, by far the most delicious of the late kinds, is, unfortunately, not so robust in constitution as one would wish. It is treated as a biennial here. Can anyone recommend a stronger-growing variety than it, equally late, and possessing its superb quality? Such, I am certain, would prove a boon to many of us. Sharpless Seedling (very early), Auguste Nicaise for succession, and Eleanor (syn., Oxonian) for late use, form the bulk of others grown, all heavy



Mushroom bed in open air in January. (See p. 100.)

nished with Pears. There were many walls of every possible aspect and Pears were found upon them all. It was in this garden that I found my first and strongest proofs that sunshine was not the be-all and end-all of high flavour in Pears or other fruits. On the whole, the Pears on the east and west walls were found to be more luscious and useful than those on the south. More curious and unexpected was the discovery that not a few of our highest-flavoured Pears reach their highest quality not on hot south walls, but on bushes, standards, and pyramids in the open.

By growing the same Pears or other fruits in every variety of aspect and form we may likewise extend their season by a month or more, as well as impart a more charming variety to their size, colour, and quality. This may be a doubtful

benefit to those who grow quantities of one sort for market, but is of immense advantage to those who have to maintain a continuous supply of good Pears or other fruits for private families all the year round. Mr. Parker's experience with *Ne Plus Meuris*, as being in the most suitable condition for Christmas, is different from that of not a few growers, who find this fine Pear will keep sound through January, February, and sometimes well into March.

But, then, such changes in the ripening times of Pears are among those things that none of us quite understand. Of this we may rest assured, the vexation and drawback are not all against the growers, as we often find first-rate Pears in prime condition that ought to have been rotten months before according to our fruit manuals.—D. T. F.

— Conflicting opinions are expressed (p. 54) as to the merits of this Pear. My experience of it agrees in the main with that of "S. M.," though I have been able to keep it in some years later than the date he gives, viz., the beginning of February. With me it is an absolutely poor-flavoured variety, seldom if ever tolerated as dessert, though often used and liked for stewing. It is a constant bearer here, and this constitutes its greatest merit. Judging from Mr. Parker's remarks it would seem to be good in certain situations, and I know, too, that it is well thought of in Galloway, so that it is not only in the south that it comes to perfection. I should hesitate here to plant it on a north wall, and should expect fruits from that aspect to be more insipid than those grown in the open, allowing such a thing to be possible.—J. C. TALLACK, *Livermere Park, Bury St. Edmunds.*

PLUM REINE CLAUDE TARDIVE DE CHAMBOURCY.

This Plum, which was admitted by the Pomological Congress in 1896 under the name of *Reine Claude tardive*, in 1897 regained possession of its true name—*Reine Claude tardive de Chambourcy*. The tree bears a great resemblance to the *Reine Claude verte*, but it is rather capricious in bearing, and the seasons in which it produces plentifully are somewhat rare. The fruit is pretty large and nearly globular in shape, greenish in colour, deeply tinged with carmine where it is exposed to the sun; flesh somewhat firmer than that of the *Reine Claude dorée*, well flavoured, very sugary and juicy; ripens in September. On the whole, this is an excellent dessert Plum, which, on account of its good qualities and late period of ripening, may command a high price.

The culture of this variety, however, has remained almost localised in its native place. When I say "native place," the expression is not, perhaps, strictly correct, for the locality in which this Plum originated is not known with certainty; however, I may here state what we do know about it.

The first tree of this variety was observed at the commencement of the present century at Chambourcy (near Saint Germain-en-Laye) in the garden of M. Bourgeois, senior. Where it came from is not exactly known. It is possible it might have come amongst other trees from Vitry, long celebrated for its fruit tree nurseries, and at that time almost the only district which supplied the cultivators about Saint Germain-en-Laye. However this may be, it appears certain that this variety, if it really was known at Vitry, no longer exists there, and that the cultivators there have lost it.

When the tree fruited with M. Bourgeois, he soon perceived that, on account of their late time of ripening, the Plums might sell for a high price, and that the variety was really worth cultivating. Accordingly he propagated from it by grafting the form which soon obtained the name of *Reine Claude tardive de Chambourcy*. From all these circumstances of the case it appears to be well established that this variety was first propagated at Chambourcy. It made its way, however, into cultivation but slowly. Some land-

owners planted trees of it in their fields, but when the fruit ripened it was generally stolen, and to such an extent, that I have known some owners who, seeing their crops thus ravaged year after year, decided on rooting up the trees. By degrees, however, the variety came to be grown in gardens, and about twenty years ago the nurserymen about Paris, recognising its worth, commenced to propagate it extensively. About that period it was exhibited at the Pomological Congress of France under the erroneous name of *Reine Claude tardive Latinois*, which was at one time near becoming the accepted one, but eventually it was abbreviated to *Reine Claude tardive*. The people of Chambourcy, however, resolving to have the origin of the variety clearly stated, sent, through M. Lecoite, of Louveciennes, to the congress in 1897 a successful remonstrance, and the name *Reine Claude tardive de Chambourcy*, by right of priority, still continues in use, as the true designation of this excellent variety. There is no reason why it should not be retained except the very improbable event of the discovery of the actual locality in which the variety originated.—PIERRE PASSY, in *Revue Horticole*.

LATE PEARS.

Mr. PARKER writes very favourably of *Ne Plus Meuris* Pear (p. 53), more so, in fact, than many growers are able to, but probably his trees are young, or, at any rate, in good bearing condition, the aspect favourable and cultural conditions undoubtedly of the best. I have only one tree, a large espalier-trained specimen. So far as cropping is concerned it is very good; indeed, there is no other tree in the garden so regular or free bearing. It occupies a corner on the south end of a west wall, and although the latest keeper I have, it is ready for gathering before many others naturally early. The large crop borne accounts to some extent no doubt for lack of high quality and the barely medium size of the fruits when gathered. The fruit invariably requires thinning. The value of late Pears is brought into prominence somewhat by the fine samples of our garden varieties now so largely imported from distant lands. It is, I presume, a direct impossibility for English gardeners to produce such fine samples of *Easter Beurré*, *Glou Moreau* and others in the winter season as those imported, although for quality they may hold as good a position. No doubt, as Mr. Parker points out, Pears of the late-keeping sorts would be more satisfactory if the fruits were left longer on the trees. With large bush trees such as I have to deal with, it would be no easy matter to attempt to sling every fruit with a strip of matting or string, and without some such provision one cannot keep them on the trees. The falling of the fruit, too, is taken as an indication of ripeness, and I never attempt to gather until it is unsafe to leave them longer. Like other growers, I have to complain of the short time Pears remain fit for use, and the early date at which the majority of sorts were ready this season. Tom-tits, hornets, and wasps assert their priority of claim so much that in the case of some of the higher-class Pears one is tempted to gather early to save a portion of the crop from these pests. It is somewhat strange that these pests and birds should be so persistent in their attacks on the open-air trees and yet leave the wall fruits alone. This is what generally happens here, though perhaps the greater quantities available in the open account for this somewhat. This freedom from attack on the wall trees does not occur with choice Plums and Cherries. In this case, it is true, there are no standard or bush trees to attract them, and so keep them from the wall trees. It would seem, too, that when crops

are light, as they were last year, attacks from birds and wasps are more persistent. In the case of Pears, they did not even discriminate between stewing and dessert varieties, but made an effort to prove them all, and this sampling by tom-tits makes it very convenient for hornets and wasps to carry on their destructive work. I incline to the opinion that a portion of a cool wall could be most profitably set apart for late Pears, and in the private garden cordon trees would be the method by which the walls and the fruit store would be the more quickly furnished. There is a direct conflict between the actual ripening of many sorts of Pears and the times given by catalogues, which certainly points to the need of a revision, as "S. M." points out in his notes (p. 53). Winter Nelis always ripens before Christmas with me, and *Josephine de Malines* does not remain for use in February. In a great many gardens there are more Pears in October and November than can be used, but the remaining months of the winter are not very well supplied, and the difficulty as to the means of carrying out a change is by no means a small one, and if one attempted the remedy from some catalogue descriptions as to times of ripening, the loss would probably be greater than the gain. Grafting would be preferable to rooting out healthy trees; scions of approved kinds can be as easily supplied as trees by nurserymen, provided application is made for them in good time. Although not regarded as a good practice, it is yet possible to put on two varieties on one stock, and this plea may reasonably be given in favour of late kinds where there is an absence of a sufficient supply and a preponderance of earlier Pears. Soils have such varied influence on Pears, that however good a variety may be in one garden, it is next to worthless in another, and herein may be found the opportunity of changing the results by regrafting with another kind.

Wills.

W. S.

The Black Currant mite.—This pest is gradually spreading over the country, and I would advise those who have not yet been unfortunate enough to meet with it to look over their bushes and pick off all abnormally swollen and rounded buds, repeating the operation at frequent intervals before the bushes burst into leaf. The buds which show signs of being affected are already spoiled, and would carry no fruit in any case, while if left they form nurseries for myriads of the tiny insects which no insecticides can reach in time to prevent their spreading. Needless to say the buds picked off should be burned.—J. C. T.

Apple Gravenstein.—I am glad I have encouraged a discussion. As a matter of fact I have eaten good fruit of this variety a week before Christmas. If "A. D.," who writes about the excellence of Cox's Orange Pippin well kept into January, had been able to supply Gravenstein from the same quarter, the admission could not have been withheld that it had kept at least equally well. If any grower were to bestow upon Gravenstein all the good treatment granted Cox's Orange, the great national favourite, which at its best I, as others do, prefer to Gravenstein, it would gradually become more appreciated. I do not say that Gravenstein is at its best at Christmas, but it is one of the few good ones obtainable so late in the season. It would certainly be a mistake if at the great fruit show early in October next Gravenstein were not scheduled separately under dessert Apples.—H. H. R., *Forest Hill.*

The Almond in commerce.—The principal centre of Almond cultivation is the arrondissement of Aix, where 6000 hectares (14,820 acres) are devoted to it. In the plain of La Fare and the lands adjoining the lake of Berre a great number of Almond trees are also grown. In the arrondissement of Arles the greatest breadths of

Almond trees are to be found in the communes of Lamanon and Orgon. Throughout the department of Bouches-du-Rhône the Almond is planted alone or in association with the Vine. The tree has also a certain importance in some parts of Vaucluse, the Hautes et Basses Alpes, and Var. The trees yield excellent crops in good years, and in ordinary years the yield is satisfactory. Years of complete scarcity are rare. It may be estimated as a general rule that a tree over thirty years old should yield 7 francs to 8 francs worth of fine and demi-fine fruit, and 4 francs to 5 francs of the rough sort. In Provence Almond trees in full bearing have often been known to yield an average of 1000 kilogrammes (2200 lbs.) of hard-shelled Almonds per hectare (247 acres), and 300 kilogrammes to 400 kilogrammes (660 lbs. to 880 lbs.) of soft-shelled fruit.

Japanese Wineberry. I was glad to see in "Notes from Suffolk" (p. 22) a few words in favour of the Japanese Wineberry (*Rubus phenicolasius*). As "Suffolkian" observes, it is distinctly valuable as a decorative plant, independently of its properties as a fruit producer. The white undersides of the leaves contrast prettily with the maroon-red of the hairy shoots and calyces, some of which latter show the fruit within, ranging in colour from yellow to polished crimson, according to its varying stages of ripeness. The berries have a pleasant, brisk flavour, and when thoroughly ripe are very palatable as dessert fruit, being preferred by many to Raspberries, while for tarts and jam they are equally useful. Complaints were made in 1896 that the berries were small and dry. This objection was not groundless, but was attributable to the unprecedented drought of that summer. During the past year and in 1895 the berries were twice as large and juicy. The plant appears to be every whit as hardy as the Raspberry, for in the severe weather experienced in the early part of 1895 the little damage done to both was identical and only amounted to the loss of the upper portions of the longest and most sappy canes. From all accounts it is hardy in Scotland as well as England. The plant was introduced in 1877, but it is only during the last six years that its distribution has become general. Its culture is less precarious than that of the American Blackberries, while, up to the present, the Loganberry, Mayberry, and Strawberry-Raspberry have yet to prove their merits in this country.—S. W. F., *Torquay*.

LATE FRUITS.

I READ with much pleasure Mr. Parker's note in last week's GARDEN on Adams' Pearmain Apple as verifying an opinion I have often expressed as to its merits. On this sandy soil it is one of the three most reliable late varieties I have, coming into use with the last of the King Pippins and keeping sound and good until the end of January. Its merits as a consistent cropper can be shown by the statement that this is only the second time in fifteen years that the trees have failed. Finding such capital results were obtained from old trees, I planted a batch of young standards of the same variety eight years ago. These came into bearing quickly and now give annually some fine, well-coloured fruit, decidedly better in this respect than that taken from the old trees. In connection with this and one or two more varieties available for dessert I think the fact that they are a decided success on soils where sorts like the Ribston, Cox's Orange, Margil, Claygate Pearmain, and others are more or less a failure cannot be too strongly enforced. Cornish Aromatic is another capital variety and a point better than Adams' in one respect—viz., it has never failed to crop in the fifteen years. Even in this disastrous Apple season we have plenty of good, sound fruits that will last out until February is well advanced. It is not, I admit, first class from a quality standpoint, but still a useful and reliable Apple and a handsome fruit, putting on a brilliant colour on the sunny side. A mistake is often made in gathering this Apple too soon. It should hang on the trees until the beginning of

October, only, unfortunately, where tits are troublesome these mischievous birds have a liking for the best and most brilliant fruits and tap them to a considerable extent. One more good late dessert Apple is Cockle Pippin. I do not get the size or the bronzy russet colouring I remember in the Sussex orchards, but it crops quickly and heavily and keeps well. My four best late cooking Apples, omitting Norfolk Beaufin, respectively from bushes and standards are Alfriston, Bramley's, Wellington, and Hambledon Deux Ans. Of the last, it is sometimes argued that it should make way for better varieties. Possibly when it is a question of planting, but when one has some big old trees that bear consistently and yield large fruit that keeps sound and good, these should be left alone.

In connection with late Pears, an interesting experience has to be chronicled this year. I have two big old trained trees of Bergamote d'Espéren, the fruit of which, although borne rather freely, has never been of the slightest use except for stewing. It is therefore gratifying to record that a fair amount of fruit obtained from half-a-dozen cordons is this year ripening satisfactorily, and although possessing little flavour is fairly melting and refreshing. The latter characteristics are also noticeable in the case of Beurré Rance, a very erratic fruit in the matter of ripening. I had some this year ready at the beginning of January, but the majority are still, at the expiration of a month, as hard as bullets, and all from the same tree. Josephine de Malines is my best late Pear. For a December Pear I have nothing to touch Glou Morceau, an excellent point in its favour being the slow ripening and consequent long season. Winter Nelis is good sometimes, but in the majority of seasons it cracks badly.

Claremont.

E. B.

CATHERINE II. OF RUSSIA AS A GARDENER.

IN a rather recent life of this remarkable woman by K. Waliszewski (1894), entitled "The Romance of an Empress," it is shown that Catherine was fond of gardening, although not particularly fond of flowers according to our more modern ideas. Waliszewski tells the story of the little German princess who was taken to St. Petersburg and married to the Grand Duke Peter when little more than a child, and her ultimate development into one of the ablest and most remarkable women who ever sat on a throne. On page 390 of the English translation we find the following paragraph on Catherine as a gardener:—

Catherine is passionately fond of gardening, and plantomania, as she calls that taste, rivals with her the taste for building. She follows, in this respect, the fashion of the age. "I am madly enamoured at present," she writes in 1772, "of gardens in the English manner, curved lines, gentle slopes, pools in the forms of lakes, archipelagos in terra firma, and I have a profound scorn for straight lines. I hate fountains that torture the water to make it take a course contrary to Nature; in a word, angomania dominates my plantomania." And five years later, "I often enrage my gardeners. I found that the greater part were mere pedantic followers of routine: the departures from routine that I often propose to them horrify them, and when I see that routine is too strong for me, I employ the first docile young gardener that comes to hand. There is no one who laughs at my plantomania so much as Count Orlof. He spies on me, mimics me, makes fun of me, criticises me; but on going away he asked me to look after his garden during the summer, and this year I am going to play pranks there after my own fashion. His land is close to mine. I am very proud that he has recognised my merits as a gardener."

That Catherine's interest in good gardening was a real one may be inferred from the fact that she made arrangements for engaging an English, or rather Scotch, gardener, and John Abercrombie actually embarked for Russia, but was so terrified at the prospect of a sea voyage, that he cancelled his engagement at the last moment and returned home.

The above extract throws a lucid side light on the great Empress's character, and shows her horticultural taste and feelings to have been far beyond those of her times. F. W. BURBIDGE.

BOOKS.

THE AMERICAN FRUIT CULTURIST.*

THIS, the twentieth edition of a valuable work on fruit culture as practised in America, is a marked improvement on its predecessors and ought to be in the possession of all fruit growers or owners of land in this country who are anxious to succeed in fruit culture. It is a closely printed, copiously illustrated work of some 750 pages, and treats upon the propagation and culture of all kinds of hardy or nearly hardy fruit that may be profitably grown in America. Naturally, much that is included is not of any practical value to British fruit growers, but if not particularly serviceable, those chapters relating to the culture of Oranges, Bananas, Dates, Guavas, Loquats, Persimmons, Pine-apples, and Pomegranates afford interesting and instructive reading. The reviser of this work has not relied exclusively upon his own experience, which at its best could only be of comparatively local value, but has had the benefit of the experiences gained at upwards of fifty agricultural State-aided experimental stations to be found in nearly as many States. I have previously had occasion to lament our backwardness on this side of the Atlantic in respect to starting experimental stations or fruit farms in various parts of the country, and not till we have something of the kind shall we have impartial and reliable information upon various subjects connected with hardy fruit culture placed before us. Our Government has never moved in the matter, and our leading agricultural and horticultural societies are even more to blame, so little have they done towards promoting hardy fruit culture on sensible lines in this country. Holding hole-in-the-corner meetings, reading a few cut-and-dried papers, and arranging exhibitions of fruit, the greater portion of which is grown in an artificial manner, amount to very little indeed. Nothing has been heard of these proceedings in districts where hardy fruit could be grown in quantity superior to what is sent from America if only the holders of the land knew how to go to work. We want some good solid work done and must not be content with a few experiments on a small scale conducted by a fussy committee in a worn-out town garden. This could be done if only the matter were taken up by a person or persons of influence, and who would not be content to rest on their oars just when their services were most needed.

Each time it falls to my lot to review a work on fruit culture I cannot help contrasting the productions of American writers with those published in England, to the disadvantage of the latter. Ours are too much of a time-honoured stereotyped character, and the illustrations are equally at fault, many of them doing duty in various publications. Something more than mere trade lists are required, and the works ought to be issued at a price that brings them within the reach of all classes. In the book under notice not a single important detail is omitted, and of the hundreds of illustrations (there are nearly 800 of them) few if any of them fail to convey a lesson of some kind. The first chapter in this book, briefly yet plainly written, comprises the leading principles of the growth of trees, and this is followed by a few hints on the production of new varieties. Then comes a particularly valuable description of various methods of propagation, including striking cuttings, layering, grafting and budding, numerous illustrations doing good service in connection therewith. Soils, manures, situa-

* "The American Fruit Culturist." By John J. Thomas. Revised and enlarged by William H. S. Wood. New York: William Wood and Co.

tion and enclosures are next discussed, and instructive reading is afforded. Good and bad methods of forming hedgerows for protection are given, the author rightly favouring the Scotch system of forming hedges much the widest at the bottom, or wedge-shaped, these being much the strongest and best. The hints upon transplanting are to the purpose, and the summary of these I consider worthy of repetition here. The points to be observed are:—

- (1) A previous preparation of a rich, deep bed of mellow earth to receive the roots, and land which cannot be water-soaked.
- (2) Removing the tree with as little mutilation of the roots as practicable.
- (3) Paring off the bruised parts of the trees and pruning the broken roots.
- (4) Shortening-in the head in a greater or less degree (before the buds swell) to correspond with the necessary loss of roots.
- (5) Immersing the roots in mud.
- (6) Filling the fine earth carefully among the roots, spreading them out with the fingers.
- (7) Planting no deeper than before.
- (8) Staking or embanking, when necessary, to prevent injury by the wind.
- (9) Watering the stems and branches only before the appearance of the leaf.
- (10) Mulching where danger of midsummer drought is feared.

The following additional rules, self-evident to men of experience, but continually disregarded by novices in setting out orchards and fruit gardens, are next given, and these are

- (1) If the roots of a tree are frozen out of the ground and thawed again in contact with the air, the tree is killed.
- (2) If the frozen roots are well buried, filling all cavities before thawing at all, the tree is uninjured.
- (3) Manure should never be placed in contact with the roots of a tree in setting it out, but old finely pulverised earthy compost answers well.
- (4) A small or moderate-sized tree at the time of transplanting will usually become large, and bear sooner than a larger tree set out at the same time, and which is checked in growth by removal.
- (5) To guard against mice in winter with perfect success, make a small, compact, smooth earth mound nearly a foot high around the stem of each young orchard tree.
- (6) The roots of a tree extend nearly as far on each side as the height of a tree, and hence to dig it up by cutting a circle with a spade half a foot in diameter cuts off more than nine-tenths of the roots.
- (7) Watering a tree in dry weather affords but temporary relief, and often does more harm than good by crusting the surface. Keeping the surface constantly mellow is much more valuable and important, or if this cannot be done, mulch well. If watering is done from necessity, remove the top earth, pour in the water and then replace the earth, then mulch or keep the surface very mellow.
- (8) Shrivelled trees may be made plump before planting by covering tops and all with earth for several days.

After more hints upon the treatment of newly-planted trees, the principles and practice of pruning receive full attention, and a few extracts bearing upon this reasonable work may prove acceptable. This is what the author says of

PRUNING AS AFFECTING FRUITFULNESS.—As a general rule the rapid formation of leaves and wood is adverse to the production of fruit. On the other hand, the slow growth of the wood favours the formation of fruit-buds and the production of heavy crops. These two adverse tendencies may be more or less controlled by pruning. When the too numerous branches of a tree produce more leaves than can be properly supplied with nourishment, resulting in a feeble or diminished growth, new vigour may be often imparted by judicious pruning, directing the sap into a smaller number of channels, and thus increasing its force. Trees after bearing some years and yielding smaller fruit than on fresh young trees will assume all their former thriftiness by partly cutting back the heads. Dwarf Pear trees which have not been sufficiently manured and cultivated, whose pruning has been neglected, and heavy bearing allowed for a number of years, have been restored by severely pruning back the branches and thinning out the fruit-spurs. In all such operations as these it is indispensable to observe the rule already given, to do the cutting back in the winter or early in spring before the buds have swollen. If trees are too thrifty and do not bear, a check may be given, and many of the leaf-buds thus changed to fruit-buds by a continued pinching back during the summer. Fruit-buds may be produced artificially by checking the growth of vigorous trees, but such treatment, out of the ordinary course of nature, though sometimes useful,

should be cautiously applied, as the first crop gives still another check, and often materially injures the tree and the quality of its subsequent crops. When pruning Apple orchards in bearing, the chief requisites to keep steadily in view during the operation are: (1) To avoid cutting off large limbs except in case of absolute necessity; (2) to admit light equally into all parts of the tree by thinning out the branches; (3) to remove all crooked or bad growing limbs, and reserve a handsome, evenly distributed top; (4) to do the work gradually, or in successive years, com-

more or less pruning occasionally becomes necessary. The owner is often unable to attend in person to all the details, or to direct the labourer in the removal of each successive limb. To obviate this difficulty, attach a cylinder of chalk to a rod several feet in length, and, taking this rod in hand, make a distinct white chalk mark at the precise spot where the pruning saw is to cut through for the removal of the rejected branch. The workman follows with the saw and cuts off every branch at the right place, with greater accuracy than verbal directions could point out and without hesita-



Work in the Mushroom caves at Montrouge. (See p. 99.)

encing by preference at the top or centre, which will favour an open top.

Having had some experience with labourers and knowing their way if left to act as they please, I would specially commend the concluding paragraph in the chapter on pruning to the notice of owners of trees requiring thinning.

Trees which are kept in good shape while young will not require heavy pruning in after years. But orchards rarely receive this perfect management, and

tion or delay. The owner may mark out enough work with the chalk in an hour to occupy the labourer through the day, and the whole operation be performed with skill and accuracy. If the trees are tall the marking may be done on horseback.

Chapters on management of nurseries, thinning, gathering, keeping, marketing, insect pests and diseases follow in due course, and a considerable amount of space is devoted to descriptions, accompanied by numerous diagrams, of the best

varieties of fruits grown in America. Each kind is treated upon in detail and much valuable advice given. Wild and unclassified fruits, including Buffalo Berry (*Shepherdia argentea*), Elaeagnus, Huckleberries (*Gaylussacia* and *Vaccinium*), Medlars and Paw-Paw (*Asimina triloba*), have a few pages devoted to their history and cultural requirements, and the sub-tropical fruits mentioned at the outset come in for a good share of attention at the hands of Mr. E. H. Hart, of Federal Point, Florida. At the end of the book are to be found a descriptive list and index of fruits, followed by a glossary of terms and a general index. W. WOODLAND.

NOTES OF THE WEEK.

Prunus Davidiana.—I hope many of your readers are now enjoying the beauty of *Prunus Davidiana*. It is to-day (January 30) in full bloom, and the pure white of the fully-opened flowers, set off by the rich red of the buds, makes a picture not easily forgotten.—ARTHUR K. BULLEY, *West Kirby, Cheshire*.

Eranthemum nervosum.—This has really blue flowers, profusely borne in the winter season, and is a good companion to *E. pulchellum*, a better-known species with larger, broader leaves and fuller heads of its blue flowers. Both kinds are deserving of free culture for the sake of the colour, which is not abundant in midwinter.

Iris Danfordiæ.—I have sent by sample post a few specimens of *Iris Danfordiæ*, a specially selected strain. This *Iris* is earlier here than even the *Winter Aconite*, and its pure bright yellow blossoms make a brave show. Notwithstanding its rather small size, it is among the most brilliant of spring *Iris*es.—C. G. VAN TUBERGEN, JUN., *Zwanenburg*.

Hepaticas.—Some of the earliest blossoms have been expanded since January 20, and very beautiful they are in the occasional outbursts of sunshine that now and then prevail. Contrary to usual experiences, those flowering belong to the *H. triloba* or *Anemone Hepatica* group, and not to the larger-flowered *H. angulosa*, which is the first of its kind to flower in the open air.

Anemone blanda.—This beautiful *Windflower* has already opened its earliest flowers, and very pretty they are here and there as they peep out from the more sheltered spots. The plant is by no means in its best form yet, though with the present mild weather it is merely a question of a few days before the plant will be aglow with its lovely blue flowers.

Galanthus Ikarie.—This recently introduced and beautiful species promises to become a worthy companion to some of the older species. The broad, handsome foliage is a special attraction in this kind, and with the large handsome blossoms renders it conspicuous. It is growing and flowering freely at Kew in the upper parts of the rock garden, where it is planted, so to speak, broadcast.

Scilla bifolia.—The two-leaved *Squill* came into bloom for the first time this season on January 30. The first to flower is one from among a number of bulbs collected on the Bithynian Olympus at a high altitude. These have rather larger flowers than the ordinary *S. bifolia*, and are finer and earlier than the flowers from bulbs collected on the lower slopes of the same mountain.—S. ARNOTT, *Dumfries*.

Strobilanthes isophyllus.—When well grown this constitutes a very pretty plant for the greenhouse or conservatory, and when flowering freely its blossoms of the palest tone of mauve or lavender are very pleasing. It is, however, only occasionally such things are grown. The genus includes several very pretty species, and among them the above is one of the most attractive, and will be best known to some as *Goldsussia isophylla*.

Iris sssyrisca.—Of this I have had little experience, having received it from my bounteous friend, M. Max Leichtlin, only two years ago. It flowered last year (I was too busy with other things to be able to study it carefully, but it seems, as "J. C. L." says, to be, at all events, near *I. sindjarensis*) and is so far doing well also in the open, in spite of my friend Max Leichtlin's caution about its needing special treatment.—M. F., *Cambridge*.

Helleborus orientalis guttatus.—Quite recently in a large garden we noted the plants of this fine variety had suffered greatly as though by piercing

wind-frost. The margins of the leaves to almost one half were shrivelled and brown, while not far off other kinds were as happy as possible. With so large a portion of the whole singularly free this year so far from these defects of foliage, this variety stands out a conspicuous exception, and the plants being large and well established, the reason is not clear.

Merendera caucasica is a pretty bulbous plant, invariably among the earliest flowers of the year. The genus is a small one and allied to the *Colchicum* family, requiring very similar treatment. The plant is exceedingly dwarf and about equal to *Colchicum montanum* in this respect, the somewhat tubular-shaped blossoms of a rosy purple hue. A warm corner in the rock garden is best suited to it, where it may be planted rather thickly. The plant is now in flower in the long bulb border at Kew.

Violets from the Mendip Hills.—Having a few days' grace with our *Violets*, I have sent you a few bunches of different sorts, some grown in the open, as you will see marked, others in frames. I have enclosed foliage of each sort. We are very cold and damp here, just under the Mendip Hills. I may say that I have not been without *Vit*lets for the past eighteen months.—E. WOOLLEN, *The Gardens, Charlton House, Shepton Mallet*.

* * Very handsome bunches of many kinds, admirably grown, with large and healthy foliage.—ED.

The large form of the netted Iris (*I. reticulata major*).—How lovely is *Iris reticulata* now; but the flowers of *I. reticulata major*, of which we send you a boxful, are wonderfully fine and at this season invaluable. We hope they will arrive safely. This variety, besides being so much finer than the type, is also untouched by disease apparently and much more robust than the older form.—KELWAY AND SON, *Langport*.

* * The handsomest and most fragrant bunch of this we have ever seen. We wish it would thrive equally well in all soils as it does at Langport.—ED.

Narcissus minimus.—This little Trumpet *Daffodil* has been the first to come into bloom here, the first flower opening on January 24. The greater number of flowers were not, however, showing colour to day (January 31). Although I have not kept a complete record of the flowering of this *Daffodil*, I have a note, taken at the time, which shows that *N. minimus* was a little earlier in 1890.—S. ARNOTT, *Cursethorn, Dumfries, N.B.*

—It is delightful to again welcome this little gem, the blooming of which means with me the opening of the *Daffodil* season of 1898. The first flower opened here on January 29, about a week earlier than usual. *N. Ajax cyclamineus* is showing strongly for bloom naturalised in the grass, and so far all *Daffodils* look very promising.—ANDREW KINGSMILL, *The Holt, Harrow Weald*.

A note from Dublin.—Our old *Garrya* bush, which Mr. Nicholson says is the largest he has ever seen, was very fine this year and much admired. Some of its best catkins were 10 inches in length, doubtless owing to mild days and no frost. *Crocuses* are all aglow to-day—sun and shower—in the old garden, and I hear *Snowdrops* are good at Straffan and elsewhere. *Iris stylosa* is, and has been, very beautiful.—F. W. BRIDGE.

Agave Sartori.—This very distinct species, which for some time past has been in flower at Kew, has a straight trunk or stem for 3 feet or 4 feet, when it branches out into a thrice-divided head, the terminating rosettes being composed of flattish leaves, each 18 inches or 2 feet long. The inflorescence is drooping and of considerable length, the greenish-coloured flowers partaking of the character of that of *A. dasy-lirioides*, without the somewhat curious odour so noticeable in the flowers of the latter species.

Jasminum nudiflorum in Scotland.—I have never seen this *Jasmine* flowering so profusely as during the past month of January. The very mild weather which we have had in this part of Scotland (the southern portion of Midlothian), which lies at an elevation of over 600 feet above sea level, has brought it out in great profusion of flower and brilliancy of colour. Its thousands of bright yellow flowers have a cheering effect in the dull winter days. It is truly a plant worthy of a suitable place in every garden.—W. L. M.

Helleborus viridis purpurascens.—In this well-marked form there is a certain depth of

colour that not only renders it distinct, but attractive also. It is a tone of colour, moreover, in common with others of its class, that appears specially suited to the season of the year wherein it is seen. A nice group of it when well established is seen to the best advantage perhaps on the grass, and surrounded with the green blades is much more attractive than when in touch with the bare soil. A good deep bed of well-enriched soil should always be afforded these useful plants.

Narcissus incomparabilis Stella.—If lacking the purity of some, this is still an elegant kind for pots. In the warm greenhouse just now it is surprising how readily this and others near akin respond to the warmer temperature and expand perfectly in a few days. The stems are very graceful, and in the case of strong bulbs frequently reach 20 inches in length. Other kinds well suited to bear it company are *N. i. Beauty*, *N. i. Glow* and *N. i. Cynosure*; these with *Princess Mary* are all very beautiful in form and effective in colour.

Crocus biflorus Pestalozzæ.—Admirers of the early *Crocuses* may have their attention directed to this small but pretty variety of *Crocus biflorus*. It has quite a number of small white flowers with a yellow base. The blooms are produced with the leaves, and look exceedingly pretty rising from amid the grassy foliage. It came into flower about the middle of January. Boissier is the authority for the name, but Mr. George Maw considers it a sub-variety of *C. b. nubigenus* (Herbert). It comes from the shores of the Bosphorus.—S. ARNOTT, *Cursethorn, by Dumfries, N.B.*

Weather in N. Wales.—After a week of dull but dry weather, though daily threatening rain, it culminated last night in a heavy storm of wind and rain, and, accustomed as we are to heavy downpours, I think this beats our record. At least I have never measured such a quantity in so short a time: for from 10 o'clock last night until 9 o'clock this morning the measurement in the gauge was 3.85 inches, with the result that the rivers are overflowing their banks, submerging the whole valley, the hillsides streaked with foaming torrents, cascades and waterfalls galore, stokeholes flooded, and roads and walks terribly torn up.—JNO. ROBERTS, *Tan-y-bwlch, R.N.O., Jan. 30*.

Crocus Imperati longiflorus purpureus.—*Crocus Imperati* is very variable, and the multiplication of names gives rise to much trouble. It is, however, sometimes an advantage to have a clump of the same shade of colour and blooming at the same time. Those who desire this and wish to have a large-flowered, deep-coloured form of this most valuable *Crocus* may with all safety include the above cumbersome named variety, now in flower, in their next order. The flowers are very large and the colour a deep yet bright purple. Those who do not wish to have a mass all in flower at once, and who do not object to a little difference in the shades, will probably find as good flowers among imported bulbs or seedlings.—S. ARNOTT.

Garrya elliptica.—A fine specimen of this shrub is now in flower at The Hollies, St. John's, Woking, formerly the residence of the late Mr. George Jackman. This specimen is literally covered with catkins and presents a beautiful appearance. It is trained on a trellis fastened to the wall and is about 10 feet in height. Although there are several other specimens in the neighbourhood of Woking, it is the best I have yet seen. On a wall or trellis this shrub is seen to the best advantage, although it is equally as serviceable in the shrubbery border. A light sandy soil, such as we have at Woking, seems to suit it remarkably well, although it is by no means essential, as I have seen plants flower well in very heavy soils.—E. S., *Woking*.

Flowers in Lancashire.—Some of your readers may perhaps be interested to know the flowers that in this mild winter are in bloom out of doors in the extreme north of Lancashire, on the borders of Westmoreland. *Roses*: Old

Crimson China in bloom, William A. Richardson in bud; *Rhododendron arboreum*, R. Nobleanum, *Anemone Hepatica*, *A. angulosa*, Christmas Roses, Lenten Roses, *Crocus Aucheri*, *C. Sieberi*, *C. Imperati* and *C. susianus*, *Omphalodes verna*, *Saxifraga Burseriana*, *Scilla sibirica*, *Chionodoxa Lucilie*, Primroses and Polyanthus in fair quantity, *Primula denticulata alba* type, *Narcissus minimus*, and *Doronicum Clusii*. In addition, *Narcissus pallidus precox* is showing flower and *N. Polyanthus Paper White* has burst its sheaths, though the flowers want a day's sun to open them.—A. M.

Kniphofia primulina.—Several examples of this new yellow-flowered *Kniphofia* are now in flower in the temperate house at Kew. Either this is an exception to other *Kniphofias* in its habit of flowering in midwinter, or the genus as a whole might be made to serve a useful purpose for the decoration of the conservatory in winter. In habit *K. primulina* resembles *K. aloides*, having a large tuft of keeled green leaves each 3 feet long and an inch wide, and erect scapes 3 feet high, bearing heads 6 inches long of numerous canary-yellow flowers each $\frac{1}{2}$ inches long, and peculiar in being constricted in the lower half. The plant was introduced from Natal by Herr Max Leichtlin, to whom Kew is indebted for it. Other species with yellow flowers from the same region are *K. natalensis* and *K. longicollis*, the latter being similar to if not identical with *K. primulina*.

Pitcairnia corallina.—A large specimen of this noble Bromeliad is now bearing three strong spikes of rich coral-red flowers in the Nepenthes house at Kew. *Pitcairnia*s generally have grassy leaves and long, slender scapes of elegant tubular flowers, but *P. corallina* has broad leaves, and may be likened to a *Cureuligo*, except that the blade is flat and covered with a white scurf on the lower side. The inflorescence is also remarkable in being horizontal and comparatively short and thick, whilst the flowers are by far the largest in the genus, being each 2 inches long and half an inch in diameter. They last about a month, and are most attractive in colour. This is an excellent plant for a large stove, and it is perfectly happy when planted on a raised bed, the finest example ever grown perhaps being treated in this way in the once famous garden at Pendell Court.

Early-blooming Rhododendrons.—I feel I must send you a few trusses of these lovely Rhododendrons before they are over. The flowers open pure white indoors. They have been exceptionally fine this year owing to the open mild weather and the absence of frost. This one variety alone has afforded plenty of material for cutting for church and other decorations through November, December and January—a long season for one kind—and you can imagine that large bushes covered with fine trusses of blooms and buds form striking and cheering objects through the dull winter season. It is to be regretted that this class of Rhododendron is so much neglected and so sparsely planted, for although frost checks and sometimes destroys, some of the blooms, on its cessation, more quickly expand, and in spite of these occasional drawbacks they form more effective objects and are more useful over a prolonged dull season than some things on which far more care is lavished. The trusses sent represent the smallest.—J. R., North Wales.

Iris sindjarensis.—"J. C. L." has made the mistake, which we all are apt to make, of taking too much care. *I. sindjarensis* is perfectly hardy if the winter is not too mild. By this paradox I mean that if it be not lured into premature growth by a too green Christmas, but be kept back by seasonable midwinter frost, it will thrive in a following genial spring; but if a bitter spring follow a frostless winter, it gets much damaged and things may go hard with it. I have had it in the open since 1888, in which year my friend M. Max Leichtlin gave it me; it has thriven, has increased, has flowered every year, I think, sometime freely, sometimes rather scantily, and has shown that it is happy by going well to

seed. During that period it has gone through some severe frosts, and obviously, were it not for its tendency to start early, it would be as hardy as *I. caucasica*.—M. F., Cambridge.

—In reply to Mr. J. C. Ley, I may say that there is no difficulty here in flowering *Iris sindjarensis* in the open. At first I did badly with it. I put it in the ordinary border (very sandy in my case). Here it multiplied amazingly, but only gave me leaves each spring. I thought I would treat this Mesopotamian *Iris* on the same lines as the Cushion *Irises*; therefore when the foliage began to die down I lifted the bulbs and laid them out in the sun to grill. I turned them occasionally to ensure a good all-round cooking, then stored them away till autumn, and finally replanted. The result was that every bulb flowered profusely, making thereby a most delightful effect of delicate colouring. Last year I gave *Iris assyriaca* a similar baking, and will in due time report as to its behaviour.—ARTHUR K. BULLEY, West Kirby, Cheshire.

PUBLIC GARDENS.

New park for Islington.—The Vestry of the parish of Islington has voted £10,500 for the purpose of laying out the recreation grounds which were recently purchased in the Cattle Market area of West Islington for the sum of £8000.

Ham Common and Lammas lands.—At a largely attended meeting of ratepayers and inhabitants of Ham, near Kingston, on Monday evening, called to consider the schemes proposed by the Board of Agriculture in reference to the future control of Ham Common and the extensive Lammas lands of the parish, it was resolved to request the Urban District Council to apply to the Board to be constituted the managing body, and to urge the council to use every endeavour to persuade the trustees of the Earl of Dysart to transfer to them the manorial rights in the common.

The Commons Preservation Society.—Mr. G. Shaw Lefevre presided over a meeting of the executive committee of the Commons Preservation Society, held at 1, Great College Street, Westminster. Mr. Percival Birkett, the hon. solicitor to the society, presented a report upon the provisions of private Bills affecting commons, open spaces, rights of way and roadside waste. It appeared that notice has been given of the proposed introduction of fifty-four private Bills, under which powers are sought to acquire in the aggregate nearly 1700 acres of common and other open land, and to extinguish a large number of rights of way in different parts of the country. It was determined to make further inquiries concerning a number of the Bills, and should the promoters be unwilling to agree to grant favourable terms to the public, the society to oppose the Bills in Parliament.

Public Gardens Association.—A meeting of the Metropolitan Public Gardens Association was held recently, by permission of the Earl of Meath, at 83, Lancaster Gate, Sir W. Vincent, vice-chairman, in the first instance, and subsequently Mr. Bernard Gibson, presiding. The secretary (Mr. Basil Holmes) announced the death of Mr. Ernest Hart, one of the vice-chairmen, and, on the proposition of the chairman, it was agreed that a letter expressing deep regret at Mr. Hart's death should be sent to his widow. It was stated that the subscriptions, donations, &c., to the society during the past year were £2044, and the special receipts £3141, while the special disbursements were £3925, and the general disbursements £656. The secretary said that a short time before his death Mr. Ernest Hart initiated a scheme for the acquisition of part of the Golders' Hill Estate in order that it might be added to Hampstead Heath. The estate was vested in the trustees of the late Sir Spencer

Wells, and they had offered to sell 20 acres for the purpose at £1250 an acre. It had been suggested that Mr. Ernest Hart's friends in the medical world might be inclined to raise subscriptions to assist in carrying out the scheme as a memorial to his memory, and the council of the British Medical Association had been approached on the subject. No doubt if a reasonable amount could be obtained in subscriptions the Hampstead Vestry and the London County Council might be induced to contribute towards the cost of the purchase. With reference to the vacant piece of land in East Street, Walworth, which had been purchased partly with funds provided by the association, and was being laid out as a recreation ground, the secretary said the County Council had parted with a strip of the land to the local vestry. The association had protested as a matter of principle against any of the land being surrendered, it being evident that if the County Council had a right to part with any of the land to the vestry they had an equal right to part with it to a builder. In reply to a letter from the secretary, the County Council wrote that the surrender of the piece of land referred to had been made for the purpose of improving the recreation ground and making the exit less dangerous for children. The opinion was expressed that the throwing of the land into the footpath would improve the street, but would not improve the entrance to the recreation ground, and it was agreed that the secretary should enter into further communications on the subject. It was announced that a firm which had purchased the disused burial ground called the Cross Bones, Southwark, had announced its intention of building on it, though Vice-Chancellor Bacon decided in 1884 that it would be illegal to build there. It was agreed that the local authority should be asked to take action in the matter, and that, failing their doing so, the association should do what it could to prevent building operations. Several other matters having been dealt with, the meeting terminated.

SOCIETIES AND EXHIBITIONS.

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, February 8, in the Drill Hall, James Street, Westminster, 1 to 4 p.m. At 3 o'clock the annual general meeting of the society will be held in the Lindley Library, 117, Victoria Street, S.W.

The Royal Gardeners' Orphan Fund.—A meeting of the executive committee was held on the 28th ult. at the Horticultural Club, when the following special contributions were announced:—Scottish Horticultural Association, £50; the Royal Caledonian Horticultural Society, £26 5s.; Cheshertian Gardeners' Association, £5 18s. 4d.; Mrs. Wills, Onslow Crescent, £5 5s.; Messrs. W. Thomson & Sons, Clovenfords, box, £4 5s. 4d.; Mr. J. H. Vallance, Bristol, £4; the Leeds Paxton Society, £2 15s.; Mr. H. Herbst, Kew Road, Richmond, £2 2s.; Mr. J. Smith, £2; Mr. George Fry, Lewisham, box, £1 3s. 5d.; Messrs. J. Veitch & Sons, box, £1 2s. 8d.; Bournemouth Gardeners' Association, box, £1 1s.; Mr. George Nicholson, Kew, box, £1; Miss Forrest, Arderton's Hotel, box, £1; Mr. T. Turner, Royal Horticultural Society's Gardens, Chiswick, box, 15s. 8d.; Mr. J. Selway, Betteshanger, 17s. 4d.; Mr. H. Cannell, box, 11s.; Mr. J. Miller, Ruxley Lodge, Esber, 10s.; Young Men at Ruxley Lodge Gardens, 10s.; Mr. A. D. Christie, Ragley Gardens, Alcester, box, 7s. 6d.; the Young Men at Fairlawn, Tonbridge, 7s. 6d.; Chislehurst Gardeners' Society, 6s. The secretary submitted a draft annual report and financial statement, which were approved for presentation to the annual general meeting on the 18th inst. This being the last meeting of the committee previous to the annual general meeting, a cordial vote of thanks was passed to the chairman, Mr. William Marshall.

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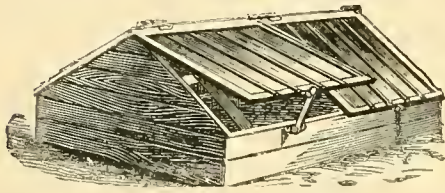
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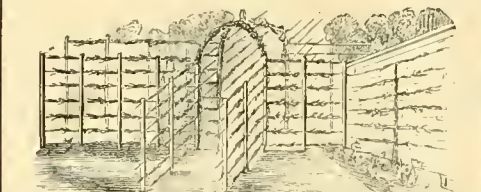


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THE GARDEN.

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ROSE GARDEN.

THE DOUBLE BUDDING OR GRAFTING OF ROSES.

I was much interested in "P.'s" note on this subject (p. 70), and possibly it will be long before we learn our last lessons on this subject, either among Roses, flowering shrubs or fruit trees. It is only reasonable to assume that mixed blood in the stocks of Roses might prove equally effective in increasing the numbers, enlarging the size, heightening the colour, improving the form and intensifying the odour of our Roses.

To prevent disappointment, however, it is needful to bear in mind a broad distinction between Roses and fruit trees. Sterility is not a common fault among Roses, and where it does exist it is mostly a fault of culture or manipulation rather than of any constitutional trend towards a paucity of buds or blossoms. "P." seems to admit this in an early sentence in his interesting note, which reads thus: "Cloth of Gold is probably the most difficult Rose the Rose grower has to contend with, not so much as regards its growth as the paucity of blossoms it yields."

"P." then proceeds to show that the cause of the paucity of blossoms may mostly be found in the unripe wood of the Cloth of Gold and the severe and unseasonable pruning to which it is so often subjected. I also am disposed to agree with "P." that the double budding of the Cloth of Gold on the Cheshunt Hybrid, in so far as that heightened the maturity of the wood of the Cloth of Gold, formed a factor in giving the grand display. But a far more powerful factor was the lifting of the budded Rose in February, its growth under glass through the summer producing abundance of ripened shoots in September. The whole of the latter were left intact, as no pruning of the Cloth of Gold took place that year. "No pruning whatever was done" are "P.'s" emphatic words, and his comment on the results of non-

pruning is to the effect, "Never have I seen such a grand crop of blossom from a three-year-old plant as I obtained that year." Most of the readers of THE GARDEN will heartily sympathise with your correspondent in his success, and will agree with him that the Cloth of Gold at its best is well worth the special efforts he used to reap such a golden harvest.

"P.'s" second example is, however, more within reach of general readers, or more to the point of proving the potency of double or multiple grafting upon the freedom of flowering of Roses. Many years since, in my attempts to grow Cloth of Gold and deliver Maréchal Niel from the grip of gout or strangling warts on the stem, I found three stocks of the highest service. These were the White and Yellow Banksian and Gloire de Dijon Roses. Many others were tried—in fact, most of the free-growing Teas, Perpetuals, Noisettes, Hybrid Chinas, and climbing Roses. Some of these were only single-grafted, as the stocks were on their own roots; but the majority were on the Dog Rose, worked with the Banksian, Teas, &c., and the latter worked again with Cloth of Gold or Maréchal Niel. Roses on walls, over arches, forming pyramids, and running up trees were also worked at different heights and in various positions. The results varied widely, but in the main they pointed in the same direction as "P.'s," in favour of the Banksian Rose as the best stock for the Cloth of Gold and the Maréchal Niel. "P.'s" plan of allowing part of the stock of the Yellow Banksian to bloom with the Cloth of Gold is effective artistically, as well as on the ground of affording some additional protection to the more tender Rose. In "P.'s" case the south-west wall proved a fostering influence in favour of perfect maturity of wood and consequent free blooming; but the stock itself seems to favour free-blossoming, greater hardiness, and immunity from disease, apart from such adventitious advantages as warm walls, fostering sites, &c. For example, quantities of Maréchal Niel, alike as dwarfs or standards of different heights, have been grown

on Banksians with few or no warts, in better health, and with more bloom than on the Dog Rose or other stocks. The second best stock for either of these fine golden Roses was the Gloire de Dijon.

While admitting all this, and valuing double grafting highly also as a ready means of raising Cloth of Gold, Maréchal Niel, Fortune's Yellow, William Allen Richardson, &c., to more telling coins of vantage on high houses, walls, arches, or tall trees, &c., yet methods of culture have far more to do with their longevity and blossoming than methods of propagation. At first sight no two Roses could seem more incongruously matched than Cloth of Gold and the Banksian. Leaves, shoots, blooms could hardly be more unlike, and yet their vital wants and cultural needs are identically the same. These are, that each Rose should be allowed to make and mature its wood one year, and that this ripe wood should be left intact, that is, unpruned, to bloom the next. All else is matter of detail. This is the vital point, and it is on this main principle that two such different Roses can be single or double-grafted, or grown singly or abreast, so successfully. On the other hand, the knife has wrecked more golden and other choice Roses than our climate. Thousands and tens of thousands of charming Banksian Rose buds were cut or clipped off every year before cultivators learned that the time to prune Banksian Roses was before or about midsummer, the moment the flowers faded. After this every tiny shoot should be left intact, and if properly ripened will bloom from base to crown. Cloth of Gold, Maréchal Niel and many other choice Roses grown on similar lines will yield equally rich harvests, barring the very rare accidents of zero winters or springs. D. T. F.

Roses in cold pits.—Now would be a very suitable time to introduce some of the best H.P.'s and H.T.'s into cold pits to produce blossoms in May and early June. All gardeners know the great value of Roses of good quality in May and

early June. Plants potted in the autumn are best for the purpose and will give flowers quite up to exhibition size. These plants should have been plunged outdoors up to the present time; if so, their roots will now be active. Prune the plants at once, cutting back to good plump dormant eyes, and plunge the pots in a cold pit with a good exposure to the sun, but sheltered from north and east. Keep off the lights night and day for the present, unless frosts threaten. The flowers will come much finer if the plants are brought on very steadily. When the new growths are each about 1 inch in length, give the plants a good soaking in a pail of water, afterwards using great care when watering, for on this hinges success or failure. The shelter afforded by the pit will considerably hasten the flowering of these plants. If three to five good growths crowned with blossoms are obtained from a plant in an 8-inch pot, the plants may be considered to have received good attention and will certainly come in very useful. After flowering, plunge the plants outdoors, and, if carefully tended, these same plants will give a fine lot of flowers that will come in just after the first flush of the outdoor Roses.

CHRYSANTHEMUMS.

TIMING CHRYSANTHEMUMS.

Will you kindly give me a little help in the way of timing, pinching, and taking the buds of Chrysanthemums for grouping? I have had some cuttings of the leading varieties, and my employer would like to exhibit, if possible, a group on November 4 at our show. I do not quite understand the meaning of first crown, second crown, and terminals.—IGNORAMUS.

* * * One of the chief points in connection with Chrysanthemums for grouping is to obtain plants of varying heights from a foot or so above ground when in bloom, up to 5 feet. They should have well-developed foliage, and be clothed with such down to the pot's rim, as bare stems and sticks not hidden are serious defects. With such material bearing clear, well-coloured flowers one may arrange an effective display. If the plants are grown naturally, as recommended for the production of large exhibition blooms, many, in fact most, varieties are too tall; therefore the system known as cutting back should be followed. Cuttings may be rooted in the usual way, duly potted singly into small pots, and be grown with one stem through the winter and early spring. They should receive a shift into 5-inch and 6-inch pots, the strongest-growing ones to occupy the latter. This may be done during March and April. Properly protect the plants from spring frosts, but give them ample room up to the end of May. By this time they will be in the open and should have sturdy stems, some, perhaps, 2 feet in height. The pots will be well filled with roots and the plants in a fit condition to be stopped. Cut each stem back into the harder portion, and leave from 6 inches to 9 inches only above the pot. After this operation the soil should be allowed to get on the dry side. It will be well, therefore, to return the plants to the frames, so that glass may be put over them in case of excessive rainfall. The leaves that remain may be sprinkled each day, this to assist the stems to push out new shoots freely. When the latter are about 3 inches long, again place the plants in open quarters and they will in a few days be ready for the final shift. Pots 9 inches in diameter are used. Do not be in a hurry to thin the shoots resulting from cutting back—some may go blind at the tips—but finally select three that appear to develop with equal strength. Tie these securely, as they are apt to snap from the base with the slightest touch. Respecting

THE DIFFERENT BUDS,

crown buds are those which form in summer and early autumn, and are always accompanied by a cluster of little growths around them. These buds

cause the stems of the plant to become bushy if left alone. But to gain time, that is to say, to allow a long period of time for the bloom-buds to develop, we retain them. By this is meant that the cluster of growths is removed, so that the strength of the stem may go towards building up a big flower. In the case of some sorts these first crown buds come too early, and if they be retained the blooms would either open before they are wanted or come ill-formed and badly coloured. Instead, then, of taking away the little growths mentioned, we remove the crown bud on each stem, also all excepting one of the growths. Those left, grow on, and in time perfect other buds. Now, in a great many instances the buds that come will be terminal—the last of the year—and they differ in this way. The cluster this time will be all flower-buds instead of one flower-bud and growth shoots. If the last-named appearance be noted the bud is a second crown. But the buds which immediately concern "Ignoramus" for grouping are crown buds, and it will be safe to state that in the case of cut-back plants the earliest that come may generally be retained. If, however, such appear before the last week of July do not keep them, but let other shoots run up to perfect buds later. It may be well to point out as departing somewhat from the foregoing items that just a few notable kinds require exceptional treatment. If, for instance, plants of the variety Mrs. H. Weeks were cut back in May flower-buds would not appear before November. Thus there would be no time for the same to develop into large blossoms. The best plan in the culture of this sort, as well as John Neville, Mrs. F. Jameson, The Queen, Mrs. John Shrimpton, and Sunstone, all Japanese varieties, is to strike the cuttings during February, let them grow one stem only and produce but a single bloom; or if rooted early, pinch out the tips of the shoots by the beginning of March, selecting three stems to grow on. This plan of late striking may be adopted with advantage generally where grouping is done. By this means it is possible to obtain capital material to finish off the groups in front, so that pots and the like become hidden. The tops when the plants are cut down in May need not be destroyed. If rooted they will form nice little plants in small pots and bring the bloom of the group almost down to the ground.—H. S.

TABLE DECORATION.

THE frequent failure to attain artistic effect in the "table-decoration" classes at flower shows is apparently due to a variety of causes. Perhaps the most common is the endeavour to do too much in the limited space afforded. Heavy candelabra, bowls of gold fish, mirrors representing sheets of water, on which mimic swans repose, and massive epergnes, though eminently suitable for a civic banquet, are altogether out of place on a small table. Then, again, as to the floral matter used, some competitors appear to think that, as in classes for groups of Chrysanthemums, "quality of bloom" is to be "the primary consideration," and employ mammoth flowers. Such blossoms, when cut with long stems and arranged simply in tall vases, as at the National Chrysanthemum Society's November shows, would doubtless be well adapted for the decoration of large tables, but the same flowers, crowded closely into an epergne on a little table, are the reverse of ornamental and produce a heavy effect that the most painstaking attention to minor details is powerless to efface. The use of too great a quantity of flowers in the centre-piece, or for strewing the table, too many or too thick trails of Smilax for linking together the vases, are all antagonistic to the light and graceful effect that should be aimed at, while dozens of little flower-glasses on a small table, a fault of constant occurrence, effectually dispel the sense of restful beauty

which should rightly be suggested. Many competitors seem to come into the show-room with little or no idea of the decorative design which they are about to work out, but such conceptions are rarely satisfactorily evolved on the spur of the moment. Not having thought out a plan beforehand, the operator not infrequently finds it difficult to know where to stop, and keeps adding, until what might have been an artistic creation is hopelessly burdened by super-abundant material. But if failure oftentimes arises from inability to appreciate form at its true value, it as frequently happens that colour proves the stumbling-block that causes the competitor's discomfiture. In table decoration too little care seems to be taken to arrange the colour schemes in artistic contrasts and harmonies. Not many months since I saw at a flower show a table which, as far as form and colour of the floral design were concerned, was distinctly meritorious. The flowers consisted of *Gloriosa superba* and white *Bouvardia*, while accessories in the shape of Fern fronds and other graceful foliage were used with discretion. The tawny orange of the *Gloriosa* contrasted well with the white of the *Bouvardia* and of the cloth, but the effect was entirely marred by a pedestal of vivid blue on which the centre-piece stood, and by ribbons of the same colour which adorned two white china ornaments. On another table a rather daring arrangement of *Begonia* blossoms and autumn foliage was displayed, a colour-harmony that passed, by almost imperceptible gradations, from scarlet, through ruddy orange, gold and chrome to palest sulphur. Unfortunately, some flowers of the pink *Cosmos* were utilised in this colour-scheme, and the pink, being of a cold tint that held a suggestion of blue, destroyed the harmony and created a discord. Few decorative schemes are so effective as the simple contrast of white with some other colour, given, of course, an adequate setting of green; not necessarily a vivid contrast, though this, as in the association of *Euphorbia jacquiniæflora* and the Paper-white *Narcissus*, is singularly striking. Harmonies composed of variations of the same or allied colours are also oftentimes very attractive. The presence of more than two decided colours, besides white (which, strictly speaking, is not a colour) and green, both of which are inevitably present in ninety-nine out of a hundred cases, almost invariably creates a bizarre effect. The hundredth case, which is necessarily excluded from competitive decoration, occurs where the polished mahogany, shining like a mirror, is left uncovered to reflect the silver and crystal. On such a table I have seen an arrangement of Viscountess Folkestone Roses laid, the glossy darkness of the wood setting off the shell-pink petals of the flowers to perfection. Many combinations that appear particularly charming in the daytime lose much of their effectiveness when viewed by artificial light. Some blues, like that of *Salvia patens*, look almost purple-black at night, whilst other flowers, such as ruby-tinted *Cyclamens*, gain an additional brilliance from the lamplight. It may, however, be reasonably urged that these considerations must be disregarded in judging decorative effect at flower shows, where the prizes are awarded for the appearance of the tables and other floral arrangements at the time of the judges' inspection in the forenoon.

In assessing merit in these and kindred competitions, first impressions are generally correct. There is no question as to the individual merit of the flowers employed, general effect being the sole consideration, and the verdict is in danger of being obscured by too close an examination into detail. S. W. F.

ORCHIDS.

RENANTHERAS.

The genus *Renanthera* is not a large one numerically, and botanists have reduced the number considerably by removing some of the species to *Vanda* or *Arachnanthe*. Those mentioned below are not all true *Renantheras*, but they are probably better known as such. For the most part they are scrambling plants with the foliage arranged in a distichous manner along the stems, and though not always as free-flowering as may be wished, the spikes when they do appear are very showy. Most of the noteworthy specimens in this country are grown in large conservatories or Palm houses, and these structures seem to afford just the kind of atmosphere that the plants like. In fact,

atmosphere, and during winter are quite safe in a house that does not fall below 55°. If I were taking up the culture of *Renantheras* and had a suitable house for them, I should obtain the strongest plants I could and place them in a large tub or box with a wooden pole or piece of Tree Fern stem of good height for the young tiers of roots to take to as they are produced. Birch has been recommended as more suitable than any other wood for them, but this was only on account of a fine and often-mentioned plant doing well upon it, and without a doubt any fairly close-grained, long-lasting wood would answer the purpose equally well. Where the plants are tied on in the first place to the pole, a little Moss should be placed about them to encourage the roots to extend; afterwards, if kept moist, they attach themselves readily enough to the wood. The

properly balanced temperature with a suitable root-hold they are easily propagated. A pretty way of growing *R. coccinea* is to cut it into lengths and tie them on to the stems of a growing Tree Fern, and if the Fern is in a suitable temperature, flowers will soon be produced. An amateur friend of mine has wired some Moss to the tie rods of his greenhouse, and on them the *Vanilla* is growing freely, but the *Renanthera* so far is not satisfactory. Root moisture must always be maintained, for though the plants take a season of rest, they like a little moisture at the roots all the same, and these not being embedded in peat or Moss can hardly be kept too wet during summer. The oldest and best known kind is

RENANTHERA COCCINEA.—In this the flower-spike occurs towards the top of the growth, and the manner of its issuing from the stem and not



Renanthera Storiei carrying eighty-three flowers on the spike. From a photograph sent by Mr. A. Herrington, Madison, New Jersey, U.S.A.

there are many of the *Vandas* and similar Orchids that only need this class of house to make them satisfactory, while in the close, narrow houses often used for them they never thrive for any length of time or attain their full proportions. It is the same with *Renantheras*. When they can grow at will among large Palms, their roots taking hold of the stems or of poles provided for their accommodation, they have a natural appearance and thrive well. I have seen *Renantheras* tried on back walls and similar places much as the *Vanilla* is treated, but they are not so close growing, nor are the roots so easily accommodated as those of the *Vanilla*. The house where *Renantheras* are grown, if well ventilated and kept nicely moist, need not be kept at any great heat; in fact *Renantheras* are often—like *Vandas*—kept too hot. They cannot stand a stuffy, close

poles have a much more natural appearance when the bark is left on and the roots like the roughness better. Where small bits are put on charred poles stuck in the middle of a pot in the ordinary Orchid house they need as much shade as any other kind, because being so close to the glass the foliage is apt to burn, but in a large house with their heads yards away from the glass it is quite different, and the afternoon sun, at least, should always shine full upon them after closing time. The plants should not be left to get bare and untidy, for they may, as a matter of fact, be cut into as many pieces as a *Vanda* teres, and any length of stem with a few roots will eventually make a flowering plant. I do not say they are as easily grown or as quickly flowered as the *Vanda*; indeed, in perhaps the majority of collections they flower but seldom; still in a

from the leaf axil is well shown in the accompanying cut of *R. Storiei*. The spikes are heavily branched, from fifty to 150 flowers being on record as having been produced on one, so that the effect of a few spikes may be imagined when one considers that each flower is upwards of 3 inches across. The dorsal sepal and petals are narrow, the lower sepals broader, deep red, the upper segments much spotted with yellow. The usual showy lip is small and inconspicuous in *Renantheras*, though very brightly coloured in this instance. *R. coccinea* is a native of Cochin China, and although introduced very early in the century, did not flower until 1827.

R. Lowi is a magnificent Orchid where there is room for its full development, and one that requires more heat than *R. coccinea*. A peculiarity of the plant is that it produces on the lower part of the raceme large flowers of quite a different aspect to those further up. The former are yel-

low with small spots, while in the latter the ground colour is almost hidden by reddish brown blotches. It is not uncommon for this species to show flower-spikes 10 feet long. It is one of the discoveries of the late Sir Hugh Low, who found it in Borneo, and collectors who have found it since say that in most cases it grows quite close to water, overhanging the streams in many instances. This points to the fact of abundant moisture being essential to its well-being.

R. STORIEI, the species illustrated, is a fine showy plant, unfortunately difficult to grow, but not as a rule taking up so much room as *R. coccinea*. It is a native of the Philippines, and has been grown with the *Phalenopsis* in baskets of Sphagnum Moss and charcoal. The flower-spikes, as will be seen, is large, containing a great number of flowers, these being each about 2½ inches in their vertical diameter. The upper segments are bright orange-yellow, the lower broader sepals being bright velvety crimson. Doubtless this kind would grow as large as the old species, but is not, I think, often seen in this condition under cultivation. It was introduced in 1880. A less-known kind is the rare and beautiful

R. IMSCHOOTIANA, which was sent to Kew in 1891 by M. van Imschoot, and of which Mr. E. H. Woodall exhibited a plant before the Royal Horticultural Society in June, 1895. This is related to the last named kind.

R. MATUTINA is an old and showy kind discovered in Java in 1824, and subsequently introduced by Messrs. Veitch, of Chelsea. H. R.

Oncidium splendidum.—I noticed a nice plant of this with two flower-spikes, each carrying eighteen flowers, in one of the large Cattleya houses at Bush Hill. The flowers are bright and effective just now when grown in pure air. *O. splendidum* first flowered in this country in 1870, and comes from Mexico, whence it was imported in considerable quantity a few years since. A long season of growth with all available light and air, a rather short but decided resting season, are the chief requisites for its culture. The plants may be grown in well-drained pots and allowed a rough, open compost.—H. R.

Odontoglossum crispum.—A large number of plants of this popular species are in flower at Bush Hill, and amongst them, of course, the usual variations. One peculiar form I noticed particularly. The flowers were of medium size, each sepal having a yellowish brown bar running the entire length, the petals having a similar one of brighter yellow. One plant bore finely spotted flowers in the way of *O. Horsmani*, and others could be named of exceptional merit. Scores of developing spikes will carry on the display here for months, and doubtless as the season advances more of the finer spotted kinds will appear.—H.

Lycaste Skinneri mirabilis.—In this variety, a plant of which is flowering just now at Ickworth Park, Bury St. Edmunds, the blossoms are very large and showy. The sepals, which stand well out, are white, just flushed with the palest rose, the petals rather deeper in colour, while the large showy lip has spots of the deepest crimson on a rosy ground colour. It is such fine varieties that make a plant worth growing, and such a cheap species as *L. Skinneri* may well be purchased in quantity on the chance of securing such. Few Orchids are so easily grown, so free-flowering, or so long-lasting as this, one of the finest species ever introduced.

Dendrobium Rubens.—I have recently noticed this fine hybrid in flower. The plant is possessed of a very robust habit and good constitution, and blossoms as freely as *D. nobile*, to which it is related. Its parents are *D. nobile nobilius* and *D. splendissimum grandiflorum*, and it has remarkably fine outer segments, as highly coloured as in the former fine kind. The lip, too, is not so much like that of *D. Ainsworthi* as a variety of *nobile*, the blotch not being feathered or veined, or only slightly. The blossoms are each 4 inches across in the best forms, such as *Rubens*

grandiflorum, which has petals at least an inch across, and is one of the finest kinds in existence. *D. Rubens* was raised at Cheltenham in Mr. Cypher's nursery, and is as easily grown as any in the genus.—H.

—This is a secondary hybrid, the result of a cross between *D. splendissimum grandiflorum* and *D. nobile nobilius*, and, as might be expected, is a great improvement both in size and colour on the ordinary *D. splendissimum* crosses. The sepals and petals, very large and fine in substance, are white, heavily suffused with rose, becoming darker at the apex. The lip also is larger and more open, with a deep rose tip in front of the broad band of white which surrounds the large maroon disc. It is a most distinct and desirable form. A plant with four bulbs is now in flower in the collection of Mr. T. McMeekin, Falkland Park, South Norwood.—H. J. C.

GYMBIDIUM EBURNEUM.

This is without doubt one of the most beautiful of the *Cymbidiums*, and a fine specimen carrying a score of its large spikes of pure white blossoms is very showy. The flowers are very chaste and fragrant, the sepals and petals pure ivory-white, the lip having a faint yellow centre and often a few purple spots in front. In the culture of this pretty plant a good deal depends upon keeping the roots in a healthy state—in fact, if this is done the plants are nearly sure to be satisfactory in other ways. The best specimen I have ever seen was one about 3 feet across, with every leaf perfect and each lead carrying one or two spikes of flowers. This was growing in a mixed house of Orchids, alongside *Cattleyas*, evergreen *Dendrobiums*, *Miltonia vexillaria*, and many other popular kinds, in an amateur's collection near Salisbury. This shows that the plant is one that will accommodate itself to circumstances, and I have also noted it doing well in company with *C. Lowianum* and *C. giganteum* in quite a cool house. But freedom at the roots, plenty of atmospheric moisture, and protection from the rays of the sun are necessary wherever it is grown. *C. eburneum* should be given fairly large pots if the plants are healthy and a good percentage of loam in the compost. Chopped Sphagnum, peat fibre, and loam may, in fact, be mixed in about equal proportions for medium-sized plants, and the larger and stronger the plant, the more loam may be added. Plenty of rough crocks and charcoal is also necessary to keep the material open, and the drainage should have especial attention, covering the crocks with a little rough Moss to prevent the earthy particles of the peat from swilling down among them. The habit of the plant is peculiar; at first sight it appears like a *Vanda* or some similar non-pseudobulbous kind, and, indeed, when the plants are very young there is no perceptible bulb, but as they get older the stems thicken considerably, though never losing their stem-like appearance. The plants then must not be potted below the crown of roots, for in this way they differ from the kind with which I have compared them. The line of compost may rise from the edge of the pot, and all that is necessary in fixing may be done with the dibber, unless, of course, the plants are badly out of health and have lost most of their roots, in which case staking and tying would have to be resorted to. In bright weather when the plants are full of growth the syringe may be freely used about the foliage, a good bath of clean tepid water being the most effectual way of keeping down insects. The atmospheric and root moisture may be kept well up as long as the plants are growing, but while at rest considerably less is required. But at no time should the compost be really dry for any

length of time, as this is sure to lead to puny spikes and flowers of little substance. When in flower the plants may be taken to a cool and shady house, not so moist on the one hand as to damage the flowers, or so dry on the other that the plant suffers, and although in such a structure the blossoms last for many weeks in good condition, I have never found any harm done to the plants by leaving them on—provided always they were strong and healthy. The small scale so frequently seen on *C. Lowianum* and its allies sometimes attacks *C. eburneum*, and needs a lot of patience to get rid of when once it takes a good hold. Soft water and the free use of the sponge will clear it in time, and this is much safer than using insecticides, no matter how good and harmless the maker may say they are.

With regard to feeding these plants with manure-water it is not often necessary, and very fine results may be obtained without its use. Experienced cultivators often feed with good results both at the roots and in the atmosphere, but to those less acquainted with the use of stimulants of this nature they are dangerous allies. A few cans full of soot-water used about under the stages at shutting-up time can do no harm, and by generating a little ammonia in the atmosphere may do good, but beyond this I would not advise beginners in Orchid culture to go. *C. eburneum* first flowered in this country in 1847 with the Messrs. Loddiges, of Hackney, but it had been discovered in India some years previously. For many years it was a rare kind, but subsequent importations have made it much more plentiful, and its undoubted beauty has made it very popular. H. R.

Dendrobium endocharis.—This is one of the most charming hybrids of the many raised from *D. aureum*, and, like this fine old species, has a delightful fragrance. It was raised by Mr. J. Seden at Messrs. Veitch's nursery, and is the result of crossing the above-named kind with *D. japonicum*. The habit is fairly strong, and the blossoms each about 3 inches wide, the outer segments broad and nearly white. The lip has a feathered, deep crimson-purple blotch at the base, and in front it is brought to a wavy triangular shape with recurved point.

Cypripedium leucorrhodum.—This is one of the most beautiful hybrids among those of the *Selenipedium* section, and a cross between *C. Roezli* and *C. Schlimi albiflorum*. The flowers occur on long, branching scapes, and have whitish dorsal sepals, the petals more heavily tipped with bright rose. The foliage is deep green, long and narrow, making a very ornamental plant whether in or out of flower. It does well in a shady house in an intermediate temperature, and may be allowed a full water supply the whole year round. It should be grown in fairly large pots in a compost as recommended for *Cypripediums* generally.

Odontoglossum tripudians.—This was recently flowering, somewhat out of season I thought, at Bush Hill with the Messrs. Low. It is a bright and effective plant, but its chief recommendation to extended culture is the fact that it often sends up its spikes when others of a similar class are over. The form in question had bright yellow outer segments, almost covered with two broad chestnut-brown blotches on each, and the lip is whitish with the usual rose markings. *O. tripudians* was first introduced to this country by Messrs. Low, though it had long been known, having been discovered by the collector Warszewicz about 1850 in New Grenada.—H.

Dendrobium Schneiderianum.—Among hybrids this takes a prominent place, and is a first-rate kind. It is the result of crossing *D. Findlayanum* and *D. aureum*, and although the swollen nodes are not so prominent as in the former kind, they show its influence in a marked

degree. The outer segments are rosy-white with tips of deep lilac, the yellow lip having radiating lines of purple, this colour being continued on the front of the lip. It is named in compliment to Mr. Schneider, of Manchester, in whose collection the cross was effected. *D. Schneiderianum* thrives well under the treatment recommended for deciduous kinds generally, and is a capital grower. During the autumn months the plants cannot be too much exposed to sunlight.

Cypripedium Godseffianum.—This distinct hybrid seems to be as free-flowering and vigorous as its parents, *C. Boxalli* and *C. hirsutissimum*. It has lately been flowering in Messrs. Veitch's nursery at Chelsea and other places, and has even made its appearance in the sale rooms. The large and attractive flowers are shown well up above the plain green, strap-shaped foliage. The dark blackish-brown upper sepal has a pale yellowish-green margin, the lower sepal being smaller, and of a soft yellow colour with a few dark spots in the centre. The petals, which are somewhat wavy on the margins, are heavily spotted towards the yellowish-brown base, while the bright mauve-purple portion in front is free from spots. The well-formed pouch is of a soft brownish tint, with deeper stains here and there. This seems to be very easily grown. It was raised some five or six years ago in the collection of Mr. Norman C. Cookson, of Wylam-on-Tyne.—J.

STANHOPEAS.

POSSIBLY these will never again be favourite Orchids, their one failing, that of the fleeting character of the flowers, being all against them. But they are beautiful plants, nevertheless, and if only given ordinary attention they produce a lot of flowers of pleasing colours and unique shape. The lovely pure white *S. eburnea*, for instance, is difficult to beat as a garden Orchid, owing to the number of flowers successively produced, their purity and splendid texture, and their sweet scent. Stanhopes are mismanaged in collections generally, hung up and left to themselves, while had they the same amount of attention as is afforded other kinds the results would be quite different. It has become a recognised idea among many cultivators that these plants will not flower for a very long time after being disturbed at the roots, consequently they are left in their baskets until every bit of nutriment is washed out of the compost and they are literally starved into flower. This is not cultivation, and though I am aware these Orchids do not like disturbance, on account of their large, fleshy roots being so easily damaged, yet when rebasketing becomes necessary it should be done, and if carefully carried out no great harm will accrue to the plants nor will they miss flowering. The spikes of these plants, as is well known, usually proceed in a downward direction, and consequently the baskets used should be shallow rather than deep. Wire baskets were formerly almost exclusively used for them, but teak ones answer the purpose equally as well. They may be made with the rods rather thicker than usual, this allowing more space between them, and the bottom and sides may be thinly lined with Moss. Let the drainage consist of large, rough pieces laid as far apart as practicable, and cover this with another thin layer of Moss. For compost use peat and Sphagnum in equal proportions, and add to this some good fibrous loam and plenty of rough lumps of charcoal. If the old material is in very bad condition and sour it is best to remove the whole of it and cut out any pieces of dead roots. Wash the remaining ones entirely free of all peat or Moss, and after they are dry repot, taking care of the roots that are alive. Should they not be bad, it usually suffices to pick out the worst parts of root and material, and basket in the usual way. Keep the leading pseudo-bulbs a little above the surface of the compost, and arrange the plants with the leads as far as possible from the rods or wires of the basket. Should roots not be plentiful, a safe plan is to tie the plants securely in position, as

there is a danger of snapping the tender young roots when the plant rocks about after being disturbed. The best place for the baskets is not far from the roof-glass in one of the warmest houses, but the foliage will not stand exposure to the full sun. Plenty of light and plenty of air, with a high temperature and abundant atmospheric moisture, are what these plants delight in. Just after the young growths start and all through the growing season the syringe must be freely plied about the foliage, as if this is not done red spider and thrips soon make their appearance.

Stanhopes are, in fact, more liable than many other Orchids to be attacked by spider. When the spikes push at the base, it is well to be careful in watering, as the water is apt to lodge in the sheaths about the stem and cause these to decay, especially in the case of flowers forming in winter and early spring. As the blossoms develop, the plants may be taken to cooler and drier quarters, this preserving the flowers. The growth finished, a more limited water supply may be allowed; in fact, in a moist house very little water is required during winter. Never let the rooting medium get dry and hard. GROWER.

Odontoglossum aspersum.—This pretty Odontoglossum is flowering now in many collections around London, and though sometimes mistaken for a good form of *O. Rossi*, is really quite distinct. The petals are yellowish-white with a few spots at the base, but the sepals are almost covered with chestnut-brown spots, the ground colour being similar to that of the petals. The lip is broadly heart shaped, white with a yellow centre, while the habit is not unlike that of a small *O. maculatum*. The best position for *O. aspersum* is near the roof glass in the coolest division, and at no time of year should the roots be allowed to get really dry.

Odontoglossum Pescatorei. This distinct and handsome species is already in flower. The better forms usually occur later in the season, and by present appearance they will be very fine. *O. Pescatorei* is easily distinguished by its fiddle-shaped lip, and often this has bright stains of colour in front, the broad segments helping to build up a full and beautiful bloom. The ground is usually white, and among recent importations some finely spotted forms, almost as large as the best forms of *O. crispum*, have been found. Like this well-known kind it does best in a cool moist house, and should be well watered at the roots the whole year round. It is a native of New Grenada, and was introduced about 1851.

Dendrobium nobile Ballianum.—This rare and beautiful variety I noted in flower this week. No other variety of *D. nobile* has such chaste-looking and delicate blossoms, the rosy tint having almost entirely disappeared from the sepals and petals, and being seen only in the faintest blush at the tip of each. In place of the usual maroon blotch on the lip there is a faint rose area, this being repeated at the tip of the segment. It is very free flowering, but apparently not quite so strong in growth as the typical form. It is worth all the trouble needed to grow it, and those having plants should endeavour to raise it by layering the stems. *D. n. Ballianum* appeared among an importation of the type about five years ago.—GROWER.

Lælia aneeps.—A fine plant with many spikes and of a very good variety was recently flowering in the conservatory at Ickworth Park, where this species is very well grown in a house chiefly devoted to warm greenhouse plants and Ferns. It is surprising how many Orchids can be grown in this way when due attention is given to arranging the plants in their proper temperature. The species in question is largely grown in this way, and I have often come across old healthy specimens that grow and flower with a vigour one sometimes looks for in vain in places where Orchids are made a speciality. I know of more than one place where these *Lælias* are quite a failure, yet other and seemingly more difficult plants are done well. A good light and abund-

ance of air are needed to do this plant well, and all through the growing season, if the roots are healthy and in a thin, open compost, it is impossible to water too freely. It would be quite different, of course, with plants in a sour or heavy description of material. The present is a good time to look over the plants and give new compost when required, either in the form of top-dressing or by repotting. When placing in new pots arrange the plants so that the leading pseudo-bulbs will not reach the sides the first season or two, this making it necessary to repot more frequently than is necessary.—VISITOR.

SHORT NOTES.—ORCHIDS.

Dendrobium nobile Cooksonianum.—This is now in flower at Messrs. Low's, and, as usual, makes a fine show, the blotches on the petals being similar to those on the labellum of the typical form. But, although a kind of monstrosity, it is quite constant and very effective. The habit and general appearance are similar to those of the typical form, and the treatment of both is identical. This variety was first exhibited by Mr. Norman Cookson, to whom it was dedicated by Reichenbach.

Odontoglossum pulchellum.—While not possessing either the size or the distinct markings characteristic of the forms of *O. crispum*, this species may still be classed among the most delightful of its genus. In the spotless purity of its blossoms it is not surpassed or even equalled by any other species, while among other meritorious points it is a most profuse bloomer and exquisitely fragrant. The slender and almost wiry stems are erect, and with cool treatment the flowers remain in good condition for a long time.

KITCHEN GARDEN.

TWO DANGEROUS DISEASES OF ASPARAGUS.

PROFESSOR W. G. JOHNSON, State Entomologist at the Maryland (U.S.) Agricultural College, writes:—

Two new enemies to Asparagus have made their appearance in this State, and, if not taken in hand at once, may prove a very serious drawback to the culture of this vegetable. They are not insects, but fungoid diseases which attack the wild as well as the cultivated Asparagus. Large fields badly infested with the disease have been observed by me in Dorchester, Talbot, Caroline, Kent counties on the eastern shore, and in Washington, Frederick, Montgomery, Prince George's, Anne Arundel and Baltimore counties in Western Maryland. Two distinct species have been observed in this State; one is popularly called the Asparagus rust (*Puccinia asparagi*, D.C.) and the other is a new species, belonging to the group of Anthracnoses, and has not yet received a scientific name. I have proposed to call it the Asparagus leopard spot, on account of the peculiar mottled condition of the plants, which resembles the coat of a leopard. The former is a comparatively new pest, having been first observed as a serious enemy to Asparagus in New Jersey, Massachusetts and Rhode Island last year, and public attention was first called to it by Dr. B. D. Halsted, of New Jersey, Prof. Maynard and Dr. Stone, of Massachusetts. So far as is known at present its distribution is confined to the Atlantic Coast States north of Virginia. It will be wise for Asparagus growers in other States to acquaint themselves with these dangerous pests. The present outbreak is the first recorded in this State. Judging from the blighted condition of many large Asparagus fields in Dorchester and Caroline counties, the leopard spot is quite as destructive a pest as the rust.

A field infested with these fungi has a seared, blighted, rusty appearance, or an occasional plant here and there may have a sickly, brownish or yellowish look, showing that an unhealthy condition exists. On examination it will be found that in the case of the rust the main stem and

smaller branches will have the skin raised as if blistered. These blisters are filled with brownish spots, which vary greatly in size and shape. Sometimes the blisters are covered with other small blackish dots, giving the stems a dirty, mottled appearance. This is due to still another fungus (*Darluca filum*, Cast.) which is parasitic upon the rust; in other words, this latter is a parasite upon a parasite, and there is some hope that it may prove helpful to the *Asparagus* growers of this State, as it has been found abundant in several fields. If a stem of *Asparagus* infested with the leopard spot is examined it will be found that it has a mottled appearance; but very different from rust. Here the stem is covered with somewhat elongated oval patches, which vary in size. They are not usually raised in blisters, the yellowish centre looking more like as if the epidermal layer had been drawn tight to the stem, with the edges bordered with brown. This, in contrast with the green stem, is very conspicuous, and at once suggests the leopard's coat.

These diseases are produced from minute spores, very much like seeds, which pass the winter in the old stems and in the ground. Under favourable conditions they find lodgment upon new plants in the spring, germinate or sprout, sending their microscopic threads or rootlets into the tissues of the *Asparagus*, sapping it of its life's blood. When the fungus is mature, innumerable spores are again produced in the brownish spots. The most hopeful remedy is the destruction by burning of all the infested plants as soon as possible after the disease is noticed. If a field is badly infested it should be mown and burned over thoroughly. When cut, the infested grass should be handled as little as possible, in order that the spores may not be scattered. *Asparagus* growing wild should be destroyed, as such plants are excellent propagating places for the rust.

Cauliflowers in frames.—These have never ceased growing all the winter; consequently they are tender and will require full ventilation on every available occasion when there is no east wind blowing and the weather is not frosty. Exposure to an east wind will certainly bring on an attack of mildew, and this must be guarded against if good results are expected, for though the attack can be checked by dustings of sulphur or of burnt wood ashes, a certain amount of injury is done by the slightest attack. For early crops I much prefer these autumn-sown plants to any raised on a hotbed early in the year, but I believe, too, in getting them into their permanent quarters early, and to do this safely they must be well hardened off in the meanwhile.—J. C. T.

Beck's Dwarf Green Gem Bean.—This is one of those really good old Beans that has somehow been overshadowed by newer and much more highly praised things of recent introduction. The same arguments that make the dwarf sections of Peas so popular ought to hold good in the case of Broad Beans, for, as a rule, the gardens of amateur cultivators are of limited extent, and therefore one of the first considerations ought to be how to get the maximum returns from a minimum of space. In this Bean we have a variety that may be planted in rows about 1½ feet apart, and yet yield more pods than any of the other varieties at 3 feet apart. Beck's Dwarf Green Gem, or Cluster Bean, branches close to the ground, and the joints on the stem are set closely together and the pods are in a complete mass. The beans are of a beautiful green colour and just the size for table.—J. G., *Gosport*.

Potato Duke of York.—There are two Potatoes under this name. The one to which I refer here is a very early variety sent out, I believe, by a Norwich firm. I find it one of the very best early Potatoes, a first-rate cropper, and the tubers on an average larger than those of any other first early that I know. Some care is required in wintering the planting tubers, as it is such a precocious variety that young shoots are formed long before those on the ordinary Ash-leaf kinds under the same conditions, so I give it the coolest

possible storage short of freezing. Those who care to try the variety will find it quite excellent eating. This year I am using it for frames, and anticipate good results. Sharpe's Victor, a variety well liked in many places, is of no use here, the tubers being few in number, soapy, and of poor flavour.—J. C. TALLACK.

Sowing Onions.—The mild and dry weather we have had for some time past gives an excellent opportunity for comparing the results between early sowing of Onions in the open and sowing in boxes for planting out later on. Only very rarely can the soil be found in such a workable condition as it is at present, during January, and the chance is too good to be lost. I have found the best results from transplanting, as the young plants are then but rarely troubled with the maggot, but I always sow some of the crop where it is to stand, and I find that when this has to be put off until the March winds have dried the surface soil the results are generally bad unless the Onion fly is watched for and destroyed before it has had the chance of doing much damage.—J. C. T.

Savoy Bijou.—Savoys are a welcome addition to the green vegetables in season in the new year. At p. 25, "W. S." Wilts, notes the value of a new variety named New Year. I quite agree with his remarks as regards its usefulness, but I do not like its size, as in rich soil it is very large, and to be late must be planted in poor soil. Bijou is the reverse of New Year and is just the kind for a gentleman's table. It is very compact, with few outer leaves and may be had good up to March, being the latest variety I have ever seen. It may be planted 15 inches apart each way, and if sown in early May there will be good winter supplies. It is quite distinct from Dwarf Green Curled and Early Dwarf Elm, the heads being much firmer and of a different shape. When full grown the heads do not split, as those of the early varieties do. It is also of first-rate quality when cooked.—G. W.

Forcing French Beans.—I am glad "W. S." Wilts (p. 25), has noted my omission of several really good varieties, and I thank him for his kind remarks concerning my note. I have not given Early Forcing a trial. I saw it good in various places, and am of the same opinion as "W. S." It certainly is a grand forcing variety. I am a lover of the larger podded section, and my aim was to secure a good-sized pod with earliness combined. I did not mention Early Favourite, one of my own seedlings given an award in 1895 under the provisional name of Northumberland Prolific. In the trial of forcing Beans at Chiswick in April, 1897, this was given an award of merit for its forcing qualities. The well-known good qualities of Ne Plus Ultra "W. S." refers to. It is really a fine forcing Bean. Mohawk is not referred to, and this I find equally as early as Early Forcing, with greater size of pod, but it is sooner over. This variety comes in nearly all at once, but it will bear a lower temperature than Ne Plus Ultra. Mohawk and Ne Plus Ultra were the parents of Early Favourite. I am rather surprised "W. S." has not so far given Syon House a trial. It is one of our best foreers, not large by any means, but a valuable pot variety for growing in small houses. I grow it largely for forcing, and as an early crop in the open, like Early Forcing, it makes up for smallness of pod by the quantity produced.—G. WYTHES.

Vegetable Marrows.—Bush Marrows, of which there are two or three excellent varieties in commerce, do not seem to become popular. Perhaps that is due to their being yet little known. The best of these no doubt is that stock which produces long white fruits and freely. The habit is identical with that of the Bush Custard Marrow, which has been in cultivation much longer. No doubt the trailing Marrows owe much of their popularity to that habit which enables them to be grown so well on heaps of refuse or to run over hedges or sheds, or cover unsightly garden objects during the summer. The Bush Marrows are ill adapted for this purpose, but

grown in a line on the flat ground they are very neat and also prolific. Where fruits are desired early, no doubt it is wisest to sow seeds in pots and raise them under glass. Four seeds sown in a 4½-inch pot and stood in a gentle heat soon come up, and then the best pair being left the others may be pulled out. When strong, two or three of such pairs put into a frame over a manure bed make rapid growth and fruit early. When the weather is warm, the frame may be removed and the plants continue to fruit for a long time. Outdoors, where plants may not be exposed until all danger from frost is over, holes dug out at 4 feet apart in rows the same distance from each other, nearly filled with warm manure, and then a few inches of soil added, three or four seeds being sown on each hillock, then covered up with handlights or cloches, give very strong plants that fruit fairly early also. Market growers use largely boxes of half-inch board 10 inches deep, the boxes being some 14 inches in diameter, the tops being a movable pane of glass, and stand them over the pairs of plants turned out on to each hill or over the seeds if they be thus sown in preference. In all cases, however, the earliest fruits pay the best.—A. D.

Parsley.—This most useful and universally grown herb gets scant courtesy at exhibitions, because it is then in relation to competition simply regarded as a product for setting off the beauty of Potatoes, Onions, Tomatoes, &c., but no more. That is hardly fair treatment for a product that is grown and used by everyone in so many ways. Probably it is largely because of this ignominious treatment we so seldom see really good Parsley stocks in gardens, although seedsmen have them of the best. I would suggest that a really good class might be found in a competition for half-a-dozen plants singly in 6 inch pots. Some seedsmen who have shown their best strains in this way have evidenced the value of Parsley not only as an ordinary herb, but for its pleasing decorative effects. A gardener may reason that any leafage is good enough to chop up for seasoning or flavouring or to bed collections of vegetables into at exhibitions, but no one who has the least regard for excellence of stock as seen growing in gardens would say so. In the many gardens the stock is coarse, unrefined, and mixed. In the few where taste prevails the gardener will have none other but the best, handsomest, greenest, and most compact strains. No doubt some occasional competitions of Parsley plants at shows would materially help to mend matters. The present best strains are neither of the old pale green double curled nor of the dark-leaved, pretty Moss curled, always a rather uncertain strain, but seem to be composed of both stocks, giving intermediate form that is singularly true and handsome. Such stocks as these, apart from all other uses or values, are distinctly pleasing and decorative in the garden. To have plants in their best form, they should either be hard thinned in the seed bed or be transplanted thinly, as then their finest features are seen.—A. D.

TRUFFLE HUNTING.

"R. G. C." in a recent issue of THE GARDEN asks for the address of an English Truffle hunter and the district in which Truffles are mostly found. I enclose the name and address of a man who for years has made his living by Truffle hunting, and give a few particulars that may be interesting to readers. The neighbourhood of Salisbury has long been famed for the excellence of the Truffles (*Tuber aestivum* or Black Truffle) found thereabout, and within a few miles of the cathedral spire is the village of Winterslow, where several families of Truffle hunters have lived for generations. These men hunt for the fungus with specially-trained dogs, the breed most favoured being a small woolly-coated terrier. The Truffles usually grow a few inches below the surface of the soil, often under the shade of Beech, Oak, or Hex trees. When I was at Roehampton, near Salisbury, there was one place on the lawn under a large Oak where the fungus could always be found.

Arrived on the ground, the "hunter"—armed with a stick, shod with an iron point at one end and a claw for breaking up the ground at the other—sets his dogs on the lee side of the place where Truffles are known to exist. So keen is their scent, that at 30 yards or 40 yards distant they "get the wind," make straight for the spot where the Truffles grow and commence to dig. The hunter follows with all speed, and helps the sagacious little animals by means of the tool referred to, and after a nest of Truffles is secured each dog is rewarded for his find with a piece of bread, cheese or meat. A move is then made for another likely "place," and very interesting it is to watch these well-trained and lively little dogs do their work. It may be noted that the dogs will not "scent" an unripe tuber or one unfit to dig, nor will well-trained dogs eat the fungus without leave any more than a good retriever would a partridge, though when given a small one by their master they eat it with evident relish. Besides the edible Truffle referred to there are several other kinds, and I have several times found the common red variety in the flower garden at Roche Court, where it had doubtless been introduced with decayed leaves. If "R. G. C." has time and inclination to visit the neighbourhood named, he would find much to interest him, and will doubtless learn a good deal of the life and habit of this fungus.—H. RICHARDS, *The Gardens, Coldham Hall, Bury St. Edmunds.*

MUSHROOMS IN UNDERGROUND STRUCTURES.

THE remarks by "S. M." in the kitchen garden calendar, on p. 86, should be read by all who are anxious to grow this crop well, for not often are so many useful hints given in such a small space. Without a doubt the underground cellars and similar places are the best possible for growing Mushrooms in. When living in the west of England I had what was quite my ideal of a Mushroom house. The dwelling-house was at the top of a steep hill, and a winding, steep drive led to the front door. Beneath this were large arched cellars, and the only opening to the air was protected winter and summer by one of the largest evergreen Oaks I have ever seen. This kept the sun out, even from the nearest part of the cellar, and I think I am right in saying that at the farther point the temperature would not vary more than about 5° summer or winter. The manure used was prepared in front and taken back to the bed as needed, and Mushroom growing under these circumstances was a pleasure. All through the year, with the exception of a couple of months in summer, I could produce as many as would stand thickly on the beds. The manure, after being sweetened and prepared in the usual way, was rammed very firmly, and though I never used a plunging thermometer, no doubt the beds were quite as hot as "S. M." describes at spawning time. The spawn was put in when the heat was just on the turn, the soil as a rule being put on a few days later. A good supply of turfy loam is of the greatest advantage to the grower of Mushrooms, for not only is it a more natural medium for the young "Buttons" to push through than the ordinary kitchen garden soil frequently used, but it is much easier kept moist. Beds made with a sharp slant in front, and covered perhaps with light, sandy soil, are very difficult to keep properly moistened, the water running off, and though saturated at the top, quite dry underneath. Loam with plenty of fibre carries the moisture downwards, and lets more air in to the spawn. It is better in every way in fact. I recently saw some very nice beds at Ickworth, and these, too, are in a house underneath the surrounding level. I have had no personal experience with salt for Mushrooms, though for years it has been advised for their growth, and I have seen good specimens grown therewith. When the beds were slackening a little, I used to give them a little of whatever was to hand in the shape of artificial fertilisers, always using it

highly diluted, and never, if it could possibly be avoided, using any other than soft water.

H. C. H.

ORCHARD AND FRUIT GARDEN.

PEAR GLOU MORCEAU.

THIS in warm soils may be classed as first-rate for late use. Few varieties are superior to it for cropping if the soil is well drained and the trees kept well thinned. I am aware in some localities it does not always thrive, but with me it does grandly in any form. I have this variety in bush and pyramid form, and on walls, and it is as a wall fruit I would advise its



Fruiting branch of Pear Glou Morceau. From a photograph sent by Miss Rytes, The Mount, Budleigh Salterton, Devon.

culture. Few varieties are equal to Glou Morceau for cropping where it succeeds, and a large grower of this variety tells me it is a profitable market fruit. The seasons we have had of late years just suit it, as this Pear delights in what may be termed a tropical summer. For winter supplies the fruit should be left hanging on the trees as late as possible. I find it best not to gather till the leaves are partly off; by so doing the fruits keep sound well into January. This variety grown in bush form also fruits freely. It makes one of our best cordon Pears, and out of some fifty varieties grown thus it is one of the most productive and makes abundance

of fruit spurs, which some varieties when grown as cordon fail to do. Glou Morceau is a very old variety, and has been grown largely in the southern parts of the country. When grown in unsuitable soil it is different in texture and appearance, the skin rough and the flesh of poor quality. Unfortunately, in wet soil this variety cracks badly and is much spotted, but it is worth special culture even in adverse soils, as one can readily assist it by drainage and by using potash freely. I find the Quince stock the best for this variety. I have it on the Pear, but the fruits are smaller and not so well flavoured. I have it on three different walls, and from a west aspect get splendid fruits; those on a north wall are not so clear and smaller. We have so few good Pears at this season that any variety which gives a good supply is valuable, and especially those which are free bearers and reliable.

G. WYTHES.

Home-grown v. imported Apples.

—The supply of Apples, both home-grown and imported, appears very much below the average, and prices rule high. When the barrels come over plentifully we find hawkers with their barrows retailing them in every street, but this year they are conspicuous by their absence, and those home growers who happen to have any good late-keeping Apples can now get a good price for them. Such good old favourites as the Cockle Pippin, Russets, or Wellington are very hard to get even at from 8s. to 10s. per bushel, and growers would do well to turn their attention more to the planting of really late-keeping varieties. Unfortunately, the majority of Apples that have been so freely planted during the past few years are of the early or mid-season kinds, and in many cases they are by no means profitable, for our home growers rush both early, midseason, and late sorts into market at once, and prices are knocked down far below what the supplies would warrant if more judgment were displayed in selling the produce. That there is plenty of good varieties that keep well until the days are lengthening is well known, but not many of them are so prolific as the early varieties of the Lord Suffield type. I shall in future reduce my stock of early cooking sorts and fill their places with the latest keepers, for even with a light crop they are more profitable than the early ones.—JAMES GROOM, *Gosport.*

President Barrabe Pear.—This will justify in time to come all the praise Mr. Wythes bestowed on it in THE GARDEN, page 50. He evidently seeks to know more of it. It was grown here on a double cordon Quince stock planted on a south wall. Here many of the best Pears do not ripen satisfactorily on bush or espalier trees; therefore, to give a new Pear a fair trial, a good position on a warm wall is absolutely necessary in this cool climate. So far I have it only on south walls, but intend to try it on west aspects. With Mr. Wythes, at Syon and in the home counties, it will probably ripen in the open. It is a stumpy grower, flowers freely, and sets abundantly; the fruits generally require thinning. Good specimens will weigh 6 oz. to 8 oz. each. It is very distinct in appearance, having a bright russet skin of perfect clear shape, with an open eye resembling the Quince. When once seen it is easily recognised again. When I first tasted it in January, 1895, I was certain then there was no other Pear ripe at that season to equal it in flavour, and that it would be sure to win a first-class certificate from the Royal Horticultural Society's fruit committee sooner or later. After reading descriptive notes on Pears in the pages of THE GARDEN I look to see where the lines

were penned, and am disappointed occasionally to find only initials. If after the initials the name of the county followed, the description would be more helpful, giving one an idea of the climate in which the fruit was grown. Mr. Parker, of Goodwood, writing in *THE GARDEN*, January 22, speaks highly of *Ne Plus Menris Pear*. I know the Pear to be a valuable late variety from seeing it in two places in Suffolk, large and delicious. At Gunton, whether grown on south or west walls, or in the open, it is worthless; it neither grows nor ripens. Climate mars or makes these late Pears.—W.M. ALLAN, *Gunton Park*.

HARDY FRUITS FROM SEED.

I FAIL to see how the raising of fruit trees from seed is likely to be helpful to those who, having a limited space at command, desire to make the most of it. No man in his senses would plant a wall with seedling Apricots and Peaches on the chance of their proving as good or better than existing well-tried kinds. Is it likely that fruit growers of the present day will deprive themselves of the benefit of the labour and skill of the men who have given us the fine varieties so much prized at the present time? The man who intends to furnish a wall with Peaches or Apricots, or is going to plant an orchard, will employ kinds which with proper treatment can be relied on to yield good crops of the best quality and suitable for home consumption or for market. Fruits vary as much when raised from seeds as do flowers: in fact, of the two I think they are more variable, and it certainly is more difficult to raise a good new fruit than an improved variety of some garden flower. The combination of qualities which will render a hardy fruit generally useful is difficult to secure. There must be vigour, hardiness, fertility and quality, to be found only in a small proportion of seedling plants. I have at various times raised a number of Strawberries from crosses carefully made between the best kinds we have, but have never been able to get one that could be considered better than existing varieties, and not more than five per cent. were equal to their parents. Some years ago I crossed the old Alice Maude, then a great favourite for early forcing, but which was hardly large enough for midseason crops under glass with Sir C. Napier. Of the number raised I selected one that seemed to realise what I had been trying for, *i.e.*, an early kind with much of the size and appearance of Sir C. Napier. The first year's trial with two or three dozen plants was very encouraging; the flowers set with remarkable freedom and the berries were of good size and fine appearance. In the course of the following season some hundreds of plants were secured, but the result of forcing them was disastrous, as quite one-third of the crowns was barren. Further trials proved that this partial sterility was a confirmed characteristic of the variety, and it was therefore, in spite of other good qualities, of no use. In the case of all other seedlings selected for trial, some defect declared itself, and I came to the conclusion that one must be very fortunate to obtain anything worth keeping. One man may raise thousands of plants and obtain nothing different or better than existing kinds, whilst another at his first attempt gets a really good thing. Naturally skill counts for much, but there is certainly an element of luck in raising novelties among fruits and flowers. Four first-class new Chrysanthemums were obtained from one lot of about three dozen seedlings only, whilst others who have raised many hundreds did not get one worthy of a name. In the same way it may turn out that a chance seedling growing unnoticed for years at length takes

rank among reliable hardy fruits. The Crittenden Damson, which stands in the foremost rank, was, I believe, a chance seedling, and was cultivated in the locality of its birth a considerable period before its value for supplying our markets was recognised. The Pershore Plum is said to have originated in the same manner, and some of the continental Pears which are imported to this country in quantity owe their origin to chance. Those fine Apples, Cox's Orange Pippin and Cox's Pomona, were chance productions, and *Magnum Bonum* Potato, the most useful variety ever grown, was raised in haphazard fashion. Some years ago a cottager's wife in this neighbourhood set an Apricot stone at the foot of a wall. In time the seedling plant covered the wall and bore good crops of fine fruit, and I am inclined to think that had this been raised by a trade grower it would have been distributed as a novelty. Unfortunately the garden changed hands, the tree was neglected and ultimately died.

It will thus be seen that in raising hardy fruits from seed everyone has a chance of getting something good, and for this reason where chance seedlings occur they should have a fair trial. Many a good thing has probably been lost from want of this. If hardy fruit growers generally would make a practice of annually raising a few seedlings, the interest in their gardens would be much increased. It is an easy matter to set a few Peach or Apricot stones, Pear or Apple pips, or sow a little Strawberry or Raspberry seed, the after care does not involve much labour, and there is always a chance of getting something very good. I have often thought that if a man sowed the seeds from one Strawberry annually from the time he commenced to cultivate this fruit, he would be almost certain sooner or later of obtaining an improved variety. Everyone knows that Sir C. Napier has long held a foremost position among Strawberries. With the exception of Sir J. Paxton, no Strawberry has ever been grown to such an extent for profit under glass, and yet this variety so valuable, so distinct from all others, came from a berry taken by chance from a punnet in Covent Garden Market. It happened one day that the late Mr. Smith, of Twickenham, and another grower met at a fruiterer's shop. On the counter there stood some baskets of a large French Strawberry, and it occurred to these men to select each a berry and sow the seeds from it. The result of this sowing was as instructive as remarkable, for one seedling developed qualities of such excellence as to prove a little gold mine to the fortunate raiser, the remainder being quite worthless. It may, I think, be taken for granted that this variability will in a more or less degree be found to prevail in the case of all hardy fruits raised from seed.

J. C. B.

Peach buds dropping.—Bud-dropping is not confined to one locality alone this year, as it is prevalent here in Wales, in the pure air of the open country. "West Middlesex" thinks that the fogs cause the buds to drop, but I fail to see what effect fog has on Peach trees in causing the buds to drop off. There is no doubt that the mischief is done in too early forcing, keeping the trees without water too long through the autumn months.—SOUTH WALES.

— I have no doubt that more buds will drop this season than usual, but I hardly think "West Middlesex" is right when he attributes the cause to fog, though fog may aggravate the evil. It is now some years since I have had much experience with Peaches. I was then in the country, where such fogs as we get in the neighbourhood of London were unknown, and this bud-dropping

was one of the most difficult problems I ever tried to solve. With trees under glass I found the early varieties were more inclined to drop than later ones. I also found that the trees at the end of the house where the hot-water pipes entered suffered more than those at the opposite end. The pipes being connected with a boiler that heated other houses, there was always a little warmth, and this led me to try some experiments, the result being that pot plants taken from the cold end suffered the same as those planted out. With trees out of doors buds rarely drop if we get cold weather during the early part of the winter, and a continuance of warm weather after we do get a change. If trees indoors can be kept dormant until the time comes to start them, and keep them going in the spring there will be no bud-dropping. I have come to the conclusion that bud-dropping is caused entirely through the trees starting prematurely and then receiving a check. Few fruit trees are so impatient as the Peach. A very little warmth will cause the sap to begin to flow and the buds to swell, then if there comes a spell of cold they stop again, and later on when a fresh start is made the buds will drop off wholesale. There are other subjects which suffer in a like manner from the same cause.—A. HEMSLEY.

SHORT NOTE.—FRUIT.

Pear Napoleon.—In reply to "W. S. M." (page 90, January 29) the variety I referred to is *Prince Napoleon*. I bought several pyramid and gridiron-trained trees a dozen years ago or more. The trees must at that time have been four years or more from the graft.—H. H. R., *Forest Hill*.

THE MARKET GARDEN.

WATERCRESS: ITS HISTORY AND CULTIVATION.

WATERCRESS adds no decided flavour to a mixed salad, but is rather detrimental. In France it is sometimes served up as a dish instead of Spinach, it makes admirable soup, it is used as a decoration to roast fowl, and often instead of Parsley for garnishing. In this country it occupies a unique position, and stands nearly alone in public favour. It is on the table of rich and poor alike, and is appreciated as a relish as well as for its medicinal virtues. No condiment is needed with it but salt, and it loses its individuality when partaken of with any other herb. Watercress grows freely in wet, and especially in shallow, places. It is generally assumed to owe its pungent taste and medicinal value to the presence of an essential oil, containing, like that of Mustard, a considerable quantity of sulphur. But the chief constituent of the essential oil of Watercress, though rich in nitrogen, contains no sulphur. There is, however, much sulphur in one form or another in this plant.

The multitude appreciate highly Watercress, and eat it freely as a simple relish with bread-and-butter. It may be truly described as the most popular and most wholesome of salad plants. Growing wild in brooks and streams in the neighbourhood of London, it was carried in a basket on the back of the itinerant vendor, and we read of "the barefooted nymph, who at sunrise had dipped her feet into the bubbling rannel, and used to carry this luxury to the breakfast table of our citizens." The

AREA OF CULTIVATION

is spread over Europe, Asia, and America, in the temperate zone of those continents. Watercress has been reported as grown in Hindostan, under sheds. Wherever John Chinnaman has settled as a gardener, in

Australia or California, there is an abundance of vegetables and salads. On the continent of Europe, Watercress was cultivated to a trivial extent in France at the commencement of the fourteenth century, in the departments of Oise, Nord, and Pas-de-Calais; but in Paris and the neighbourhood there is no record of its cultivation until the present century. It had been grown previously with marked success in the environs of Erfurt and Dresden, on a large scale, and by intelligent methods.

In England, the regular cultivation commenced rather earlier than in France, for whilst the Frenchman was thinking of his enterprise, an Englishman was already in the field. It was in 1808 that William Bradbery first started Watercress as a crop. Springhead, about a mile and a half from Northfleet, in Kent, close to the out-of-the-way village of Swancombe, was the birthplace of this adventure, and Cress has been grown there, without intermission, until the present moment. Thus England, Germany, and France have cultivated this plant as a crop for well-nigh a century; and since its introduction as a vegetable, it has received a very general and popular support. The primary step in establishing Cress beds is to choose a suitable locality. This must be in the neighbourhood of a populous town, or within a reasonable distance of railway accommodation. Cress needs as much caution in transport to market as Strawberries; consequently the choice of situation is a serious matter, and the disposal of the crop must play an important part in the deliberations. If the journey is prolonged, if delay occurs, the Watercress will suffer on the way, and on its arrival at market will be faded or yellow. Stale goods are of no value, and unless the Cress has a brilliant dark colour when unpacked it might as well be left at home. Railway companies offer special facilities from certain stations, during the Cress season, which afford opportunities for quick delivery. When the formation of Cress beds is under consideration, it will be prudent to learn, before commencing operations, what is the train service, and what is the rate per ton to an eligible market. The

CHOICE OF SOIL

is an important feature in the success of any crop, and Watercress is no exception to the general rule. Land with a sandy subsoil should be avoided, as much water will disappear by downward filtration, and difficulty will arise with the gangways and the sides of the Cress beds, which will slip in. Wharfing along the sides with short posts and rough boards is used to some extent, but when constructed by the tenant is a serious outlay of capital. Clay land is sticky and awkward to work, and peat requires much judgment in its manipulation, whilst both are apt to give grave inconvenience in wet seasons. Chalk in some places makes a capital foundation for the bed, covered with loam for the rootlets to strike into. Gravelly loam, with a clay basis, retains the water, makes a firm bottom, and furnishes nutriment for the plant. But all will be of no avail without an ample supply of suitable water. The source of the water may arise in natural springs. The prosperity of the Cress bed depends mainly on the continuity, force and regularity of the current. An abundant and perpetual stream is an absolute necessity, as the health of the plant depends on this condition. Without it the Cress cannot be well nourished, the leaves will be stunted, and there will not be a bountiful growth throughout the season. The water affords protection from the heat of the summer and the cold of the winter, both of which extremes must be guarded against; the

former burns the foliage and makes it sticky (hard); the latter freezes the stems and irretrievably damages the crop. A strong stream, maintaining a fair volume of water during heat and cold, is invaluable. The temperature of the water follows the temperature of the earth whence it originates, and should not fall below 51° Fahrenheit. It does not answer to carry the Cress beds too far from the source, as the water naturally cools down as it travels away from the orifice. This factor limits the length of the Cress beds, for when the temperature of the air is lower than that of the water, the latter soon loses heat. Exposed to the cold atmosphere it falls below the required temperature, and the Cress suffers in consequence. Were it not for this hindrance, Cress beds would only be limited by the strength of the stream. The depth of the beds must depend on the level of the stream; some are not above a foot deep, whilst others have been constructed at great expense, and are perhaps 3 feet or 4 feet below the level of the surrounding ground. There must needs be a slight inclination downwards from the spring, so that the water may flow gently through the Cress. The fall of the bed should be extremely gradual, for if the declivity be sharp, the celerity of the current increases and washes away the soil, disturbing the plants. A gentle movement of the runlet from end to end of the Cress bed is what is required. The beds are made of no particular size, but mostly follow the configuration of the land; they may be 6 feet or 30 feet in breadth, but in the latter case longitudinal gangways will be required at suitable widths to carry off the crop when picked. These gangways are generally only banks of earth, but in some cases they are cemented on the surface, which makes the labour of gathering easier in a rainy season. Little bridges of rude planks are constructed across the beds, whilst dams are erected in suitable places to hold back the water at ordinary times and to give opportunity to flatten down and submerge the plants in severe weather. Different practices prevail in this respect, as the severity of the cold is most felt in exposed situations. In certain months of the year, when the demand for Cress is slack, the beds are cleaned out, and brook water may be utilised for irrigation, but facilities must be at hand to divert all subsidiary supplies at the approach of cold weather. Careful precautions should also be taken to keep out storm water, and special channels must be provided where Cress beds from their level and situation are liable to flood. It may be advisable to construct a tunnel or culvert of a considerable length when there is backwater that may inundate the Cress bed. The best authorities recommend

ANNUAL CLEANSING AND REPLANTING.

This operation, which involves considerable expense, should be carried out during the slack months of August and September. The tops of the Cress are first gathered and stored away in a convenient place, sheltered from the sun and wind, until required for replanting. The dykes are then thoroughly bottomed out and the muddy soil removed, with all the old roots, weeds, and living creatures it contains. This process is followed by a careful levelling of the bottom, and a stream is allowed to flow for a sufficient time to thoroughly scour out all impurities. Everything is now ready for replanting, which is carried out in the following manner. The cut Cress is carefully laid down in rows, or spread broadcast on the ground, being sometimes secured by large stones where it is in danger of being shifted from its position. It is advisable to turn on the water sparingly in

the first instance, for fear the plants should be disturbed; but in the course of four or five days the young rootlets will begin to strike and to take hold of the ground.

All this work needs skilled labourers who have had experience in the business, and they must be specially equipped for their task. The most important part of their outfit is the boots, which are provided by the employer at a cost of from 44s. to 60s. per pair, and are similar to those used for marsh work. In addition to the expense of cleansing, the laying down a Cress bed would cost 6s. or 8s. per perch if the plants were purchased. In order to procure fresh shoots for this autumn plantation, it is an approved plan to lay down some beds in March and set them apart for this purpose. The clean plants from these rearing beds will be vigorous and free from weeds and other impurities. Small brooks and ditches inconveniently situated for market work are utilised for the purpose of obtaining fresh plants.

Readers of this article will naturally ask what it would cost to construct a Cress bed. We have already seen that the purchase of plants is a large item. The preparation of the ground is a more serious matter still. Much depends on the situation of the land, the irregularities of the surface to be overcome, and the level of the field or meadow in relation to the springs which it is desired to utilise. If the task is merely to shape out, to straighten, to take off the angles, and level the bottom of a ditch so that the stream may have a gentle, steady swing, then 4s. or 5s. a perch might suffice. The formation of large Cress beds to any extent is a heavier undertaking. There are the excavation of and the moving away of the surplus earth, making a true and correct incline to regulate the flow of the stream, and this may soon involve considerable expense. To take a medium figure, perhaps it would cost £90 to £100 per acre in the formation of the beds, and with the plants at £1 per cwt., or £20 per ton, of which nearly two tons would be required to thoroughly plant an acre, the further cost would be £40. Thus £130 or £140 would be the rough estimate arrived at. The best pulled plants, if purchased, are difficult to acquire, though not costing so much when supplied on the farm. When the work is done by the occupier himself these alterations are carried through in an economical way, and at much less cost than any contractor would attempt them. Yet, after due consideration, I feel that, without a thorough knowledge of the surroundings of each case, such estimates must be rather conjectural and hypothetical. The

MARKETING

of the Cress is an important problem, and needs much attention and forethought. London claims the first consideration, as the largest consumer, but the big towns in the provinces must be remembered. The probable demand must be gauged as far as possible, or the markets would certainly be glutted. The gathering and packing of the crop are mainly done by men, whilst women take a part in tying up the bunches. In cutting the Cress, the men in big boots wade through the beds, having long boards to stand on when the depth of the water is abnormal or the bottom of the bed is treacherous. The use of boards has also the advantage of pressing the roots of the plants into the soil, and flattening down the stems and foliage under the water. Careful workmen are most particular in selecting the forward stems, which should be gathered singly, or, at most, two or three sprigs at a time; the more cautiously this is done, the sooner the bed is ready to be culled again. The picked Cress should be carried in baskets or

half-load baskets to the shed, where it is washed free from Duckweed or any trivial impurity. Women take up this department, and tie the Cress up in small bunches at about ¼d. per dozen, and skilled hands often earn 2s. 6d. per day. Raffia is now largely imported for tying purposes. The cost of the raffia ranges from £40 to £50 per ton. The Cress, after tying, has to be packed in baskets called flats, which contain about eighteen dozen bunches. The weight of a flat varies according to the size of the bunches, which again depends on the season; some growers make them up about half a cwt. in the flat, but there is no uniform weight for all districts. I find in my researches only two distinct kinds well known, though there may be slight variations. Brown Cress has the first place, and has the highest reputation; green Cress is not so highly valued, and only comes in the summer. The former, with careful treatment and under certain conditions, is available, and is gathered, in the coldest seasons; the latter is a delicate plant, which thrives only when the weather is mild. The brown Cress may be sent all the year round, but is only needed in small quantities during the summer months, whilst the green Cress is in abundance. The Cress sent to the north of England is forwarded loose or in bulk, as traders there prefer to make their purchases by weight. The men pack the flats as well as pick the Cress, and know how to fill the baskets to their full extent. Cressmen accustomed to water work have different pay in different districts, their wages ranging from 15s. to 25s. per week, according to locality and season. Good wages are current when the trade is in full swing, and much of the gathering and packing is done by piecework. Speaking generally, Cress-workers earn rather more than the average rate of the labourers amongst whom they reside.

The great difficulty in sending a long distance is that the Cress is apt to heat and change colour; to obviate this tendency it is laid lightly in the middle of the basket, that the air may ventilate it. The French method, with the same end in view, is to have the baskets constructed with air space in the middle, and to thus keep the contents cool. When sent to Manchester or Liverpool from the south, a block of ice is often placed in the centre of the Cress, and this has a good effect. Watercress, on reaching London from the provinces, is dealt with in various ways. Many salesmen pay special attention to this class of business, and thoroughly understand the trade. Large quantities change hands on arrival at the railway stations in London, and dealers thus obtain their supply.

ENEMIES.

Various animals, including insects, are, as well as weeds, troublesome in Cress beds. Water rats always find out where Cress grows, and must be trapped or shot. Dogs cannot be used without doing damage. Freshwater shrimps (*Gammarus fluviatilis*) are often numerous and are very destructive; but quicklime is an efficacious remedy, and put into the incoming water kills them without injury to the crop. The water beetle (*Dytiscus marginalis*) is a frequent inhabitant of some Cress beds, but is not complained of so much as the caddis worm. Small snails are also rather troublesome in some water, but I was unable to find out the exact genus of mollusca to which they belong. Various weeds thrive in Cress beds, which the expert readily detects and endeavours to eradicate. The most troublesome is Duckweed (*Lemna minor*); and of the Pondweed tribe, *Potamogeton densus* is very perplexing to the

picker. One known locally as Network or Silkwort, on account of its thread-like stems, forms a tangled mass around the Cress, and must be cleared off in preparing for market. Procurrent Marshwort (*Helosciadium nodiflorum*) is a plant with the habit of Watercress, in company with which it often grows, and for which it is sometimes mistaken. Water Starwort (*Callitriche aquatica*) is also a frequent intruder, and flourishes in the spring water; Canadian Waterweed (*Elodea canadensis*) also is often seen. Brooklime (*Veronica Beccabunga*), I discovered, is a succulent plant which abounds in situations favourable to Watercress. Some varieties of the Crowfoot tribe, such as *Ranunculus aquatilis*, thrive in running as well as in stagnant water. The Water Parsnip (*Sium angustifolium*), the Mare's-tail or Water Milfoil (*Myriophyllum spicatum*), and the Horse-tail (*Equisetum palustre*) are also treated as weeds in a Cress bed, and are more or less troublesome.

SOME GROWERS.

My first visit was to Springhead, in Kent, where I saw Mr. Sylvester, who carries on the business established by Mr. W. Bradbery in 1808. The Cress grows as bountifully as at first, for there is an endless supply of water from the chalk. Mr. Sylvester plants his Cress in rows which allow the water to pass through it freely. He was cleaning out his beds in August and replanting the crop. When this is proceeding he allows his ducks to follow the men, as they devour the caddis worm, which is always a nuisance among the young plants. In preparing the Cress for London, he packs the bunches in large square baskets, which hold four gross each. He leaves a space in the centre of this large receptacle to aerate the Cress and keep it cool. My next visit was to Hampshire, and I was warmly received by Mr. Thorp, who showed me his beds and explained his methods of procedure. The land around Mapledurwell and Basing abounds in springs, and the water rises in abundance. Mr. Thorp says that fifty dozen bunches of his Cress weigh 1 cwt. All the Cress sent from this farm is tied up in bunches. The Cress goes to Basingstoke Station, on the South Western Railway, and the carriage to the metropolis is 18s. 9d. per ton. Miss Dudney is also at Mapledurwell. In sending Cress to Liverpool in summer, Miss Dudney uses ice, whilst in severe winters she finds it advisable to line the baskets with brown paper to keep out the frost. Large hampers, containing fifty dozen bunches, are used instead of flats in frosty weather. The beds which she has are of very varied sizes and shapes, and intersect her grounds in all directions, with the view of taking advantage of every suitable spring; sometimes a narrow strip, another time a wide breadth, just as the water favours the culture. A piece like a pond at the roadside is often appropriated, with good results, and a luxuriant growth is promoted by a strong spring. Yet any attempt to add another perch to the area would be unsuccessful, as the spring would not have sufficient strength. In the middle of the season she sends fifty or sixty flats per market day to London. Mr. C. Hill, at Kintbury, in Berkshire, has beds in a pleasant valley adjoining the Kennet and Avon Canal. He utilises the canal for the conveyance of his Cress to the railway station by means of a small punt. The bottom of the beds is on a peat foundation, which has caused difficulties in construction and working; the men at times have had to stand on Kentish hurdles to prevent them from sinking into the bog. Mr. J. Coe, of Abinger Hammer, near Dorking, farms with his brother about thirty acres of Watercress, and has also six acres at Arundel, in

Sussex. His home land is watered by the Tillingbourne Brook, which he uses for irrigation during the summer months. But spring water is needed for Cress in the proper season, and as the water did not freely rise to the surface at the right elevation, Mr. Coe has bored in several places. The springs were reached at about 70 feet, and the water flows on to his beds at a temperature of 51°. This is the largest acreage of Cress that I met with under one firm. There are extensive Watercress beds at Rickmansworth, in Hertfordshire, and its neighbourhood, and Mr. Richard Bradbery, a large grower lives there. In 1819 Mr. William Bradbery migrated to West Hyde, near Rickmansworth, and there established Watercress culture, where it has continued ever since under his family.

In noticing these bold enterprises in Watercress culture, one is struck by the fact that the plant derives its sustenance almost entirely from the water. The roots are attached to the soil by numerous fibres, but the vitality of the plant depends upon the liquid nutriment. The best brown Cress is grown in selected locations where there is an endless supply of brilliant water direct from the chalk. Watercress, like oysters, should be scrupulously guarded from all chance of contamination, and on every farm that I have visited this is strictly enforced. In France a different system is pursued, and manure is regularly applied after replanting. For this reason M. Chatin urges that Cress beds should always be established near to cow byres, so that a liberal supply of suitable "amendment" may always be available. This promotes a vigorous and rapid growth in the summer season, but it is open to doubt whether the dietetic worth of the vegetable is not diminished.

The cultivation of Cress is carried on in numerous places in the basin of the Thames, some of which have been already mentioned. On the Colne, between North Mimms and Staines, there are about twenty-two acres; on the river Gade, between Great Gaddesden and Rickmansworth, about forty-two acres; on the river Bulbarne, from Dudswell to Hemel Hempstead, about forty-one acres; on the Mibaume Stream, from Great Missenden to Denham, about seven acres; on the river Chess, between Chesham and Rickmansworth, about sixteen acres; on the Aldenbaume, between Fulmer and Ives, about four acres; on the river Ver, from Marget to Watford, about five acres; on the Tillingbourne, between Abinger Hammer and Chilworth, about fifty-one acres. There are other plantations farther away in Buckinghamshire, Berkshire, Hampshire, and Gloucestershire, in the valleys and streams of these counties.—W. W. GLENNY, *Barking*, in the *Journal of the Royal Agricultural Society of England*.

Summer Stocks.—I obtained most beautiful as well as satisfactory effects from pyramidal Stocks last year by sowing the seed in patches thinly and in colours on a long border, where in the autumn the plants attracted attention. Generally seed is sown under glass and the plants put outdoors late in May or early in June. If very hot weather prevails many often do badly. The plants from outdoor-sown seeds bloom rather later than where raised under glass, but if so, because the weather is rather cooler, the colours are often brighter and the flowers more enduring. Of course, in all strains some singles come, but if in the clump sowings these appear later they may be pulled out, and that generally proves to be ample thinning. There are so many things to be seen to in the early spring and summer, that anything which saves labour in the flower garden is welcome.—D.



THE GARDEN, FEB. 12 1898.

GARDEN FLORA.

PLATE 1157.

HIBISCUS MANIHOT.

(WITH A COLOURED PLATE.*)

This plant has lately attracted attention through the exhibition last autumn of flowering specimens at several meetings of the Royal Horticultural Society, and also in consequence of an exceptionally fine specimen which grew and flowered freely last year in the new Mexican house at Kew. Here it was about 9 feet high, and bore numerous flowers on the upper part of the branches, the largest blooms being over 6 inches across. They were of a bright primrose-yellow colour, with a large eye-like blotch of crimson maroon at the base of the petals. The Kew plant flowered continuously for about two months. At the meeting of the Royal Horticultural Society held on September 7 a plant of this *Hibiscus*, shown by Mr. F. D. Lambert, Moor Hall, Cookham, was given an award of merit. It was about 6 feet high, pyramidal in shape, with pedately lobed leaves

*Hibiscus Rosa-sinensis.*

6 inches across, and it bore numerous yellow flowers each 4 inches across. It had been grown in a pot in a warm greenhouse. To most of those who saw this plant it was a new discovery, and it was generally admired as a first-class pot plant for the conservatory.

The Kew plant had been grown in a pot for some years before last spring, when it was cut down to about a foot in height, and when it had begun to make new growth it was planted in a border of loamy soil in a sunny position in a house where the temperature was intermediate. Here it made vigorous new shoots, which by October were 9 feet long, as thick as a man's finger, and they bore long-stalked leaves 18 inches across in some cases, pedately lobed, the lobes irregularly notched. Both the stalk and blade were covered with soft silk-like hairs. Each flower lasted only a day or two, but they were numerous, and opened in rapid succession.

It has been suggested that this is not the *H. Manihot* of botanists, which is described by

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by J. L. Goffart.

them as an annual with almost glabrous leaves 6 inches long and wide, and flowers 5 inches in diameter. Probably, however, the leaves and flowers vary in size with the conditions under which the plant has grown, and whether it is of annual or perennial duration is also often decided by circumstances. Under cultivation it is certainly perennial, and the whole plant is decidedly hairy.

With regard to the history of the plant, we have the authority of Dr. Masters, who has monographed the Indian species of *Hibiscus*, for the following particulars: *H. Manihot* seems to be distributed throughout the tropics of the Old World, but whence it originated it is not clear, some authorities stating that it is Chinese, others Japanese, and others Australian. It has been cultivated in this country, according to the *Botanical Magazine*, since 1712, at which period it was sent to the Royal Society as one of the fifty specimens then required to be delivered annually to that society by the Society of Apothecaries, whose headquarters was the Chelsea Botanic Garden.

The genus comprises about 150 species, which are mostly tropical. Only very few have any interest for horticulturists; indeed one might limit the number hitherto recognised as good garden plants to three, viz., *H. Rosa-sinensis*, of which there are numerous varieties; *H. schizopetalus*, the elegant shrubby species from Zanzibar; and *H. syriacus*, sometimes known as *Althaea frutex*, also represented by numerous cultivated varieties. Plates of these three have been published in THE GARDEN. Besides these, however, there are many other large, handsome flowered species which only require to be brought into notice to find favour. The species represented herewith is a case in point.

W. W.

THE WEEK'S WORK.

KITCHEN GARDEN.

SPRING ONIONS.—We rarely get so suitable a seed-sowing season as the present, and the sowing of Onions should not be longer delayed. I do not advise beds, it is better to sow on the flat, leaving a fair working space between the rows. Many may object to the sowing of Onions so early, but there need be no fear of losses if the ground is well prepared. Much depends on the nature of the soil and the earlier stages of preparation, as though one cannot have soil too firm when of a loose or sandy nature, in heavy, clay soil this is not advisable. The best crop of Onions I ever saw was grown on hard land not manured in any way previous to sowing, but unlimited supplies of food were given in a liquid state during growth. My Onion ground this year is the early Celery quarters of last season, and the feeding for the Celery with deep working should make a good bed. I do not aim at very large roots. Land that has grown Celery is soon got into condition, but even here it is well to guard against maggot, one of the worst pests this vegetable has to contend with. In a previous calendar I noted the importance of preparing the ground for Brassicas, and it is equally important with Onions. Where there is the least fear of maggot now is the time to take measures to prevent it spreading. So far I have found no remedy equal to gas-lime. I admit it is a drastic one, but safe if applied properly. I prefer to dress the land weeks in advance, but if this has been overlooked, apply gas-lime finely broken up, but that has been exposed a short time. This dug in will give freedom for a season. Other aids are soot and wood ashes spread on the surface previous to drawing the drills. In heavy, clay land road scrapings laid up in bulk for a time and spread in dry weather previous to drawing the drills are of

great assistance in making the soil porous, and readily broken down. There are other aids, such as burnt garden refuse or old potting soil. For Onions select as open position as possible and thoroughly break up the surface soil previous to sowing. For a few days I used a long-toothed wooden rake for ground dug in the early autumn, and this done early in the day soon dries the soil. Light soil may be rolled afterwards, in fact I roll before drawing the drills and after sowing. I am not much in favour of heavy dressings of manure, but rely more on surface feeding during growth. Avoid thick sowing, as thinning loosens the plants and checks growth. There is no gain in having the rows too close; 12 inches at least should be given, as this allows of hoeing between and feeding. Select a dry day for sowing. Varieties of late years have increased so much that one cannot keep pace with them, and the grower must study the consumption and season in which the bulbs are needed. For early winter use there are some fine types, such as Newnham Park and Mainerop, whilst Excelsior, Record, Ailsa Craig and The Wroxtton are all good. For late keeping there are no better kinds than Bedfordshire Champion and James's Keeping, and for pickling or very early use the Queen is excellent.

WINTER ONIONS sown last August will now need planting out should the weather continue mild, as I notice growth is earlier than usual and the plants have wintered very well. I am aware it is not always advisable to transplant if hard frost follows, but there is little gain in leaving too long, and if changeable weather should follow planting, cover between the rows with spent Mushroom manure. The plants should be set out in rows in land richly manured. Plant 12 inches apart in the row and half that distance between the plants. In poor soils guano or fish manure will assist the plants, the manure being given in wet weather or hoed and raked in after spreading. A row or two of autumn sown plants may be left for salad if required, and the plants intended to mature should be made firm by treading, passing the hoe between the rows to check weeds whenever needed. Any bulbs growing out badly may be planted out thickly. These will give a supply of green material for cooking in advance of the winter varieties and prove useful should the supply be at all limited.

PARSNIPS.—Many think Parsnips cannot be sown too soon, and go to much trouble to secure exhibition roots. The ground for Parsnips is best if of a loamy nature, but in soils where these rootsanker at the crown, I would certainly defer sowing till early in April, as then growth is quicker and I think the roots are of better flavour. I am aware roots sown in April lack the size of those sown earlier, but for home use I fail to see their value. In no case should these roots be given freshly-manured land, as in such the roots fork badly and lack quality. It is well to give land that has been well worked and is in fair condition. Avoid crowding; a space of 18 inches between the rows is none too much. Probably the best medium sized Parsnip is The Student, though the new Tender and True, given a trial last year, is a gain in the right direction. It is smaller, but of perfect shape and superior in quality to the older kinds.

SHALLOTS AND GARLIC.—Large Shallots may be obtained by giving good culture, and the plants need a fair amount of food, planting in well-manured land, in rows or drills 12 inches apart and 3 inches deep. The bulbs when planted should be firmly pressed into the soil and not be closer than 6 inches in the drill from each other. Birds are very fond of pulling up the newly-planted bulbs, so that a sharp look-out is necessary. In heavy land both these roots well repay a liberal addition of spent Mushroom manure or other light material to give the roots a start, and in dry seasons they will take copious supplies of liquid manure or other fertiliser. The Jersey Shallot is a fine type and far superior in flavour. Garlic is less grown than Shallots, but it is valuable for cooking, and even when not

given special culture, a bed should be planted yearly in the herb quarters to meet any calls.

RADISHES.—There is always a demand for early Radishes, and probably many will have sown ere this. If sown early select a south border if possible, and protect the seed from birds. The Scarlet Olive and White Olive-shaped are the earliest, and as these have scarcely any top they may be sown thickly. If larger roots are desired the French Breakfast, a medium Olive shaped variety, is one of the earliest and best. I find it well to cover the soil thus early in the season with long litter after sowing, as this assists germination and protects from frost and birds. For later use or succession a sowing in the open of Early Frame or a Turnip variety will be useful if there is a good demand. Frame Radishes should now be given more air on all favourable occasions to prevent the tops drawing. It is well to thin if at all thick, as plants under glass soon get past their best if much crowded.

SPINACH.—The winter Spinach has this year been abundant. Owing to the mild winter growth has been good. Now is a good time to assist the plants by giving a little fish manure, guano, or other fertiliser between the rows. This hoed in will assist in the formation of new leaves. With a mild winter the autumn-sown plants will run to seed quickly in the spring, and it may be well to sow on a sheltered border, not in large quantities, but to give a supply after the winter plants are past their best. I am not in favour of sowing between rows of early Peas, as is often done. Far better sow a few rows, say every three weeks, the first two or three sowings on a warm border, but for later use on a north cool border. For early sowing the Victoria is an excellent variety, and gives large succulent leaves, but for summer use the Long Standing Round, an improved stock of Victoria, is a splendid variety. S. M.

FRUITS UNDER GLASS.

EARLY MELONS.—Some growers, who by reason of an early demand will have sown their first batch of seed, and already have their young plants advancing into the first rough leaves, will do well to sow again now in the event of the earlier sowing not starting away as freely as could be wished. There is but little gain in point of time by sowing in January, and any advantage which is gained is not commensurate with the extra trouble involved. Early February sowings will give ripe fruit at the end of May under favourable conditions, and the crop should be at the same time a good one. My earliest sowing was made the third week in January, and the seedlings look well, being now in their first rough leaf. I am puzzled, however, as to where to grow them under the peculiar circumstances just at present with no proper Melon house, and others no doubt are similarly situated. The growing of any particular fruit in private gardens has oftentimes to be accomplished under adverse conditions, and early Melons with me are a case in point. It is all very well for non-practical writers at times to dilate upon what certain growers for market or otherwise accomplish, but when the thousand and one things besides have to be duly considered it is altogether different in practice. The best early crop of Melons I have ever grown was in a Pine stove, where many others have, I know, obtained good results. The climatic conditions for first early Pines and these Melons are similar. Mine were grown in inverted Seakale pots upon the back shelf of a lean-to house, and the success was encouraging. Pine stoves, however, are not now in vogue, having been in many instances turned to a better account, but not to the advantage of the Melons. There is always a tendency to take advantage of the congenial warmth and moisture of a Melon bed made up of fermenting material to propagate cuttings thereon and raise seedlings, hence an overcrowded condition is liable to arise. I shall this season again grow the earliest Melons in Seakale pots, standing close together, these being plunged in a bed of leaves and manure, with two plants in each pot; the plants being

trained single cordon fashion and the growths regulated according to the success or otherwise of the whole stock, some of which may possibly fail. It is not well to aim at an excessively high temperature as yet: take every advantage, however, of the weather when fine and mild. For the present 65° at night and 75° to 80° by day will be ample, a little ventilation being given whenever a favourable rise is attained, provided the house by its peculiar construction does not afford a sufficient change of air without ventilation, which some houses will do. It is not advisable in the choice of varieties to depend upon untried kinds or novelties. Give such a trial by all means, but rely upon those sorts known to be good, as, for instance, Hero of Lockinge, Sutton's Scarlet and Hero of Isleworth, respectively white, scarlet and green fleshed kinds.

PINE-APPLES.—There are still some who prefer our home grown Pine-apples to the imported ones. In this the connoisseur of this luscious fruit can easily give his reasons for his preference of the former. A well-ripened home-grown fruit of The Queen is infinitely superior to any Smooth Cayenne that has ever yet been imported, whilst for winter use only, when the latter variety is most in request, it has a decidedly dangerous rival in the Black Jamaica. The imported fruits are fine beyond any question, but as regards high-class flavour there is no comparison. The present is a very opportune period for overhauling the stock and selecting the most promising plants of The Queen Pine-apple, if in pots, for starting at once in a higher temperature to fruit in June and July. The mistake, above many, that has been made in Pine-apple cultivation has been in constructing too large houses for their culture. Small houses can be far better managed and be made to give more dependable successions. Being an old hand at Pine-apple culture, I can speak with experience on this point, for oftentimes it has been a question of a glut or a scarcity, and that chiefly through these large divisions. Plants of The Queen variety which have made a full growth and have had a quiet resting period for the past three months will soon show, first the few short leaves and then the crown of the coming fruit. These plants will now bear a temperature of 65° to 70° at night and 80° to 85° by day, with a bottom-heat of 80°, or at the most not more than 85°. Be careful not to over-water these plants, but, on the other hand, avoid the opposite extreme. Do not yet syringe overhead, in fact not until the fruits have safely passed the flowering stage, otherwise the accumulation of water in the axils of the leaves will encourage suckers too rapidly, and that to the weakening of the fruit itself. The floors can be damped down and the evaporating troughs filled. This will be ample for the present. Younger stock should be looked after as regards repotting and rearranging. Where these have been wintered in small pots it will not do to leave them thus much longer, otherwise, by reason of drought and the impoverished condition of the soil, they will receive a check. A good compost is turfy loam and peat in about equal proportions, with a little decayed manure added to it, and a little half-inch bones next the crocks. If the plan adopted is that of planting out, preparations should soon be made for so treating the young stock, in order to make the most of the season as it advances. In this case less peat is needed than in the other.

BANANAS.—For a commencement with young suckers now is a suitable time, selecting those which possess the most vigour. It does not matter if these have no roots of importance so long as the crown is a sound one. Plunge these in a hotbed, and do not let them afterwards receive any check. Large plants which have about completed their growth will not be long before they commence to develop their flowering panicle. When this is seen to be the case, a slight increase in warmth and moisture will be beneficial.

STRAWBERRIES IN POTS.—The earliest plants of such as La Grosse Sucrée or Vicomtesse H. de Thury will now be swelling off their fruits. Afford these liberal treatment as regards both

the temperature and the watering. It is always important to gain as many days as one can; hence a few of the forwardest ones can possibly be given a position upon a shelf in a potinery, early Melon pit, or plant stove. Upon the first appearance of colouring guard against over-feeding, so as not to deteriorate the flavour. Continue to introduce into a growing temperature, steadily at first, fresh relays of plants, bearing in mind that a medium number at more frequent intervals is better than a larger quantity at extended periods. Avoid overcrowding at all stages of growth, for one plant well cared for in this respect is worth two that are drawn up weakly. Red spider should not yet in any case occasion trouble, but, nevertheless, it will be as well to keep one's eyes open. HORTUS.

STOVE AND GREENHOUSE.

NERINES.

ONE of the most interesting exhibits at the Royal Horticultural Society's meetings during the past year was a group of different varieties of Nerines, all of which were raised by Mr. Elwes, whose name is so well known in connection with many classes of bulbous plants. The brilliantly-coloured *N. Fothergilli* or *curvifolia* would appear to have been employed in the production of some of them, that is, judging by their vivid tints, but even the paler kinds were very beautiful. It was on October 26 that these varieties were exhibited, and the fact that no less than seven received awards of merit from the floral committee would indicate that they possessed at least some desirable features. The seven varieties so honoured last October exceed by one the number that have received certificates or awards of merit since the establishment of the Royal Horticultural Society. One of these—*N. coruscans major*—dates back as far as September 27, 1864, a first-class certificate being then awarded it. The others are *N. excellens*, September 25, 1888; *N. Manselli*, December 13, 1887; *N. elegans alba*, October 10, 1893; *N. Novelty*, October 13, 1896; and *N. flexuosa major*, October 27, 1896. With the exception of the last two, these received first-class certificates, but that does not in any way prove that they were superior to the hybrids from Mr. Elwes, as ideas with regard to the granting of certificates and awards are now greatly altered to what was at one time the case.

These new varieties are not yet in commerce, but there are many of the older kinds that are very beautiful and can be obtained at a moderate price. Few, however, of our nurserymen now keep them in stock, the demand being so limited. In any selection the brightly-coloured *N. Fothergilli* or *curvifolia* must have a place. This species, which was introduced over a century ago, is grandly grown in quantity at The Dell, Egham, and during the flowering season it attracts more attention than even the Orchids of that world-famed collection. In a general way, October may be regarded as the month for the Nerines to flower, but some of them are later than that, particularly *N. Manselli*, which has been the subject of several notes of late, and which it will be noticed did not receive a certificate till December 13. The Guernsey Lily (*Nerine sarniensis*) is a well-known kind that used to be grown in very large quantities in the Channel Islands, but the loss among them was so great during the severe weather experienced three years ago that they are not grown so much as formerly. There the bulbs are lifted early in the autumn, and those showing flower-spikes are selected for sale. They can be easily sent even by post, and if potted and kept in an ordinary greenhouse, and of course properly watered, the flowers will open without check and develop as well as if they are established specimens. Nerines from South Africa are sometimes disposed of in the London sale-rooms, but they generally consist of *N. coruscans*, one of the larger growing forms. The genus *Nerine* is nearly related to *Lycoris*, and the plant known

as *Nerine japonica* or *Lycoris radiata* is sent here from Japan in thousands during the winter months in company with, and under similar conditions to, the Lilies from the same region. However desirable a flowering bulb it may be in its native country, it does not take high rank here, being rarely seen in bloom.

The general behaviour of the different species and varieties of *Nerines* may be summed up in a few words. They flower in the autumn, and complete their growth afterwards. Then towards the end of spring they go to rest, and continue in this state till the autumn, when the flower-stems make their appearance. Being bulbous plants, the mistake is by some made of keeping them dry during the winter months in order to rest them, whereas they are in full growth at that period. The cultural requirements of the *Nerines* are not particularly exacting, but at the same time they need careful treatment to flower them well. The soil should consist principally of good yellow loam with a liberal amount of sand, and if necessary a little well decayed leaf-mould to keep it open. In common with many other bulbous plants they resent being disturbed at the roots more than is absolutely necessary, and will flower well when the bulbs are tightly packed together and almost lifting each other out of the soil. Such a compost as above recommended will keep sweet for years, hence its value for such plants as these. During the winter and early spring the plants should be kept in as light a position as possible in the greenhouse and watered moderately during that time in order to encourage good, free growth. Then, as the leaves show signs of going to rest the water supply must be diminished, and when dormant the bulbs should be kept totally dry. A sunny shelf in the greenhouse is a very suitable spot for them during the summer, but as they are by no means ornamental at that period it may be desired to keep them out of sight, in which case they may be placed in a frame with the lights tilted to allow a circulation of air, and at the same time the rain will be kept off. The frame should be fully exposed to the rays of the sun. No water will be required till the flower spikes make their appearance, which will as a rule be in August or September, after which they must be regularly watered. If the blossoms are fertilised seed is readily produced, and the raising of seedlings is particularly interesting. H. P.

Magnolia conspicua.—Gardeners and others who are ever ready to embrace really good and showy subjects for winter flowering will be pleased to learn that this may be brought into bloom in the dead of winter when the plants are fairly well established in their pots, and, of course, giving some indication of the presence of flower-buds. Its value in the open garden or against a wall is well known, yet it is ever admired to the full, more especially when in its blossoming it is not overtaken by late spring frosts, which occasionally occur in some districts. As a subject for forcing, however, it may be new to many. Quite recently at Kew, however, in one of the greenhouses we noted some medium-sized plants of this with several of the magnificent blossoms fully expanded and spreading their welcome fragrance all around. Readers who have large spreading trees with branches near the ground may layer these, and in this way provide a stock for growing in pots for future use.

Tuberose after flowering.—I would like to re-echo the remarks of "G. W." in his reply to "A. T." (page 88 of THE GARDEN). The Tuberose we grow and flower year by year are grown in a warmer climate than our own, with the result that for the most part good flowering roots are produced. But even then, so far as my experience goes, when large lots are forced or even grown in pots with no forcing, only some 75 or 80 per cent. produce good spikes, unless, indeed, a special price is paid for picked bulbs. Much the largest percentage of flowerless roots ensues when grown for very late work, though this may be modified with better methods for retarding such things. All pot-grown roots are quite useless for

after-flowering, a fact readily determined by anyone who cares to examine the bulbs, and so ascertain what sort of new bulb has been formed. Usually this latter amounts to something of the size of an ordinary Crocus, which will be found at the summit of the old root. Compare this with an American-grown root of 4 inches or 5 inches, and "A. T." will have a good idea of what may follow. I have repeatedly tried the experiment, though always in vain, getting an occasional as well as very poor spike of bloom.—E. J.

Begonia Gloire de Lorraine.—Replying to "Anxious" (p. 90), there is little difficulty in propagating this useful *Begonia*. The only thing is to wait patiently until good cuttings can be had. This will probably not be until late in the spring. Plants cut back now will be almost sure to flower again before they will make suitable growths for cuttings. It is better to leave them until they have exhausted their flowering season and cut them back later. The cuttings should be taken as soon as the young shoots from the base are from 1 inch to 2 inches long. I like the very short cuttings taken off close to the old stem. These may be put in singly into small pots, or about a dozen into a 4½-inch pot, using light sandy compost, which should be moistened just sufficiently to keep the cuttings fresh, placed in the close propagating pit and shaded. They should have very little water until well callused, and, provided they do not start damping, there is little difficulty in rooting them. Cuttings from flowering shoots will root, but they will not branch out unless taken off below where the first flowers appear. This applies to all of the fibrous-rooted *Begonias*, but there are few so difficult to get cuttings of without bloom. *Gloire de Sceaux* must be cut back below where it has flowered to get it to branch out and make good cuttings.—A

A NEW RACE OF BEGONIAS.

THE discovery of the distinct and highly ornamental *Begonia socotrana* in 1880 has resulted in the production of an entirely new race of hybrid *Begonias*, the members of which are of particular interest from the fact that they flower during the autumn and winter months. Several varieties have been raised on the Continent, resulting in most cases from the inter-crossing of *B. socotrana* and some other distinct species. Of these by far the best known is *Gloire de Lorraine*, which is getting popular everywhere. In this country Messrs. Veitch are chiefly identified with these new hybrids of *B. socotrana*, their great success being the raising of hybrids between this kind and some of the summer-flowering tuberous-rooted varieties from the Andean species, which are now so universally grown. The first of this class, and I believe the first raised hybrid from *B. socotrana*, was John Heale, which was obtained by fertilising *B. socotrana* with the pollen of a bright-coloured, tuberous-rooted variety, *Viscountess Doneraile*. The seedling (for only one germinated) flowered first in 1885, and was distributed, I think, a couple of years later. After this other varieties soon followed, and we have now quite a group of these hybrids, several of which have won golden opinions during the last season. *B. Adonis*, the second to put in an appearance, resulted from fertilising a tuberous-rooted variety with pollen from John Heale. It is a vigorous, sturdy-growing form. After these two came Winter Gem, a rich crimson-scarlet-coloured flower, and a highly ornamental variety. Since then Messrs. Veitch have distributed other hybrids of this class, for last spring they sent out *Ensign*, with large double pink blossoms like those of one of the summer-flowering hybrids; Mrs. Heale, whose flowers are 3 inches in diameter, of good shape, and of a bright rose-carmine shaded with scarlet; and Myra, of a particularly graceful habit of growth, with a profusion of carmine-rose flowers.

During the present season two varieties have received awards of merit from the Royal Horticultural Society, viz., *Julius*, a plant of compact

habit, with numerous double pink blossoms, which was shown on November 23, and *Winter Cheer*, whose nearly erect, semi-double flowers are of a bright rosy-carmine tint. In referring to the above as a new race of *Begonias*, exception may perhaps be taken on the ground that the first was raised a dozen years ago; but as a class they are not much known, though they have made considerable headway of late, and it is very probable that in time they will vie with the summer-flowering group. H. P.

PALMS FOR DECORATION.

THE present is a good time to look over the stock of Palms used for indoor decoration that will often by now be in rather a bad way. In country houses, where shooting and hunting parties are frequent, there is a drain on the houses for decorative plants that after now is slightly relaxed. As the midseason vineries and other fruit houses are now coming into work, room may be found in these for such as *Kentias* of the hardier kinds, *Chamærops*, *Arecas*, and *Latantias*, and the moist, genial conditions prevailing are very recuperative to plants that for perhaps months have been standing about in draughty, ill-ventilated passages and rooms. It is advisable to keep all plants for house decoration in the smallest-sized pots possible, and although in many cases a good shift may be necessary, this fact must be kept in mind. It is surprising how well some kinds do with very limited rooting space if fed with properly concentrated manures. Plants that have badly-coloured leaves, but are well rooted, may be greatly assisted by a little nitrate of soda, using a teaspoonful to a gallon of tepid water at first and slightly increasing the quantity as the colour returns to the foliage. Soot water or well-diluted guano makes a good change from this, but none of these manures should be applied where the plants are dry at the roots. When the growth is getting away, keep the syringe going freely about the leaves, but it is best to rely on sponging at first to keep them clean, as the water from the syringe is apt to cause mischief by getting down into the crown of the plant and damaging the forming leaves. Palms of these hardy kinds do well in almost any description of compost, and where a rapid growth is needed it is well to make it very rich. Chemical manures are more suitable than animal, as they take up less room for the amount of plant food contained in them, and for Palms this is an important point. It is also a good time to shift on young stuff that needs this attention either for growing on or for use in a small state. The more room in reason the young plants get the better proportioned are they eventually, and even such tall growers as *Kentias* cannot attain that pleasing spreading habit that is their chief attraction when crowded closely together. Where plenty of warmth is at command, any large old plants that have lost the best of their foliage owing to cold or standing in unsuitable positions may have the worst leaves removed, and as this materially decreases their size, the roots may also be cut in a good deal. This is, of course, a serious check to the plants, but they are quite worthless for furnishing when the size of pot required is altogether out of proportion to that of the plant. I would not advise anyone attempting this unless plenty of room in well-heated houses is at command, but if it is, it may be carried out with every prospect of success. As a matter of fact, many of the Continental grown Palms that find their way by thousands to the London and provincial markets are grown over tan or some similar material that the roots enter, and these have to be cut off before the plants are packed. This doubtless accounts for many of them dying, but the fact that the majority live and do well if properly treated afterwards testifies to their long-suffering qualities. The roots must be clean cut, not bruised, and those remaining must be spread out a little when placing in their new pots. Rich soil is not advisable in this case, as of course the mutilated roots have to heal and push out new

points before they have the power of assimilating much in the way of food. Subsequent shifts will be necessary, and then a better staple may be used, or if not repotted the plants may be assisted by feeding from the top when it is evident the roots are getting over the check. The first few leaves produced will naturally be smaller than usual, but they improve afterwards and soon make good specimens again. I am not, of course, advising this treatment for good specimens, but only as a means of bringing old and almost worthless plants back to vigour, and if successful in a fairly large percentage of cases it is well worth doing.

H. R.

Correas.—These are useful and beautiful greenhouse shrubs too little cultivated. In a cool, light, and airy house, growth, though not rapid, is free and in most cases clean, insects, as a rule, giving little trouble when the plants are properly attended to. The treatment advised for New Holland plants generally suits Correas well, but they are more trouble to propagate than some other kinds. The large Heath-like blossoms are extremely bright and telling, looking remarkably well when grouped in lots of separate varieties. *C. cardinalis* and *C. bicolor* are two of the most charming of greenhouse plants.

Azaleas for cutting.—Fielder's White is as good as "M." (p. 88) represents it to be, and for cutting it is invaluable by reason of its lasting so well in rooms. The good old Iveryana is also very useful for this purpose. A large specimen which I have not shifted for ten years makes wood and flowers freely every year. A surfacing, after removing the old soil an inch or so, with leaf-mould, peat, loam, and sand, to which is added a fertiliser, when done flowering, suits the old specimen admirably. I have a high opinion of Borsig and narcissiflora among double whites (the latter I have often seen in great quantities in Edinburgh nurseries for bouquet-making). The useful Deutchse Perle is also very popular in the north.—M. T., *Carron, N. B.*

Cyclamens at Bush Hill.—Cyclamens are largely and well grown by Messrs. Low, and a recent visit to their nursery was well repaid. The varieties are many of them named, but to recount these is hardly necessary. Suffice to say that the strain is an excellent one in every way, the blossoms large and well developed, the favourite colours being well represented. Among the salmon-coloured forms there are some of exceptional merit, but all are good. I was shown a houseful of selected plants for seed in the various colours, and all the forms were first-rate in every way, the colour clear and well defined, the flowers of immense size, and the habit all that could be desired. The age of the plants naturally cropped up, and this I found to be rather over twelve months. The measurement of a typical specimen was 18 ins. across and from fifty to eighty was the number of flowers open at one time upon a plant. In another house was a batch of the charming old sweetly-scented form of *C. persicum*, and although of course not coming up to the giganteum strain for size, the plants were in every way a success. These are grown as cool as possible, and efforts are being made to obtain large forms with the scented flowers. If these are obtained they will be a distinct gain.—H.

SHORT NOTES.—STOVE & GREENHOUSE.

Ardisias with variegated leaves.—In the catalogue of one of the Japanese nursery firms the well-known *Ardisia crispa* (crenulata) is thus referred to: "More than twenty varieties of variegation are known either marginal, speckled, or striped." The same number of variegated forms is also claimed for the allied *Ardisia japonica*. While acknowledging Japan as the country of variegated-leaved plants, the question is suggested, How many really distinct forms are there amongst them?—H. P.

Freesias.—Freesias are as easily grown as any bulbs that we possess. There is, however, one point on which, I think, too much stress cannot be laid, viz., the thorough ripening of the bulbs. I only grow them

in a small way, but I take care after they have flowered not to lay them under a stage, as is done with many bulbs, but to put them up on a shelf near the glass in the warmest part of the house, where they are left until the soil is dust-dry. Freesias are very prolific, and every year I have some difficulty in knowing what to do with the small bulbs which are annually produced.—D.

TREES AND SHRUBS.

THE CISTUSES.

The Cistuses, or rather the greater proportion of them, unfortunately stand on that uncertain line that divides hardy from tender plants. They are so tender that, when grown out of doors entirely, a winter comes sooner or later which clears most of them off. On the other hand, very few people have the inclination, or at any rate the convenience, to grow them indoors, or even to house them during severe weather. The consequence is that the

work, which appeared from 1825 to 1830. The greater proportion of the Cistuses described by Sweet were killed in the severe winter of 1837-8, and the genus does not appear to have ever regained the important position it held in English gardens previous to that date. But in spite of all this the Cistuses are very delightful plants; none of our dwarf shrubs are more beautiful during the time they flower. Although the individual blossoms last so short a time, there is a constant succession of them maintained during sunny weather, and some of the species keep on flowering for a couple of months.

Cistus is represented in the warmer parts only of Europe, especially in the countries bordering the Mediterranean Sea, North Africa, and the Canary Islands. They are shrubs, and the tallest of them grow from 5 feet to 7 feet high, ranging from that size downwards to dwarf spreading plants scarcely 1 foot high. They are very nearly allied to the *Helianthemums*, and, like them, have flowers resembling a wild Rose and lasting but a single day; they



Cistus florentinus in the rock garden at Baycliffe, Lynn.

Cistuses have gone largely out of cultivation. In the early part of the century, however, they appear to have been widely grown and sought after. The interest in them and their allies was, at any rate, sufficiently general to admit of the publication of an elaborate and, no doubt, expensive volume devoted entirely to them. This was Robert Sweet's "Cistineæ," a book in the style of the *Botanical Magazine*, which contains a coloured plate and a rather diffuse description of every species then in cultivation. It still remains the chief work of reference in our own language dealing with this family, although the author, like so many monographers, exaggerated the importance of minute differences and gave specific names to many plants that can only be regarded as varieties or crosses. From the cultivator's point of view as well, Sweet took a rather too favourable estimate as to the hardiness of many of them. This, possibly, was owing to a series of mild winters just prior to the publication of the

differ in having the seed-vessels five to ten-celled, whilst the *Helianthemums* have only three-celled seed-vessels. Many of the *Helianthemums* have yellow flowers; whereas in *Cistus* they are white, or of some shade of red or purple, but never wholly or mainly yellow, although every flower, so far as I have seen, has a patch of that colour at the base of each petal. The leaves, opposite and always entire, are frequently covered with a fragrant glutinous exudation, especially noticeable during hot sunshine.

With regard to their cultivation, the thing of greatest importance to bear in mind is their love of sunshine. They have no particular preference for any one kind of soil; it should, however, be well drained and should not be of so rich a nature as to induce a rank and too succulent growth. When once established in the open, Cistuses never suffer from drought; indeed, hot or even parching conditions are what they most enjoy. Thus they are best suited on

sunny, dry banks and such like places. As has already been intimated, the gardener's chief difficulty is in regard to temperature. One or two of them are of undoubted hardiness; C.

C. ALBIDUS.—Under favourable conditions this species grows some 5 feet high, and is distinct chiefly because of the leaves, which are covered with a white pubescence. It is to this character



A. ROBERTS.
Cistus formosus.

laurifolius, for instance, went through the first two months of 1895 (as trying a time as we have experienced in recent years) without the least injury, but the majority were killed outright. The present winter has, so far, been perfect for them, the short spells of about 10° or 12° of frost having left them quite untouched. But they can only be said to exist on sufferance, and to be absolutely safe need house or frame room in winter. In some gardens the tender sorts have been grown in pots and stood outside against a sunny wall during summer, but wintered indoors. Specimens 4 feet to 5 feet high are thus obtained, which are objects of great beauty during their flowering season. Although I have not seen it tried, I believe the more tender sorts would succeed in a very cool or unheated greenhouse in a position where they got the maximum amount of air and sunshine. When grown outside, a permanent winter covering of mats or like material is worse than useless. A better protection is a light covering of bracken or dry leaves, which allows the air to circulate about them and does not foster damp. With this precaution and the selection of a dry, sunny position above the general level of the ground the outdoor cultivator has to rest content. Many of the *Cistus* are very probably naturally short-lived plants, and for this reason and that of their susceptibility to cold, a stock of young plants ought to be kept in pots. Propagation can be effected by seeds and by cuttings rooted in a cool frame towards the end of summer. They are impatient of disturbance at the root, and should be grown in pots until permanently planted out. Where several kinds are grown together they are apt to hybridise. Indeed, an endless variety can be obtained by intercrossing. In M. Thuret's garden at Antibes (near Cannes) M. Bonnet raised 245 hybrid *Cistus* a few years ago, but none crossed with *Helianthemum*. In the following notes and descriptions Sweet's book has been freely drawn upon. Several of the *Helianthemum* have occasionally been noted in this and other journals under the wrong name of *Cistus*; amongst them are *H. alyssoides*, *H. algarvense*, and *H. formosum*. Mention of these is, of course, omitted.

that the specific name refers, and not to the flowers, which are of a bright lilac or rose, and each 2½ inches to 3 inches across. Sweet describes it as one of the most desirable of its tribe, and quite hardy in almost any position not too moist. The leaves are without stalks, the bases of each pair uniting and surrounding the stem.

C. CORBARIENSIS.—A natural hybrid between *C. salvifolius* and *C. populifolius* and a native of the mountains of Southern France and Spain. It has heart-shaped leaves, 1 inch to 2 inches long, slightly glutinous and pubescent beneath. The flower is 1½ inches across, white with a yellow centre, and tinged with red at the points of the petals. Although killed in severe winters, it is one of the hardiest, and in summer flowers continuously over a period of two months, being each sunny day covered with a profusion of blossoms. It is a quick grower and forms large bushes. In gardens it is known also as *C. cordifolius*.

C. CRISPUS.—Like the preceding species, this is hardy except during the severest winters, and is undoubtedly a very charming shrub when seen at its best. It is compact and bushy, 2 feet high, with sessile, narrow-lanceolate leaves and red-purple, saucer-shaped flowers 2½ inches across: they are borne in a cyme and are distinct because of the very short foot-stalks. It flowers freely during June and July, and even into August. A native of South Europe, and most abundant in Spain.

C. CYPRUS.—To a great extent this resembles *C. ladaniferus*, but it may easily be distinguished during the flowering season by the blooms appearing several together in a sort of umbel, whilst in *C. ladaniferus* they are always solitary. It is also somewhat hardier. It is a large, bushy shrub with glutinous branches and leaves, the stalks of each pair united at the base and forming a sheath round the stem; the upper surface is glossy and smooth, the lower one clothed with a

dense white wool. The flower is 3 inches across, white, with a large purple spot towards the base of each petal. Although it has always been put down as a native of Cyprus, Mr. Wolley-Dod points out that Boissier, the chief botanist of the Levant, did not find it wild in Cyprus or anywhere else. Loudon records that in 1834 there was a plant of this species at Minard, in Argyllshire, nearly 8 feet high and 12 feet in diameter—surely one of the finest Rock Roses ever seen in Britain.

C. FLORENTINUS.—This plant, of which so charming illustrations are given, is one of the dwarfed Rock Roses. It is a compact, twiggy, much-branched shrub, with narrow-lanceolate leaves that are hairy when young, becoming smoother with age. The flowers are each 2 inches across, white, with a tinge of rose at the tips and a yellow spot at the base of each petal. How freely it blossoms the engraving bears witness, and it illustrates, too, the best situation for this species and others of similar character. It is a native of Spain and the south of France, and is possibly a natural hybrid between *C. monspeliensis* and some other species.

C. HIRSUTUS.—In gardens this species is often grown under the name *albiflorus*. It is a native of Spain and other parts of South-west Europe. Its young branches and leaves are densely clothed with hairs, the leaves blunt and each 1½ inches to 2 inches long. The flowers are white, upwards of 2 inches across and profusely borne in cymes at the ends of the shoots. Of its hardiness, Sweet observes that it will bear all our winters except the very severe ones, when a covering will preserve it, but that even this is seldom needed. This is borne out by my experience: it was one of the few that survived the winter of 1894-95 without protection.

C. LADANIFERUS (Gum Cistus).—This is one of



The Laurel-leaved Rock Rose (Cistus laurifolius).

the larger species and grows 4 feet to 5 feet high. The leaves have scarcely any stalks and are flat, narrow-lanceolate, 4 inches to 5 inches long, sticky on the upper surface and woolly beneath. The flowers are always solitary, 3 inches or more

across and white. It is a native of South France, Portugal and Spain, and is very abundant on some of the mountains. The name would suggest the species to be the source of the aromatic resin or gum called labdanum; in part it possibly is, but it is not the only or even the chief source. There are two varieties of it, both figured by Sweet, viz., *maculatus* (t. 1), which has a large crimson blotch at the base of the petal just above the yellow patch, and *albiflorus* (t. 84), pure white, except for the yellow in the centre.

C. LAURIFOLIUS.—This is undoubtedly the hardiest of all the *Cistus*es and the only one which, in many districts, has withstood the winters of the last ten years in ordinary positions with no protection whatever. As a hardy evergreen of very great beauty when in bloom it deserves much more extended cultivation than it obtains at present. It is of erect habit and grows 5 feet or 6 feet in height and as much in diameter. The leaves are stalked (the stalks swelling at the base and clasping the stem), ovate or lanceolate, the upper side viscid, the under side clothed with a pale brown wool. The flowers are white, each 3 inches across, and produced in great abundance from June to August. The variety *maculatus* is a rare shrub of perhaps even greater beauty than the type, each petal having a large blotch of purple-crimson at the base. This species produces seeds freely and regularly, and by their means the stock ought to be renewed every few years, as the old plants are apt to become leggy and worn out. It is a native of the south of France, Spain, &c., and was introduced in 1771.

C. LUSITANICUS.—Most probably this *Cistus* is of hybrid origin, its parents being *C. ladaniiflorus* and *C. monspeliensis*, but of this nothing absolutely certain is known. It is at any rate nearly allied to *C. monspeliensis*. It is a dwarf, compact, dense bush, with very dark green leaves and large white flowers, with a rich purple spot at the base of each petal. It resembles *C. ladaniiflorus* in flower, but is of dwarf habit: altogether one of the prettiest in the genus.

C. MONSPELIENSIS.—In gardens this is frequently grown as *C. Clusi*, a different species, probably not now in cultivation. It is hardier than many species, and when it has survived a winter or two grows into a large compact bush. The leaves are sessile, narrow-lanceolate, wrinkled, and viscid. The flowers are each 1 inch to 1½ inches in diameter, white, with a yellow centre, and are produced in a sort of umbel at the end of each shoot, the weaker ones bearing three to five flowers, the stronger ones ten to twenty. From June to August it is a very delightful plant.

C. OBTUSIFOLIUS.—This is a dwarf shrub of spreading habit and very handsome where it succeeds. The leaves are stalkless or nearly so, very stiff and rough to the touch, and clothed on both sides with a stellate pubescence, as are also the young branches. The flowers are white, crimped, 1½ inches across, and borne on a many-flowered cyme. A native of Crete.

C. PARVIFLORUS.—This is also a Cretan species. It is a spreading, much-branched plant, with tomentose, twisted leaves 1 inch long. The flowers are small (1 inch across), pale rose, and borne on a terminal cyme.

C. POPULIFOLIUS.—Although Sweet remarked that this is a rather tender plant, it has proved hardier than many others. A plant 7 feet high in the gardens at Syon House is recorded by Loudon as having stood the winter of 1837-8 without injury and quite unprotected. It is distinct from most of the *Cistus*es by reason of the long leaf-stalks, which are 1½ inches or more in length. The leaves are heart-shaped and pointed, with a rough surface and undulate margins. The flowers are 2 inches across, white, and borne in a cymose cluster. A native of Southern France and Spain, and introduced in 1656.

C. PURPUREUS.—This is another of the *Cistus*es whose origin is doubtful; most probably it is a hybrid of natural origin. It was introduced from the Levant. It grows 3 feet to 4 feet high, is of bushy habit, and has oblong-lanceolate, wrinkled

leaves. The flowers are sometimes solitary, but occasionally as many as six appear on one stalk; they are of a bright reddish purple, with a large velvety maroon blotch just above the yellow base of each petal. It succeeds well in Cornwall and like places, but requires protection further north in severe weather.

C. SALVIFOLIUS.—This, the Sage-leaved Rock Rose, is widely spread over the south of Europe, and is especially plentiful near Biarritz. The branches when young are clothed with clusters of woolly hairs borne on little excrescences on the bark, which, when the hairs fall away, give it a certain roughness. Its leaves are stalked, ovate, more or less wrinkled like a Sage leaf, and hoary when young. The flowers are solitary, white, and about 1½ inches across.

C. VILLOSTUS.—Several of the plants figured by Sweet under specific names have since been reduced to varieties of this species. It is widely spread over the Mediterranean region, and has been in cultivation in Britain for more than three centuries. It is a compact bush with the leaves roundish-ovate, wrinkled, covered with a grey wool. The flowers, borne one to three together, are reddish purple and 2½ inches across. Sweet describes it as one of the commonest of *Cistus*es in all nurseries seventy years ago.

C. V. VAR. CRETICUS (figured as *C. creticus* by Sweet, t. 112).—This is one of the best varieties of *villosus*. It differs from the type in the leaves being of a more spatulate outline, the base being attenuated to a short stalk; they have the same greyish aspect due to the woolly surface. The flowers are purplish red. The plant is the chief source of the fragrant resin or gum known as labdanum or ladanum, formerly of great repute in medicine, especially during the Great Plague. Now it is used chiefly in perfumery. It is sometimes confounded with ladanum, a drug, of course, with which it has no connection.

C. V. VAR. ROTUNDFOLIUS (figured as *C. rotundifolius* by Sweet, t. 75).—This is of dwarf habit than the type and very bushy; the leaves are very blunt and often as broad as they are long, and the flowers are purple, 2½ inches across, and borne on one to three-flowered peduncles.

C. V. VAR. UNDULATUS.—This was figured by Sweet as *C. undulatus* (t. 63), who admits it to be very similar to the Cretan plant (*creticus*), but differing in the longer style. The flowers are 2 inches across and purple.

At least as many more *Cistus*es might be added to the above, many of them equally beautiful, but those mentioned include all the hardiest, and they adequately represent the genus in all its diversities of size and mode of growth, as well as most of the shades of colour seen in its blossoms. W. J. B.

Cratægus pinnatifida.—This Chinese Thorn, which in the American notes (page 68) is referred to as being conspicuous in the autumn from the brilliant orange and scarlet tints of the foliage, would appear to behave somewhat differently on the other side of the Atlantic from what it does in this country, for, as far as my experience of it extends here, the leaves die off a clear pale yellow, quite distinct from any other member of the genus. It also possesses other uncommon features, for it is one of the earliest of all Thorns to put forth its foliage in the spring, and the large deeply divided leaves have unusually long foot-stalks, which being rather weak cause the foliage to partly droop. The large showy fruits, too, are very noticeable, and, taken altogether, it is worthy of a place among the select Thorns.—T.

A hardy *Callicarpa*.—There is a *Callicarpa* here that grows admirably outside and withstands zero weather. It is killed down to the ground by severe frost, but in ordinary shrub plantations without protection the root stock lives, springing up again each year after the manner of the hardy *Fuchsias* in most English gardens. During the summer its shoots quickly attain a height of 4 feet or more, branch freely, and flower

profusely. The early frosts destroy the leaves, but from October on till nearly Christmas the berries hang in pendent wreaths, and are most attractive in their unique violet colour. Is this *Callicarpa americana* of "Nicholson's Dictionary," where it is spoken of as a greenhouse shrub? Possibly the thoroughly ripened wood contributes to its hardiness, but I should imagine there are many southern and western English gardens where it would thrive and make a glorious display of berries. It is worthy of a wall if that were necessary to encourage it.—A. HERRINGTON, *Madison, N.J., U.S.A.*

Deutzia Lemoinei.—The little free-flowering *Deutzia gracilis* has long stood in the front rank of hardy shrubs suitable for forcing into bloom early in the season, and when *Deutzia parviflora* with its flattened corymbs of white flowers was introduced, it was thought likely that this newer form would be used for the same purpose. It has, however, never made much headway in this respect, but a hybrid between the two raised by M. Lemoine, of Nancy, and distributed under the name of *D. Lemoinei*, has proved to be a very desirable shrub either for the open ground or for forcing. *D. Lemoinei*, which received a first-class certificate from the Royal Horticultural Society two years ago, is a stouter and straighter grower than *D. gracilis*, while the individual flowers are large, pure white, and in the manner of their arrangement about midway between the flattened corymb of *D. parviflora* and the elongated cluster of *D. gracilis*. In the case of these *Deutzias* that have been forced into bloom the young shoots that are produced under glass will, if treated as *Fuchsias* and such things, strike root just as readily, so that a considerable quantity can soon be obtained. The large-growing *D. crenata* and its double variety flower naturally so much later in the season than these smaller kinds, that they are not available for early forcing. Still, they form very pretty objects for the greenhouse or conservatory if brought on gently, though they are not often seen treated in this way.—T.

FLOWER GARDEN.

RIVIERA NOTES.

It has been well said that he who makes two blades of grass to grow where one before existed is a benefactor to mankind. What, then, should be said of the man who has contributed so largely to the floral beauty of this sunny shore by raising the ubiquitous Ivy-leaved Pelargonium *Mme. Crousse*? Of all the winter-blooming plants on this coast I hardly think there is anything so charming, so unailing in flower as this. It hangs in festoons down every sunny wall, and garlands with its soft pink blossom miles of roadside banks and terraces that without its flowery mantle would be dull and ugly indeed. It greets the earliest arrival in October with a wealth of flower which continues, never failing, till the latest lingerer leaves in June, and for all that I know may continue as free flowering as ever during the torrid months of summer. To those who, like myself, remember these shores before this most valuable addition to modern gardens was raised, the contrast between "then," when only two shades of a rather dull lilac were the representatives of this section, and "now," when the whole winter long the cheery pink blossoms of *Mme. Crousse* light up the terraced hillsides, is quite amazing. No wonder visitors of later days accept it gratefully, but without realising how much we all owe to its happy raiser, who deserves a tribute of heartiest thanks from an abler pen than mine. Perhaps the most striking effect caused by this plant just now may be seen by passers-by on the lower road near Monaco, where in Sir E. Malet's garden may be seen what may with

little exaggeration be termed a whole hillside carpeted with this fair flower, one soft mass of silvery pink, with here and there a hoary Olive standing out from the rosy maze of bloom. Under the bright sunshine of a fine January afternoon there is no plant that so entirely can cheat one into believing it is June and not January, and as we all cling so eagerly to illusion of one kind or another, what more can be said, for June could not be fairer!

This genial season the Bougainvillea is in great beauty on many a sunny villa, a contrast to its frost-bitten leaves last year at this time. *Wigandia caracasana* is splendidly handsome now with its rich leaves and purple-blue cymes of flowers untouched by any cold or storm. Even the rather coarse *Senecio* or *Cineraria macrophylla* with its velvety foliage and large Ragwort-like heads of yellow bloom fills a useful mission in decking cold and damp corners where nothing else would flourish in midwinter, and gives an idea of summer luxuriance.

Almond trees in their pink and silver glory light up the hillsides, and contrast with the green and gold of the Orange; Violets are scenting the shady banks, while starry Anemones and the larger *Celandine* light up the rough ground. No longer are the terraces lit up with red and purple Anemones, for they are now either gathered young for the market, or else they are transferred to garden plots, so as to be more under control, but the scent of the flowering Beans is wafted up the hillside in the warm afternoon sunshine, and tells us that spring has come ere we realised that winter existed for us. E. H. W.

NOTES ON HARDY PLANTS.

Margyricarpus setosus.—When the herbaceous things have almost totally disappeared, and before the spring bulbs flower, the value of this is evident. It is certainly a charming plant for the rock garden. The procumbent habit, the evergreen and glossy leaves with their spear-like points, and the pearl-like fruits numerously studded over the whole plant, all go to render this one of our most useful and effective rock plants in winter. If the winter is mild like the present, all the better. In very severe winters it is all the safer for a glass shelter.

Lithospermum Gastoni and **L. purpureo-ceruleum.**—Speaking of these relatively, and for the garden, they are quite distinct when noted the year round, and still there is a similarity, especially if you confine your comparison to the fruiting stems of the latter. *L. Gastoni* is rare, or, at any rate, a scarce plant in commerce; *L. purpureo-ceruleum* is almost a common plant in every sense of the word. The common species is really the better, showier, and more free, hence I think the more valuable for the garden. The short and erect stems of *L. Gastoni* are beautiful when after years you have got it into a strong specimen. In the case of our British form by garden treatment you get a strong plant in two years: its habit, however, is to make long bounding stems, a sort of half stolons, the extreme ends taking root. I mention these because it is by checking this habit that you get the central erect stems of a foot in height, and these are the parts which, from the quantity of deep rich blue flowers, which we fail to find in other genera than *Gentiana* and *Lithospermum*, almost startle one by their intensity. It is in the greater profusion and equal colour that this commoner kind excels. The one thing not to forget is the stopping of the barren stolon-like stems. I chance to have a wide patch of it, and it is from this fifteen-year-old patch that I have gained my facts. For years the plants grew and spread, and there were few flowers. Latterly it was decided that it should extend no further; that decision implied pulling off the runners as they grew. As soon as that

was done numerous erect short growths from the chief centres became topped with bloom. The plant likes a deep, rich soil and a moist position, and its effectiveness is all the greater when you allow it to first broaden out by a few years' natural growth; then the stopping may be done.

Anemone fulgens.—It is well known that the tubers of this largest, brightest and earliest of the Windflowers serve but for one year's flowering, however strong when planted or whether planted in early or late autumn. The results most commonly met with after the first season are dwindled foliage and very few if any flowers. You will find the once large tubers have split into a number of small ones, with signs of their having been gnawed by some ground pest. Where this happens, it may be well to try the tubers in rather strong loam, and when they are being planted give a liberal dressing in the lines over the tubers (before the earth is drawn over) of well-charred garden refuse, just as you would treat kidney Beans. I cannot tell whether it is the potato in the dust that checks ground pests or the carbon that prevents the abnormal decay of the tuber or what, but I find that this dressing is highly beneficial.

Woodville, Kirkstall.

J. Wood.

Winter Crocuses.—The several species which by right may be grouped in this set are now flowering freely, more especially where the groups are established. This is a very important matter so far as concerns the flowering of these plants at the right moment. Nor is it merely a question of lifting and drying them and thereby keeping them out of the soil for some weeks in succession, as much the same results ensue when disturbed at all, even if planted again at once. This has been again clearly demonstrated this year, where a portion was merely lifted from one side of the bed to the other to equalise matters. Those undisturbed began flowering in the middle of January, while as yet the transplanted bulbs had not made their appearance, though perfectly sound. It is by no means a new experience, and the fact is worthy of notice where beds are planted for effect. One of the most lovely of all is *C. Sieberi*, a clear, deep, lilac-blue, with rich golden base and large conspicuous orange anthers. *C. Imperati*, also a beautiful kind, and in addition sweetly scented, is a fit companion for the above and beautifully shaded.

Iris assyriaca and other **Juno Irises.**—The group of bulbous-rooted Irises included by botanists under the collective heading of the Juno section contains some very distinct and lovely species, of which the old and generally known *Iris persica* may be regarded as the type. They have all more or less elongated bulbs and stout, fleshy roots, the foliage very distinct, in some instances having quite the growth of such Orchids as *Vanda* or *Aerides*. The flowers, which are generally very beautiful, are produced from the axils of the leaves. At this time of the year the rare *Iris Rosenbachiana*, one of the most lovely species of this group of Irises, may be found in bloom in the open border in those gardens where a constant succession of rare and beautiful flowers is preferred to a gaudy mass of colour at one time. Such species as *I. caucasica*, *sindjarensis* and its variety *assyriaca*, *orchioidea*, and other members of this group are also showing above ground and keep up the supply until April. All these Irises are essentially open-air plants: they delight in a warm position and a sandy, loose, well-enriched soil, where the long roots may ramble at will, and they are also decidedly benefited by a distinct season of rest, which may be given to them by taking the bulbs up in July and keeping them in an airy, dry place until October. They may for one season be successfully fully grown in the greenhouse, where their quaint beauty will be fully appreciated, but they cannot then be expected to form bulbs strong enough to produce flowers another season. *Apronopsis* of *Iris persica*, I have now some very fine forms of this old species in my collection, none of which is

more distinct than a form which I imported three years ago from Mesopotamia. The bulb, foliage, and flower are nearly double the size of those of the type, the exquisitely tinted blooms having a bold blue-black spot on the blade of the fall. This plant is so distinct that I have appealed to Prof. Foster, whose great botanical knowledge will settle the question whether it should be classed as a variety of *I. persica* or whether it may have the honour to stand as a species.—C. G. VAN TREBERGEN, JUN., *Haarlem*.

ALSTROEMERIAS.

THERE is still time to safely undertake the transplanting of these useful hardy flowers, and of course where the dry tubers may be obtained, planting may be done with impunity. It is not advisable to longer delay this than is possible now, as those left undisturbed will have made considerable growth, and not a little to their ultimate advantage. In certain positions these plants are most effective in the garden. It will depend much on the nature of the shrubs as to the advisability of planting at some distance or in close proximity, though in any case it will be better not to plant too thickly at the start. Provided the tubers are about 9 inches asunder each way, such a group may, if well planted, be safely left alone for ten or a dozen years, though in less than half that time a good display will be forthcoming. When planted in good ground it is surprising how deeply the roots will descend, and how it is well-nigh impossible to trace them after a year or two. More than once I have dug to a depth of 3 feet in search of the tubers in an old standing group without finding them at all, notwithstanding there were signs of the ever-descending growths even after this depth was reached. While these old-established groups flower each year with great freedom, a system of annual or biennial lifting becomes a necessity where saleable roots are required. A good and safe depth to plant the tubers at is 6 inches to 8 inches, not less than the former to keep them secure from frost. At this depth, however, they are safe even in the event of exceptional frost such as that experienced a few years ago, while the older-established groups are proof against any frost we experience in the British Isles. As a rule these things prefer a fairly light, sandy loam, rich and of good depth. Where the soils are shallow, say not more than 18 inches deep, it is a good plan to give a layer of cow manure at 6 inches below the roots. When planting it is best to keep such things free of the ordinary herbaceous border, and devote space elsewhere where they are not likely to be frequently moved. Where the soil is of a clayey nature it is a good plan to mix leaf-soil freely, and with grit this will make an excellent rooting medium. The most detrimental condition is a soil that is water-logged or retentive, and to all such a drain is of the first importance, failing which a raised bed above the ordinary level will meet the case. The best sorts for the garden are *A. aurantiaca*, which attains to 3 feet high when established; *A. chilensis*, a dwarfier and variable species, beautiful when well grown; and *A. psittacina*, with more tubular and somewhat curiously hooded flowers of crimson and green. In the more favoured places *A. pelegrina* and its lovely white variety are worth a trial, but these are less hardy and not so vigorous as the foregoing sorts. E. J.

Raising seeds of hardy perennials.—The best way to do this, excepting in case of extremely small seeds or very scarce kinds, is in drills or even broadcast in small beds, provided there are no slugs or worms. Of course something could be done to check these, but not by the rough and ready means over seed beds, as in the case of strong or established plants. Another thing that could be done would be to so prepare the beds that for a time the seeds would be comparatively safe. As to the time that condition of soil would last would constitute another

important consideration, because one of the advantages of sowing in beds is that perennials may remain (in many cases) in the seed beds for more than a year and be better for doing so.

shadowed it. Those that I planted were cunn and Atkinsi. These have now possibly been self-fertilised, as in this space of some 2 yards or 3 yards square I have many varied colours, shades

there was a flower of *Chionodoxa Lucilie* out on the same border. Here this mild weather is accompanied by extreme dryness, and in the higher parts of our neighbourhood the wells are dry and the cottagers have had to draw water from a distance; the springs have not risen, and unless February fulfils its character of fill-dyke, I am afraid in many places the want of water may prove serious. What will be the result to our gardens it is impossible to say. I do not find that fruit trees are pushing very fast, notwithstanding the high temperature which prevails. It is a curious fact, showing how variable the weather is in our islands, that while we are deploring the want of water there should have been in the west of England, such as Devonshire and South Wales, in the month of December 14 inches or 15 inches of rain, which is more than half our rainfall for the whole year.—D.



Cistus purpureus. (See p. 132.)

Seed beds are wonderfully helped by slight coverings of cocoa-nut fibre; this saves evaporation, and mechanically prevents the crawling of slugs. A thin—very thin—covering of straight straw, kept in position by pegs and tarred twine, has similar effects. The pot, pan and box sowings, either for out of doors or under glass, are all very well where they can be well looked after; they imply a maximum amount of care and certainly are not essential for hardy seeds. Their uses come in more for seeds as above indicated—seeds minute, scarce, or otherwise very valuable; these, of course, are worthy of and should have the greater care. Where the land is sandy or otherwise light, such mulchings of fibre or straw are absolutely needful on the score of preventing rapid evaporation and the consequent “malting” of the seed. When the seedlings have shown up pretty well, the straw should by degrees be removed carefully during dull weather, and then in many ways light dressings of silver sand become helpful. The dressings may be given twice a week or oftener until the plants have got fairly strong.—J. Wood.

Hardy Cyclamens.—The exceptionally mild season has brought these all early into flower. With me they always precede Crocuses, Snowdrops, Primroses, or any other spring flower. I tried them in various parts of the garden, but without success, but seeing somewhere or other that they rejoiced in a warm situation, and did not mind trees overhead, I planted a few bulbs where there was not much depth of soil, with at the back some tall trees which partly over-

of reddish purple, white, &c. The foliage in most instances is beautifully marbled. The whole aspect of the plant is very dwarf and neat. So well does the situation suit them that they have seeded freely. As one oftentimes hears of difficulties in growing these charming bulbs, it may be helpful to some of your readers to know how readily they will adapt themselves to a situation which is favourable to them. I should add that there is a good deal of chalk about them, so they do not seem to object to a calcareous soil. In summer they get thoroughly baked, and I think this is one great secret of the situation suiting them.—DELTA.

Unseasonable flowers.—We have heard a good deal of the plants and bulbs that are in flower in this remarkably mild winter; in truth, in this part of England, which is by no means an early district,—the south-east corner of Kent,—we can hardly be said to have had any winter. There has not been a flake of snow, and frosts have been exceedingly rare and of a very slight and transient character. As a result we have had things in bloom which are most unusual; thus I have had all through the present month blooms of *Polyanthus Narcissus* opening freely in the border in front of my little greenhouse, and I have also had *Gentiana acaulis* exhibiting its grand blue blossoms, and the other day (January 26)

AN AUTUMN BORDER.

GIVEN several large beds or borders either already partially filled with flowering shrubs, or, being empty, have to be planted with tall flowers, it is worth the attention of planters where cut bloom is in great request to devote at least one of them mainly to autumn flowering plants. It is hardly necessary to point out that although little difficulty is experienced in furnishing the flower-basket all through the spring and early summer months, the task is not so easy from the advent of September until towards the end of October. Three of the best species for such planting are Starworts, Sunflowers, and Dahlias, the last to supply colour not obtainable in autumn perennials. Great variety is not advisable, the main consideration being a selection of those things that will combine the ability to provide a good display and be of value for cutting. In the preparation of the border a great amount of manure is not necessary. Plenty of root room, however, is essential, and I should advise bastard trenching, working in a bit of rough stuff before turning over the bottom spit. It is impossible to advise as to actual planting arrangements. That is altogether a matter requiring discrimination to meet existing circumstances. It may, however, be noted that Starworts are available in all shades of blue, from deep to pale lavender, and also in white more or less pronounced, Sunflowers from deep yellow to primrose, and the unique *striatum*, whilst the selection of Dahlias to afford an effective contrast would naturally be in the crimson and scarlet shades. I would also suggest, so far as the perennials are concerned, a careful note as to the height the different varieties are likely to attain, that no after disappointment in the arrangement be experienced. In a small selection of Starworts I should in-



Cistus florentinus at Warley Place. Engraved for THE GARDEN from a photograph by Miss Willmott. (See p. 131.)

clude *Shorti*, *coombefishacre*, *cordifolius albus* and *c. Diana*, *Novi-Belgii Purity*, *John Wood*, *Robert Parker*, *Autumn Glory*, *paniculatus W. J. Grant*, *vimineus* and its varieties, and *Tradescanti*. Whether in perennial Sunflowers preference is given to the single or double

forms will depend on the taste of those concerned. I should say a fair proportion of each, choosing the best types, will be sure to give satisfaction. *Helianthus striatus*, *latiflorus*, Miss Mellish, and *Soleil d'Or* (double) with *Harpalum grandiflorum* are five varieties. Given the acceptance of brilliant colouring in the Dahlias, preference should be also given to those varieties that are very free and that throw the flowers well above the foliage; the latter point, indeed, is absolutely necessary, for however good individual blooms may be they are useless either for a display or for cutting if hidden among the leaves on short stems. The inclusion of Dahlias among the perennials may be objected to on the ground that they are likely to be disfigured by the first frost. It is, however, certain that just a few brighten up a border wonderfully at a dull time of the year, and that these can be protected against an ordinary frost with the aid of a few stakes and some sheets of brown paper. Where borders are extra large and it is desirable to face the tall families with flowers of somewhat dwarfier habit, the latter are to be found in autumn Chrysanthemums, Sea Lavenders, *Schizostylis coccinea*, and occasional plants of *Senecio pulcher*, the shortest of the Chrysanthemums of the type of *Flora* or *l'Ami Canderchet* being reserved for the extreme edge.

Claremont.

E. B.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 8.

It was by some frequenters of the Drill Hall meetings surmised beforehand that there would not be any great display on the above date. Rarely, if ever, has there been seen a brighter display than that of Tuesday last. The attendance, too, was surprisingly good.

The mild character of the present winter was clearly demonstrated in the bright display of hardy spring flowers, bulbous and alpine. These came chiefly from the well-known sources at Thames Ditton, Cheshunt and Tottenham, and it was quite enjoyable to inspect the early Crocuses, the Cyclamens, the Muscaris and Narcissi to be seen in these groups. Hellebores, too, were very beautiful from Cheshunt, and so were the early forms of Iris from Tottenham, notably *I. reticulata*.

Of greenhouse flowers, the Chinese Primulas bore away the palm, two very fine collections of choice strains coming from Chelsea and Swanley. The former consisted of wider ranges of colour, and the arrangement was specially good, the double forms from seed being unusually fine. The latter group was the larger, only needing a few more darker colours to have made it strikingly effective. Camellias, very finely-grown, luxuriant plants with a profusion of flower, came from Waltham Cross. Freesias in the best possible condition came from near Slough. No better recommendation than that afforded by this exhibit could possibly be needed. Particularly fine were the superbly flowered branches of *Bougainvillea spectabilis*, intensely rich in colour, from Battle Abbey, from whence also came the seldom-seen *Bignonia venusta*, but the colour did not blend with that of the *Bougainvillea*. Small decorative Ferns of hardy, wiry-looking growth came from Edmon-ton, betokening good culture. A bright miscellaneous group came from Roupell Park, and from Richmond a collection of dwarf plants of *Euonymus*, &c., whilst from Canterbury came the first instalment of cut Roses—charming blooms of Catherine Mermet.

The Orchids, too, were numerous, the two best groups being those from Chelsea and Burford Lodge; the former contained many rare and choice hybrids, notably of Dendrobies; the latter consisted of finely-grown plants, notably the *Sophranitis* and the *Angræcum*. A profusion of *Cypripedium insigne* came from Ruxley Lodge, whilst from Holloway and Enfield were contributed two

other good groups. The fruit committee did not appear to have much to do, but it was pleasing to note the extremely good competition for the flavour prizes given to Apples and Pears. The best exhibit of all amongst vegetables was that of Sutton's Early Spring Broccoli, of which two baskets were shown in superb condition; the heads were as firm as they could be, and the colour all that one could desire.

Orchid Committee.

A first-class certificate was awarded to—

LÆLIA ANCEPS WADDONIENSIS.—This is a lovely form of the white section of this species, the sepals about 3 inches long and upwards of half an inch in breadth. The petals are $1\frac{1}{2}$ inches broad, of good form and of fine substance. The lip is pure white on the front lobe shading to yellow at the base; the side lobes white, suffused with yellow towards the base, where it has numerous indistinct purple lines. It is one of the finest and most distinct forms we have seen. The plant exhibited by Mr. P. Crowley, Waddon House, Croydon, bore two spikes with two flowers each.

Awards of merit were adjudged to the following:—

CALANTHE SPLENDENS.—A lovely form, with deep rose-purple sepals and petals of fine form and substance; the broad lip deep rose-purple, suffused with a darker shade of colour in the centre. It is the result of a cross between *C. rosea* and *C. Bryan*, and is quite distinct. From Mr. N. Cookson.

PHAIOS-CALANTHE GRANDIS is another bigeneric hybrid between *Phaius grandifolius* and *Calanthe Bryan*; the sepals and petals white, suffused with pink at the base; the broad lip purple, mottled and margined with white. A fine plant carrying a raceme of ten flowers came from Mr. N. Cookson.

Messrs. J. Veitch and Sons were awarded a silver Flora medal for a grand group, consisting principally of finely-flowered Dendrobiums, *Cypripediums*, and *Cattleyas* in variety, both hybrids and species. The most prominent amongst the Dendrobiums was *D. Cybele nobilium* (*nobile nobilium* × *Findleyanum*), a charming variety, having the intermediate characters of the two species; the sepals and petals deep rose, lighter at the base; the lip rose, shading to white, which surrounds the purple disc. Numerous forms of *D. euosmum* and *D. splendidissimum* were also shown. In *D. Cordelia flavescens* the sepals and petals are pale cream, the lip cream, with the yellow and brown suffusion on the lip as seen in *D. aureum*. *D. Wardiano-japonicum* was represented by a fine plant with twenty flowers on the growth. *D. Schneiderianum* (*aureum* × *Findleyanum*) is distinct, having the intermediate characters of both species. Amongst the numerous *Cypripediums* were good forms of *C. Germinyanum*, *C. Godseffianum*, *C. Enea* (*C. bellatulum* × *C. Spicerianum*), and a magnificent plant of a fine variety of *C. Lathamianum* with nine flowers. The most prominent amongst the *Cattleyas* was *L.-C. Myra* (*Lælia flava* × *Cattleya Trianae*), the sepals and petals yellow suffused with pink, the lip yellow, suffused and veined with rich brown-purple. *L.-C. Cassiope* (*C. exoniensis* × *L. pumila*), *L.-C. Zephyra*, finely-flowered *Miltonias*, and other interesting Orchids were also included. Messrs. H. Low and Co. were awarded a bronze Banksian medal for a small group containing finely-flowered *C. Trianae*, numerous *Cypripediums*, and Dendrobiums in variety. The most prominent of the last was *D. nobile Ballianum*, flowers white with a salmon pink disc. Several finely-flowered plants of *Platyclinis glumacea* were also included. Messrs. B. S. Williams sent a small group containing finely-flowered plants of *Lælia anceps*, *Cologyne cristata* and *Cypripediums* in variety. Messrs. F. Sander and Co. sent a splashed-petalled *Cattleya Trianae*, *Oncidium splendidum*, *Lælia harpophylla*, and *Lycastes* in variety. Sir T. Lawrence was awarded a silver-gilt Banksian medal for a group containing finely-flowered

Dendrobium endocharis, *D. Juno*, and *Dendrobium burfordense*. In *Brassia-Cattleya Lindleyana* the sepals and petals are white suffused with rose; lip white with deep rose on front lobe. The plant carried 25 flowers. *Sophranitis grandiflora*, which had been in the collection since 1889, carried 44 flowers. A finely-flowered plant of *Epidendrum Endresi*, *E. polybulbon*, with numerous flowers, *Cypripedium hirsutum-Sallieri*, and a finely-flowered specimen of *Angræcum pertusum* were also shown. Sir F. Wigan sent *Odontoglossum Schillerianum*, a lovely form with yellow and brown markings, and the true form of *Lælia præstans*, now rarely met with. Mr. N. Cookson sent *Cypripedium Sanderiano-superbiens*, a lovely form derived from the parents indicated in the name. The dorsal sepal is green lined with rich brown, the petals green thickly spotted and suffused with rich purple-brown, the lip wholly deep brown. *C. Morgana*, *C. Youngianum magnificum*, *C. Ceres*, and a good form of *C. Juno* were also sent. Mrs. Wingfield sent a good form of *Dendrobium nobile*, and Mr. P. B. Tubbs a grand form of *Cattleya Trianae*. Mr. W. Thompson sent a grand variety of *Odontoglossum hystrix* and a light *O. excellens* named *spectabile*. Mr. S. G. Lutwyche sent *C. villosum* and a form of *C. insigne*, and Mr. C. W. Chard, Clapham, had a pretty form of *Cypripedium Chapmani*. Lord Foley was awarded a bronze Banksian medal for a large group of *C. insigne* of the old type. Baron Schroeder showed *Cypripedium Antigone* (*niveum* × *Lawrenceanum*), both parents being easily recognised in the shape and colouring of the flowers. Mr. Murray (Mr. Cookson's gardener) had specimens of his new Orchid stand in various sizes. There is no doubt this will be found most useful in places where there is trouble with fungus arising through the plants standing on wood trellises; being of wire, it will be impossible for this pest to reach the plants where these stands are used.

Floral Committee.

A first-class certificate was awarded to—

ANTHURUM DR. LAWRENCE.—A splendid addition to this group, judging by the cut specimens shown. The leaves are each about 18 inches long and 9 inches broad, thick and leathery, and dark green in colour. The richly coloured spathes are of a salmon-red shade, each 7 inches long and 6 inches broad, the glossy surface tending to render it more conspicuous. From Sir T. Lawrence (gardener, Mr. Bain).

From Mr. T. S. Ware, Tottenham, considering the early date, came a truly remarkable array of hardy flowers in pots, occupying a considerable amount of staging. The group contained very fine examples of *Narcissus Golden Spur* and *N. Henry Irving*, very good in colour and with handsome foliage. Particularly good was the pure white *Primula denticulata alba*, with many trusses of its snow-white flowers, a plant to which the Tottenham firm has devoted considerable attention. Very effective also were fine established masses of *Iris reticulata* in splendid flower, as also the lovely *I. histrioides* and cut specimens of *I. stylosa*. Snowdrops were represented by the Crimean *G. plicatus* and the more recent *G. Ikarie*, a novelty that possesses a fine constitution, while its large handsome flowers must make it among the most popular. *Hyacinthus* (*Muscari*) *azureus*, a lovely sky-blue, is always delightful, and equally pleasing the Siberian Squill and its pure white form. A grand mass of *Anemone pulsatilla* in a pan 18 inches across was very striking with its silken cups of purple, and, together with a large mass of *Megasea crassifolia*, occupied the centre of this varied and pleasing group. Other notable things were *Leucojum carpathicum*, *Gaultheria procumbens*, and *Veltheimia viridiflora*, while rarer subjects were represented by *Scoliopsis Bigelowi*, *Colchicum libanoticum*, and *Adonis amurensis*. A margin to the whole was formed of pots of the early yellow Saxifrage, *S. apiculata*. Messrs. Paul and Son, The Old Nurseries, Cheshunt, also had a nice assortment of hardy flowers,

the Lenten Roses in this case predominating. We incline to the opinion, however, that a better result would be secured by exhibiting these things without sticks or ties of any kind, as the natural drooping tendency of the plant is thus lost. Most noticeable here were *H. colchicus coccineus*, a very finely coloured form; *H. lutescens*, the yellow and very distinct kind; *C. Benary*; *Olban Otto*, white, freely spotted; and *Gretchen Heineman*, rosy puce, heavily spotted. Other subjects in this group were *Amygdalus Davidiana alba* and a large basket of *Saxifraga apiculata*, to which in this case the erroneous name of *S. luteo-purpurea* appears still to cling. A lovely lot of *Cyclamen coum* was also shown. Messrs. Barr and Sons, Covent Garden, likewise had a small exhibit of hardy plants, in which the various species of *Crocus* or their varieties largely figured. Among these, *Crocus aureus* with clear golden cups is very telling, and not less so *C. chrysanthus albidus* and *C. versicolor striatus*. Lenten Roses were well shown, the more telling being *Apotheker Borgen*, *rubrissimus*, and *James Atkins*, the last of a reddish purple hue and very good in form. *Leucojum vernum* (the spring Snowflake), *Galanthus Elwesi*, very pure, and with large globular flowers, and *Scilla bifolia* were all shown in pans. A warm glow of colour was added by many pots of *Cyclamen ibericum rubrum* and *C. i. lilacinum*, while *Narcissus minimus* and *Lachenalia Nelsoni* were conspicuous by several masses in full bloom. *Iris reticulata Krelagei*, *Muscari azureum*, and *Saxifraga apiculata* were also shown. A curious and interesting plant, *Bellevalia lineata*, had three of its compact spikes of blue flowers, which in colour are not unlike *Hyacinthus amethystinus*. Messrs. Cannell and Sons, Swanley, furnished a table with Chinese *Primulas*, the plants well grown and freely flowered. *Her Majesty*, grand white, with waxy petals; *Cannell's Pink and Emperor*, scarlet, were very fine. The pyramidalis strain was also largely in evidence. (silver Flora medal). Messrs. Veitch and Sons also brought a fine strain of *Primulas* from Chelsea, doubles and semi-doubles in this instance predominating. One of the most exquisite of the latter is *Double Rose*, a really charming rose-pink of great merit; batches of *Double Blue*, *Double Crimson*, together with *Giant Rose*, *Chelsea Crimson* and *Chelsea Rose* were also arranged in their descriptive shades of colour, the group being flanked by baskets of the blue *Primrose* (*P. acaulis corulea*) in full flower. The same firm also had a fine exhibit of *Amygdalus Davidiana alba* in full flower (silver Flora medal). Of great interest was a splendid group of stove and greenhouse Ferns from Messrs. J. Hill and Son, Lower Edmonton. In this instance the plants were shown in neat oblong baskets containing a dozen or more plants each, so far as the smallest examples were concerned. In this way the charming tints noticeable in the young fronds of such as *Adiantum Victoria Regina*, *A. Victoria*, *A. scutum* and *A. rhodophyllum* were well displayed. Other very noticeable kinds were *Asplenium Colensoi*, a welcome plant for furnishing, very compact and dense in the fronds, which are dwarf and arching and of a lovely deep green shade; *Cheilanthes elegans* in splendid condition, and *C. Ellisiana*, another charming plant with longer fronds and very pleasing. These were all in small pots and in excellent condition throughout. Larger examples of *Microlepia hirta cristata*, *Adiantum elegans*, *Gymnogramma Alstoni*, *G. peruviana argyrophylla* and others formed the background (silver-gilt Banksian). Messrs. Peed and Sons, Roupell Park Nurseries, Norwood, had a mixed group consisting of forced Lilacs, *Genistas*, *Cyclamens*, *Lilies of the Valley*, *Cinerarias*, double *Daffodils*, *Saintpaulia ionantha* associated with Ferns, *Pandanus Veitchi*, *Begonias* in variety, backed by Palms, *Aspidistras* and Ferns, for which a bronze Banksian was awarded. Somewhat more exceptional were the *Euonymuses* from Mr. Russell, Richmond, arranged in a semi-circular form near the entrance, and comprising well-grown plants of all the leading kinds of these useful

subjects. *E. japonicus latifolius albus marginatus*, and *E. argenteo-ovatus* were conspicuous. *E. microphyllus argenteo-variegatus* is a small, compact-growing kind well suited to window boxes. Mr. Russell also had fine bushes full of flower of *Daphne Mezereum* in three varieties, the white being particularly good and well flowered, while a fine bush of *Andromeda Catesbaei* gave a distinct effect with its richly bronzed foliage.

A very handsome group of *Camellias* from Messrs. Paul and Son, Waltham Cross, proved most attractive, the plants large and loaded with richly-coloured flowers. Some of the best were *Exquisite*, scarlet; *Conspicua*, crimson-scarlet; *Mme. A. Verschaffelt*, salmon-blush; *Marchioness of Exeter*, crimson-scarlet, large; and *Mathottiana*, still a grandly-coloured kind and one of the showiest. The group also included several plants of *Double White*, while baskets of cut bloom furnished a margin to the whole, and made a rich display (silver-gilt Flora medal). Messrs. R. and G. Cuthbert, Southgate, brought an assortment of bedding *Crocuses* in variety in pots, as also a quantity of *Scilla sibirica* and *S. s. alba*. Among fragrant flowers a fine group of *Freesias* was conspicuous, something like 100 pots of these in splendid condition coming from Major the Hon. H. C. Legge, Fulmer, Slough (Mr. J. G. Mowbray, gardener). The whole of the plants were freely flowered, well deserving the silver Banksian medal awarded. From Canterbury Mr. G. Mount brought a lovely box of *Rose Catherine Mermet* in fine colour (silver Banksian). From Colchester the Messrs. Wallace sent lovely masses of *Iris Histrio*, *I. histrioides*, *I. reticulata*, and *I. reticulata Krelagei*. Bunches of California *Violets* came from Rostellan Castle, Co. Cork, and *Pelargonium J. L. Baldwin* from the Duke of Richmond and Gordon, Goodwood (gardener, Mr. Parker). From Exeter, Messrs. Veitch and Son sent flowers of *Magnolia Campbelli*, lovely in colour and delightfully fragrant, the flowers more closely resembling some of *M. Marliac's* hybrid *Water Lilies* than an outdoor shrub in February. Rev. W. Shirley, Fareham, sent a large plant with two scapes of *Crinum zemense*, the blossom pure white, drooping, while a *Violet*, named *Mrs. J. J. Astor*, of an exceptional red tint and decided perfume, came from Mrs. Champenowne, Totnes. Of its distinctness there is no doubt, but such things are always best when sent in strong flowering clumps rather than a few flowers, which after a journey by post or rail carry but little of their original freshness. A very fine *Lenten Rose*, named *Stephen Olbritch*, was likewise put up for certificate, but failed to obtain any award, notwithstanding its undoubted merit and fine form. From Her Grace the Duchess of Cleveland, Battle Abbey (gardener, Mr. W. Camm), came handsome flowering wreaths of *Bougainvillea spectabilis*, splendidly coloured, and flowering examples of the rare *Bignonia venusta*, with terminal trusses of brilliant orange-scarlet flowers. It is only rarely this lovely plant is seen in flower, though deserving attention where space can be given it. A coloured plate of this species appeared in *THE GARDEN*, April 22, 1882, with cultural notes on the genus.

Fruit Committee.

The exhibits before this committee were fairly numerous for the time of year. The Veitch flavour competition was larger than anyone could have expected. Doubtless the notice that these prizes would soon discontinue had an effect, as rarely have so many Pears and Apples been staged in variety at this season.

First-class certificates were awarded to:—

PEAR PASSE CRASSANE.—The fruits of this old variety were very fine and of excellent quality. Some growers have a difficulty in getting this to succeed, but the fruits shown were very fine indeed, much covered with russet, of a roundish turbinate shape, flesh melting, with a distinct aromatic flavour. From Mr. Woodward, Barham Court Gardens, Maidstone.

APPLE LORD HINDLIP.—This is above medium size. It is an excellent late variety not unlike

Cornish Aromatic in appearance, the skin being flushed with red and having abundant russet markings. It is conical, flesh sweet but refreshing and of excellent quality. From Mr. James Watkins, Pomona Farm, Withington, Hereford.

An award of merit was given to—

CUCUMBER EVERY DAY, a variety which has been shown on several occasions of late. The fruit has scarcely any neck, skin green, with few spines. It is noted for its free-bearing and is an excellent winter variety. From Mr. O. Thomas, The Royal Gardens, Frogmore.

Apples came from Mr. Mount, Canterbury. These were staged along with Roses, thus preventing this committee dealing with them in a proper way. We think it is a great mistake to mix up exhibits in this way. Each should be staged so as to be dealt with in the proper way. There were excellent fruits of Cox's Orange. Court Pendu Plat was very good, also King of the Pippins and Blenheim Orange. There was also a grand heap of *Mère de Ménage*, splendid as regards size, colour, and firmness. Mr. Mount has evidently got a splendid mode of storage (silver Banksian medal). Mr. Miller, Ruxley Lodge Gardens, staged Apples, Pears, and Mushrooms in quantity. The best Apples were *Alfriston*, *Wellington*, *Northern Greening*, *Blenheim Orange*, and *Saundringham* (bronze Banksian medal). The only Tomatoes at this meeting were staged by Mr. Empson, Amptill House Gardens, Beds, these being very nice fruits of the *Chiswick Red* type. Mr. Parker, Goodwood Gardens, Chichester, had fruits of his new Apple (*Goodwood Pippin*). There were other new Apples, but not superior to older kinds. Messrs. Sutton and Sons, Reading, had a notable exhibit in the vegetable section, two large baskets of their superb early *White Broccoli*, these having been grown without shelter of any kind. The heads staged were as large as those of *Autumn Giant Cauliflower*. A nice basket of *Peas* was staged by the same firm, the variety being *Bountiful*: these had been grown in a cool house. This variety had a first-class certificate in 1896.

Mr. Woodward was an easy first in the flavour competition with grand fruits of *Passe Crassane*. Rarely have we seen such specimens of this variety. Mr. Divers, Belvoir Castle Gardens, was second with good *Olivier des Serres*. There were ten competitors, such kinds as *Knight's Monarch*, *Ne Plus Meuris*, *Jean de Witte*, *Easter Beurré*, *Josephine de Malines*, and *Bergamot d'Esperen* being staged. In Appls the premier award went to a dish of Cox's Orange Pippin. This we regretted to see, as this variety has received so many awards on previous occasions. Others less known should have been given a place, as everyone should know the qualities of this variety. The dish staged came from Mr. Divers. Mr. Woodward was second with nice fruits of *Calville Blanc*; this variety is noted for its sprightly favour, and at this season is very good. There were no less than twenty-two dishes of Apples in addition to the above, the varieties being *Court Pendu Plat*, *Scarlet Nonpareil*, excellent *Cockle Pippin*, *Bess Pool*, *Clapham Beauty*, *Blenheim Orange*, *Reinette du Canada*, *Fearn's Pippin*, *King of Tompkins County*, *Lemon Pippin* and *Old Nonpareil*. At this meeting the council made a new departure, three members from each committee being deputed to judge the groups and collections. This caused some friction and strong comments in certain quarters.

General Meeting.

The annual general meeting took place at the society's offices, 117, Victoria Street, Sir T. Lawrence, Bart., the president, in the chair. The attendance was very large. The president stated he was pleased to say the past year had been most successful. The shows and meetings had been fully maintained; in fact, the latter could almost be termed flower shows, owing to their size and quality, and the limits of the Drill Hall often compelled them to restrict the space.

The same remarks were applicable to the Temple grounds, kindly lent by the Benchers. Here the space was restricted, but there was no better position in London for a show, and they much appreciated the loan of the gardens. At the Crystal Palace there was ample space, but to make the show a success it was necessary to provide a fund for the same, as it was important that this show should continue. Last season's show at the Crystal Palace was a great success as regards the fruit shown, as, though a bad fruit season, there was no falling off in the exhibits and the quality was excellent. The president then referred to the Victoria Medal of Honour given by the society to commemorate Her Majesty's Jubilee. He was glad to inform them they had a balance of nearly £900 this year, and that was most satisfactory. Chiswick Gardens had cost £1800, and they hoped to make the gardens of greater interest to Fellows. The gardens and buildings had been allowed to fall into a bad state owing to want of funds, and of course it took time to repair glass structures; but they had done a great deal, and this year would finish the work and place the houses and buildings in a proper condition. The space at Chiswick was limited and they could not extend it. Reference was made to the increasing number of awards given, and he hoped by care in their distribution to make these more valuable. The first-class certificate of the society should be the blue ribbon of horticulture. The council had made an arrangement with Dr. Voelker to advise Fellows and give analyses of soil or manures at a small cost, the society paying a portion of the fees. To-day they had a deputation from the Royal Society on an important horticultural matter, and this showed there was a greater interest taken in their society. During the past year some of their body had visited the great Shrewsbury show, and were most kindly received by that society. No less than 325 more Fellows were elected last year than in the previous one, and this year they had 113. The council heartily thanked the various committees for their attention to the work of the society. Their thanks were also due to exhibitors. He wished to tender his thanks to Mr. Sherwood and Mr. Graham for their kindness in placing valuable prizes at their disposal, to the donors of books and papers, and to those who had contributed papers on various subjects.

Surgeon Lieut.-Col. Ince proposed the adoption of the report at great length, referring to several matters of detail. Dr. Masters seconded, and referred to the manner in which the society had distributed the Victoria medals, a difficult task, but from the numerous communications he had received he could say that the awards had given general satisfaction. He also stated that the catalogue for the society's library which he had been entrusted with was now nearly complete, and would make a valuable addition to the society's books. Surgeon Lieut.-Col. Ince proposed a vote of thanks to the chairman for his valuable services. This was seconded by Mr. Geo. Wythes, and carried unanimously. The Fellows appointed to be scrutineers, Messrs. Geo. Banyard and Harry Turner, stated that Sir F. Wigan, Bart., Messrs. J. Gurney Fowler and Jas. Hudson had been unanimously elected members of council in the room of Messrs. Cookson, Douglas, and Gabriel, and the officers of the society had also been re-elected. Mr. Douglas was given the best thanks of the meeting for his great help on the council for the past nine years, and the council greatly regretted losing his valuable services.

The weather in West Herts.—Another very mild week, and the fifth in succession. On the last two days of January the temperature of the air rose to 55°. Only once before during the last thirteen years has such a high reading been recorded in that month. The temperature of the soil at 2 feet deep now stands at 44°, and at 1 foot deep at 46°, both of which readings are much higher than any previously observed here in Feb-

ruary. No rain worth mentioning has now fallen for nearly four weeks, and no measurable quantity of rain-water has come through either percolation gauge for six days, the latter a very unusual circumstance at this period of the year. During the night of the 30th ult. the wind blew with the force of a moderate gale, direction west. The past January was the warmest of the last thirteen, but the mean temperature was only very slightly higher than in January, 1890. In 1890 the days were rather warmer, while the nights, on the other hand, were warmer in the January of the present year. Taking the lowest readings in these two months, the greatest cold registered by the exposed thermometer last month was 10° of frost, whereas in January, 1890, the same thermometer showed 14° of frost. Rain fell on only ten days, and to the aggregate depth of little more than three-quarters of an inch, making this the driest January with two exceptions (1880 and 1888) during the past forty-three years. The sun shone brightly on only nine days, the total record being twenty-two hours, or half the average duration for the previous twelve Januaries, and smaller than in any of them. Since the winter half of the drainage year began in October only 6 inches of rain have fallen, against an average rainfall for the same period in the last forty-three years of 11 inches. So that, although no rain is as yet wanted in the gardens, it is much required for our underground water supply. The Coltsfoot was first in flower on the 31st ult., or earlier than on the same bank during any of the previous seven years.—E. M., *Berkhamsted*, February 5

—The past week has seemed rather cold after the very mild weather of that preceding it, but as a matter of fact the temperature has been on the whole about average, while the exposed thermometer has at no time shown more than 10° of frost. The ground temperatures have fallen somewhat during the week, but are still from 1° to 2° warmer than is seasonable. About half an inch of rain has fallen since the beginning of the month, which caused the drainage through both percolation gauges to recommence on the 6th. The winds have again been high, and on the 2nd a moderate gale was recorded—direction W. Since the beginning of the month the sun has shone for altogether 21 hours, or nearly as long as during the whole of January. *Narcissus minimus* came first into flower on the 2nd. A selected patch of yellow *Crocus* first showed an open blossom on the 6th, or eighteen days earlier than its mean date for the previous eleven years.—E. M., *Berkhamsted*.

NOTES OF THE WEEK.

***Narcissus cyclamineus*.**—This unique species is now well in flower, and, this season at least, in the open border is as early as the Snowdrop, and a charming companion plant.

***Galanthus plicatus*.**—The strong stems, fully 9 inches high, and handsome drooping flowers make this a really conspicuous kind even among many really charming and beautiful forms, old and new. The strong plicate foliage and bold stems render it a fitting ornament for the rock garden at this time.

***Saxifraga Boydi alba*.**—This is a charming little plant for the rock garden in sunny fissures just now, with snow-white flowers and pretty tufts that bid fair to possess a good sturdy constitution. It is rather slow in growth, perhaps, but this is natural, yet it makes a really charming plant so early in the year.

Blue-eyed Mary (*Omphalodes verna*).—Spreading masses of this are now aglow with the intense blue flowers that make one of the most exquisite subjects for a cool or moist position. At times we see it in quite opposite positions, though the plant is never so happy or luxuriant as when carpeting some moist and rather shady spot. In such it is a lovely plant indeed.

***Chionodoxa sardensis*.**—This most brilliant of blue flowers is now charming; indeed, it seems only a few days since the earliest of its bronzy-coloured leaves appeared above the soil, to be so closely followed by the charming and showy sprays of rich

Gaulian-blue flowers. That so really beautiful a flower is popular is not in the least surprising; the wonder is that it is not seen in every garden.

Mildness of the season.—At the present time (end of January) vegetation is everywhere very forward. Roses have grown some inches and many fruit-buds are bursting. *Chrysanthemums* outdoors are growing as freely as they should do during April. The hardy shrubs are moving prematurely. *Garrya elliptica* as a pyramid in wet positions was never finer.—M. T., *Carron, N.B.*

Roman Hyacinths.—Perhaps one of the most striking proofs of an abnormally early season is to be found in the fact of the above being in full flower in the open at Ditton. The species is represented by blue and white forms. In this instance perhaps the flowering is hastened by the bulb having been grown in a warmer climate than our own, the very mild winter permitting the blooms to open at this early date.

***Galanthus ciliatus*.**—The flowering of this new species scarcely bears out the accounts that preceded it. These stated it to resemble *G. Fosteri*, but instead of the strikingly broad glaucous foliage and large globular white flowers of the latter, we have a singularly small and frail form, with equally frail and puny flowers, that bear more resemblance to those of *G. caucasicus* or a weakly *G. nivalis* than might else.

***Narcissus pallidus præcox*.**—Following closely upon *N. minimus*, this Daffodil is now in flower here, or, to be strictly accurate, buds gathered yesterday from a clump planted several years ago in a warm corner are now fully open in water in the house. The Tenby Daffodil is very strongly in bud, and in some cases very nearly showing colour.—A. KINGSMILL, *Harrow Weald*.

***Narcissus minimus*.**—The perfect form of this miniature trumpet Daffodil is one of its greatest charms. At Kew we noted it quite recently ready to open. Singularly enough, in the light warm soil at Ditton, where beds of the plant have existed in past years, the flowers are much earlier than in the more permanent quarters. These, however, are planted quite shallow, while others that are buried deep in the soil have already burst into bloom.

***Anemone blanda taurica*.**—The richly-coloured flowers of this are again with us, daily expanding in the warm sunshine. In a quiet nook in the rock garden where shade and a uniform condition of moisture prevail this is always more or less content. In a mixture of peat, loam, and leaf-soil it is generally best suited, and when in flower one of the most delightful of early spring plants.

***Iris Bakeriana*.**—This lovely dwarf species is now among the early gems in flower in Messrs. Barr's grounds at Long Ditton. It is lovely in colour, delightful in its fragrance, and surpassingly beautiful even amid the wonderful and varied class to which it belongs. Rather dwarfer than the well-known *I. reticulata*, it is still a delightful flower. Very striking is the intense violet shade of the margin of the fall, and equally so the central patch of creamy white or yellow with its innumerable spots within the colour just named. It is quite hardy, and is usually among the first to flower.

***Colchicum montanum*.**—This distinct species is now in flower in the open beds with Messrs. Barr at Ditton, and is represented in both the typical and the white-flowered forms. It is of the latter that the group is mostly composed. It is a pretty bulbous plant, 4 or 6 inches high. The outline of the segments of the perianth strongly resembles a small half-expanded Tulip rather than the more erect, linear and pointed segments that some illustrations of the plant portray. It is a pretty plant, the white form particularly so, and would make a capital subject for the rock garden, where a low carpet of some evergreen could continue the display at other seasons.

Hepaticas in bloom.—A few blossoms were to be found on these in the beginning of January, and now (February 8) a good many plants are in flower. As you remark on p. 115, they belong to *Hepatica triloba* or *Anemone Hepatica*, and not to *H. angulosa*. I do not think old plants are flowering quite so profusely as usual, but seedlings are doing well. Growing from seeds is, if slow, very interesting work, and seedlings are usually very vigorous. *H. triloba splendens* is

particularly brilliant, but for effect in the garden none are superior to the double pink Hepatica, which has, moreover, a splendid constitution.—S. ARNOTT, *Carsethoru*, by *Dumfries*.

Daphne Mezereum.—In its various forms this shrub is flowering much earlier than usual, the larger bushes being loaded with bloom. In many parts of the garden the bushes may be employed with advantage, more particularly where a background of evergreens or the like for the moment atones for its leafless stems. On grassy slopes it is often seen to advantage when the plants are mixed together, and a carpet of the Winter Aconite at this season will make a complete picture in outdoor gardening.

Bellevalia lineata.—Under this name a pretty bulbous plant is now flowering for the first time in Messrs. Barr's collection at Long Ditton. The plant is about 6 inches or rather more in height, the scape appearing in the centre of a pair of bronzy leaves that encompass it after the manner of the Tulip in the early stages. In the above species the scape does not exceed the foliage in height. The flowers are blue, of the shade of Hyacinthus amethystinus, though shorter and somewhat contracted at the mouth instead of gaping as in the species of Hyacinth named. It is a curious and interesting plant, quite distinct from anything so early in the year.

Hepatica angulosa is now very charming with its pleasing pale blue flowers larger than any others of its tribe, and singularly beautiful in their way. Very pretty, too, is the mixture of its blue blossoms and woolly leaves. In these respects it is quite unique, and for a sheltered position in the garden one of the most beautiful of early flowers. We saw this species in plenty the other day in one of the shelters at Ditton, and close by a fine lot of the old double blue. Other kinds are fairly plentiful. We were surprised at seeing so much of this really old-fashioned garden plant. It is usually content as a margin to beds of Rhododendrons, or among groups of Azalea mollis and such things that provide shelter from very hot sun.

The blue Hippeastrum (H. procerum).—This has recently flowered in Messrs. Veitch's nursery at Chelsea, and is worth mention on account of its rarity, the peculiarity of its growth as compared with other Hippeastrums, and the distinct colour of its flowers. The flowers of this species have been called blue, but this colour, it may be remarked, is about on a par with that blue we hear of so much occasionally as being associated with certain Orchids. The flowers are lilac-mauve, and even then the colour consists of numerous spots very closely arranged on a white ground. The flowers are 4 inches or 5 inches long, tubular and wavy, and as many as six are occasionally produced on the top of the thick fleshy peduncle. The appearance of the plant suggests a Crinum or a Coburgia rather than a Hippeastrum, owing to the long flask-shaped bulb, from the top of which proceed two rows of long strap-shaped and falcate leaves of a glaucous hue. One other remarkable difference between *H. procerum* and its congeners is that the peduncle springs right out of the centre of the bulb, whereas in the other kinds, such as *H. equestre*, it is developed from the side of the bulb. On the whole, *H. procerum* is a very distinct plant, and if only its colour can be got into the other Hippeastrums, we may yet see a splendid race of bulbous plants in our greenhouses. *H. procerum* is a native of Brazil, and a coloured plate of it appeared in THE GARDEN in April, 1894.

Anoiganthus breviflorus.—A coloured plate of this beautiful winter-flowering greenhouse plant was published in THE GARDEN in 1891 (vol. xl., p. 54) prepared from a plant at Kew, where it has since flowered annually and is now blooming again freely in the Cape house. Many bulbous plants from South Africa are beautiful, but difficult to manage in this country, but *Anoiganthus* is as easy to accommodate as an *Agapanthus*, the bulbs multiplying by means of offsets, and growing

vigorously if planted in loamy soil in pots and kept moist all the year, except during the few weeks between the fading of the leaves in October and the pushing up of new leaves and flower-spikes in December. The leaves are tinted with red-brown when young; the scapes are each about a foot long, and they bear each an umbel of about ten flowers, which have a slender stalk an inch long and a tube $\frac{1}{2}$ inches long.

—This exquisite species, recently noted in THE GARDEN, is a gem among choice bulbs for winter flowering. The charming colour and the great profusion of its flowers render it especially valuable, and when to this is added the fact that its cultural requirements are almost as simple as those of *Vallota*, little should be wanting to make it as popular as it is beautiful and distinct. The clear golden yellow of the erect cups is very telling, and when fully expanded the flowers last a considerable time in good condition.

JANUARY FLOWERS AT YORK.

I HAVE been making a list of flowers in bloom in January, as I usually like to do, and this year it is so much longer than usual, that I thought perhaps you might be interested in seeing it. In many cases I have been able to add the dates on which they first appeared. With the few more found to-day it brings up the number to over 100, which is the largest I have ever known in January. M. L. B.

Aconites (Erauthis hyc-malis)	Helleborus niger
Adonis amurensis	olympicus
Anemone blanda	sulphureus
bracteata	antiquorum
coronaria	Iris alata (8th)
Hepatica triloba	Pakeriana (19th)
Arahis procerus	histrioides
Berberis Mahonia	pumila lutea
Celandine (Picaria Ranunculus)	reticulata (30th)
large (F. grandiflora)	Jasminum nudiflorum (8th)
(30th)	Lithospermum rosma-nifolium (25th)
Chickweed (Stellaria media)	Leucojum vernum (20th)
Chimonanthus fragrans	Lamium purpureum
Chrysanthemum	Myosotis dissitiflora (31st)
Colchicum crociflorum	Morisia hypogæa
Crocus chrysanthus festus	Narcissus minimus (14th)
tinctus (24th)	Bulbocodium nivalis
aurus (25th)	(31st)
lavigatus (22nd)	Omphalodes verna (20th)
Imperati longifolius	Ornithogalum sororum
Sieberi (19th)	Primula vulgaris (11th)
Boryi (19th)	purpurea
versicolor (19th)	single white
biflorus argenteus	single crimson
(30th)	single lilac
leucostigma (31st)	Miss Massy
Aucherii (31st)	Polyanthus
Daisy (Bellis perennis)	Pansies
double red	Polygala Chamæbuxus
double white	purpurea
Daphne Mezereum (20th)	Potentilla splendens (25th)
Blagayana (29th)	Pulmonaria officinalis
laureola (24th)	Pyrus japonica
Philippi (29th)	Roses
Doronicum excelsum	Rudbeckia hirta
Draba verna (19th)	Rhododendron dan-icium
Maweana (21st)	(11th)
Erica carnea (9th)	Strawberry, alpine (20th)
carnea alba (9th)	Symphytum officinale
Geum miniatum	(16th)
Eweui	Scilla bifolia grandiflora
Gentiana acualis (8th)	(29th)
vena	bifolia (30th)
Galanthus montanus	sibirica (31st)
(11th)	Saxifraga Burseriana
nivalis (20th)	Burseriana major
corycensis	(7th)
Hyacinthus azureus	oppositifolia
Hepatica angulosa (18th)	Senecio vulgaris
Helleborus atro-rubens	Tussilago fragrans
colchicus	Vinca minor (20th)
corsicus	minor alba (20th)
caucasicus punctatus	Violets: Viola odorata
fetidus	(21st)
guttatus	pale blue
	Veronica agrestis
	Wallflower (yellow) (22nd)

PUBLIC GARDENS.

Open spaces.—At the monthly meeting on Wednesday of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Sir William Vincent, vice-chairman, presiding, progress was reported in regard to the laying out of the East Street and York Street, Walworth, recreation grounds, and it was stated that the improvements, as arranged, were being carried out at the Jewish burial ground in Fulham Road and at St. Nicholas Churchyard, Deptford. A letter was read from Lord Llangatock's representatives stating that, the Building Act Committee of the London County Council having withdrawn its objection to a proposed new road, the scheme suggested by the association for the preservation of the Paragon open space, New Kent Road, which it had agreed to lay out as a public garden, could now be proceeded with. It was announced that the Paddington and Charing Cross Railway Bill for the construction of a railway under the parks had been abandoned, that the Edmonton District Council had introduced a Bill for the acquisition of Pymmes Park, and that a member of the association had provided a drinking fountain for the Guy's Hospital ground, Bermondsey, now being laid out. It was agreed to offer to pay for the opening on Saturdays of certain school playgrounds in Wandsworth, and to take steps for the acquisition as public open spaces of sites in Bermondsey, Islington, the Strand, Hampstead, New Cross, Camberwell, Wandsworth and Bow.

TRADE NOTE.

Pure Peruvian guano.—In the very interesting article on Mushroom growing which appeared in last week's GARDEN, Dr. Repin states (p. 103) that a "tolerably practical method of remedying a deficiency of urine in a manure heap would be found in adding to it some pure Peruvian guano, which is rich in uric acid, but that for many years past such guano has not been in the market." However true it may have been some years ago, I think it can hardly be justified at the present day. The Anglo-Continental Guano Works (Ohlen-dorff's) have for many years past placed upon the market pure Peruvian guano, which they import in great quantity from the Chincha group of islands situated off the coast of Peru. The Anglo-Continental Co. guarantee their guano to contain from 10 to 17 per cent. of ammonia and about 20 per cent. of uric acid, and also phosphate and some potash. It is possible that the importations of this company were overlooked by Dr. Repin when such a statement as the above was written.—J.

Mushroom culture in Britain.—Appropos of last week's article on Mushroom growing in France, we purpose soon to publish an account of Mushroom growing in Britain generally, and shall be glad if any correspondents will tell us of interesting establishments of this kind.

Chrysanthemum Mme. Carnot.—Will any reader of THE GARDEN kindly inform me in what way this should be grown to get good blooms? This variety will not do with me. The buds always look very promising, but at the time they should open they turn black, or half the number of the petals unfolds, while the other half refuses to do so.—R. K.

A correction.—In my note on "Vegetable Culture under Difficulties" of last week's issue of THE GARDEN (page 106), there appears an error or two (clerical). In the eighth line, for "valueless" read "not practical," and in the ninth line, for "experimental" read "exceptional." The former seems too sweeping an expression, and the latter alters the meaning altogether.—J. ROBERTS.

Names of plants.—C. L.—*Cryptomeria elegans.*—*Fritz.*—*Iris stylosa.*

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FLOWER GARDEN.

SCILLA SIBIRICA.

THE Scillas are general favourites, and we have no prettier sight in our British woodlands than a great expanse of the "Blue Bell" of England or, as our Scottish country folk call it, the "Craw tae." Long before *Scilla nutans* comes into bloom we may, however, enjoy in our gardens the fine blue flowers of the Siberian Squill of which I now speak. Grown in pots it is valuable for the greenhouse or conservatory, or even for the window, but to see it in full beauty it must be grown in the open air where its flowers have a fitting setting among the grass or the greenery of other plants. It is comparatively cheap, and one may, without a heavy call upon the purse, plant it freely. Not every season does it come with the Snowdrop, but when it does the contrast is a delightful one, especially if the two are mingled together. In the Scillas we usually find considerable variety of colour. *Scilla bifolia* and the Spanish and English Squills have sported into white and pink and pale and dark blue forms. The Siberian Squill has been less indulgent to us in this respect, but now that it is so largely cultivated we may confidently expect to obtain a greater variety. Some may say this will be no gain, but where Nature sets the example, Art need not fear to follow. I know haunts of *Scilla nutans* where it has sported into pink flowers of various shades, whites of different degrees of purity, and blues varying from a pearl blue to a deep, dark shade. And those who admire the little Siberian Squill are not visionaries in thinking it, too, susceptible of equal changes. Some of these changes have been secured and others are still to come, and most assuredly will come.

The typical *S. sibirica* is of a very beautiful and distinct porcelain-blue, the inside of the flowers being paler than the exterior, but we have now a pure white form, and there are besides dark blue and striped varieties. The

first of these originated in a Dutch nursery, and is now offered at what must be considered a low price for such a flower. The dark blue appears to be a selection, and the striped or margined form, which will, one would hope, lead to a new race, is from the garden of Mr. James Allen. There is also the variety known as *S. sibirica multiflora* from, I think, the Taurus Mountains. This comes into bloom earlier, has more flowers on a stalk and is lighter in colour. The type comes from Russia, Persia and Asia Minor.

The white form of *Scilla sibirica* is very beautiful and well worthy of a place. It appears, however, to be a little more delicate in constitution, and should therefore have a more sheltered position. For the very dark blue form in my garden I have been indebted to Mr. W. B. Boyd, of Faldonside, Melrose, who informs me that it was selected by the Rev. Dr. Paul, of Roxburgh. It has been the first of the forms of *S. sibirica* to flower here this year. It is of a very deep blue and looks well beside the Snowdrops near which it grows. The variety raised by Mr. Allen at Shepton Mallet, and named by him *S. sibirica marginata*, is a very distinct one, with flowers which might be better described as "striped" blue and white rather than "margined." It is not in bloom as I write, but I am looking forward to a renewal of the pleasure experienced in former years. The flowers a little way off remind one of partially expanded Japanese umbrellas, so peculiar do they look, but pretty withal. Seeing these varieties naturally induces one to search among seedlings and imported bulbs for something distinct. It must be said, however, that it is not very encouraging work. The flowers alter considerably from the time they first open until they are past their best, and we are apt to fancy we have found a new variety, only to see in a few days that the flower becomes like its neighbours. Yet the fact remains that others have been successful, and this should spur some on to take up the work of seedling-raising and selection. It is slow work in the case of most bulbs, and the disappointments are more

numerous than the rewards. Still, there are rewards which will repay the amateur gardener and will give him a keener pleasure in his garden than mere following in the beaten track would do. *Scilla sibirica* presents many possibilities for such work. In a light soil it grows well and seeds freely. A break once secured, the potentialities which may flow from it are many. Other flowers have given great results in the hands of skilful men. Simple though it is, the Siberian Squill may yet give us garden treasures new and rare. S. ARNOTT.

VIOLETS FAILING.

CAN you tell me the cause of my Marie Louise Violets going off so badly? I have sent a sample for you to see. They are planted in brick pits in manure and soil within a few inches of the glass, and look as if they were burnt in some way. The plants seemed to be very strong and healthy till about a month ago. They have plenty of air in the daytime.—A.

* * * Our efforts to assist would have been materially strengthened had "A." furnished fuller particulars as to soil, also the season when planted in the pit. Especially helpful would have been a complete plant with the roots attached, rather than the fragments before us. "A." does not even furnish particulars of the condition of the roots, yet we suspect these are greatly at fault. We incline to this view as the flowers as well as the foliage are attacked. The last phrase in the above note, viz., "the plants seemed to be very strong till a month ago," would appear to indicate that the roots have reached some obnoxious material and are virtually poisoned as a result. In the material sent there is no sign of scorching whatever. Indeed, the margins of the leaves, that invariably give the first sign of distress, are quite normal. The perfect condition of the membrane likewise dispels the presence of fungus. In these circumstances, therefore, we imagine that the soil is either unduly rich, or what is equally bad, or worse, the roots are in actual contact with the manure itself in bulk. Your plants have too long remained healthy to attribute the cause of failure to too much heat by fermentation, as this would

have happened much earlier. Therefore we suggest that the bed of soil in which the plants were put out when planted in the pit is much too shallow, thereby bringing the roots of the Violets at once into touch with the manure. If our view is the correct one the remedy is simple—*i.e.*, increase the bed of soil. Perhaps one of the most prolific sources of failure with winter Violets in frames is due to planting the clumps on a solid heap of manure, a quite unnecessary thing when we remember how perfectly these plants will grow and form scores of flower-buds in a single clump when planted in good garden soil during the summer. Success would be more often complete when such things are transferred to the frame for flowering if the usual bed of fat manure was discarded, providing instead a soil somewhat lighter and more freely drained than that in which the plants were grown in the open.—ED.

VIOLET MARIE LOUISE.

I WAS very pleased to note "H.'s" remarks on the above in THE GARDEN (page 96), but his experience and mine differ greatly, especially in respect to the plants left out in the beds where grown, for with me the blooms and foliage produced by these after the end of October compare most unfavourably with those from plants put into pits a month earlier, the former lacking the deep colour and the latter the luxuriant green of the pitted ones; in fact, unless one is hard driven, they are scarcely worth the picking. My experience of carefully lifting strong, healthy, clean, and vigorous plants with well-ripened crowns and large balls of fibrous roots leads me to the conclusion that the check received is infinitesimal, even when in full flower, causing no injury to either blooms, buds, or foliage, and if a rational treatment be followed at pitting, and after, in the way of a thorough soaking of clear water and full exposure during open, favourable weather, the cause of decaying foliage must be looked for elsewhere. Diseased plants, such as I described recently, are exceptions, and will lose their leaves and go wrong under any treatment. I am also under the impression that artificial fertilisers should be applied earlier, *viz.*, during the growing season, and liberally then, for at the late date "H." suggests the roots are comparatively inactive, even in plants that have not been disturbed, and consequently unable to assimilate food to any extent; in fact, I believe the plants should have been so built up during growth and ripening as to obviate further feeding until fresh growth commences early in the year. Practically the buds that produce the winter blooms have been formed in the growing quarters, and have sufficient stamina stored to develop perfectly without the aid of further feeding. On the other hand, what may be termed the second crop—that thrown up in the early spring—will be benefited by judicious feeding, to which the plants quickly respond, as then roots become active and accompanied by top growth. I have tried growing the plants in the pits where they are wintered, but the result was not satisfactory, and I fear the shallow box frames "H." mentions would not be a success, besides being impracticable on a large scale. Respecting hotbeds for this variety, I am at one with "H." as being a delusion and a snare, and am not a keen advocate for even the heat from a 4-inch pipe, retarding often being more of a necessity than forwarding. As climatic influences, as well as situation, soil, and treatment evidently affect this lovely Violet, notes from divers growers in various parts of the country would be instructive and interesting.—JNO. ROBERTS, *The Gardens, Tan-y-bwlch.*

—I have read with great interest "H.'s" letter in your columns of Feb. 5 on the Marie Louise Violet. I quite agree that the damping of the foliage is a great drawback to the successful cultivation of the Violet. Of course, most gardeners have different ways of bringing this beautiful flower to perfection, but if the plants are taken up with good balls in the beginning of September and planted in the flower-

ing frame, leaving the lights off until it is absolutely necessary to protect them at night from severe frost, and when the lights are put on in the daytime they are given plenty of air, I think this will get rid of most, if not all, of the damping of the leaves. I have been very successful in the cultivation of the Marie Louise Violet for several years, and consider it requires more attention than most gardeners give to it. Taking the cuttings in March, striking them in a hand-light, taking them from the hand-light, planting them in the open ground under the shade of a north wall in the beginning of May, and keeping all the runners off during the summer and also after they are put into the flowering frame, take a lot of time and trouble which many people will not give. Good loam, with plenty of leaf-mould, sand, and a little well-rotted stable manure, forms a very good compost for the Violet. The soil should be 1 foot to 18 inches deep in the frame, with plenty of drainage under. I have tried artificial fertilisers, but the Violet will do far better without them. Making a good bed in the first instance is very essential, and do not water except when the soil gets nearly dry; then regularly drench the plants in the morning, leaving the lights off all day afterwards. My Violets were out well on November 1 last, and now are very good, many being over the size of half-a-crown. There are several gardeners round here with Violets equal to mine, if not better, but all grow their plants in the same way.—J. R. B., *Tregye, Perranwell, Cornwall.*

Anemone fulgens.—As my experience of *Anemone fulgens* is exactly the contrary of Mr. Wood's, it may be useful to state it. I planted a dozen tubers in the autumn (end of September) of 1894, and the clump has improved steadily ever since. Last year it flowered very freely, and this year it has already (February 12) some flowers open and several buds. It is planted in an exposed bed, which is very much dried up in summers like those of 1896 and 1897. The soil is light and rather poor, and all the attention I have ever given the plant is that of leaving it alone.—ARTHUR TILLEY, *Cambridge.*

Margyricarpus setosus.—This little shrub deserves all the praise it has received from Mr. J. Wood, and I refer to it principally to emphasise his recommendation to cover it in very severe winters. One may grow it for several years without any protection, and then have the misfortune to find that it has been hopelessly injured by the frost. Small, self-sown seedlings, which occasionally appear, are not quite so tender, but in the exceptionally hard winter of 1894-5 I lost not only the old plants, but also the seedlings. It can be grown from the berries as well as from cuttings. So far as I am aware, the other species named in the "Index Kewensis," *viz.*, *alatus*, *Clarazi*, *imberbis*, and *microphyllus*, are not in commerce, if in cultivation.—S. ARNOTT, *Carse-thorn, Dumfries, N.B.*

Lithospermum Gastoni and L. purpureo-cœruleum.—Few who have grown both of these Gromwells will dispute Mr. Wood's discriminating remarks regarding their relative value. The scarcity of *L. Gastoni* may make it more sought after, but its brilliancy is faint compared with that of the commoner *L. purpureo-cœruleum*. Still, to many the more compact habit of Gaston's Gromwell will give it many advantages over the other. It increases slowly, and in a good many places this will be held to be an advantage rather than a deficiency. Its drawback is the difficulty some experience in establishing it. This failing is not often experienced with *L. purpureo-cœruleum*, but its barren stems and the necessity of checking these do not recommend it to many who find themselves short of time to spend upon these details. If these stolons are left unchecked, not only will the plant fail to bloom, but they soon find their way and root among other plants where their presence is unwelcome, and at times injurious. At the same time, this common Gromwell has such a beautiful colour, that it is worth some trouble and pains. If the runners are left alone, a good space will soon be occupied. *L. purpureo-*

cœruleum seems to prefer a little lime, but *L. Gastoni* does not appear to mind.—S. ARNOTT, *Carse-thorn, by Dumfries, N.B.*

PLEASURE-GROUND WORK.

A BIT of pleasure-ground work for the new year is the removal of a brake of big, old Laurels some 70 yards long by over 40 yards in width, in all rather over three-quarters of an acre, that has long been an eyesore, blocking out as it did, despite annual cutting, lovely lake views that but for this would have come in from different stand-points along stretches of lawn. Now that the Laurels are cleared away, no light job by the way, for they had been in possession for many years and had stems like young trees, the idea is to make just a few bold beds so arranged that glimpses of the lake are seen between them, putting the remaining space down in grass. I have been thinking what to plant in these beds, and it is not an easy matter to come to a decision. Anything in the shape of greenery, that is, plants whose claim rests solely or in the main on their foliage is unnecessary, because there is in tree and shrub life already a superabundance of this in the immediate vicinity; anything small or formal, too, would be quite out of keeping with the surroundings. I have decided on some of the strongest forms of Iris for the bed nearest the lake; for another, occasional plants of *Gynurium argenteum*, filled in with *Kniphofias*; another, *Delphiniums*, and yet another, a mixture of Tree and dwarf *Pæonies*, the last in a position where it will be partially shaded by a big Cedar. The *Delphiniums* in such a position would seem to savour of the formality I am anxious to avoid, but I think this may be obviated by planting rather thinly with perhaps something between, as Foxgloves or things of a similar nature. I want to avoid all flowers throwing big level heads of bloom after the style of *Phloxes* and some of the *Starworts*. In connection with the bed in which *Kniphofias* are to be associated with the *Pampas Grass*, it will be in the recollection of GARDEN readers that some five or six years ago a correspondence took place in its columns as to the hardness of the former. I do not think any of the varieties are absolutely hardy, and deep planting, which was advocated at the time, is useless in a season when the frost penetrates to a depth of 12 inches. Under these circumstances some protection is absolutely necessary. If Bracken is used some bent Hazel or Osier twigs should be placed over the same to prevent its dispersal with the first high wind. I am able to use the dead foliage of *Taxodium distichum*, which has been previously noted as one of the very best things for the purpose. An endeavour will also be made with respect to this bed to get the true form of *Pampas Grass*. I do not mean *Gynurium argenteum* as opposed to *Arundo conspicua*, but the true *Gynurium*, of which there are two distinct forms, the one a splendid autumn plant, the other absolutely useless with its weakly stems and very tiny plumes. E. B.

Claremont.

Expansion of frozen flowers.—The note (p. 94) on the expansion of buds of *Narcissus pallidus præcox* after being frozen for a fortnight reminds me of an occurrence that happened in my garden during the early part of 1895. In the first week of January many buds of the giant Christmas Rose (*Helleborus altifolius*), some unopened and others partially expanded, were frozen and remained ice-bound until after the commencement of March. On the departure of the frost the limp stems recovered their consistency and the flowers opened, none the worse for their lengthened period of torpor, furnishing a gathering of perfect blooms on March 7. The *Chrysanthemum* blooms, imported in solid blocks of ice from the antipodes and subsequently exhibited in London, also proved that flower-petals are not injured by being hard-frozen, although alternations of frost and sunshine quickly mar their beauty.—S. W. F.

MIXED BORDERS.

It is to the mixed border that the lover of flowers and of Nature turns for relief from the formal lines which, even in the present day, find too many advocates. Mixed borders are by these dismissed with the sweeping assertion that they are confused muddles, that they do not provide a continual display of gay colour, and that they lack orderly arrangement, a disparagement that confesses the critic's inability to conceive informal, and therefore natural, beauty. Such a border as thus illustrated in the accompanying engraving is both natural and charming. The vista of the long walk, narrowing into the distant shade; the over-arching greenery; the varied form of flower and leaf, and the hint of mingled sunshine and shade are all delightful. In the foreground the Canterbury Bells stand boldly out, and the tall Irises bear aloft their handsome flowers,



A border of Canterbury Bells, Irises, &c. From a photograph sent by Miss Mabel Gaisford, The Grove, Dumboyne, Ireland.

while far as the eye can reach foliage and blossom mingle to create an harmonious picture. Beautiful mixed borders such as this are none too common, and it is well that their presentments should appear where they may emphasise to the flower-lover's eye the grace of natural grouping.

S. W. F.

Saxifraga apiculata.—The free spreading tufts of this species, as also its free and profuse manner of flowering, at once fix it as among the best of its tribe. It is also one of the very earliest to bloom. Indeed, in this respect the flowers are at times overtaken by frost and snow. This is due to a natural inclination to early flowering, and often in a mild December the buds may be seen pushing away from the rosettes of leaves. Unlike some kinds, as, *e.g.*, *S. coriophylla*, the above does not suddenly die off, and in truth will endure a good deal of rough usage before being perma-

nently injured. No species can be more quickly grown into large spreading patches than this. During the summer the plants delight in plenty of moisture, and if this is assured, a full crop of the bright yellow blossoms will follow in early spring. By reason of the numbers of flower-buds the plants are in blossom for several weeks in succession.

Fritillaria oranensis.—One of the greatest surprises recently presented to us in the open at Ditton was a mass of this in full bloom, the earliest flowers opening in the last days of January. At the time of our visit many flowers were fully open, and by the time this note appears there will be a really charming display of this unique species—unique, inasmuch as it is above ground and in flower before many other species are a-stir. The species attains to a foot high with large drooping flowers of a rich vinous purple and shaded with green. There is some variation in the flowers, the intense colour penetrating through the perianth segments in some instances and

as many others also. The species above named is later in flowering, but, by establishing a large plant the previous year in a pot, it could be forwarded into bloom for the purpose indicated.

BUNCH PRIMROSES.

SOME people object to this name, and contend they should be known as large-flowered Polyanthus. I consider Bunch or Polyanthus Primroses the most suitable name. I observe some seedsmen class them as hybrid Primroses. I fail to see how they can be called simply by the name of Primroses, seeing that they only produce single flower-stems in the early stages (many of them throwing the blooms in bunches from the first). As the spring comes on they produce all their flowers on a stem in big bunches. Last spring a lady ordered a packet of seed under the name of hybrid Primroses. The following season when they came into bloom she was disappointed, as she expected them to bloom as *Primula acaulis* did. It is of importance to have a correct name to this type of hardy border plant, which has become fixed. I doubt if there is another class of hardy border plants that can compare with them for producing an effect in the open garden through the spring months. To cut from they are grand, seeing they have such long stems and the colours are so bright and varied. As pot plants to grow in frames or in cold houses they have much to recommend them. When potted up early in the autumn and given frame room they begin to bloom early in the autumn. For window boxes they are most useful. When in Norfolk recently I saw them used in a way I had not before—namely, for planting in large masses under trees where the shade was not too heavy, and to my surprise they were in a most vigorous condition, and I was assured they produced a most gorgeous display in spring. I grow them here in very large quantities and use them for the purposes above named as well as for planting in the grass. I never think of growing them from division unless it be a kind I wish to increase. The best results are obtained by raising a batch of seedlings every year, and when the plants get weak and worn out I throw them away.

Raising seedlings is a very simple matter. Two methods may be adopted. Seed may be sown in early spring or it may be sown as soon as ripe. I adopt the former method, as it answers my purpose best. Early in February I get some shallow boxes, filling them with fine sandy soil, pressing it lightly into the boxes and making it level on the top. On this I scatter the seed thinly, covering it lightly with the same kind of soil passed through a fine sieve. The boxes are removed to a house or pit with a little warmth in it, covering the boxes with a mat or paper to keep the soil from drying. If the seed is sown in the autumn as soon as ripe, it comes up more quickly, and the young plants are nice and robust to go out in spring. Some cultivators sow in the open, but this I have never found advantageous, as the worms drag the young seedlings into the ground, and should the weather be dry, it is troublesome to keep the surface moist. When the seedlings are strong enough (which is about May), they are pricked out 6 inches apart into a somewhat shady border. During dry weather they are moistened over every night. By the autumn these are nice strong plants large enough to go into beds, &c., and if removed carefully they soon get established. Should they have been sown the summer previous, then they need pricking out earlier in spring and wider apart, as by this method the

assuming a rich glossy hue. It is without doubt one of the most valuable of the genus by reason of its early flowering. The same species came before the Royal Horticultural Society at their first meeting of the present year.

Helleborus trifoliatus.—At the present time, when so much attention is being turned to improving the forms of the Lenten Rose, this handsome plant seems to be overlooked. At the same time, with its free-growing characteristics and certainly picturesque habit, it is quite possible it would form an excellent parent in the cross-breeding of these handsome subjects. Possessing greater hardiness generally of foliage, its tough leathery leaves always render it a most conspicuous object in the rock garden, and if some of this distinct bearing could be infused into a new race, the seedlings should possess undoubted merit. For example, the fine form of *H. orientalis*, known as Mrs. Lambert, should make an excellent pollen parent in such an experiment,

largest plants are produced. I have found them do grandly when living on a dry soil in North Hants grown between the Gooseberry bushes.

One of their great recommendations is the length of time they continue in bloom. I have often observed they begin early in the autumn, and if the weather is not too hot they will continue till well into May. This season they have given me good bunches all through the winter. If needed for effect in the garden, then they should be grown in separate colours.

Forde Abbey, Dorset.

J. CROOK.

ERIGERON GLAUCUS.

In reference to my note concerning this plant, I may say that, from material kindly sent me, Mr. F. W. Meyer is fully justified in describing this plant as having long, prostrate stems. The growth kindly sent by Mr. Meyer is nearly 2 feet, though in justice it must be said that it does not well represent the species. It is, indeed, an elongated stem, and owes its abnormal length to the position occupied by the plant at Exeter. This has so altered the general appearance of the plant, that the complete rosette of leaves to which I referred previously is transformed into an elongated stem with alternate leaves on the last 4 inches or so of the stem. In the border the radiating growths issue from the main stem in a nearly horizontal manner, quite clear of the earth usually, and when about 9 inches long incline upwards and are terminated by the complete rosette of leaves, which render it so striking and attractive. The trailing position occupied by the Exeter plant has, however, altered much of this natural growth, and, though not improving the appearance of the plant, judging by the material before me, has apparently prolonged the flowering. It is, in short, a striking instance of what position and environment will accomplish even in a well-marked species such as this.—E. J.

My remark on page 19 regarding the illustration of this plant, as grown in Messrs. Veitch's nursery at Exeter, referred to the form of the flowers. A close examination of the engraving and of a plant growing in the border here leaves little doubt in my mind that the Exeter plant is the true *E. glaucus* as shown in Wooster's "Alpine Plants." I think that even in the border this *Erigeron* has a tendency to become prostrate, as its outer stems touch the ground here, although those in the centre of the plant remain upright. The one-sided and pendent position the plant must necessarily occupy on rockwork will induce this prostrate habit to become still more marked. Mr. Buxton has kindly written me a most interesting note on *Erigeron glaucus* and *Anthemis tinctoria*, in which he has enclosed a pen-and-ink sketch of the *Erigeron* with a habit which can only be called prostrate. I think if "E. J." will again examine the small engraving in THE GARDEN of December 18, 1897, he will see the character of Wooster's plant with the exception of the upright growth and the sub-shrubby habit, the latter being concealed by the prostrate position. The rosette of leaves is apparent, but it is due to "E. J." to say that the plant appears more free flowering than when grown in the border. As to the flowering time, I cannot tax my memory with an attempt to fix its first coming into bloom, but I can say that it is in bloom in July and August, with a few flowers in September. It may come into flower in May, but if so it does not go out of bloom then, but lasts for a considerable time. I think the time given by Mr. Meyer is the correct one. There are several beautiful *Erigerons*, but none which give more satisfaction than this if we except the border plant known as *E. speciosus superbus*, a most valuable plant from every point of view.—S. ARNOTT, *Carsehorn, Dumfries, N. B.*

Helleborus Stephen Olbritch.—It is curious that this variety, one of the very finest Lenten Roses ever placed before the floral committee of

the Royal Horticultural Society, should in the opinion of that body be regarded as unworthy of an award, and on February 8 be passed by without comment. Indeed, had I staged so fine a form I should have been greatly disappointed at the result, and now I can only marvel as to the reason of so handsome a kind being passed by. Of course I shall be told that no one, or an insufficient number, voted in favour of an award, or that, having a mover, no seconder was forthcoming. Of the origin of the variety in question I know nothing, but of its merits I am assured. It is not of the dirty white or greenish hue that is all too prevalent in this class, as many of these are without distinction and with but little merit. It is such as these that require weeding out. I believe I am correct in saying that, so far as trade collections are concerned, this variety is unique, as much in its warm rose shade as in its perfect cup-like form. The sepals are indeed nearly orbicular, heavily imbricated and beautifully veined, in form approaching the highest standard of excellence. Is it possible that such flowers are not sufficiently regarded at the table? The merit of such things is not determinable by the merest glance as a scarlet *Pelargonium*. At any rate I am by no means alone in regarding the above as a really fine kind, and as such deserving some mark of distinction.—E. JENKINS, *Hampton Hill.*

NOTES FROM SUFFOLK.

THIS has been a mild, but not sunny winter, yet the flowers are peeping out by degrees, and to-day (January 31) the bees are flying to and from the hives as if they knew the Crocuses had already put in an appearance. Now a midwinter bouquet from the garden in East Anglia is, in ordinary seasons, a rarity, yet a dainty little nosegay might be gathered to-day without intruding on frame or greenhouse. First, Snowdrops, single and double, Violets (blooming as freely as if they had not been with us all through Christmas), Crocuses, Winter Aconites, purple Anemones, only a day or two in advance of *Anemone fulgens*, of which the buds are just opening, and bright Hepaticas. Peeping, too, from among choicer shrubs there is the Spurge Laurel, its green flowers reminding us, by their sweet perfume, of its aristocratic connection with the Indian Daphne, which grows well when grafted on its humble congener. Abutilons have stood through the winter unharmed, as have *Calceolarias*, *Eschscholtzia* (seedlings), and many others. To complete the bouquet we have *Ribes sanguineum* and *Laurustinus* in profusion, with "hard Ferns"—for this is not a Fern country—and a few catkins from the heavily-laden Filbert bushes to take off any stiffness of arrangement. Filberts remind one of purple Filberts, so rich and beautiful in their coloured foliage, so pretty in their fruit on the desert dish, but too little known or grown. The same remark might be made of *Prunus pissardi*, of which leaves and fruit are alike charming. Fine-foliaged plants are, thanks to our modern writers on gardening, brought now into notice, much to the benefit of gardens and their owners, but a word or two on flowering shrubs would be acceptable to many who do not dream of the beauty which lies hidden under long Latin names in nurserymen's catalogues or gardening dictionaries. *Prunus sinensis* fl.-pl., often grown in pots for greenhouse decoration, is a perfect gem as a standard in the open, and just now is covered with tiny buds, soon to open as perfect little rosettes. Abroad may be seen the use made of standards, for plants and shrubs are chiefly grown here as dwarfs or bushes. One border seen at The Hague or Cologne was particularly effective. In this case the standards were of alternate *Heliotrope* and white Roses; between them, on festoons of fine wire or string, was trained the light, graceful *Maurandya Barclayana*. A large white bud on *Magnolia grandiflora* is as eloquent on the mildness of the season as in the kitchen garden the luxuriant growth of Chervil, Parsley, and Tarragon. The fruit-buds are swell-

ing fast, and the Hop bine is some inches from the fostering shelter of mother earth. On the Holly fence the hawfinches are taking the last berries, and gardeners are wishing that sparrows and other little feathered gourmands would follow their example, and leave the green buds of Gooseberry and Currant bushes alone.

SUFFOLKIAN.

FLOWER GARDEN NOTES.

PREPARATIONS FOR SUMMER.—In cases where little or nothing in the shape of beds or borders is to be found in the immediate neighbourhood of the dwelling house, a goodly supply of plants in pots is often required to brighten up the surroundings through the summer months by the formation of occasional groups in odd nooks and corners where they can be employed with due regard to their effective and pleasing contrast with permanent things. The present month is a good time to make preparations for the same, as it necessitates not only growing on a lot of strong, healthy plants, but a certain amount of time to get them into condition for standing outside in the way of hardening off. This naturally does not apply to a number of hardy things that can be grown in pots, tubs or boxes, but to things like Fuchsias, *Heliotropes*, *Pelargoniums*, *Marguerites* and the like that are all well adapted to such work. It may be accepted as a good rule that a small number of large, well-grown plants is infinitely better for the purpose than a host of little things. There is a patchiness about the latter that should if possible be avoided, and a minimum of pot room is sure to result before the end of the season in sickly foliage and poor bloom, especially if the situation is exposed and a hot, dry summer necessitates constant watering. *Francoa ramosa*, *Campanula pyramidalis* and *Cannas* in variety are good plants to mix in with the things already mentioned. Of the first named I strike a number every year, but the young plants are kept for indoor work and the older ones that will throw a number of spikes for outside. In *Pelargoniums* the best are the free-flowering doubles. The majority of the flowering plants when once established are retained for several seasons if they continue in good form, but renewal is practised when a sign of deterioration is shown, and operations with all that are retained consist in the examination of drainage, which should be as slight as possible consistent with the prevention of water-logging, the removal of an inch or two of top soil, and a top dressing of equal parts loam and cow manure. A caution as to the drainage is necessary, because there is sometimes a tendency to overdo it, with the result that the plants if fully exposed dry out very quickly and the water pot is in constant request. A great number of varieties of Fuchsia are not advisable, free-flowering sorts of short-jointed, compact habit that will grow into dense bushes or pyramids being most serviceable. Plants of the white and yellow large-flowered *Marguerite* will have to be closely watched for any sign of maggot, if they are clear a tri-weekly dewing over with quassia extract will act as a preventive.

PROPAGATING.—A few tender plants that are increased from cuttings are required in most gardens, and the propagation of the same will soon have to be considered. *Heliotropes* are always useful, and if the new form proves out-of-doors as much more vigorous than the better known varieties as it has in pots, then it certainly is worth attention. Tips of old stock plants will be found to go away quickly and kindly, and if shifted on as soon as they are rooted will make big stuff for summer beds. Plant thinly, running the main stem up a 2 feet stake to increase the height, and carpet with silvery *Centaurea*, *Gnaphalium lanatum* or *Cuphea platycentra*. The dwarf *Ageratum*, I mean the variety that keeps about 4 inches high, is always acceptable, and having a good supply of Tufted Pansies of a somewhat similar shade, there is nothing like it as a carpet plant for large bush or pyramidal plants of Fuchsias or Ivy-leaved *Pelargoniums* selected in varieties to make a pleasing

and effective contrast. Tropæolums I have dispensed with for some years, as the various herbaceous plants have gradually strengthened, but where summer bedding is a main consideration, colour as supplied by varieties of which Vesuvius and Mrs. Cibran may respectively be taken as types, will be found useful, and these forms are also invariably of compact habit, free-flowering, and lasting well. The two best coloured leaved plants, medium and dwarf, are probably Iresine Lindenii and I. Wallisi, that is, for ordinary places where there is not accommodation for the winter housing of Coluses and Alternantheras. I think, however, that now we are getting such brilliant colouring in the leaves of some of the fibrous Begonias with, in addition, an abundance of flower, plants grown solely for their foliage may gradually be ousted. Save when some special shade is required, it is hardly advisable to trouble about cuttings of Verbenas, Petunias, Lobelias and the like, as very fine flowers are expeditiously obtained from seed, and the young plants so raised are generally free and vigorous. If, however, Lobelias are wanted for some particular purpose it is best to propagate from cuttings. Seedlings vary considerably in size and habit, in size and brightness of eye, and in the more or less pronounced shades of blue. A store of boxes should be ready to hand to which seedlings or cuttings should be transferred, giving them sufficient room that they may develop into nice bushy plants; such plants when carefully removed come away quickly without the check that is inevitable in the case of those things whose roots are mutilated. E. B.

Claremont.

ROOF-GARDENING.

TO THE EDITOR OF THE GARDEN.

SIR,—I have been much interested in reading the able contributions to your paper on this subject. It seems that a great many difficulties have to be contended with before success can be expected. It may be news to your correspondents that in Norway roof-gardening is carried to perfection without the help of men, either in sowing, planting, or watering. Although most Norwegian houses are roofed with either boards or large thin stones, many of them in out-of-the-way places are covered with Birch bark, well overlapped to keep out the wet, and over which squares or blocks of turf about 9 inches thick are placed, not with a view to floral or arboreal effect, but to prevent the bark curling and for warmth. The result is that if it happens that flowering plants already exist in the turf, which is usually the case, the garden is already made; and if they do not, Nature soon supplies the deficiency. In many parts of Norway not usually visited by the ordinary tourist there is any number of small buildings which have their roofs covered profusely with the most lovely wild flowers and even with small self-sown Fir and Birch trees. I have seen the most beautiful display of Violas and Ox-eye Daisies growing on roofs of houses, and the best crop of wild Strawberries I have ever seen in that country of wild Strawberries (excepting once in a churchyard) was on a roof. Usually one sees patches of various colours of Viola and even a mixture of Violas, Ox-eye Daisies and other flowers, but occasionally either one or the other has a roof to itself, entirely covering it with colour. It is by no means an uncommon thing to see several Fir trees, and occasionally Birch trees, up to 8 feet or 10 feet high growing vigorously on roofs, but they usually die before they reach that size—I suppose from want of support.

Your contributors appear to have plenty of means at their command, so I would suggest that they cover any roof at their disposal with thick turf, grass side uppermost, to prevent heavy rain washing the soil away, and then plant it.

I send you a rough sketch of a small Norwegian farm building showing the roof covered with bark just ready to receive the turf. You will observe that a board or piece of wood has been fixed to prevent the turf slipping down, and that it is held up by large wooden hooks which are attached

to roof framing. Such an arrangement might be easily applied to an existing slated roof and turf placed on the slates. If thick enough, I think that in ordinary seasons sufficient moisture would be retained to last until the next rainfall.

Leicester.

CLAS. S. ROBINSON.

CULTURE OF THE LENTEN ROSE.

I HAVE a dozen good clumps of the Lenten Rose on a south border in rather light and dry soil, but the flowers have not been so plentiful the last year or two, during which time the plants have been going back. They have been five or six years undisturbed, although top-dressed every spring. I am thinking of removing them to another part of the garden, and would like to know the best time to do this and the soil and situation most suitable for them.—J. J. A.

* * * Provided our estimate of the present condition of your plants is correct, viz., that they are in a somewhat sick or weak condition at the moment and the present flowering of but little worth, we would most certainly take the plants in hand at once. On the other hand, if the flowers are sufficiently good and plentiful to deserve it, it may be well to wait till flowering is over. By carefully regarding your letter, however, seeing the plants have been going back for a year or two, the wisest course will be to discard the flowers now for the sake of the future well-being of the plants, as it is quite clear that they have not only exhausted the soil, but that the annual top-dressing fails to sustain the plants in your case. We would most certainly advise you to replant them, and in doing so to select a different aspect. "A south border" would, in the majority of cases, be too hot and dry in summer, and we imagine this has been so in the present instance, as five years are by no means an abnormally long time for these plants to remain in one position; indeed, well planted at the start, they should be now, after five years, splendid specimens. The treatment best calculated to make them a complete success is as follows. Select a partially sheltered position free from tree roots, where the plants would not feel the hottest sun and be likewise free from cutting winds in spring, the latter even more important than the former. A bed of soil at least 2 feet deep should be given and thoroughly enriched. These Lenten Roses often send their roots to a depth of 3 feet where opportunity offers, and should therefore be catered for accordingly. As your soil appears rather light, we would suggest a very liberal addition of well-decayed cow manure, working it well into the soil 18 inches from the surface, and if possible a few barrowfuls of rather heavy loam or clay to render the whole more holding. If this is not possible use the manure with a liberal hand, keeping it of course free from the roots and avoid burying it in solid lumps. This special depth of soil and preparation are always the more necessary where the soil becomes too dry in summer, an item to be avoided where these handsome plants are to be made a success. In removing the plants these will be greatly benefited by division, and under no circumstances is it well to transplant large clumps intact. Clumps of the age you describe should make four and probably six good plants fully large enough to successfully transplant. Even if space is limited, we must still urge the division of the clumps, as the divisions may be replanted to form groups in sheltered spots on the side of the lawn or shrubbery. A capital implement to break up the plants is a small hand fork, thrusting the point of the prongs sideways into the clump and then wrenching it asunder. This is far better than a knife, which cuts and destroys many roots.

In replanting do not for convenience sake shorten the roots unless there is disease or decay present, in which case the shortening becomes a necessity so far as the decay reaches. It will also be well to retain all the old foliage; even should this be shabby or disfigured, it is still of assistance in promoting root action, and when the young foliage springs forth the old will die a natural death.

Avoid huddling the roots in a mass in a small hole, and plant them straight down. Frequently these plants suffer through want of moisture in summer, and in the event of a dry season a few liberal soakings of moisture or liquid manure will be well repaid. Take care also with the freshly-planted subjects that they do not suffer from the same cause in the coming spring, but once they take to a well-prepared bed, as above suggested, these Lenten Roses will not readily turn back, and another year should see them fully recovered and flowering again.—ED.

PEONIES.

MR. JENKINS continues to ignore the fact that my original notes were intended as a specific answer to a specific question, and had nothing whatever to do with Peony culture at its best. This being so there is but little more for me to say. I do not know what I have said to give my critic the impression that I have lost sight of the "exceptional length of time that such things take to establish themselves in well trenched and enriched soils." Surely a ten years' trial is or ought to be long enough. The whole thing amounts to this: A great number of plants, varying in habit but all robust under cultivation, have been tried under absolutely identical conditions, and of these one species has singled itself out as succeeding well, the others have been comparative failures. Mr. Jenkins theorises on what ought and what ought not to be; my experiments have been practical, and the results have been stated as I found them. The very dwarfness which my critic says should be a disadvantage in *P. officinalis* is really an advantage, for the broad leaves spread and cover a larger area than do those of the upright growers, and kill out more of the contentious vegetation in consequence. I view none of the essentials of cultivation with alarm, but what have they to do with naturalisation? I hardly think that the quotation I give here, and which appeared from Mr. Jenkins's pen as lately as June 19, 1897, is likely to encourage people to attempt the naturalisation of these Peonies. In addition to many other details Mr. Jenkins says:—"Next in importance to planting, is the soil, which cannot be either too deep or too rich for these gross-feeding and vigorous perennials. Select a spot away from the roots of large trees, and dig the soil as deeply as circumstances will permit, 2 feet or 3 feet if possible. Work in quantities of well-rotted manure and bone meal, old mortar rubbish, and the like, also leaf soil where this is plentiful and the natural soil very stiff or water-holding." Later on comes the further advice "sink the surface of the bed below the ordinary level, so that manure water may be given freely at any time when needed." Now I am blamed by Mr. Jenkins for saying that plants with these requirements cannot be *naturalised*, and that they will not fight their way with native vegetation. I have never claimed to have established Ox-eye Daisies—Nature has done that; they grow higher than the grass or Peonies and flower with the latter. They form a portion of the "herbage" about which Mr. Jenkins's inquiries were so minute, and were so mentioned.

Before finally quitting the subject I should like to thank Mr. Burrell for his explanation (p. 74), and shall look forward with interest to the report of progress which he has promised.

J. C. TALLACK

Lavateras.—The beautiful varieties of these figured recently merit much wider culture than they now receive. The lovely rosy form is the more beautiful, but where the white and rose varieties are grown together they reproduce each other from seed freely. The Lavateras grow to quite 3 feet in height and send out large side branches, which, cut and placed in vases, form very pleasing objects. These, however, should be cut early in the morning. The selection *rosea splendens* is particularly fine and

effective. I saw it flowering superbly at Strathfieldsaye, and had it blooming gloriously in Surrey during the past summer season.—A. D.

THE MARKET GARDEN.

MARKET PLUMS IN HEREFORDSHIRE.

THAT Plums for market are not more extensively grown in Hereford is a matter for surprise to those who take an interest in fruit culture, particularly when the suitability of the climate and the nature of the soil are taken into consideration. In making this statement it is not inferred that Plums are but little grown, because several enterprising men have taken the matter up in earnest during the past few years, and have found it remunerative. Although this is so, there is yet ample scope for further development of this particular branch of fruit-growing. If Plum-growing was only taken up more largely, and the best methods of culture pursued, equally as good and remunerative crops of fruit could be produced in Herefordshire as in the neighbouring county of Worcester, and to the general benefit of all concerned. The climate is suitable, as proved by the fine old trees of Plums and Damsons met with in farm orchards, also in the flourishing condition of the trees in plantations of recent formation. The same argument holds good with regard to the soil, as, with but few exceptions, it contains all the elements necessary to promote a healthy and fruitful growth, also to build up the fruit. Growth under these conditions is quick, consequently the trees soon form good heads and commence bearing early. Happily this matter of extended culture is now receiving increased attention, and planting is going on quietly, but earnestly, and in the course of a few years larger areas will be devoted to the cultivation of this popular fruit. Plum-growing for market as it is carried on in the county will now be considered, and it will be well perhaps to first note which

FORM OF TREE

finds most favours with growers. With but few exceptions, standards with stems about 6 feet in height are generally employed, the height depending on the use the ground is put to beneath the trees. Some of the large growers purchase their trees from the local nurserymen, while others procure them from a distance. The local nurserymen do not propagate many of the trees themselves, but buy them in. The reason for this is that the young trees, from the time they are worked, take too long a time before they arrive at a saleable size. From this circumstance it is found to pay better to buy the trees from other parts of the county where growth is more rapidly made than to propagate them at home. Some growers, also farmers and cottagers, prefer to bud or graft their own stocks, but now that established trees of good size can be purchased so cheaply the practice, with but few exceptions, is not largely followed. Three and four-year-old trees are generally planted. These soon become established, and in from three to four years' time the grower begins to reap some return for his outlay. Bush trees succeed well, but standards are most in request, even where market gardening is carried on, the ground beneath generally being devoted to bush fruits, Strawberries or vegetables. With regard to the Damson and Greengage trees seen in cottage gardens and farm orchards, the majority, if not all, have without doubt been raised either from suckers or seed.

Among the worst

ENEMIES

growers have to contend with are insect attacks and bullfinches. A few of the latter soon work great havoc among the trees, and if left undisturbed they have been known to practically ruin the crop by taking the majority of the buds. The best remedy is to shoot a few of them, and bullfinches being naturally shy they soon get scared. Aphides and caterpillars are the two principal pests, but an annual spraying with caustic soda and potash solution tends to keep them within bounds. Washing or splashing the trees with a mixture composed of freshly slaked lime and fresh soot helps to clean both branches and stems, and it also has the advantage of rendering the buds distasteful

travellers, and can, if gathered in the right condition, be sent to almost any distance without the fruit sustaining any damage. The other most popular sorts are Belle de Louvain, Victoria, and Diamond, all of which are very productive, and although by the time they are ready for gathering Plums are generally becoming plentiful, they invariably return the grower a good profit. When the trees are heavily laden with fruit the crop is sometimes thinned, and the thinnings sold in a green state to the jam factors for pulping. This enhances the value of the remainder of the crop, as the fruits then attain a much larger size, and consequently command higher prices. Of course it must not be assumed that the five sorts named are grown to the exclusion of all



A fruiting branch of Victoria Plum. From a photograph sent by Mr. F. Parren, 38, Northgate, Canterbury.

to birds. Unfortunately, this question of dealing with insect pests receives as yet but scant attention, and I know of but few growers who follow up the matter in a systematic manner. It pays to keep down insects equally as much in regard to Plum-growing as with other fruits.

MARKET PLUMS.

Rivers' Early Prolific occupies the leading position, and is most extensively grown. This, as is well known, is a very productive variety, its fruits ripen early, and it is therefore grown in very large numbers for supplying both local and distant markets. The Czar follows closely, and this is almost as valuable as the first-named, while the fruit is rather larger. Both are good

others, as many more varieties are cultivated, but not in such large numbers. Of these, Prince of Wales, Cox's Emperor, Orleans, Magnum Bonum, red and yellow, and Greengages may be mentioned. The first is a heavy cropper, but the great drawback is its liability to die off suddenly, and when a tree has attained full size this occasions a great loss. Cox's Emperor is a fine prolific Plum of good quality, but it has a tender skin, and is therefore not a good traveller, but it finds a ready sale in the local markets. Orleans is early and reliable, but not nearly so remunerative as Prolific or Czar, and Greengages are always in request. Magnum Bonum ripens at the time when the market is well supplied, and except for local

purposes does not pay so well to send off. Of Damsons, Shropshire Prune finds the most favour, Farleigh Prolific not being liked on account of its small fruit. The most of the sorts of Plums enumerated are also grown by

what it should be, then good prices can be realised so long as there is any fruit to dispose of. Another thing which influences prices is the quality of the fruit. The higher the quality the better the prices, and the greater the demand.

the eye, is the person who obtains the highest prices. A. W.

VIOLETS IN AMERICA.

AFTER a varied experience—extending over many years—in the culture of Violets, it is only within the last few years that I have been able to feel pretty sure of coming out on the right side by spring. For the benefit of those who may be interested in the growing of these plants, I will endeavour to explain method. I do not say that it is the right way, and it no doubt differs materially from that of many successful growers, but it will show that with Violets, as with all other classes of plants, there is more than one way to grow them successfully. I have found by experience that more money is gained by studying carefully the needs of the plants in your own particular locality, the style of house, aspect, &c., and more especially the soil that is available, than in trying to imitate a successful grower in a totally different locality.

My Violet houses, of the ridge and furrow style, are span-roofed, with small glass sashes, each house 10 x 110 and about 8 feet from floor to ridge. As four of these houses are entirely open to each other, this gives an almost solid surface of bed 40 x 110. The Violets are planted in solid beds which are about 2 feet deep, upon an ash bottom, and from 3 to 5 feet from the glass, thus admitting of a free and constant circulation of air through all the houses.

Some time during June or early in July, as other work will admit, about 6 inches of the old soil are removed. The remaining soil is well manured and thoroughly dug, a good coating of bone meal and about 3 inches of horse and cow manure mixed are put on top; after this the beds are filled with good rich soil, usually the same as I use for the Roses. The Violets are now planted about 6 by 8 inches. I use either rooted cuttings



Plum Early Prolific.

smaller occupiers and cottagers. Generally speaking it is the early and late sorts of most kinds of fruit which pay best to grow for market, and the same rule should hold good with regard to Plums. Autumn Compote, Archduke, Pond's Seedling, Late Orleans, Monarch, and Wyedale are all good late kinds and sure croppers, and the whole or a portion of those enumerated in this list could be planted with every chance of their succeeding.

MARKETING THE FRUIT.

Some of the larger growers pick and pack the produce in half-sieves, which hold from 20 to 25 lb. each, and others in smaller baskets containing from 10 to 15 lb. each. These are despatched to London, Manchester, Cardiff, and great quantities are also sent to the large towns in the north. When the season first opens some growers sell the fruit at so much per lb., but the largest cultivators generally sell per cwt. or by the ton. As the Plum season advances and prices begin to come down, a great deal of the produce is disposed of at so much per pot. This latter is a basket holding from 50 to 60 lb., the weight depending on the variety, as some sorts weigh so much heavier than others. A great deal of the fruit is also sent into the local market, to be disposed of by auction, but the best is sent away as indicated above, as higher prices can be realised for it, particularly if it has been carefully gathered and properly packed. The smaller growers, who may have perhaps only a few hundredweights to dispose of, either send them to the nearest market or sell them to the fruit dealers who travel the district. Cottagers as a rule find a ready sale for Plums at the fruiterers', and they also sell a good deal of fruit to private customers. Damsons are now more often sold by the hundredweight than by the pot. Some are disposed of locally in the same way as Plums, but the bulk is sent away to the large towns.

The most important matter of all, that of the

PRICES REALISED.

has been left till last. The prices of Plums vary considerably, as much depends on the season. When there is a good all-round crop it is the earliest kinds only which pay to send to market. On the other hand, if the crop amounts to but two-thirds or only one-half of

much fruit is then sold to the jam factories for what it may fetch, on a few occasions as low as 50s. to 60s. per ton. The prices for Damsons reached high figures last season, as much as 35s. per cwt. being given in one instance, while plenty changed hands at 18s. to 20s. per cwt. The average price for Damsons for the last three years was about 10s. per cwt. Another matter



The White Bullace.

which greatly influences prices is the way the fruit is sent to market. The man who pays strict attention to grading, and who keeps back the damaged and inferior fruits, and who, moreover, packs his produce so that it travels well and in such a manner that it is taking to

or divide the old plants as I plant. I have tried both methods and see no difference in the results; but if the weather be very warm, the rooted cuttings will take hold quicker. As fast as a bed is planted it is thoroughly soaked from top to bottom; no shading is used whatever, and no

sashes are removed. The ventilators are put up full, and are never let down until frost; but remember this, the beds are kept thoroughly soaked all the time. No other care is taken of them except weeding and cutting off the runners. This latter work during September and October is quite an item with me; the plants grow like weeds, and need constant attention to keep them from forming a complete mat.

From October on, more care is taken with the airing and the temperature, the latter ranging from 40 to 45 degrees at night to 65 and 75 degrees on sunny days; but the beds are always kept thoroughly wet, consequently red spider is an unknown factor, for I never syringe overhead, always striving to maintain a dry atmosphere, as I do not like to encourage spot. Under the above treatment the plants produce good flowers with long stems and of good colour; last year they averaged forty-four flowers per plant. This may not be a good average, but any way it is a satisfactory one. I grow a few White Violets, as there is always more or less demand for them. These I find are more productive when grown on benches with 10 degrees more heat than the Marie Louise requires. The Swanley White is the variety I use, and this will produce immense flowers when allowed to fully develop; but if the soil be too rich, many of the flowers are apt to revert to the parent colour, which, I should judge, is that of the old Neapolitan now so rarely seen, unless it be under its new name of Lady Colin Campbell, for I fail to see the difference. This latter variety is probably the most productive, and hence the most profitable, Violet I know of, if one could sell the flowers. I tried it two seasons, but no one would buy them at any price.

The Californian I also experimented on with the same result. What a rank grower this is! Nothing will sell but the Marie Louise at present, and, as it is the most difficult to grow, the price of Violets will stay up for a while yet, or until fashion changes.—F. GOLDRING, in *American Florist*.

ERRONEOUS PRUNING OF FRUIT TREES.

WHOEVER attempts to prune a fruit tree of any sort before cutting off any limb, branch, twig, or fruit-spur, should be able to assign a reason for pruning off one or more of such portions of the tree-top. If a pruner is not able to give a reason for cutting back or removing any part of the top, he will be quite as likely to damage a tree as to improve the growth or the fruit-productiveness of any tree.

When I was a small boy, my father sent an illiterate wood-chopper to prune his Apple trees, using no tools but a wood-chopper's axe. He knew how to chop down trees, how to trim off the branches, and how to pile up the brush and the wood; but he had not the slightest conception of the knowledge essential to prune a tree so as to improve its lateral or its upward growth, or its fruit-productiveness. Consequently he went to work in the orchard as he would when clearing ground of a forest.

The trees were large and in full bearing; very few of them needed any more pruning than cutting off, here and there, a small branch. But that pruner chopped off many large and leading limbs from every tree. Many of the limbs were 14 feet to 18 feet long, and 6 inches to 8 inches in diameter at the butt end where they were severed from the parent stocks. Then the branches that were allowed to remain were all trimmed neatly and clean of every twig, leaf spur and fruit-spur, leaving nothing but a large bush at the end of a long limb. I well remember how long, and destitute of branches and twigs, most of the limbs were. In many instances more of the top was slashed away than remained. Huge and gaping wounds on every tree were exceedingly damaging to those trees. From the time of that reckless pruning the rapid decay of the most fruitful trees commenced. Every season the yield of fruit continued to diminish. Many of the trees,

I well remember, continued to decay, at the heart, until there was nothing left except an old, half-decayed tree, standing on two prongs.

Every fruit tree (if it is a generous producer of fruit) will send out fruit-spurs on the sides of all the limbs and small branches, covering the sides and upper surface with fruit-spurs and leaf-spurs from the body of the tree to the extremity of the branches. These should never be removed; yet many owners of orchards, with saw or hatchet, clip off every fruit-spur from the main part of the large limbs and small branches, leaving only a denuded branch.

FRUIT-SPURS

are small shoots only one or two inches long. These should not be cut off, nor jammed off by one's feet when he is plucking the fruit. Fruit-spurs produce fruit-buds in one season for the crop of fruit the following season. Leaf-buds may appear one year and the following season they will produce fruit-buds, and the succeeding season the fruit-buds will yield fruit. Nature would cover all the large branches with leaf-buds or fruit-buds and leaves, for the purpose of protecting the bare branches from the scalding heat of the summer's sunshine. That is one point of importance to be remembered by everyone who owns a fruit tree of any sort. Still another consideration should be well remembered. When the fruit-spurs of any tree are full of fruit, the crop will not be half so liable to be shaken off by furious winds as is the case when the fruit grows at the extremity of long and swaying limbs. Most Cherry trees will produce fruit-buds in abundance on every limb and branch if they are not cut off, or jammed off by the reckless feet of people who pluck the fruit. Thoughtless pickers will often claw off a large cluster of Cherries and take also the fruit-buds, thus destroying the crop of fruit for the next season. Such pruning of fruit trees is always very damaging to the fruit-productiveness and to the growth of any fruit tree.

We have only one large Cherry tree, the limbs and branches of which are well covered with fruit-spurs. No one is allowed to climb into that tree-top to pluck Cherries until he or she is made to understand that the fruit-spurs must not be clawed off with the fruit. The branches of our Apple and Pear trees are well covered with fruit-spurs; and the spurs always yield a generous amount of fruit. It is a wrong practice to prune away all the small branches, twigs, fruit-buds, and leaf-buds from the interior of a tree-top, making it like the interior of a tent. The old stereotyped rule was to cut away the interior of a tree-top so as to let in the sunshine and air. There is no sound reasoning in such direction for pruning trees. The foliage at the extremities of the branches will exclude all direct sunshine. Fresh air and wind will sweep through a tree-top, even when the top is so dense that a person cannot climb around among the branches. Fruit trees require but little pruning. Many need none at all. The fruit buds should not be removed at all.

Every tree that needs pruning should be pruned when the superfluous branches are small. When the branches are allowed to grow *ad libitum* or at random until they are as large as a man's arm, it will be very damaging to the tree to cut off such large branches. If we examine any fruit trees and some ornamental trees we can see at the junction of the limbs with the main stem a sort of crease or seam or cicatrice extending around the base of each branch. That natural seam indicates the better place for severing the limb from the main stem. If a branch is sawed off at that seam, the wound will always heal much sooner than if the cut was made on either side of it. I have directed the attention of many intelligent men to this important point, but not one of them had ever observed that seam. Wherever I go about the country or city or village, I see many fruit trees and ornamental trees ruined by ignorant pruners, who saw off large branches several inches from the main stem; whereas, they should be severed at the seam indicated in the growth of the bark.—S. E. TODD, *Essex County, N. J.*, in *Country Gentleman*.

ORCHIDS.

DENDROBIUM CRASSINODE.

This species is justly popular on account of the bright showy blossoms so freely produced upon the singular knotted stems. It is one of the brightest of the deciduous kinds, and although lacking the elaste appearance of the better forms of *D. Wardianum*, it is a better grower and more constant even than this well-known kind. The only thing apt to go wrong with *D. crassinode* is a drying off at the base of the stems, and this fortunately does not often occur. I have found it worst in plants semi-established or in the second year, but it rarely appears in old, well-established specimens. The stem at the base, it will be noticed, is very small in comparison with the upper portion, and when damaged in the least the weight of the latter soon twists the stem off. It is difficult to account for, but in all probability arises from being damaged in a young state though ever so slightly, and the weight referred to does the rest. Nothing can be done to save the bulb, but if carefully tied up it may keep plump long enough to flower, and if only a few on a plant are affected, not much harm is done. *D. crassinode* is an epiphytal species and should be grown in small receptacles; the roots seem to delight in growing over each other and twisting tightly about the rods of small baskets rather than pushing through inches of compressible peat and Moss, no matter how well drained and aerated. As noted recently when treating of *Odontoglossums*, the size of pots and other receptacles used is smaller now than formerly, and it is just as good practice for these Northern Indian and Burmese Dendrobies as it is for the alpine favourites from New Grenada. There can be no doubt that the compost and pots are required by the plants chiefly as a mechanical support, and the bulk of their nourishment comes from the atmosphere. As long, then, as there is enough material to conserve a little moisture about the roots this is enough. With regard to temperature and position, plenty of heat and atmospheric moisture with as much light as possible without actually burning the foliage suit this species while making its growth. A thorough ripening in autumn completes the annual routine, and after this the plants may rest until a few weeks before they are wanted in flower. Introduce them to heat successively if the blossoms are needed over a long period, but it may be noted that the slower and more naturally they come on the better the flowers will be and the stronger eventually the young shoots. The same care in providing a brisk temperature while growing, in watering in early spring, and in keeping insect pests in check as advised for other nearly related kinds is necessary for *D. crassinode*, and there is no need to recount these again in detail. The typical form has been known to botanists for many years, having been first discovered by the late Rev. C. Parish. It was introduced to cultivation in 1868, having been sent home by Col. Benson from Moulmein. The flowers are each upwards of 2½ inches across the outer segments, white heavily tipped with rosy magenta; the lip has a yellow centre and a purple blotch in front. The variety *Barberianum* when obtained true is a magnificently coloured form, quite distinct and in every way superior to that labelled *Barberianum* in the majority of places. It is in fact one of the showiest Dendrobies in cultivation, and is to *D. crassinode* what *nobilium* is to the typical *D. nobile*. This and *D. crassinode albiflorum* occasionally appear

among importations, the latter more frequently than the former. *Albiflorum* has pure white sepals and petals, the lip also white with the exception of a yellow centre. It is a variety that varies considerably in size and purity, and before the worst forms I should greatly prefer the poorest typical form. But when seen in really good order it is a chaste and pretty Orchid. H. R.

Cattleya Trianae alba.—Among the deeper-coloured forms of the species this beautiful variety shows to great advantage. There is a chaste appearance in the albino *Cattleyas* not excelled by any other white Orchid, and though *C. Trianae alba* is as common as any of them, it is equally good. The flowers on a plant I have are as large as those of any good form of the type, the lip having a deep yellow stain in the centre, the rest of the blossom absolutely pure white, the lip prettily crisped at the margin and of good open shape.—R.

Dendrobium subclausum.—This cannot be described as a showy kind, but it is interesting on account of its colour, a brilliant orange-red, very unusual in the genus. In habit it is peculiar, the stems being very thin and pushing out a quantity of young ones all along somewhat after the style of *D. Falconeri*. A plant in flower with me has a very pretty appearance, quite distinct from any other kind, and one hardly takes it for a *Dendrobium* at first glance. It will probably require plenty of heat, and, judging by its habit, something for the young shoots to root into as they grow would be an advantage. It is a native of the Malay Archipelago, and has been recently introduced by Messrs. Veitch and Sons.—GROWER.

Cattleya Percivaliana.—One of the finest forms of this lovely winter-flowering *Cattleya* we have seen has been sent us by Mr. Denning from the collection of Sir W. Marriott, The Down House, Blandford. The sepals and petals are very large, of good substance, and of a remarkably deep rose colour. The lip also is much larger than usual in this species, deep rose in front, becoming darker towards the centre, where it becomes rich purple; the side lobes rosy pink, shading to deep orange at the base, heavily lined and suffused with rich purple-brown. This species deserves more attention where Orchids are appreciated, as it is very useful at this season of the year. Coming in as it does before the bulk of *C. Trianae*, it helps to brighten the houses when there is little else in flower. The flowers are not so large as in the other sections of the *C. labiata* group, and only produces a single flower on a scape. We think these drawbacks ought to be considered, seeing the dull season at which it flowers. It is a *Cattleya* that up to the present time has not been used to any great extent by the hybridist, but surely the unique colouring of the lip is worth consideration in this respect.

Oncidium cheiroporum.—In a cool house, where greenhouse Ferns and *Araucarias* were growing freely I have noted this pretty plant in good condition, the bright little yellow blossoms on the wiry scapes being set off to perfection by the greenery all around. Though one of the smallest, it is also one of the most charming of cool house kinds, and if not a very vigorous plant, its culture presents no special difficulty. The species thrives in the coolest house, where during the summer the air always seems cool and refreshing when entering from outside. Near the roof glass in such structures there is usually a free current of air, and if *O. cheiroporum* can be suspended in this the treatment is to its liking. Keep the atmosphere loaded with moisture and shade the plants from early morning until well on in the afternoon while the foliage is young and green. As autumn approaches more light is necessary, and during the last three months of the year no shading at all will be needed. Plant the bulbs in small pans, these being more than

half filled with clean crocks, the compost consisting of Sphagnum and fibrous peat, with small crocks and charcoal added. The roots must never be dried and insect pests kept carefully in check, as these soon ruin the plants' appearance. The present is its flowering season, and it is a native of New Grenada.—H.

Cypripedium Rothschildianum.—There are many beautiful forms of this fine species now in cultivation, and such an one came under my notice recently. The plant is bearing three spikes containing thirteen flowers, and these are very rich and deeply tinted. *C. Rothschildianum* is a strong-growing, vigorous plant, and, where its wants are properly cared for, soon makes a fine specimen. Fairly large and well-drained pots should be chosen for it, the compost being made very rough and open, and consisting of chopped Moss, peat, and loam in about equal proportions. The best place to grow it is in a moist tropical house, where it will be screened from sunshine. It must be freely watered all the year round and kept free of insects. It is a native of New Guinea, whence it was introduced in 1887.—R.

ANGRÆCUM EBURNEUM.

THERE are few of the *Angræcums* so easily cultivated as this strong-growing species, and although the spikes have a rather stiff appearance, the blossoms are very beautiful. The leaves are broad and deep green on healthy plants, giving them a fine appearance whether in or out of flower. The spikes appear towards the upper part of the stem, and are produced from the base of the leaves. The blossoms have usually very pale green sepals and petals, the fine heart-shaped lip being of the purest white, but sometimes petals, sepals, and lip are all white. To grow *A. eburneum* properly, a large, roomy house is needed, as with the foliage close up to the glass in narrow structures the latter is sure to become spotted by sunburn, greatly disfiguring the plants. In a large stove, or even a vinery or Peach house, it is just as much at home as in the Orchid house proper, and as long as there is plenty of moisture in the air the growth will be free and vigorous. The roots are very strong and persistent; consequently large pots or baskets must be used, these being about half filled with rough crocks for drainage, or with the largest sizes a small pot may be inverted over the drainage hole and the surrounding space filled with crocks. Cover with a little rough Moss, as large plants of this species like a little peat mixed with the Sphagnum used as compost. Large, rough lumps of peat are better for it than all fibre, the roots running through these like those of a Palm when thoroughly healthy and strong. Smaller plants would, of course, be better suited with Moss alone, and in either case abundance of rough charcoal should be added. Repotting may take place at almost any time, but preferably just after flowering before the growth has made much headway. Water must never be withheld from the roots summer or winter, and when growth is most active, plentiful and frequent washings from the syringe help to keep the foliage clean and insects of all kinds in check. *A. eburneum* soon outgrows its pots, and if potted as often as necessary would make immense specimen plants that, covered with the fragrant blossoms, would make a grand show during the dullest and most dreary months in the year, but as the rule now is to lessen rather than increase the size of the houses, such plants will never be common. It is a native of Madagascar and the Seychelle Islands, whence it was sent to the Obiswick Gardens many years ago, and first flowered there in 1831. Since then it has been occasionally imported by nurserymen and others, but has never really become a common plant under cultivation. Besides the type there is the variety *virens*, a plant much smaller in all its parts and having more slender spikes than the type. This was first flowered in Messrs. Loddiges' nursery, and is still occasionally imported.

CHYSIS BRACTESCENS.

THIS handsome, yet very singular Orchid is worthy of attention by all classes of cultivators. The pseudo-bulbs are fleshy, greenish, stem-like, and the foliage is deciduous. The young growths appear very early in the new year, and from the centre of these the flower-spikes are produced. In some instances these bear a large number of flowers, in others they are few, and in the latter case they are always larger and have more substance than when more are produced. The best varieties have flowers each upwards of 5 inches across, these being pure white, with the exception of a yellow stain on the lip. *C. bractescens* does with a little cooler treatment than some of the other species, and may be grown in the *Cattleya* house or with East Indian plants, as is most convenient. The roots are of quite a different character from those of most Orchids, and are flattish and very constant. Few plants get a firmer hold of their pots, baskets, or pans than this, and for this reason it is best not to disturb them oftener than is necessary. The compost is not an important point. They do well in peat and Sphagnum, and also in a mixture of these and good fibrous loam, but in any case plenty of crocks and charcoal must be mixed with it and the drainage must be perfect. The best time to repot is as soon as possible after the flowers are past, as by then the young growths will be getting stout, but will not have made many young roots. Being of rather a long habit of growth, one bulb coming considerably above the last, it is as well to put the plants rather low at first, as by top-dressing, the young pseudo-bulbs will be fed and disturbance will not be necessary so soon. The compost will be brought up to the base of the young growth, whether surfacing or repotting, and though not needing much moisture just at first, the roots as they begin to run in the new material will take free supplies. The growth will be rapid in a warm, moist house, and the foliage may be very lightly dewed over with water from the syringe occasionally. Heavy douches will not do, as the water gets carried down into the centre of the young growth and causes this to decay. By the end of the summer the pseudo-bulbs will be fully grown and need ripening, for it must be noted that the foliage of *Chysis* is easily injured by sun early in the season and has to be shaded during the greater part of the day. This, then, has to be made up in autumn by almost constant exposure to sun and a liberal supply of air. Of course, the exposure will be done by degrees; it would not be good practice to ripen off the foliage too rapidly, as this would most likely cause shrivelling of the pseudo-bulbs later on. Some plants lose their foliage entirely in autumn, but others carry it later on into the winter or even the spring. But, as a rule, the plants take a decided season of rest without the leaves, and at this period no water, or very little, is needed at the roots. The plants must not be allowed to shrivel, of course, but if well ripened they will go for weeks without water. The best place for them at this time is in the coolest part of the *Cattleya* house, but as soon as the first signs of young growth appear, they must be kept rather moister and if possible allowed a little more heat. *C. bractescens* is apt to be attacked by red spider if the house is at all dry, and it is important that this pest be not allowed to make headway. Careful and frequent sponging with tepid soft water in the earlier stages is at once the safest and the most effectual way of getting rid of this pest, but, of course, when plants are badly affected, more drastic measures have to be taken. A little dry sulphur applied with the bellows

about the young growths is distasteful to these insects and also to thrips, but fumigation is necessary in bad cases. *C. bractescens* is a native of Mexico and other parts of Central America, where it is said to grow abundantly, "hanging from the branches of the trees by the long grey roots." It was introduced by Mr. Barker, of Birmingham, with whom it first flowered in 1840.

Cypripedium Lathamianum.—This hybrid is getting fairly plentiful. A nice variety recently noted had a fine dorsal sepal, the broad purple line showing up well and the other segments being very broad, not unlike those of a good form of *C. villosum aureum*. It has broad, deep green foliage and is a good grower, thriving well under Cattleya house treatment as to temperature. It was first raised and flowered by Mr. Latham, of the Birmingham Botanic Gardens, and is the result of crossing *C. Spicerianum* and *C. villosum*.

Dendrobium Hildebrandi.—This pretty Dendrobe was introduced a few years since from the Shan States by Messrs. Hugh Low and Co. The blossoms are produced along the stem in small racemes, and have pale yellow sepals and petals, the lip white, with reddish blotch in front. *D. Hildebrandi* is not, perhaps, quite a success under cultivation, though possibly when it is better known we may be more successful with it. Really well-flowered plants would have a fine effect, and the colouring is rather distinct. It thrives under the warmest treatment in pots or pans of medium size suspended from the roof if possible.

Dendrobium eusmum virginale.—This is one of the most distinct hybrid Dendrobiums in cultivation. It resulted by crossing *D. endocharis* and *D. nobile*. It is curious that the perfume as well as the colour of the lovely little *D. japonicum* should be so prominent in this secondary cross. The sepals and petals are pure white, of fine form and substance, the large lip also pure white, with a deep maroon disc, which has numerous white lines at the base. The habit of growth is considerably dwarfed by the *D. japonicum* influence, and has the appearance of *D. endocharis*, but it is longer and equally as free flowering as that hybrid, the blooms being as large as in a good form of *D. nobile*.—H. J. C.

Oncidium dasystyle.—This is a pretty little Brazilian Oneid when well grown, and one that is worthy of more care. From small roundish pseudo-bulbs the sepals spring, bearing several blossoms, yellow in ground colour, with purple spots on the sepals and a large blotch on the lip. It thrives well in the Cattleya house in a light, airy position, still where the sun does not reach it in the middle of the day. The plants should be grown in small pans or baskets suspended from the roof if possible, and the ordinary peat and Moss mixture suits the roots well if thinly placed. During the time growth is active, well-rooted plants require a good supply of water, but while at rest much less suffices. It was introduced by Messrs. B. S. Williams and Son in 1872.

Dendrobium nobile.—A very pretty effect is produced by growing this plant suspended from the roof, so that the stems hang downwards, the variety called pendulum being the most suitable for the purpose. This free, unstaked growth seems the proper thing for this class of Dendrobes, and the flowers have always a finer appearance in this way owing to the fact that the bright colours on the labellum are seen more plainly. Rough, open material and a fair amount of room for the roots are both important points in growing this fine old plant, for the roots are quite different from those of the usual deciduous kinds. These can hardly be grown too closely together, but those of *D. nobile* like rambling about over rough charcoal or lumps of peat and anywhere that plenty of air reaches them.

Lælia anceps Dawsoni (Crawshaw's var.).—This is truly a typical form of the old var. of *L. a.*

Dawsoni, distinguishable from the latter-day introductions by its shortened, more oval and broader sepals and petals, so characteristic of the old form. The lip also is more squarely made, the side lobes open and considerably deflexed. These characteristics are clearly defined in Mr. De B. Crawshaw's variety. The sepals and petals, as in the typical form, are pure white, the distinguishing feature being the front lobe of the labellum. Instead of the rich crimson-purple, the ground colour is wholly white, with a rich rosy suffusion in the centre, with a deep yellow raised disc at the base. The side lobes are white, heavily lined with rich purple at the base. It is a distinct and lovely form. A fine plant is now in flower in the Rosefield collection.—H. J. C.

Dendrobium Brymerianum.—The prettily fringed lip of this species makes it always attractive, while the bright golden tint of the blossoms is unsurpassed. Both habit and flower are very distinct, though of course an evergreen kind has more of the habit of the deciduous species. I find, too, that to flower it well it requires more drying off and more careful ripening than the evergreen section usually. It is a native of Burmah and likes plenty of heat while growing, a rough open description of compost over good drainage, and abundance of water while growing freely. *D. Brymerianum* is easily propagated by means of the small growing shoots that appear on the top of the last season's growth. These may be left on until they harden up one little stem and have a few roots, when they may be taken off and either potted singly or grouped five or six in a small basket or pot. In this way nice healthy little specimens are soon produced, and for the first few seasons it is best to get all the growth possible into them. This *Dendrobium* should be repotted soon after the flowers are past and before the young shoots begin to push roots. The flowers are usually produced in small racemes of two or three, and the long, curling, interlacing segments of the lip are its chief characteristic.—H. R.

SHORT NOTES.—ORCHIDS.

Cattleya Pheodora.—This distinct and beautiful hybrid is now in flower in Messrs. J. Veitch and Sons' Langley Nurseries. It is the result of crossing *C. intermedia* with *C. maxima*, and has the intermediate characters of both parents. The sepals and petals are pure white, the lip white, with the rose-purple veining, as seen in *C. maxima*, through the centre and throat. It is a remarkably free-flowering and useful Cattleya, although not so large as many of the *C. labiata* section. It is far more distinct than a great many of the latter, and is worthy of every consideration. The white sepals and petals show a great contrast when mixed with coloured forms of this section.—H. J. C.

Epidendrum Endreso-Wallisii.—This is one of the most charming hybrids of the *Epidendrum* family. It was raised by Mr. Seden by intercrossing the two species from which the name is derived. Several remarkable forms of it are now in flower in Messrs. Veitch's nurseries at Langley. One of the most striking was a variety with deep purple sepals and petals shading to white, each about 1½ inches in length. The ground colour of the broad lip is white, with rich violet-purple markings. This is certainly one of the finest varieties we have seen. The habit of growth is intermediate between that of the two species. It certainly improves each year as the plant becomes stronger.

Cattleya labiata (Cambridge Lodge variety).—This is another addition to the albino varieties of the old autumn-flowering *C. labiata*, and was lately in flower in Mr. Measures' collection at Camberwell. The sepals and petals are pure white, of fine form and substance. The lip has a white margin, upwards of a quarter of an inch in breadth, in the centre a large oval-shaped blotch of crimson purple, veined with a darker shade of colour. The side lobes are pure white, with some yellow at the base. The plant carries a raceme of three flowers. It is a very distinct and lovely form, and there is no doubt the flowers will improve as the plant becomes established.—VISITOR.

GARDEN FLORA.

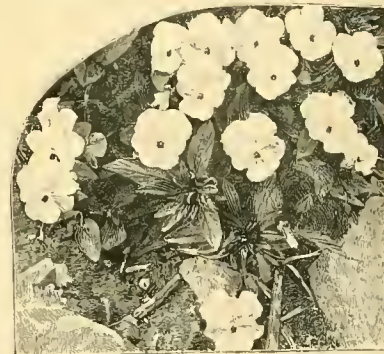
PLATE 1158.

TUFTED PANSIES.

(WITH A COLOURED PLATE OF—1, BORDER WITCH; 2, WILLIAM NIEL; 3, ETHEL HANCOCK; 4, LAVINIA.*)

WITH the near approach of spring, the claims of the Tufted Pansy for the embellishment of the flower garden seem to force themselves upon us. Often at the time when there is the prospect of a long-continued display of their delightful little blossoms they are unfortunately uprooted to make room for other subjects for summer flowering, and these often far less interesting and pretty. This practice of planting the Tufted Pansy in the autumn, with the definite object in view of getting a display in the spring and early summer only, is to be deprecated. The Tufted Pansy can never be seen at its best given such treatment.

The notice which the Tufted Pansy has obtained during recent years is having a good effect. Not only has the habit of the plant improved in a great many instances, but we have now such a capital variety of colour that it would be quite a simple matter to satisfy the taste of the most fastidious. It seems only a few years since that the heavily-rayed flowers were represented only by white, blue, purple,



Tufted Pansy *Duchess of Sutherland*.

and yellow colours. Welcome though they were then, and, in fact, are still in many gardens throughout the country to-day, it is quite safe to say the newer sorts are now thrice welcome. The Tufted Pansy is even more valued now by the cottager for the beautifying of his small garden, and is equally serviceable in the grounds of the rich, and only needs a tithe of the encouragement that many other less worthy subjects obtain to give a really handsome return.

Owing to the patience and untiring zeal of a few enthusiasts, we now have quite a distinct race of plants. To the majority of the lovers of this hardy flower these newer types of the plant are comparatively unknown. The wonderfully dwarf, compact, and sturdy plants are typical of what a Tufted Pansy should be. The constitution, too, is as robust as could well be wished for, while the smallest pieces, even if planted quite late in the spring, make numerous growths from their base in a very short time, and with a little care plants of large dimensions are easily obtained long before the summer season is over. Old plants, too, cut

* Drawn for THE GARDEN by H. G. Moon in Mr. D. B. Crane's garden at Highgate, N. Lithographed and printed by J. L. Goffart.



back during the autumn, develop perfect tufts, and these are the first to flower in the spring, when they are literally covered with blossoms of the most chaste description. One of the chief characteristics of the newer tufted sorts is the splendid condition of the plants during the second season, and, in some few cases, for three successive seasons. Such plants are a welcome change from the older sorts, with their long and straggling habit of growth, many of them being anything but tufted. Of course among the older sorts there are exceptions to this rule, notably in the case of that excellent old variety, Bullion. For general flower-garden work, plants partaking of a dwarf and compact style of growth surely would be better appreciated than those less so, consequently this is a further point in their favour. When massing the Tufted Pansy in beds and borders preference certainly should be given to plants of the latter kind, as not only would the general effect be better, but, by a system of planting,

or ten days there will again be a bright display.

The wealth of colour in which these newer varieties are now obtainable is almost remarkable considering the short space of time in which the change has been effected. Among the blue shades there are indigo, mauve blue, deep blue, lavender blue, china blue, soft blue, besides others. Of yellows there are rich yellow, canary, primrose, yellow shaded at the edges, golden, and others. Of other colours there are many shades of lavender, blush-rose, purple, crimson-purple, snow-white, pure white, and cream. All the foregoing are selfs, and these, together with the many margined, blotched, and reticulated flowers, form an interesting and pleasing variety. There is, however, one serious failing in several of the newer introductions. During the spring and early summer, when the temperature is of a genial kind, some really charming sorts are seen in perfect condition. The blossoms are large and freely produced,

retained. This loss of colour during seasons of great heat is hardly noticeable with the true selfs, although there are instances where the colour of the blossoms becomes somewhat blotched and undecided; others, too, get blistered and disfigured. William Niel, also figured here, has been a standard sort for some years. Its pleasing rose-pink blossoms appear chaste and beautiful at all seasons, and, having a desirable habit, it is deserving of a place in all gardens. There is no other Tufted Pansy quite like this in colour, and this it retains very well. Only in very hot weather does it become slightly pale, with a whitish tint upon the blooms. For producing a distinct effect when massed it is well worthy of extended culture. Ethel Hancock, one of the purest whites extant, is a valuable rayless sort, being of medium size, of splendid substance and a most profuse bloomer. The constitution of this plant is robust, the pure white blossoms having a rich orange eye. It was certificated at the Viola Conference at Birmingham in 1894. Lavinia, the pretty little miniature sort, of a delicate shade of blush, has deeper shadings of the same colour. This plant was much admired last season, when its shoots bristled with innumerable little blossoms for some months. These miniature kinds are not appreciated as they deserve to be. The plants increase in size and vigour if allowed to remain in the same position two or three years, when they may be divided as ordinary hardy perennials. The true miniature sorts, of which Violetta was the parent, are sweet-scented, on this account perhaps being additionally attractive.

The following selections may be welcome, as they represent both the best and most interesting of the different types of the flower:—

Yellow Selfs.—Pembroke, Princess Louise, Lemon Queen, Molly Pope, Ardwell Gem, and Bullion.

White Selfs.—Ethel Hancock, Christiana, Nelic, White Empress, Peneitland, and Devonshire Cream.

Blue Selfs.—Blue Gown, Britannia, William Haig, Max Kolb, Mrs. C. Turner, and Ethelinde.

Lavender and Blush Selfs.—Bridegroom, Rosea pallida, Florizel, Lottie McNeil, Charm, and Mabel, and Duchess of Sutherland.

Purple and Rose Selfs.—William Niel, Magie, Aeme, Mrs. Gordon, Councillor Waters, and J. B. Riding.

Edged and Bordered.—Border Witch, Duchess of Fife, Goldfinch, and White Duchess.

Fancy or Blotched.—Cottage Maid, Mrs. C. F. Gordon, The Mearns, Lucy Franklin, Princess Beatrice, and Isa Fergusson.

Miniature Sorts.—Violetta (white), Lavinia (blush), Queen of the Year (China blue), Gold Crest (yellow), Belladonna (blue and white), and Celeste (lavender-blue). D. B. CRANE.

Highgate, N.

Notes from Baden-Baden.—I do not quite agree with the statement on page 93 as to *Galanthus eucasicus*, this species doing well here. To my mind there is no better Snowdrop than *G. caucasicus grandis*, a variety grown by Mr. Bedford, of Straffen House. I never observed any trace of disease or malformation in this variety. It is not the earliest, but it comes evenly, robust, and beautiful in form. *Colchicum montanum*, the Persian variety, is now one of the very first spring bloomers. Although small, the lively colour of the flowers is charming. To the black variety of *Iris reticulata* a white one has now been added, but owing to the scarcity of material to compare, the question remains whether these are not species by themselves. Both are natives of Asia Minor, not garden varieties. The season is mild, but not very favourable for the development of



Tufted Pansy Mrs. Gray.

the soil would soon be covered by a beautiful carpet of rich green foliage.

The last few summer seasons have been phenomenally dry, and those who have grown Pansies, particularly the tufted sorts, in large numbers have had a very trying time. After close observation of the plants which have had a liberal mulching in the June of each year, together with an occasional heavy watering, it is safe to say they have come out of the ordeal well. Towards the latter part of the summer some sorts seemed to blossom freely, this somewhat weakening the plants. Such plants were cleared of all buds, flowers, and spent blossoms, old and coarse growths cut out, and then allowed to go ahead again. An occasional watering with liquid manure soon restored the weakened ones, and these, in return for the treatment accorded them, blossomed with renewed vigour shortly afterwards. For these plants to be kept in the best condition it is important that a rest be given to them now and then. Spent blossoms must be pinched off continuously, and when signs of weakness are noticeable, all blooms should be picked off. In the course of a week

and the colours, more particularly of the blotched, margined, and other fancy types of the flower, are most beautiful. With the advent of midsummer, sometimes earlier and at other times later, varying according to the peculiarity of their respective seasons, with the increased heat and dry atmospheric conditions, the sorts here alluded to often fail to retain their colours, so that during such a period the blossoms get quite out of character. In the accompanying plate the beautifully shaded and reticulated pale blue self Border Witch is pleasingly portrayed. This is a rayless variety with a neat yellow eye. Both early and late in the season, when cooler weather prevails, this is one of the best kinds, the flowers produced freely on plants possessing a capital habit. But as soon as we experience a spell of hot and dry weather, the blossoms lose their colour, until at last there is only the faintest tint or margin of blue upon a dirty white ground. This is the experience with southern growers, while the same has to be recorded of midland growers also. Yet this variety serves a useful purpose during the periods previously referred to, and should be

spring flowers, which prefer a rapid change from frost to genial warmth.—MAX LEICHTLIN, *Baden-Baden*.

THE WEEK'S WORK.

HARDY FRUIT GARDEN.

NEWLY-PLANTED ORCHARD AND OTHER TREES.—MULCHING.—This practice is undoubtedly more in vogue now than it was in past years, and rightly so. The kind of mulching, however, should depend upon the depth and quality of the soil. If it be of good average depth and otherwise in good condition, the only thing necessary is a top-dressing of spent Mushroom manure, so as to keep the roots from suffering by the parching of the soil. On the other hand, if it be a shallow soil or relatively poor, the mulching may with advantage be one of farmyard manure. This latter will enrich the soil and tend to encourage the roots upwards rather than otherwise, and be found much more to the point than placing the manure under the roots in too great a quantity. That these mulchings are decidedly advantageous is beyond doubt. If thus far this important work has either escaped attention or been deferred it will not be advisable to postpone it any longer, for we shall soon have the proverbial March winds. In neither case should a mere covering of the soil be tolerated. This will be found to be deceptive in the long run. In connection with this mulching it will be well, more especially after the comparatively dry period, to again water all newly-planted trees. It is, of course, assumed that watering was attended to when the planting was being performed. If not, then give a double dose, not only to afford moisture but to settle the soil, this plan being better than excessive treading. Should the work of securing the stems of newly-planted trees have been deferred, this again will be a present-time item to bear in mind. For this purpose threestakes are better than one, with a less possibility of injury. Should the newly planted trees have been put upon grass land, look to it that the grass does not grow to within 3 feet or 4 feet of the stem; here is the space for the mulching in such cases. In non-calcareous soils the addition of some bone-meal will be a decided boon; it will bring about more beneficial results in the fruit than in the wood growth, but in this also it tends to the solidification of the wood tissues. If larger trees have been moved, these also will require attention as regards mulching, letting it extend as far as the roots. These older trees will often bear more pruning, relatively speaking, than will the younger ones both at the roots and the branches. Where there is any suspicion of bark-shrivelling, a bandage or two will be advisable; then, and even in other cases as well, a rather free use of the syringe upon the choicer examples will be of considerable benefit, more especially if they be wall trees. Do not let newly-planted trees if freely provided with fruit-buds develop all their flowers, otherwise if they do there is at once a weakening tendency, and that, too, at a critical period of their existence.

PEACHES AND NECTARINES.—NAILING OR TYING.—In some cases this work, with the view of hastening its completion, may have been already completed, but the plan does not commend itself by any means in actual practice in such mild winters as the present one. I would rather pull the trees away further from the wall than otherwise for a week or two longer, so as to slightly retard the blossom. The pruning of nailed trees can be proceeded with, but the nailing in of the young wood or the regulation of the older branches should be deferred as long as possible. When this is done look well to the older fastenings, for it is probable that some branches may be bearing on the nails. If so, there is an inducement to canker when any wound is made. For the securing of the main branches, studs in some instances are preferable, especially if the walls be of extra height or the

trees of considerable spread. These studs with either yarn or small sprigs of the yellow Willow will be better holdfasts than shreds. On the other hand, if the walls be wired in a sensible manner in diamond fashion with the wire close to the wall, all that is then needed is a soft and not too durable a yarn (by this is meant such an article as will last long enough and not hold too tightly when the wood expands). Walls ought never to be wired so as to permit of the wires being an inch or so away from the wall. Where this is done there is a cold current of air passing which is not beneficial to either wood or fruit, whilst oftentimes many of the fruits will be found fixed in awkward positions, where they cannot possibly swell in a perfect fashion. Walls that are wired longitudinally oftentimes have the wires at too great a distance apart; thus the process of securing the trees thereto is not easy. These may be advantageously crossed with perpendicular strings of strong lasting yarn. All this work may be pushed forward so as not to have such items to cause any hindrance when the final tying has to be completed. Should any of the wires need painting, there is yet time to give at least one coat, but if not actually bad it had better stand over.

PROTECTING THE BLOSSOM.—More will be said upon this matter later on; for the present it is sufficient to allude to Apricots only. These will now be well advanced, and on warm sunny walls possibly already in flower. Look, therefore, to the protection of the blossom by means of light scrim or frigi-domo, either of which should rest upon an under stretch of netting to keep it from beating against the trees in windy weather.

HORTUS.

KITCHEN GARDEN.

FRENCH BEANS.—Succession crops of this vegetable should now be sown, as with longer days and more sunshine growth will be stronger and the plants give a better return. I do not yet advise such kinds as the Canadian Wonder, as though this will produce much larger pods, these require a longer period to mature, so that on the whole they are not so profitable. Such kinds as Ne Plus Ultra and Syon House are reliable, but there is no lack of varieties. The best results are obtained from clean pots and new soil, or a portion of new top soil. Much larger pots may now be used, but, whatever size is employed, it is well to avoid crowding. I have frequently seen as many plants in one pot as would suffice for three. I am aware growers are always anxious to get as large a return as possible from the space at command, but from close observation I find three plants in an 8-inch pot produce double the quantity of nine plants or six in the same size. It will now be well to sow every three weeks to keep up a regular succession for the next three months. Many growers may need only occasional supplies, and to get these it is well to allow six weeks from the time of sowing till the plants are in a bearing condition. In some cases the crop may take a little longer, as much depends upon the growth at the start. I prefer to place the seed pots in a liberal heat till germination is effected, as, should the seed be at all weak or imperfectly ripened, liberal warmth at the start will prevent losses. I place the pots on the hot-water pipes for a few days, and even in this position no moisture is needed till the plants are well through the soil. Ample drainage should be given if the pots are large. The old system of top-dressing the plants I consider does more harm than good, owing to the short time the plants take to produce the crop. I prefer filling up the pots or boxes to within 2 inches or 3 inches, relying on food in the way of fertilisers and liquid manure. I use spent Mushroom manure freely for the earliest crops under glass.

BEANS IN FRAMES.—For early crops in frames I have found it a saving of time to sow in small pots and plant out. It is essential at this date to have bottom-heat to get a profitable crop. A great depth of soil is not needed, but it is well to

use good loam with something to lighten and enrich it. Of course with ample heat at command anyone may sow in the soil when quite warm. Grown thus, there must be sparing supplies of moisture till the plants are growing freely. When manure is used to supply warmth, the roots of the plants have a tendency later on to go down into the manure and produce too much leafage and few beans. I do not advise this mode of culture for early supplies. I find the best results as regards the dwarf early kinds are produced in shallow beds with hot-water pipes under them. Grand crops may be grown in frames with manure only, but this mode of culture I would recommend for supplies from the end of April and during May. Grown thus, the plants will give two or even three crops if well fed and encouraged to make new growth by rich top dressings. The only difficulty with plants grown in frames on manure is that strong growers, such as Canadian Wonder, are gross, and to prevent this it is well to invert pots or use slates or boards directly over the manure to check gross root growth. Plants grown thus may with advantage be raised in small pots, and if sown now and the frames prepared at the same time the plants will be ready to plant early in March. If the frames are not heated, it will be well to defer sowing for two or three weeks.

ASPARAGUS.—Those who have beds in the open and which have been forced will find little difficulty in keeping up the supply. I find the roots in the open are easily excited this winter. Of course many are obliged to rely upon purchased roots, and these are never any too strong. In their case avoid hard forcing, as the growth comes so weakly. With mild weather the plants in the open will this season be earlier than usual, as though we may yet have frost, the sun's power is now much greater. Those who need early supplies in the open will find it advantageous to place straw litter over the beds at night, removing in the day in fine weather for the sun to warm the soil. I have also used a warm covering of manure on a bed for a special supply. The alleys also must be well covered. To this practice some object, as the grass is white and the manure must be moved to find it. I only note its value for a special supply to avoid lifting roots so late in the season. Permanent beds force now quite readily. In all gardens it is well to devote some space to permanent beds, as, once prepared, they give little trouble. This year I commenced cutting from beds forced annually (with leaves mostly) in January, and the grass improves daily owing to less bottom-heat and more sunshine. These beds give us an ample supply well into May if needed. It is advisable to cease cutting as soon as the beds in the open come in. There is no comparison between the produce of plants lifted and forced in heat and that from beds, the latter being so much stronger and more succulent.

SEAKALE.—Excellent produce may now be secured by placing boxes over the roots. These may be placed close together, and the boxes covered with long litter. Seakale grown thus for March supplies is of better quality than that grown in a strong heat. Large growers merely get out a wide trench, placing the roots in thickly, and covering with warm litter. The old plan of covering over in the open in its growing quarters is now less practised. I do not advise this plan, as often the roots are a good distance apart, and to cover them requires too much manure. Seakale can now be grown so well in one season from root cuttings that the old forcing or bed system is nearly obsolete. The land for planting next month should now be prepared. Few roots require more food in the way of well-decayed manure and deeply-dug soil. Root cuttings should be examined, cut over, and laid thinly into the soil in readiness for planting.

AUTUMN-SOWN CAULIFLOWERS.—Rarely is it necessary to plant out autumn-sown Cauliflowers so early. In my case growth is so far advanced, owing to the mild winter, that the plants are much larger than usual. I regret to say some plants of the Early London section have buttoned,

but as I grow but very few, relying on Walcheren. I have few losses. Those who have wintered their plants under hand-glasses will find little difficulty in planting out if the soil is fairly firm and a ball of earth attached to each plant. I found the worst plants were those in frames, as they were tender and had none too many roots. With tender plants it is necessary to shelter after planting. Much may be done to give timely shelter by drawing deep drills when planting, well firming each plant, and in severe weather a little long litter between the rows will prevent damage. The season of growth is so short that the plants need plenty of food in the soil and a warm border is preferable. Small plants may be planted a fortnight later in the open, these forming a succession.

CABBAGE.—The spring Cabbage this season is so well advanced that cutting will be earlier than usual. Out of several varieties on trial, Ellam's is the earliest, and so far I have not lost a single plant out of some thousands, although the weather has been so mild. Now is a good time to feed the plants. In many gardens large quantities of manure are placed in the soil previous to planting, but I fail to see the need for this. My Cabbage invariably follows the spring Onions, the land for which is made as firm as possible, and previous to planting the Cabbage it is merely hoed over. I now feed freely and give such aids as guano, fish manure or other vegetable foods, and the plants only having a few weeks to make their growth soon respond when food is given; the hoe is used freely between the rows. Feeding is best done in showery weather. My remarks apply to those just turning in. If there is a scarcity of plants, it is well to plant out even small ones left in seed beds. S. M.

STOVE AND GREENHOUSE.

GREENHOUSE HARD-WOODED PLANTS.

THEIR DISTINCTIVE FEATURES.

THESE are such as to claim for them a place in the front rank. Not only is there a wide range of colour in the several genera, but this applies to the species also in the larger of these. Take the Heaths, for instance. There are those with pure white blossoms, others with yellow, others with pink, and others with red and crimson shades, whilst the parti-coloured varieties are most numerous. Note, for instance, the beautiful combination of bright red and green in *E. Massoni* major, of blood-red and greenish white in *E. retorta* major, of white and green in the forms of *E. Aitoni* and in *E. Shannoni*, of light and dark tints of red as seen in *E. Fairiana*. *Phenocoma prolifera* Barnesii should be mentioned in conjunction with the *Aphelexis*, being of distinct growth, it is true, but yet a member of the Composite. This *Phenocoma* does not often flower so freely as it might do, but it lasts a long time in good condition and blooms later than the *Aphelexis*. In the large family of *Acacias* there are many fine kinds, beautiful plants for the early spring, and as profuse in flowering as they are beautiful. Of these, *A. armata*, *A. dealbata*, and *A. Drummondii* are perhaps well known as three of the best kinds in general cultivation, but *A. Riceana*, *A. cordata*, *A. pulchella*, of which *A. grandis* is perhaps the better form, and *A. verticillata* are alike worthy of notice. In *Aotus gracillima* we have a singularly distinct plant, producing long spikes of flowers, the growth slender, but almost self-supporting with good management. The *Boronias* furnish us with some of the most popular of present-day hard-wooded plants, whilst others, old favourites, of the same genus are looked at askance.

Of the present-day kinds, *B. megastigma*, for its delicious fragrance, and *B. heterophylla*, for its great profusion of rosy purple flowers, stand in the front rank of New Holland plants. Of the older kinds, *B. Drummondii*, *B. pinnata*, and *B. serrulata* all claim attention. These three are of more wiry growth than those first noted, especially *B. pinnata*, to grow a good specimen of which thirty years back was looked upon as a fine piece of work. *Rhynchospermum jasmimoides* is, I consider, a hard-wooded plant and one more common than many, but none the less a plant of excellent qualities. The *Correas* are seldom grown now; they are rather ungainly-looking, this chiefly resulting, by-the-by, from the want of moderate pruning. *C. cardinalis* is a good type of this family, and so is *C. Brilliant*, both having crimson-scarlet flowers. Turning to the *Hedearomas*, we have in *H. tulipiferum* one of the handsomest of all hard-wooded plants, and one that is in every respect decidedly distinct; it is surprising that such a plant as this is not grown more extensively. True, it wants a bit of attention, but it amply repays for that. Wherever it is grown and flowered well it can scarcely fail to be a source of great attraction. *H. fuchsoides* is totally distinct, with smaller flowers, but as these are produced in greater profusion as a rule, this deficiency is quite made up. The rich and varied marking of the former is entirely absent in the latter; nevertheless it is in its pale or brick-red colour a noteworthy plant. The *Croweas* are nearly related to the *Eriostemons*, but as a rule they flower later in the season. *C. saligna*, otherwise *C. latifolia*, is a good July or August flowering plant with bright pink blossoms. The *Croweas* are inclined to grow stronger than the *Eriostemons*. Both of these genera are, I believe, found to be of easier increase by means of grafting than from cuttings, the *Correas* being chosen for this purpose. All of these belong to one order (*Rutaceae*). *C. alba* is found to be the best stock. The Citrons, Oranges, Lemons, and Shadocks all belong to this same order, so after all it is not altogether inappropriate to use the flowers of the *Eriostemons* when those of the Orange fail for special occasions. *Camellias* come under my heading, but I shall not dwell on them, as they are so well known.

Dracophyllum gracile, now rarely ever seen, is a most profuse flowering plant, and one not so difficult to manage by any means as the *Leschenaultias* or the majority of the *Boronias*. The one thing that acts as a prejudice is no doubt its straggling habit, but this can be overcome by moderate pruning. The *Kennedias* are an almost forgotten class of plants of climbing habit, chiefly with large Pea-shaped blossoms, scarlet and red predominating. *K. Marryatte* is about the best of this class, and I have noticed that it is being well cared for at Kew. *Leschenaultia biloba* major has been so well grown, and shown, too, of late years by Messrs. Wm. Balchin and Sons, that it scarcely needs any recommendation. It is a plant that is well worthy of all the pains bestowed upon it, and with care it may be kept in good condition for several years. I grew it once into a nice sized specimen and staged it at one of the old Brighton June shows, although it is more of a May plant. It is undoubtedly the finest of the deep blue flowering plants grown in the greenhouse. I should much like to see *L. formosa* and *L. splendens* grown again as they used to be. I remember the former of these used to be shown at the June shows and again in September, its flowering season covering a long period. It is now a very rare occurrence to see a plant of *Sollya linearis* or of *S. Drummondii*;

both have deep blue flowers and are of comparatively easy culture. Being climbers, they are of distinct service on greenhouse roofs. *Staticees* are fairly well known as exhibition plants, but as smaller plants they are equally valuable at home in the greenhouse or conservatory. I scarcely know if these should be included; some growers would no doubt term them "soft," but *S. profusa* when well managed is not to be despised, nor are the stronger growers *S. intermedia* or *S. Halfordii*. Perhaps there are not many of us who have grown or even seen a good plant of *Styphelia tubiflora*. It is somewhat in the way of an *Epacris*, belonging to the same order; the flowers are produced scarcely so freely as in the *Epacris*, but the distinct red tube-like blossoms are very showy and distinct. It will grow well along with the *Epacris*, but is a little more difficult, in my experience at least, to manage well. *Tetratheca ericifolia* and *T. ericoides*, which is a synonym of *T. pilosa*, are both well worthy of every care and attention, being so profuse in flowering and lasting so well. These are beautiful plants for the cool house. *T. verticillata* (or *Tremandra Hugeli*) is scarcely so useful, being of a much more straggling habit. *Lapagerias* we all know as fine subjects in whatever way they are grown. They like more moisture and shade than many plants, however. What can we have finer in their way than the greenhouse *Rhododendrons*? I mean by these the strictly cool house species and hybrids, as *R. Countess of Haddington*, *R. Gibsoni* or *R. formosum*, *R. Veitchianum*, *R. Sesterianum*, *R. exoniense* and *R. Falconeri*. Some of these may be inclined to grow tall, but they are splendid objects when in flower. The javanic-jasminiflorum forms of hybrid *Rhododendrons* are not, strictly speaking, cool house plants; they need a little warmth and moisture, but whoever can thus accommodate them will find amongst the many hybrids now in cultivation a great treasure—they possess such a wide range of colour, pure whites and pure yellows, orange, terra-cotta, buff and salmon tints, pinks, reds, scarlets and deep crimsons. Indian *Azaleas*, I think, may be passed over, as they still hold their ground fairly well. There is, however, a tendency oftentimes to overpot them, which is a mistake not afterwards so easy to overcome. Of the *Grevilleas* that are useful as flowering plants, *G. Preissi* is one of the best and most compact growers, singular if not very showy.

OTHER PLANTS.

A few words ought to be said in favour of *Pleroma elegans*, which, with its deep, rich blue flowers so freely produced during July, August, and sometimes in September, has nothing in its way to equal it. It is not a difficult plant to grow if it be given the warmest corner in the greenhouse. When it grows too tall it may be dried off and then cut hard back, after which it will break away again. What I have found best is to frequently stop young plants and any shoots that show a tendency to grow too strongly. *P. macranthum*, or *Lasiandra maerantha*, as it is oftentimes called, is a bad-habited pot plant, ugly when trained, and difficult to thus manipulate, but plant it out in a well-prepared border and let it grow of its own accord up the roof or sides of a lofty house, and it is difficult to find anything more effective during the late autumn and winter months. This plant is thus grown at Kew, and yearly it flowers in the greatest profusion. *Daphne indica* and its white variety may very well be included; it is not often, however, that a really good plant is seen. A few years back I advised the planting-out system for this species in THE

GARDEN, and it drew forth a reply from an ardent cultivator saying that he had so grown it with great success. Given a good sized conservatory with a border available for planting out, there is not an equal to *Luculia gratissima* for the winter season when its large *Rhododendron*-like trusses shed their fragrance around. *Lagerstromia indica* ought not to be passed over; it is a most lovely plant for flowering during July, when its bright pink trusses make a fine display. The Myrtles, which are in the south so often grown outside, are not hardy enough in some localities to withstand the winter, hence they should at least be noted. I much prefer the Box-leaved form to the common kind for pot culture.

There are two plants I must name, neither of which is now often seen or even thought of. I refer to *Roella ciliata* and *Acrophyllum venosum*. The *Roella* belongs really to the *Campanulaceae*, being designated the African Harebell. It is a plant of very uncertain character, hence possibly this is the reason why it is not more grown. I hope to give it a trial again and see if I can succeed better than in the past. The *Acrophyllum* is another difficult plant to manage, but most beautiful with its *Spiraea*-like plumes during May. Chilman and Baines, two noted old plant growers, used to show it well. Like the *Roella*, it is a fractious plant to manage. I do not see, however, that there is any reason why we should avoid these or other plants that are not so easily grown as some which we see in their hundreds. Rather let us try to find out some of their peculiarities, and introduce some out of the ordinary run of greenhouse flowering plants. Either as decorative plants or as specimens many of these plants that I have enumerated will, I know, do good service. They will not involve more labour in the long run than is bestowed upon soft-wooded plants, there being far less potting needed as a case in point. GROWER.

PROPAGATING POINSETTIAS.

I WOULD like to add a few remarks to the inquiry of "A. E." concerning the above at p. 88 and in addition to what has been advanced by "H. P." It is quite true under the usual treatment that not a few experience difficulty in raising a stock of plants; at the same time a good deal of anxiety may be saved in a rather simple way. The chief causes of failure are due primarily to undue grossness on the part of the cuttings employed, and frequently to the making of such cuttings to a joint. With heat and moisture in the propagating frame such as these quickly succumb, and, indeed, from the first it is difficult to keep the leaves from going down. The only way to obviate this is to grow the stock plants in a more airy house, a warm greenhouse instead of the stove being ample, and this also well ventilated. From now to the end of March I would prefer my stock plants to be in the fullest light, as on a shelf near the glass, if only a temporary one. I note "H. P." suggests placing these under the stage, which I regard as wrong. When we remember that now the bracts are past, an efficient ripening or maturing of the eyes all along the stem is best ensured in full light, while they are more liable to keep dormant also. I well know it is customary to place them as suggested, but in many gardens such conditions are the reverse of favourable. At the end of March remove the plants from the shelf, and, having thoroughly watered them to soak the dry ball, knock them out of their pots and lay them on their sides on a side stage in a warm greenhouse, covering the ball of earth with cocoa-nut fibre and settle well with water. In this fibre the roots soon become active and a more uniform warmth is maintained about the roots than by

soil. In this position very little after root moisture will be needed and a good batch of cuttings quickly result. Cuttings 4 inches long are a good size, and these are best removed from the stem of the old plant with a little bark, thus securing a good heel, *i.e.*, the complete base from whence the growth began, and which in these it is most important to retain intact. Such cuttings also suffer less from the inevitable bleeding that ensues, and which is best checked by momentarily placing the detached portion in dry silver sand. Without delay these cuttings should be inserted singly in small pots quite firmly in the soil, already recommended by "H. P." Avoid all possible exposure to air while the cuttings are being potted, and insure a good watering to each on completing any batch. Now place them in a small frame on bottom-heat, where a uniform temperature of 80° to 85° can be maintained. In this the pots may be plunged nearly to the rim and sprinkled overhead and closed. Cuttings obtained in the same way also root quite well in sand and cocoa-nut fibre in equal parts, and frequently more quickly thus than in soil. If rooted in this way, however, it is necessary to place them in a close, warm frame when potted. Later on, say in May and June, *Poinsettias* may be easily rooted in a warm manure frame, and if transferred to the same quarters after potting, grow vigorously and well, apparently delighting in the ammonia-laden atmosphere of the frame. E. J.

Clematis indivisa.—This New Zealand species of *Clematis* stands in the front rank among greenhouse climbers, and it is just now laden with the white starry blossoms. It is of good free growth, and will soon cover a considerable space in the greenhouse or conservatory. Two enemies to be particularly guarded against are aphides, which are especially liable to attack the young shoots during the growing season and quickly injure them; and, secondly, mildew, which if once established will often destroy nearly all the foliage. This latter is particularly liable to attack the leaves during the dull autumn and early winter months. This *Clematis* is sometimes propagated by grafting on to pieces of the roots, as is usually done in the case of the hardy kinds; but this is by no means necessary, as cuttings of the half-ripened shoots strike root without any difficulty in the spring. There is a variety of this *Clematis* known as *lobata*, which is readily distinguished by the leaflets being lobed instead of entire as in the type. Though distinct enough from a foliage point of view, the flowers of both are about the same.—T.

Narcissi in pots.—These have greatly increased in favour during the past few years, and will, doubtless, in time supplant to a very large extent *Hyacinths* and *Tulips*, for they are decidedly much more graceful and effective plants, and require but very little in the way of forcing to get them into bloom. The great thing is to get good, well-ripened bulbs, potting them as early as possible in the autumn, covering the pots with ashes or cocoa fibre out of doors, and leaving them until the tops are pushing through the covering, a sure sign that the pots are full of roots. The old Paper White *Narcissus* is naturally very early, and may be had in full bloom in January with only conservatory or warm greenhouse temperature, and a constant succession may be easily maintained by growing the later varieties, such as *Grand Monarque*, *Gloriosa*, *Soleil d'Or*, &c., on in cold frames, and introducing them by degrees until the *Poet's* or *Pheasant's-eye* come in, with the lovely late *Double White*, perhaps the most beautiful of all, to finish up the season of these lovely flowers. Of the *Daffodils*, the old *Double Yellow* responds very readily to gentle heat and has greatly increased in favour as a pot plant of late years, while *N. Horsfieldi* makes a grand show with its large blossoms.—J. G., *Gosport*.

Hymenocallis.—M. Van Tubergen's note (see p. 98) is to some extent an indication of the

confusion of names among the cultivated plants of this genus. He doubts the accuracy of the name given to the plant represented on p. 57, and says it is rather *H. lacera*. The reasons he gives, however, are rather doubtful, the number of flowers in the umbel of both species (*littoralis* and *lacera*) being nearly the same; Baker says four to eight for *H. littoralis*, two to six for *H. lacera*, and mentions a form of the latter with a ten to twelve-flowered umbel. Both species vary considerably in this respect, as also they do in size and number of leaves, &c. However, as far as it goes, the illustration would do equally well for one of the forms of either species. *H. Delenii* is included in the List of New Garden Plants of 1894, published as Appendix ii. of the *Kew Bulletin* for 1895. It is therein described as "A vigorous plant, with a scape 2½ feet high, bearing an umbel of from twelve to twenty flowers. Cochinchina. This is *H. littoralis*, Salisb." I had overlooked the woodcut of *H. Amancaes* published in THE GARDEN in 1895 and the descriptive note by M. Van Tubergen, in which he states that the flowers of his plants are of the deepest yellow. I hope he will send a bulb of this form to Kew.—W. W.

ARUM LILIES.

I HAVE been greatly interested in the remarks of several correspondents during the last year relating to these beautiful autumn and winter-flowering plants. "E. J.," I see, advises pot culture all the year round, that being the best means of obtaining the earliest and most substantial flowers. I have followed "E. J.'s" advice this season and I am not satisfied with the result. I very glad I only tried one-third of my batch. My practice is after the flowering season to gradually dry them off in a cool house or pit, and as soon as all danger of frost is over, I stand them outside in any sheltered position. About the middle of June I break away all side shoots, retaining the strongest for renewing the stock, treating them the same as the old plants, *viz.*, planting them out on a sloping position facing south on ground deeply dug and well manured. After planting, if the soil is at all dry, I water them well in, thoroughly soaking every inch of ground. I then mulch with good rotten manure, not covering the crowns, which I leave fully exposed to the sun. I water them occasionally during July and August if the weather is very dry.

At the end of August, when I pot them, they lift with balls a mass of roots. Each plant is put into a pot as small as possible without injuring the roots, stood in a shady position for a few days and syringed in the evening. They are then put into a cool, airy house for a week or two; after that a temperature of from 55° to 60° suits them admirably. At the end of September the first spathes appear, and from then until the end of April there is no lack of flowers. Last year each plant averaged five spathes. The batch that was planted out this season is also doing well, some of them at the present moment carrying four spathes, with leaves of a beautiful dark green and of vigorous growth. Not so the batch that was treated as "E. J." advises; they are weak compared with the others, the spathes not nearly so large or so numerous and a fortnight later. I also treat *Little Gem* the same with very good results. M. T.

Camellia Conspicua.—This is very attractive just now with its fine deep-petalled, semi-double blossoms. The petals are very massive, the outer ones fully 2 inches in diameter, and when it is known that the flower is twice as deep as any ordinary *Camellia*, its fine appearance may be readily imagined. The petals are few certainly, not more than twelve in number, and these are of a beautiful lively carmine-pink, some of them, but not all, being tipped and flaked with white. The centre of the flower is rather confused, but not sufficient to hide from view the charming array of yellow stamens. These informal flowers are beautifully set off by a wealth

of rich green foliage, a fact that makes this *Camellia* one of the most showy for the greenhouse.

CARNATION MME. THERESE FRANCO.

I was sorry to read "E. J.'s" disparaging remarks on this beautiful and useful Carnation. It would be interesting to more than one reader of *THE GARDEN* to know what kind of treatment he has given his plants. It would be a pity for the many who are interested in winter Carnations to discard this variety just because certain growers find it difficult to manage. I have been most successful with it here in Shropshire, and have had flowers continually since early in December, when they are most useful, and when "E. J." says the plants scarcely produce any bloom. My plants are strong, and the flowers have been both large and well coloured. Undoubtedly a mistake is made by many gardeners in sticking to hard and fast rules in treating Carnations, especially in the summer. Some will insist that to do them well you must strike the cuttings early in January in heat, others will say that the syringe is most detrimental to the plants and refrain from using it, while others will say that they must be plunged in ashes in the open air all the summer. I find it a good plan to follow none of these rules strictly. I can say nothing against striking the cuttings in January, but they can be propagated quite as easily in a cool temperature as in heat. The plants from which I have been picking, and of which I have spoken, were struck in April of last year, nine or ten cuttings in 5-inch pots of red sand. These were placed in handlights in cold frames, where they were syringed two and three times a day, never allowing them to flag. Ninety-eight per cent. of them rooted and were potted off singly into 3-inch pots, and finally into 5-inch in a mixture of loam, peat, old mortar, sand, leaf-mould and a few half-inch bones. They were kept in cold frames until October, shaded from the hottest sun's rays and kept syringed several times a day. After October they were put into a warm house and fed with soot water and other liquid manures. Whether this is the right or the wrong treatment, they have done remarkably well and have been greatly admired. I intend to grow several hundred more plants of it this year than last and have them struck in batches at intervals of a month. The first batch of 300 is already rooted, some will be plunged in ashes in the open later on, as I have not sufficient frame room to hold them all, but the majority will be grown in cold pits and shaded from hot sun. I need hardly say that when the plants are established in 3-inch pots they are pinched, and not until they have well broken are they put into their flowering pots. I never keep old plants, as I prefer the neat-looking young ones in which you have both beauty of plant and flower, and they are not so likely to be over-watered as the old ones.—*GEO. BURROWS, Berwick, Shropshire.*

"E. J." cannot possess the true variety, or he would not condemn the above Carnation in the way he does at p. 98. After growing most of the so-called winter-flowering varieties of this colour, viz., soft pink, I have discarded most of them in favour of the above. It meets my requirements in every respect as a winter Carnation; and when I tell "E. J." that on January 27 I cut 300 blooms for table decoration, and these of the finest, it might induce him to give it a further trial. I might say that it is the best grower I have, much better than Miss Jolliffe, more robust in every way, produces flowers more freely, the blooms twice the size and of a deeper colour. I ought to say that I cut the above number of blooms from less than 200 plants, which are in 4½-inch and 5-inch pots. A little later than this I have cut 600 flowers in one day from this variety, and think I shall be able to do so again this season. I think it is a splendid Carnation, and everyone admires it who sees it here.—*T. A., Cirencester House Gardens.*

FLOWERING CACTI.

CEREUS SPECIOSISSIMUS was many years ago a very popular plant in gardens, as its large, brilliantly-coloured blossoms were so very distinct from anything else at that time in cultivation. The flowering Cacti show signs of in-



Cereus speciosissimus.

creased popularity, which is, I think, principally owing to the fact that Messrs. Veitch have devoted their attention to this class of plants, and several beautiful varieties raised by them have been many times exhibited, notably at the Temple show, for the last two or three years.

This species is sometimes included in the genus *Phyllocactus*, and between them numerous hybrids have been raised. The following are superb varieties: *Delicatus* (light satiny pink), *Brilliant* (vivid scarlet), *Agatha* (rose, shaded red), *crenatus* (creamy white), *Romeo* (light red and purple), *Vesta* (white), *Jessica* (light pink), *Rowena* (crimson), and *Plato* (very bright scarlet).

All of these Cacti are of very easy propagation and culture, and they have much to commend them, for the more they are neglected the more satisfactory they will often prove to be; that is to say, they must not be put into larger pots directly they appear to need a shift, nor must the water-pot be too freely used among them. The soil best suited for these Cacti is loam, with an admixture of brick rubble, well-decayed cow manure, and silver sand. Thorough drainage must also be given. A shelf in a spot fully exposed to the sun will suit them well, though, of course, when actually in bloom they should be removed to the shaded part of the greenhouse, as the flowers will last much longer. The amount of water required will depend to a certain extent upon the season of the year, as in spring the plants push forth their new growth, when the soil must be just kept moist, and this will hold good throughout the summer months. At that time an occasional syringing will be of service. Towards autumn, as the growth is finished, the soil should be kept drier than hitherto, and throughout the winter very little water will be required. A light, airy greenhouse just free from frost is the best place for them. Their propagation is equally simple, as if a piece is broken off it may be potted in much the same compost as that recommended for established plants, except that the manure is omitted and an additional amount of sand added. On no account shift into larger pots unless it is absolutely necessary, for even though the plant may appear to be too much confined at the roots, an occasional stimulant in the shape of weak liquid manure will often yield far more satisfactory results than if shifted. In speaking of the gorgeous flowers and the almost indescribable hues of some of them, I omitted to mention the fact that the individual blooms are of but short duration—a couple of days or so; but they succeed one another so quickly that a continuous display is kept up sometimes for weeks. When the size and brilliant colouring of the flowers of *Cereus speciosissimus* are taken into account, the effect produced by the plant figured may be readily understood.

T.

The Trumpet Honeysuckle.—There are few plants more suitable for covering brick walls and other bare places in cool greenhouses or conservatories than this bright and effective Honeysuckle. The growth is free, yet not too rampant, and singularly free from all manner of insect pests. It will thrive in any fairly good soil, and, when once planted and making headway, will take care of itself. A border about a foot deep, running the length of the wall or whatever it is intended to cover, may be prepared, good sound loam, with a liberal addition of leaf-mould and some rough lumps of charcoal, making the best compost. If there are tie-rods or pillars in the house, a few shoots may be taken along these, and the deep green foliage and bright blossoms have a pretty effect upon them. Then in many places there are verandahs and similar structures where this plant would do admirably, as it is nearly, if not quite, hardy. The roots must always be kept moist and the growths rather thin, so that air and light play freely about them, ripening the wood and rendering it very free flowering. Propagation is easily effected by cuttings of half-ripened wood in autumn, a mode too little

practised in private gardens for different shrubs and climbers. These strike freely in a cool house under bell-glasses or in a shady frame. They may be left in the pots until spring and planted out in rows for a season or two, or placed in their flowering positions, as is most convenient.

ZONAL PELARGONIUMS AS POT PLANTS.*

In choosing this subject I think I have selected one that has been somewhat neglected at horticultural meetings, although it is one, as you know, that is not new. But as to how long the zonal Pelargonium has been in cultivation I do not propose to inquire, its ancient history or its botany being outside the scope of this paper, which I intend to be cultural, as I take it quite the greater portion of this meeting is composed of practical, working gardeners. To make myself as clear as possible, it may be well to divide the matter into headings, such as "Propagation," "Specimen plants," "Winter-flowering," "Varieties," and so on.

PROPAGATION.

This is a matter that is not attended with any difficulty during summer and early autumn. There is, however, some risk when we attempt to strike cuttings at this time of the year, or rather a bit earlier. I may say propagating from cuttings is the plan generally adopted, raising plants from seeds being confined to obtaining new and improved varieties. I am not particular about the size of the cuttings used, but pay more attention to the growth being hardened before taking the cuttings. Nor have I ever favoured the wetting process practised by many after the cuttings are made. Many items of culture have become orthodox because no one has attempted any other way. Thus with regard to drying Geranium cuttings, and, again, by being careful to cut immediately under a joint. Now, in practice I find this subject, as well as most soft-wooded plants, root readily from any portion of the stem, and therefore cutting to a joint is unnecessary. The gain is considerable; because when we are dealing with a choice variety, two cuttings may often be obtained in the place of one trimmed in the usual way. The chief cause of failing to root Pelargonium cuttings is that they are liable to rot before the process of callusing has taken place. To prevent this when cuttings are put in early in the season, I tie each to a piece of thin stick, so that I may fasten the cutting to the earth, only allowing the base of the same to just touch it. A batch of 2000 cuttings was put in in this way during January, and I lost less than half a dozen in 100. So early in the year I would favour a slight bottom-heat, but in this case a surface of fine soil was put on a bed from which Tomatoes were removed, and the cuttings just resting on the soil as mentioned, placing them about 3 inches apart. Later in the spring it is not necessary to go to that trouble. I simply take a cutting off and plant it anywhere in soil, and have now (April) some hundreds among the young Tomato plants. These will be rooted before the leaves of the latter unduly shade them. Pelargoniums may also be struck singly in small pots or thickly placed in larger ones, also in boxes or the like and stood on shelves. The only danger here is that they may become too dry without one noticing that condition. There is said to be enough sap in a Geranium cutting to root the same without the aid of water. That may be so, but I usually sprinkle the leaves on sunny days. If the cuttings are rooted out of pots as suggested, take care to pot them the moment rooting has taken place, or the plants will soon run up spindly and soft.

I will not detail autumn propagation, as that is so well understood, but I would advise continual striking, so that we have always young successive batches.

Complicated mixtures of soil are not at all necessary. If I had loam, a little grit and bone-meal, I should have all I needed for Pelargonium culture. Excellent results may also be obtained by the use of the old partly worn-out compost that Chrysanthemums have been grown in the previous year. It is a common fault to find these plants in a soil rich in animal manures, which in this case, I am sure, leads to the growth of leaves and soft wood. I have in my mind's eye some remarkable specimen plants which were being prepared for an exhibition. This was some years ago, and they have remained to me as choice examples of how not to do it. In the first place they were potted into 12-inch pots loosely. The compost was of the richest description. In summer a spot outside that was fairly well shaded by trees was selected. They, of course, had abundance of stimulants, and I should say when finished for competition each plant was a mass of large healthy green leaves some 4 feet high and nearly as much in diameter, but blossoms were sadly needed to make them at all presentable. Now my idea of a well-grown zonal Pelargonium is abundance of bloom and comparatively few leaves.

Plants in small pots are very showy when well grown. They form useful objects for conservatory or room decoration. A sight I shall not readily forget was a greenhouse filled with miniature specimens in 4-inch pots with huge trusses, only one on each plant. This was a few years back in the garden of a gentleman known for his skill in raising choice Fuchsias—Mr. Banks, of Deal. Individual pips and trusses were here cared for with that same pride which we know many florists of the old school regard Auriculas or Carnations. I will, however, take the 4½-inch pot as the limit for flowering small plants, and it is wonderful what a blaze of colour we may obtain from specimens in this size. They will need but one shift from the small size in which the plants have been placed as soon as rooted. Over the hole put one fair-sized piece of crock, and then cover this with a good handful of quarter-inch bones, using such ordinary soil as I have indicated. Firm potting is most essential. An autumn-struck batch should be ready for this shift now. The temperature of an airy greenhouse is one in which the plants will flourish satisfactorily, and stand them as near the glass as convenient. Before the shoots have a chance to run up tall pinch out the points, also the flower-buds for a time, until you get a bushy specimen with four or so short, sturdy growths. Meantime, watering must not, of course, be neglected. The Pelargonium will take abundance of moisture at the roots, but I do not favour sprinkling overhead after the cuttings have rooted. In stopping the shoots, I ought perhaps to mention now a fact we may easily note by observation. The plant naturally in growing makes one joint with a leaf on either side; the next is a flower-bud and one leaf. Again, above that comes a leaf-joint, and so on. Therefore we must be careful, if a bushy growth is desirable, not to top the shoot at the joint where the flower-truss forms. But for the fine development of individual trusses of bloom we should snip out the tiny growth immediately above the flower, so as to arrest the further growth of leaves. When nice little bushes are obtained I would allow all flower-buds to remain on the plant, and then—the pots by this time being well filled with roots—feed with something of a stimulating nature. I find any fertiliser containing an abundance of ammonia best for zonal Pelargoniums. Peruvian guano is first-rate. Soot water is also excellent, but this should be clear, and I would not advise the use of any manure that clogs the soil, such as thick liquid from cow manure and the like. Shade when in bloom is necessary. When the plants have passed their best they may be stood in the sun for a few days to harden, and then cut back to make useful material for growing into large specimens another year. Later batches should also be ready to take their place, it being possible by this means to have bloom the whole year.

SPECIMEN PLANTS.

By this term I mean here those large examples we like to see at exhibitions. I say we like to see, because in the south of England at least well-grown zonal Pelargoniums are generally most conspicuously absent. At the York shows really fine, handsome plants are annually seen. In and around London the specimens met with are decidedly poor. In the first place, I do not like the mode of training. Flat or half oval-shaped trellis-work is made of wire, the long growth is tied down in all sorts of ways to get a geometrically even surface, and each truss of bloom is tied in an equally formal manner, so much so as to exhibit a superabundant supply of woodwork and wire that in many cases scarcely enough leaves and blossom are to be seen to cover it all. This may not be the case in the north. But, be this as it may, I will detail a system without the aid of so much training material that has produced remarkably well-flowered specimens, in many instances bearing over 100 huge trusses of well-developed blooms. Cuttings are rooted in early spring and duly repotted. Every growth is stopped at a leaf-joint and the flower-buds removed; thus a bushy formation is aided from the first. From the smaller pots the plants may go into those 6 inches in diameter, and the soil be firmly rammed in with a potting-stick as advised. After the end of May stand them in the open air on boards or the like to prevent worms from getting into the soil or the drainage from becoming clogged. Early training may be accomplished by placing a few small sticks around the edge of the pots in an outward direction, drawing the principal growths carefully down to them. Water when needed, and take away a few leaves now and then to prevent overcrowding. This also aids a thoroughly firm, short-jointed growth. By mid-summer we may give the plants their final shift, this time into pots of 9-inch diameter. As the shifts get larger, drainage in greater quantity will, of course, follow, and I need not go over again the partiality I have for bones at the bottom of the pots. All the summer pinching must continue as well as the prompt removal of every truss of bloom buds. By the middle of September the pots will be filled with roots and specimen plants of a good size obtained. They should at this time be stood in their winter quarters. A light shelf in a greenhouse orinery whence frost is just excluded is an excellent position for them, and all that is needed is to keep them quiet during the dull months. By February we should allow fresh growth to take place and gradually train the shoots as they grow. Pinching away flower-trusses is still carried on, as well as stopping any shoot likely to run. By this means one may obtain huge bushes of hardened growth with comparatively small leaves. With the advance of spring weak doses of liquid food were given regularly. About two months before the plants were required in perfection their restricted growth was allowed to break away into blossoming, and the result was as I have stated. It would not be exaggerating to state that one solid mass of colour was obtained a yard or more through. The trusses were sent up on stems a foot or more out of the leaves, and in shape the whole had a natural though symmetrical look. About fifteen months from the time of striking the cutting may be thought by some too long. But it was an experiment which answered and which might well be copied. It always occurs to me that once we let a zonal Pelargonium bloom the plant loses its vitality. "Bloom itself to death" is a not uncommon phrase in reference to this subject.

WINTER FLOWERING.

This phase is not the least important of all, and as a plant to provide bright cheerful colours during the dull months of the year the zonal is scarcely surpassed. It is a matter of special culture and a proper selection of varieties. I prefer spring-struck plants to start with, and the same rules as to soil and firm potting are equally applicable in this case. Do not overpot. The 6-inch pots are generally large enough. In no

* Paper read by Mr. H. Shosmith, Claremont Nurseries, Woking, before the Reading and District Gardeners' Improvement Society.

case would I use those above 6 inches in diameter. From May to the middle of September the plants may be stood in an open sunny spot outside. Placed on boards along the sides of kitchen garden walks is often a very convenient position. Due attention must be given to watering, stopping, and removing all flower-buds when in a young state. As the blooms take a considerable time in developing, especially late in the season, I would discontinue taking away flower-trusses after the early part of the last-named month, mentioned above. The winter quarters is a vital point, because there must be heat enough to expel damp as well as favour growth. A temperature about 55° is required. All light available should be allowed where these plants stand, and the closer they are to the glass, provided all is dry, the better the colours will come out. In some instances, where zonal Pelargoniums in winter are a speciality, the cultivator has hot-water pipes fixed immediately under the glass above the blossom. This plan, however, is not likely to be followed generally, nor do I think it necessary. The greatest enemy to Geranium blooms in winter is thick fogs, and it is next to impossible to grow such with success in or close to large towns, where the air is charged with smoke from a multitude of chimneys. Pure country air and the medium temperature named make matters tolerably easy. Care is required in watering. As little as possible should be allowed among the plants, and the work ought to be done during the morning. Care, again, must be exercised in air-giving, so as to avoid draughts as much as possible. It is easy to overdo the roots with stimulants in the winter months. This item, therefore, should be watched. Many varieties, in fact, bloom better in winter without any feeding, more especially the whites and other light shades. Single varieties as well as doubles are used, the former being the more showy, but less useful for cutting, as the petals so easily shatter. To prevent this, liquid gum is dropped into the centre of each pip. If this be done and the stems placed in water directly they are cut, the blossom lasts a considerable time. Gumming the petals applies to single varieties at all times of the year, and for show especially the blooms would soon present a miserable appearance if the matter were neglected, after being shaken by the necessary removal.

GENERAL WINTER TREATMENT.

Apart from flowering plants, during dull, sunless months Pelargoniums should in all cases be kept quiet. We should endeavour to prevent much top-growth by having a low temperature consistent with keeping out frost. The roots may be on the dry side, but not so parched as to kill them. If such practice be followed, those plants that require heading back will have abundance of hardened cuttings to provide material for an early start in propagating a stock.

DISEASES AND INSECTS.

Fortunately, zonal Pelargoniums are not troubled with anything in the way of insect pests worth speaking of, but there are a few diseases, brought about by the careless grower in most cases. Take spot in the leaf. I seldom note this on a plant which has not been over-watered. My remedy is to remove such a plant and put the pot on its side, neglecting it entirely for a week or two. The soil will then get thoroughly dry and sweetened. With care in watering afterwards, the plant may in nine cases out of ten be brought round and again made to grow freely. Then there is decay at the base of the stem. This, I fancy, is often caused by faulty watering. Although it occurs with me sometimes, I am mostly careful when potting to avoid it somewhat by placing the stem well up in the centre, not burying it deeply, as is sometimes done. And when water is given, do not pour it right on to the stem. It is just as easy to pour it near the inside of the pot's rim.

VARIETIES.

Selection of the best varieties for a particular purpose always appears to me a phase not less

important than culture with regard to Pelargoniums or any flower. For example, we find well-cultivated plants of winter-flowering Geraniums composed of sorts like Henry Jacoby, John Gibbons and even commoner kinds. These are good free-flowering varieties I admit, but why not have in their stead sorts as rich in colouring and infinitely superior in form, substance, size of pip and truss?

One remarkable fact is this. The zonal Pelargonium has within the past few years been quietly altered and improved by a few enthusiasts with no special society to foster their efforts. The Rose, the Chrysanthemum, Auricula, Carnation, Dahlia, Viola, and I know not what, have societies devoted to their exhibition and improvement, but the Pelargonium has none. It had. This, however, died some time ago and has never been restored. Yet, as I say, the Cannells, Pearsons and one or two others have during the past ten years given us unquestionably most superior sorts. Indeed, in looking through old lists whilst preparing these notes, I may say that very few of the best varieties were in commerce half a dozen years ago.

It is somewhat curious that one raiser may obtain a good break in a particular shade of colour, whilst his neighbour may surpass him in another. I find that in salmon shades Messrs. Cannell are responsible for, to my thinking, the best, namely, Mrs. Routh, T. W. Lawton, A. F. Wooten, Mrs. Robert Cannell, and others. In lovely shades of cerise, salmon scarlet, and the like, Messrs. Pearson claim remarkably fine ones—witness, Kitty, Phyllis, Enid, Olivia, O. W. Holmes, and so on. The late Mr. Miller gave us whites of fine form and size in Niagara, Duchess of York among others. The crimsons, too, of this raiser are grand; Souv. de S. B. Miller and Volcanic occur to me. Here and there a kind of exceptional merit springs up, but the three names I have mentioned raised the greater portion of up-to-date sorts. How many seedlings are required to obtain one good variety is unknown to me. Probably one person gets a strain that will produce more improved varieties among a hundred plants than another would in a thousand. There cannot be any rule to this.

I was told the other day of an instance where a gentleman raised a few Carnations from ordinary purchased seed, and has thereby obtained at least two kinds likely to create a stir among the fancy when they are free to the public, whilst another might try for years and not have the like results. It is in the uncertainty of seedling raising that, I suppose, its greatest charm lies. H. S.

SOWING SEEDS.

The time is now at hand when many choice seeds may be sown. Begonias, Gloxinias, Celosias and other subjects that are to flower the same season should be sown not later than the middle of February. In the neighbourhood of London, or other districts where fogs prevail, it is not safe to sow much earlier, but where the air is pure it will be quite safe to sow early in January. The prevailing idea is that all seeds should be well shaded until they germinate, and under this treatment they undoubtedly do start better, but how often are they lost after they have germinated. I have long advocated that almost all seeds should be fully exposed to the light, and many do not require shading from the sun at this season of the year. If a little extra care is given until the seedlings are large enough for pricking off, those fully exposed to the light will make sturdy short plants and quite as large a percentage of seeds will grow. It is of the first importance that moisture should be sustained, and when well exposed there is not so much danger of the soil getting sour. In preparing the pots for very small seeds, the surface soil should be sifted through a fine sieve, and after the seeds are sown it may be lightly pressed down, but no surface covering should be given. Good drainage is almost always advocated, but I prefer a good depth of soil, as it can be kept

moist with less trouble. Drainage is of more importance when preparing the pots for pricking off. For such seeds as require a surface covering care should be taken that the compost is not inclined to cake after it has been watered. It is sometimes caused through pressing it down too firmly. Some dried Sphagnum rubbed through a fine sieve is a good addition to the compost, as it prevents caking and holds moisture as well. For such seeds as Primulas, Cyclamens, &c., Sphagnum and sand only should be used for covering.

Many seeds will germinate better and more evenly if soaked for a time before sowing. The period of soaking will depend upon the nature of the seeds. Such as Cannas, Acacias, and other hard seeds may be kept in water for some time, but the water should be changed, and when the seeds have begun to swell they may be sown. In no case should they remain too long. From one to two days will be long enough for many seeds. Conifer seeds take some time to soak. If mixed with wet sand and kept well moistened for a week or so, the sand may then be washed out and a little dry sand shaken among the seeds to prevent them sticking together. In no case must seeds be allowed to get dry after they have been soaked. One great advantage in soaking seeds is that they do not lie dormant so long and are less liable to damp off, as the soil does not have time to get sour. If a little more care and judgment were exercised in sowing seeds, there would be fewer complaints about bad seeds being supplied. H.

BOOKS.

ESSAYS AND SKETCHES.*

THE book is a reprint of some of the prose writings of the author. A Manchester man by adoption, if not by birth, the smoky atmosphere of the northern town has not blinded him to the beauties of hill and dale, meadow, wood, stream, and moor; in fact the book is the work of an enthusiastic botanist and naturalist—a loyal knight of the spud and vasculum he describes himself—who has traversed many a long league of Irish bog and Scotch mountain in the search for natural beauties. The chapters on "Rambles in Town and Country," and the essays on "Window Gardening," "Town Gardening and Climate," "Town Trees," are well worth reading, and those who like poetry will find ample and appropriate quotations on almost every page from Wordsworth, Burns, Fergusson, and others who have sung of natural beauties. The author's own style is the reverse of dull. Writing of Bolton Abbey, in Yorkshire, he notes the presence of the beautiful Wallflower (*Cheiranthus Cheiri*) there:—

The *Cheiranthus* is one of the sweetest of British wild flowers, as it is a plant with the most melancholy associations, being only found on the crumbling walls and roofless towers of ruined castles and churches. . . . Another interesting wall plant is the *Parietaria officinalis*, common Pelutry of the wall so-called, but "common" it is not, being now rarely met with, like the Wallflower, except on the crumbling walls of ruined, or ruinous, castle, church, or mansion. This we also found at Bolton, along with the Wall Rue *Splenwort* (*Asplenium Ruta-muraria*) and the brittle Bladder Fern (*Cystopteris fragilis*). It was delightful afterwards to explore botanically the farmhouse and cottage gardens of the neighbourhood. A notable feature of these was the abundance of climbing plants on the walls, including the *Gloire de Dijon* and *Crimson Boursault* Roses, the *Cotoneaster* and the *Honeysuckle*, with which last several cottage fronts were literally smothered, while the delicious fragrance of their creamy blossoms loaded the air. The brilliant red of the *Centraurus* (*C. ruber*) and the glorious yellow of the *Welsh Poppy* (*Meconopsis cimbriica*) were also there, lighting up many a quiet nook.

In the chapter "Down in Cheshire" the author describes this county as the gardening county

* "Essays and Sketches." By Abraham Stansfield. The Manchester Scholastic Teaching Co., Deansgate, Manchester.

par excellence of Northern England, and he is delighted with the blossoming fruit trees—chiefly Pear and Cherry—"clustering in snow-white masses about the old farmhouses built of the hillside stone. Did ever fruit trees so blossom before?" The Lichens, too, "covering the hard stones with a garment of beauty, and the mosses with their varied and soft-hued verdure" cause him to wonder that we should ever consider any season a dreary season. How little in the form of natural beauty escapes the author's eye, and how skilfully he can convey his impressions to the reader will be best seen by reading the volume itself, which is not large, and, in these days of heavy books, conveniently light. It might have been better, perhaps, if the preliminary essays on "A Neglected Manchester Man—Thomas de Quincey," "Some Characteristics of the Time," being a humorous protest against the over-athleticism of the day, "Folk-Lore of the Manchester Border," "A Manchester Book-hunter," and one or two others had been printed apart from those that deal with gardens and flowers and kindred subjects; but, however that

som. With me *Prunus Pissardi* has many blossoms out. The list might be greatly extended.—G. P., *Dublin*.

TREES AND SHRUBS.

A FINE LILAC.

THERE are few flowers more intimately associated with our youthful reminiscences than the Lilac. In those days the march of time was measured rather by the coming of the flowers than by the arbitrary calendar of the months. There was the time of the Snowdrops, the time of the Daffodils, the old double Daffodils that grew in a certain well-remembered field, and loom through the distance of years as vastly larger and of brighter gold than any to be found at the present day. Then came the time of the Lilac, the gracious spring-time, when the air was odorous with its countless flower-clusters

the cottages with their prodigal blossoming, in some instances, as is the case not far from where I write, having attained such stature, that their topmost flower-shoots overtop the ridges of the thatched roofs. S. W. F.

A seedling Rhododendron.—I am sending with this note a truss of *Rhododendron* which I have cut from a bush about 3 feet high, and which is flowering in the open. There are thirty-two trusses on the plant, the first one opening before Christmas. It is a hybrid raised by the late Mr. J. H. Mangles, of Valewood. I do not know its parentage. Can you in any way guess what the cross is?—CLARA MANGLES.

** We should say a very pretty seedling of *R. arboreum*.—ED.

Pyrus japonica in the open.—Will you kindly tell me whether *Pyrus japonica* ever grows satisfactorily as a shrub? In the absence of wall space I have two plants on a wire fence. The fence is crowded with Honeysuckle, Clematis, Roses, Jasmine, Virginian Creeper, &c. On account of the competition of the other plant life, which is very vigorous, it is difficult to train the *Pyrus japonica* espalier-wise, which was the original intention. Would the plants if lifted be likely to do as shrubs? Lifting would be quite possible, as the plants are only in their sixth year.—BEVERLEY.

** *Pyrus japonica* will succeed perfectly if planted as a shrub in the open ground, that is if the conditions as to soil, &c., are favourable. It thrives best in a deep, fairly moist loam provided it is not at all waterlogged. On the other hand, in dry sandy or gravelly soils this *Pyrus* will not flourish, though it will hold its own under very adverse conditions. The *Pyrus* naturally forms a dense bush, and though, of course, it does not commence flowering so early in the season as where grown on a sunny wall, yet its brightly coloured blossoms are thoroughly appreciated, even if they do not put in an appearance till the spring. Then its period of blooming is spread over a longer time than that of many hardy shrubs, for the individual flowers last a good

while in perfection, and besides this a succession is usually kept up for some time. The two plants in question having so long had the support of the fence should, when transplanted, be secured to a good stake. They will, however, soon push up suckers and make their position secure.—ED.

Abies shastensis.—The article relating to this tree, quoted from the *Garden and Forest* in your issue of January 29, is of great interest to all lovers of the coniferæ. A beautiful engraving of a branchlet with two cones attached was published by the *Gardeners' Chronicle* in 1885 (fig. 147) under the name of *A. nobilis* var. *robusta*. In the Kew Hand-list of the Coniferæ it is named *A. magnifica* var. *xanthocarpa*, *A. shastensis* being given as a synonym, and now we are informed that Mr. Lemmon has pronounced it to be a distinct species. All these kinds belong to the "curly-leaved" type of Silver Fir, in which the leaves are incurved upwards instead of being spread out flat and horizontally. There should be no difficulty in verifying *A. nobilis* by the distinct groove along the upper surface of the leaf, but whether those grown under the name of *A. magnifica* and bearing tetragonal leaves really belong to that species or to



A fine Lilac bush at Bridgnerston House, Amesbury, Wilts. From a photograph sent by Mrs. R. F. Shuttleworth Rendall, 10, Apsley Road, Clifton.

may be, the book as it stands is a very readable one.

Cobæa scandens in January.—This rapid-growing, useful climber will usually do well in a warm situation out of doors in summer, and, if sown in heat early and then planted out, will flower from August onwards, but is almost certain to be killed in winter if there is any frost to speak of. This season a plant on the front of my house (near the Canary Creeper mentioned in a former note), so far from being killed, has been flowering for some weeks past, as have many other plants this extraordinary winter. The strange weather came to a climax on January 30, with a mean temperature of 57°, the maximum being 61° and the minimum 53°; but since then there has been a change—much colder, some sleet and frost. *Narcissus maximus* is about a foot high and showing colour, while *N. Bulbocodium citrinus* opened its first flower—the first outdoor Daffodil—on Friday last (4th), far in advance of *N. præcox*. A friend in Cavan tells me he has the Banksian Rose in bloom. I am thankful to say I have not. Another has a Pear tree in full blos-

and the Laburnum's golden shower drooped from every spray of the old trees that grew in the corners of the cottage gardens, and the double pink Thorn blossomed, its precincts murmurous with the booming of the burly cockchafers that in the gloaming circled around its flower-laden branches.

The common Lilac, the ornamental qualities of which the accompanying illustration affords evidence, is an old-fashioned flower, and is, fortunately, widely distributed throughout the length and breadth of England. It is a favourite with the cottagers, who, indeed, possess a fine discrimination in their appreciation of sweet-scented plants, as manifested by the Madonna Lilies, nowhere so fine as in cottage gardens, sweet Rockets, Pinks, Carnations, Myrtles, Roses, Sweet Brier, Bergamot, and other perfume-giving subjects which are to be found growing in their gardens. Many villages it is a pleasure to walk through in the spring-tide, if only for the scent of the great Lilac bushes that lean over the winding road and embower

shastensis would appear to be indeterminate until they produce cones, when the included or exerted bracts would settle the question.—R. C.

Garrya elliptica.—If this Californian shrub were perfectly hardy we should no doubt meet with it far more often than is the case at the present time, for a good specimen veiled with its long pendulous catkins forms one of the most striking features to be found among outdoor shrubs in the depth of winter. It is liable to be injured by severe frosts, but where this does not happen it forms a free-growing bush, clothed with leaves each about 2 inches long, which are very much like those of some varieties of the Evergreen Oak. The male catkins, which form the attractive portion of the inflorescence, are borne from the axils of the leaves, and, as a rule, very plentifully. These catkins, which on exceptionally vigorous examples will reach a length of nearly a foot, are of a greyish green colour, the flowers themselves being small and nearly hidden. The male and female blossoms are borne on separate plants, and the female, which is far less showy than the other, is very rarely seen. The *Garrya* may be treated as a wall shrub where it is not sufficiently hardy to be depended upon, but though very beautiful in this way, it is seen at its best as an open bush.—T.

ORCHARD AND FRUIT GARDEN.

FRUITS FROM SEEDS.

I must apologise for not having replied earlier to the queries put on this matter by "W. S., Wilts," and "A. D.," but as the subject was mooted too late for operations this spring, except where seeds or stones have been kept in reserve, the delay will have done no harm. Respecting the great number of chance seedlings noted by "W. S." as coming up with him in 1895, I have frequently noticed similar occurrences, and presume that they are caused by some exceptional climatic influences. Some years ago scores of seedling Figs came up in a Rose border here, a thing that has never happened before or since; only very few of these were saved, as there is no room under glass, and out-door culture is not attended with very good results without special appliances in this garden. I wish now that I had kept more. Could the exceptionally severe frost experienced early in 1895 be responsible in any way for the germination of a larger number of Peaches than usual in the spring? Peach and Apricot stones can be induced to germinate with tolerable certainty the following spring, if they are sown directly the fruits are eaten and the soil about them is kept moist. Taking the queries of "W. S." as they come, I may say that Apricots sown in 1883 fruited in 1888, and Peaches fruited in four years. With ordinary Plums my experiments and observations have as yet led to nothing in the way of fruit, but seedling Green Gages have in six years proved themselves, about 30 per cent. having already fruited, and of these most have reproduced the old form exactly; many more out of a large batch will probably fruit this year. Cherries have not proved a success as regards producing good varieties; those that have fruited have produced small fruits. Apricots, as I said in my former note, have all been good. The only failures I have to record with Peaches and Nectarines have been the very few weakly seedlings which have gone wrong while young. Out of six raised in 1883 and established on walls, five produced most excellent Peaches. The other turned out to be a large green Nectarine very similar to Prince of Wales; this would probably have been useful under glass, but was too late for outdoor culture. I

have no record of the parentage of the foregoing half-dozen, but of a similar batch raised since, and which all produce good and luscious fruits, a record of parentage has been kept. I do not claim that these seedlings are any advance on our best named varieties, but they are really good enough to encourage those who are inclined towards fruit-raising to proceed with the work, and, as said by "W. S.," to make a home study of it. If the statistics here given are not quite satisfying to "A. D.," I must ask him to wait a year or two longer for more. It requires more than the efforts of one or two private growers to establish reliable and extensive records. The facts here given are mostly from experiments in two gardens, and in neither can very much space be devoted to purely experimental work. J. C. TALLACK.

PEAR PASSE CRASSANE IN FEBRUARY.

EVIDENTLY the recent notes in these pages on winter Pears have borne fruit, as at the meeting of the R.H.S. on the 8th inst. there was a goodly number of dishes, though several kinds noted as excellent for winter supplies were absent. There was a surprise in store for many of the members of the Fruit Committee, as Mr. Woodward, of Barham Court Gardens, Maidstone, exhibited magnificent fruits of the above variety, not only securing the first prize for flavour, but also gaining a first-class certificate as well for this old variety. I never saw such specimens and so sound at this time of year. This variety has been grown for over forty years, having been raised in France, and first fruited in 1855. Unfortunately many fail to grow it well. Mr. Woodward, who grows hardy fruit so well, is to be congratulated on his success. His trees are on a west wall on the Quince stock and watered freely—indeed, three times a week in dry weather. The trees had recently been root-pruned, and the secret of Mr. Woodward's success in keeping the fruits good till this date was that each fruit was tied to the tree to prevent its dropping, and allowed to hang till every leaf had left the trees. The fruits in question were free of the grittiness so common in this variety, solid and melting, with a rich flavour. There would have been no difficulty in keeping these Pears till March. I well remember Mr. Blackmore condemning this variety when he grew Pears so largely at Teddington. Probably, as in my case, he had a gravel subsoil to deal with, and I do not think *Passe Crassane* grown in such soils would give a good return, or, at any rate, such fruits as Mr. Woodward's. My trees bear well, but the fruits are poor. I have large pyramids on the Pear stock, not the best evidently for this variety. The flavour competition will have done good work, as it has shown how well certain kinds of Apples and Pears can be grown in this country, and equal to those of warmer climates.

G. WYTHES.

Winter care of Apple trees.—The orchard does not provide self-cultivation. In neglected orchards the bark becomes dull and lifeless, a limb cut or broken off leaves a dead stump, and decay ultimately eats into the heart of the tree. Such results are the direct effect of neglect, either from want of knowledge or attention. Orchards of this class may be resuscitated and made profitable by the application of the pruning-knife and scraper at this season, and other care later on. Winter pruning should be done carefully, removing as few of the large limbs and as little healthy wood as possible; but do not fear to open the tree so that no limbs cross, and so that daylight will flow freely through in every direction. Do not fear to cut, then scrape away all dead or weak, small limbs and rough bark; and, as far as possible, leave only healthy wood and an occasional strong "sucker" to fill the head. Crisp, bright, sound fruit will grow only on absolutely healthy wood, no matter what amount of ground

cultivation, tree pruning or spraying you may do.—D. E. HOWATT, in *Country Gentleman*.

MELONS.

Will some reader tell me which are the best scarlet-fleshed Melons for house work?—R. KATZER, *St. Petersburg*.

** The above query implies a difficulty many growers experience in choosing a few from among so large a selection now offered by all the leading seedsmen, most of whom claim novelties and standard sorts of their own raising or introduction, as the case may be. Except for experiment, neither large nor small growers require many sorts for house work; more uniform results obtain from fewer varieties in duplicate. The ambition of the grower as well as the seedsman is to keep well up to date; to do this, old and well-proved sorts are liable to be dispensed with, sometimes, it may be said, without the gain hoped for. On the other hand, Melons, unless very rigid attention is paid to the fertilising of the flowers, are liable to deterioration through loss of character, hence the necessity of obtaining new varieties of proved excellence. A course I have always found satisfactory is to retain a selection of old favourites that one may rely upon, and each year, with the advent of the new catalogues, select one or more of those up-to-date kinds from either section—green, scarlet, or white-fleshed—likely to meet the demands of the grower, and high favours from a consumer's point of view. It often happens that one gardener may grow all scarlet-fleshed Melons, and find these valued at the table, while another would afford the greater pleasure in producing those with a green or white-coloured flesh. Individual tastes vary as much as do varieties of Melons, and it certainly is not the fault of the hybridist if there are not sufficient even of good ones, and to spare.

One gardener under whom I served a few years since possessed a very fine stock of Blenheim Orange, so good in point of size, handsome form, and beautiful netting, that he was very rarely defeated in open competition, and his Melons were always a strong feature in a collection of ripe fruit. Fruits varying from 5 lb. to 7½ lb., of the most symmetrical form, having great depth of flesh and most excellent flavour, won for themselves unstinted praise from all concerned. Blenheim Orange is what may now be considered an old Melon, but it is one that I have so high an opinion of, that, were I confined to one sort, I should not hesitate to choose it in preference to all others—at any rate from those sorts I have grown up to the present time. Triumph can be recommended, both for freedom of setting, good size and quality; so also Sutton's Scarlet. Sutton's A I, in a keen competition last autumn, I noted as being in a foremost position for flavour. Empress, too, I found of good quality, deeply netted, and handsome in form. The older Read's Scarlet still commands a good position with some growers, both indoors and in frames. Frogmore Scarlet and Syon Perfection are kinds I anticipate will take a high position. One that proved most satisfactory last year was Hamstead Park Seedling, extra free in setting, with a strong constitution, very pleasant flavour, and the flesh of a distinctly pale scarlet. To these "R. K." may add, if necessary, novelties of the year, which I have not myself proved, but which are well spoken of by experts, to whom, apparently, they have been submitted for trial.

Melons are greatly influenced by the methods of culture adopted, and a course suited to one

garden, soil, and grower might prove quite the contrary in another. Some find greater success by close planting and restriction of the growth; others, again, succeed better on the extension principle. The Blenheim Orange referred to above was treated on this latter course, two crops, and sometimes three, being taken from one set of plants, and, invariably, the larger fruits came from the second crop. Loose bricks were employed to form small pits about five or six courses deep, 2 feet wide, and 3 feet in length. These, filled with heavy loamy soil, with which were incorporated a goodly quantity of lime, either refuse or fresh, and, of course, some drainage, carried the plants on for some time. Before there were any signs of exhaustion apparent the bricks were taken down to allow of an additional width of new soil being added. This addition of soil sets up a renewed growth, strong flowers following, which, if carefully fertilised, swell away freely, and make a good successional crop. To carry out this principle, plenty of head room must be available. It may be said, too, that all Melons are not adapted to the extension treatment, and it is only by experience that the adaptability of the newer varieties can be ascertained. While a strong-growing sort would be more profitable and satisfactory with unlimited trellis space, moderate and weakly growers must be given the opposite treatment, several plants being put in where one would otherwise be sufficient. Where canker has to be reckoned with it is not advisable to attempt extension culture, for a collapse comes just at a time when least expected, and a large space is then left unfurnished, and time as well as opportunity lost. Melons delight in a heavy soil; they may be grown in pure clay, if this is stacked some time before it is used, and pulverised by the action of frost and air. Lime in almost any soil may be used with good effect; indeed, I always consider it indispensable for successful growth and fruiting. For combating canker I know of nothing better than dry cement, rubbed into the affected parts daily.—W. S., *Wills*.

KITCHEN GARDEN.

TOMATOES.

GIVEN attention to a few simple details and ordinary care, there is no easier crop to grow, yet deep, rich borders and hot, moist houses are the conditions under which they are expected to thrive. One of the most useful aids to Tomato culture is a good heap of the refuse from a garden smother, where hedge and fruit-tree prunings, edgings of garden walks, and every other description of rubbish are charred. This material must be kept dry until wanted for use. If left outside, much of the goodness is washed out by the rain. For seed-sowing I use half-and-half of this and light loam, filling the pots to within an inch of the rim and making the soil very firm. Dibble the seeds in 1 inch apart over the surface of the pots or pans. It takes a little time, but the time is well repaid by the ease with which the young plants can be lifted. The seed germinates quickly in a warm, moist house, and as soon as the seedlings appear the pots containing them must be set on others, or in some way brought quite close up to the glass. The advantage of thin sowing now comes in, as the young plants may be left until the rough leaf is fully developed. They can then be easily raised with good roots and a nice little ball of soil to each. They may be potted singly into the 3-inch size, and if kept for a few days rather close, and

warm, not one plant in a hundred will be lost. When they are again established they must be arranged on the front stage of ainery, or in some structure where plenty of air and light can reach them. A hard, sturdy habit is easily induced by this treatment, but few plants draw more quickly than Tomatoes when the conditions are reversed. At first the plants may stand pot-thick, but after a few leaves are formed they will need more room. The leaves, in short, must never be allowed to touch. When these plants are about 8 inches high or thereabouts—according to the variety—the first bunch of flowers will be seen forming, and this, from my own experience, is the best time to plant. Many growers shift the plants into larger pots, while some consider it necessary to let the first bunch of fruit set in the small pots. The former plan entails a lot of useless labour—unless, of course, the house is not ready—the latter means the starving of the plants and loss of time. I never put more than 3 inches or 4 inches of soil on the stages where the Tomatoes are grown, while those growing in boxes have very little more to start with. The compost consists of the best description of loam I can get and the burnt refuse above referred to, and this, before planting is done, is rammed thoroughly hard. The plants must be moist, but not recently watered, at planting time. A distance of 18 inches apart gives good results, and the plants not being really pot-bound start away at once. In a few days the flowers will open, and it is the safer way to take out the large centre flower and fertilise the others with the pollen. I find it an advantage to keep the plants on the dry side until this first bunch of fruit is set, and even if the plants flag a little just then no harm is done. A light tap with a small stick on the back of each bunch of flower at midday helps to distribute the pollen and is conducive to free setting.

FEEDING AND TRAINING.

With such a small body of soil it will be necessary to feed the plants when they get into full bearing, or the later fruits will be small and poor in quality. Where a long-continued crop is required, there is a distinct advantage in thinning the fruits on the bunches, for many of these in the case of free-setting kinds will not swell freely, no matter how they are treated. These small fruits contain as many seeds as the large ones, and are just as much strain on the plants, hence the necessity for their removal. Some growers, perhaps, may not take kindly to thinning Tomatoes, but it is an advantage as much as thinning any other fruit, and for the same reason. Thin top-dressings of rich soil constitute the best form of feeding, and any of the advertised fertilisers used in conjunction with the materials named above will prove a good stimulant. There are so many of these on the market, that it is difficult to say which is best, but any that show a good percentage of potash in the analysis will be suitable. The simplest style of training is the single-stem system, pinching out all laterals as they form. There may be a slight advantage in pinching out the lead at each bunch and taking the next lower shoot up in its place, but it is only in the slight diversion of sap to the fruit. No space is saved, as is usually supposed, as the shoot grows to an equal length before fruiting again. Where the houses are low, the plants may be topped and a healthy shoot taken up in place of the lead, but this is not always to be had, and until one is secured the plant must not be stopped. Want of light, owing to the surrounding plants being higher, prevents these secondary shoots fruiting quite so well as the primary

ones, but they will give useful fruits after the others have reached the glass and are of no further use. Thinning of the foliage is often much overdone; to reduce the stems to mere straight sticks is as wrong culturally as it is unnatural, but still the air and light must be let in, and, like most other details, it is successful only when gone about with judgment. I never care to touch the foliage above the last-formed fruits, but as soon as a bunch is set and swelling freely the tips of the leaves may be taken. Little and often is much better than taking out a lot at a time. H. R.

Dwarf Peas.—Experience has shown me that should the dwarf Peas be sown in the least thickly on rather rich soil they are not satisfactory unless they have some support. This, however, may be easily furnished, as a few short sticks or short Bamboo canes fixed on each side of the rows at 6 feet apart, around which on both sides any very common string can be secured serve to keep the plants erect. When erect the plants bloom almost close to the ground. With ordinary 3-feet Peas, lying on the ground is less injurious, because these never begin fruiting until some 18 inches from the ground. Still, even with these, especially if the soil be deep and holding, the crop produced from supported rows is relatively much greater, being also more prolonged. It is true that Peas lying on the ground shade the soil somewhat from fierce sunshine, but that shading is so much easier and more desirably furnished by mulching with long manure between the rows. Having had a wide experience in the production of seed Peas from laid breadths, I have frequently found the best produce to come from where the soil was much less rich than it ordinarily is in gardens. When laid, the conditions are very dissimilar, and thin sowing, even though the plant growth is not gross, is always the most productive.—A. D.

Sowing Onions.—Having for the last few years to deal with heavy soils in different parts of the country I have got into the habit of using the ground that has been occupied by Celery for the Onion crop as owing to the soil lying high during the winter it keeps drier and works well in early spring. I have just had this prepared for the crop by forking over to bury a light dressing of artificial manure and soot. Sparrows being so abundant first led me to sow in boxes in frames in place of the open ground, thinking that the extra labour involved would be more than recompensed by a good bed of hulls rather than the patched affair the birds made of it. But subsequent experience has amply proved that this is by far the better plan, and really a saving of labour rather than otherwise. A man who is used to the work can soon fill a large piece of ground with Onion plants, especially if allowed a boy to separate them and lay them out ready for his hand. Last season I planted out the whole of the Onions grown here and intend doing so again, as when once planted there is no trouble afterwards beyond keeping the ground clean. Of course the one drawback to the system where a lot of plants is needed is the room taken up under glass at first, but this is not for long, and any odd corners in resting or cool fruit houses, frames or pits will do for them: a fair light and freedom from frost being all that are required.—H. R.

American varieties of Potatoes.—I am not at all forgetful that American Rose, as also its counterpart Extra Early Vermont, really a duplicate of the other, were in cultivation here before Beauty of Hebron. I can go back farther even, and tell of a Brazilian variety known as Red Emperor, yet another known as Red Regent, and the well-known American Red, over which there was many years since such a battle royal in the papers. But I did in referring to Beauty of Hebron, assume as I still do that it is practically the oldest of the American Potatoes now in commerce. For one bushel of the Early Rose that is grown, there are 100 bushels of Beauty of Hebron.

The former is rarely seen quoted in the market reports, and throughout the rural districts amongst cottage and amateur growers it is rarely found, whilst everybody has Beauty of Hebron. The pink form is being rapidly displaced by the white one, and that again is hard run by Puritan, which is in all respects very like White Beauty. Sameness has greatly characterised the imported American varieties. The new Potato referred to previously has tubers so closely resembling those of Hebron, that mixed they cannot be separated. Everyone knows the variety so foolishly named White Elephant, because its tubers also are pink, is but a rather later Hebron. When it is remembered how many American varieties of Potatoes have been introduced into this country, it is surprising to find how few after all have come to stay.—A. D.

NOTES OF THE WEEK.

Galanthus Fosterianus.—A very handsome and distinct Snowdrop with large, pure blossoms and stout, sturdy leaves that are distinctly glaucous. It is one of the most effective of all Snowdrops.

Amygdalus Davidiana alba.—This is among the most welcome of early-flowering deciduous trees, the branches and often the smallest twigs being wreathed with the beautiful and delicately tinted flowers. Several charming lots were to be seen at the Drill Hall last week, and very pleasing and attractive were they.

Pelargonium J. L. Baldwin.—Some very handsome trusses of this variety were before the floral committee at the Royal Horticultural Society's recent meeting to show its merits as a winter-flowering kind. The trusses were certainly very handsome, the stems being of considerable length, but to give an idea of its value, plants in flower should be shown.

Helleborus lutescens.—At the present time, so far as is generally known, this kind occupies a unique position by reason of the distinct yellowish tone of the blossoms. A really good and distinct yellow in this group would prove an acquisition. This will make its appearance in time if seedlings are freely raised from the existing plant, which is even now very beautiful and especially interesting.

Rose Catherine Mermet.—Possibly no Rose flowering in midwinter more quickly declines in colour as the days shorten and the atmosphere assumes a heavy laden hue week after week. Near London this is especially noticeable, the blooms being at times well-nigh colourless, and even the fine blooms shown before the Royal Horticultural Society last week, while of good size and excellent in form for the season, were still deficient in point of colour.

Muscari azureum.—This charming bulbous flowering plant has probably made a record this year by its very early flowering, as scarcely had the month of January passed when its compact pyramidal spikes were fully aglow. It is an exquisite little flower. It is not alone by any means, being quickly followed by several forms, notably *M. a. robustum*, and *M. a. pygmaeum*, *M. azureum* being usually the earliest, the others following in the order given. All are very beautiful, and the exquisitely clear shades of blue are singularly effective at this season.

Cytisus proliferus.—We send you a specimen of *Cytisus proliferus* sent us by a friend in Portugal, who says it is at present a mass of bloom in his garden, the plant measuring 24 feet 3 inches in height. Most of the plants in his garden have had their leaves completely burnt up by a violent gale carrying with it a't spray, but this *Cytisus* shows no damage. In sheltered situations in mild localities in England we think this plant might be grown successfully. It can be kept low by topping. Our friend tells us that the leaves are excellent food for cattle.—BARA & SONS.

Winter in California.—Carl Purdy, writing to us from Ukiah, California, on January 25, says: "We are having a singular winter. Up to this date the ground is only moistened to about 15 inches in depth. The top of the ground has been kept in good condition by frequent light showers, but below that it is as dry as in summer. Grass and grains are in good condition. The weather has been very frosty nearly all through December and January, reaching the lowest point known in the history of this place. On January 12 it was 10° above zero, which is about 5° below the coldest heretofore known. Plants were seasoned by

the gradually increasing cold and stood it surprisingly well."

Andromeda Catesbæi.—There is a pleasing and most effective side to this species even before and after its flowering, which assumes its maximum when the foliage has put on that reddish hue more frequently seen in some forms of the Dogwood. With the richly-coloured foliage as mentioned above, the plant is at once valuable and attractive, and in those gardens where effective grouping is carefully considered, such well-marked subjects as this are deserving of more than ordinary attention.

Poinciana Gilliesi.—This beautiful shrub we were surprised to find hardy and free in the Isle of Wight, as no doubt it would be in various south coast gardens. It is a very beautiful and distinct plant, a native of South America, and is more tropical-looking both in flower and leaf than shrubs that are hardy with us. The plants were raised from seed in the Rev. Henry Ewbank's garden at Ryde, and grow against the house. It has quite a free, vigorous habit, there at least, growing about 12 feet high and flowering freely.

Asplenium Colensoi.—This excellent kind, as noted in THE GARDEN last week, is destined to become one of the most useful of greenhouse Ferns for furnishing, particularly in the form of a table plant. The vigour and freshness of the plants, the dark green of the fronds, the latter heavily recurving or arching over, all go to make it an ideal small pot plant. Moreover, the usually hardy character of the group to which it belongs, and the ease with which fresh stock may be raised, are points of importance that cannot be overlooked.

The Saragossa Daffodil.—This small but pretty Trumpet Daffodil has this year shared the honour with *Narcissus pallidus precox* in following *N. minimus*. These two flowered on February 10. The Saragossa Daffodil is one of Mr. Peter Barr's introductions, and is a pretty, almost self-coloured yellow flower, with hooded perianth segments, suffused with green at the base. The trumpet is rather deeply serrated. I believe this is a variable species in colouring, and that pale yellow flowers also occur. The bulbs here produce flowers as described above.—S. ARNOTT, *Carsethorn, by Dunfermline, N.B.*

Bignonia venusta.—Some flowering sprays of this handsome Brazilian climber exhibited a week ago at the Drill Hall attracted as much attention by their striking beauty as by the rarity of the exhibit. Doubtless one of the reasons why many such things are so rarely seen is the fact that they seldom attain to the flowering stage unless planted out in the warm greenhouse or conservatory. In some text-books this lovely species is described as having a "crimson" corolla, a shade that in no wise agrees with the examples at the Drill Hall last week or with the coloured plate given in THE GARDEN so long ago as April 22, 1882. In the plate in question the shade of colour is identical with that of the examples now referred to, and which came from Her Grace the Duchess of Cleveland, Battle Abbey (gardener, Mr. H. Camm).

Anemone Pulsatilla.—A fine mass of this with dozens of its silken purple cups formed a conspicuous feature at the Royal Horticultural Society last week. It is a good plant, and, fortunately, common, or at any rate cheap, and for this early season it would be impossible to conceive anything more beautiful and interesting. At the Hale Farm Nurseries several beds are filled with this old-time British species, and some thousands of its lovely purple cups may now be seen. Left alone in a quiet, sheltered nook where the soil is deep and fairly rich and free from drought in summer, the plant is of quite easy culture, and soon forms good tufts of its finely-cut leaves. The species may be raised abundantly from seeds sown as soon as ripe, preferably in deep and light soil in the open, where the plants may remain two years at least. At the end of this time good plants should result,

when they may be permanently planted in groups. The plant does not object to peat, and will grow freely where Rhododendrons thrive.

Platyterium angolense.—A new and distinct species of Stag's-horn Fern may now be seen in the tropical Fern house at Kew under this name. It has lately been introduced from the region of the Congo, where it was first discovered by Dr. Welwitsch. It differs from all other *Platyterium*s in having fertile fronds, which, instead of being branched or lobed so as to resemble a stag's horn, are wedge-shaped; they are each 18 inches long, an inch wide at the base, and widened gradually upwards to a width of about 9 inches. The sori form a roundish patch on the under side near the apex. The barren fronds are as large and striking as those of *P. grande*. There is a fine collection of *Platyterium*s at Kew now, some of the species being represented by large trophy-like specimens. The rare *P. biforme* is represented by a mass as large as an elephant's head.

Primula denticulata alba.—Twenty years ago, or thereabouts, Mr. T. S. Ware, of the Hale Farm Nurseries, Tottenham, possessed a so-called white form of the above Primrose, but which, in fact, was more of a washylilac and white combined than aught else. To-day the same firm has a pure white form of this handsome Himalayan species. The snow-white form is indeed an acquisition, and as seen in Mr. Ware's beautiful group at the Drill Hall last week serves to demonstrate what may be accomplished by steadily pursuing one course and with one object. It must not, however, be inferred that it has taken well-nigh twenty years to secure a pure white *P. denticulata*; far from it, as the present plant has not only been many years in existence, but has also produced an offspring so abundant as to be now scattered all over Europe, if not indeed the more temperate portions of the globe where such things may be grown with success. By a curious coincidence the coloured form, always represented in considerable variety and with many superior forms, has not received the same attention in seedling or selecting, with the result that the white form has left the original somewhat in the rear.

Saxifraga Burseriana.—It is doubtful whether any member of this genus, so far as white flowers is concerned, can surpass or even equal the above lovely plant that is now in its fullest beauty. In saying so much I am not unmindful of the major variety of the same species, which is doubtless a really fine plant when one possesses a decidedly larger form. I do not know, however, if the experience is general, but I have seen certain variations in the so-called major form of Burser's Saxifrage that are not equal to the best forms of the original species. Doubtless with these plants, so many of which are continually being replenished in their native home by seedlings, slight variations ensue, as noticeable in the less tufted or more spreading growth as in the flowers. The latter, however, differ more particularly in point of size rather than the whiteness of the flowers, and one of my plants now in splendid bloom is equal to any major variety I have seen. In all its forms, however, the plant is a great beauty, and every endeavour should be made to increase the stock by means of seeds or very careful division. Seeds, of course, when home-saved, are especially valuable, but the seedlings require care in the early stages, otherwise they damp off wholesale. I have also been fortunate in rooting cuttings of this species, and as the plants occasionally become patchy or rusty, and finally perish, it is well to be on the alert with fresh supplies. Sandy loam and brick rubbish finely broken suit this species exactly.—E. J.

The weather in West Herts.—A very warm week for the time of year, the temperature in shade on four days rising above 50°, while on no night did the exposed thermometer indicate more than 2° of frost. At 2 feet deep the ground is now 4°, and at 1 foot deep 6° warmer than the February averages for these depths. Some rain fell on four-

days of the week, but to the total depth of only about a tenth of an inch. The wind has on several occasions been rather high, and the direction some westerly point of the compass. The record of bright sunshine proved very small, averaging only about half an hour a day.—E. M., *Berkhamsted.*

THE SHERWOOD TEN-GUINEA SILVER CUP FOR ANNUALS AND BIENNIALS.

MR. N. N. SHERWOOD, Master of the Worshipful Company of Gardeners, having signified his intention of giving a silver cup annually of the value of £10 10s., and having left to the council of the Royal Horticultural Society the decision as to what it shall be given for, it has been decided to offer it in 1898 as follows:—

The Sherwood Silver Cup, value £10 10s., will be given to the exhibitor who shall obtain the highest total number of marks at the meetings in June, July, August and on September 6, for collections illustrating the suitability of annuals and biennials as cut flowers for decorative purposes. The attention of intending exhibitors is particularly directed to the society's "Rules for Judging," sections 160, 161, 169, &c. Exhibitors may exhibit at any one or more or at all of the meetings during the months named. Marks will be given at each meeting, and the total announced after September 6. The contents of each tube (section 169) must consist of one variety only, but in addition to the flowers shown in tubes an exhibitor may set up at each or any of the meetings not more than three plain glass vases containing an assortment of varieties and kinds arranged for effect—all stalks touching the water or sand. The vases must be provided by the exhibitor, and must not exceed 6 inches in diameter, and may be filled with water or with wet sand at exhibitor's pleasure, always remembering that the clearness of both water and glass is a distinct point of advantage in decorative vases. Notice of intention to compete and space required must be sent to the R.H.S. secretary 117, Victoria Street, at least the Thursday before each meeting.

The above details, given on p. 48 of the society's "Arrangements, 1898," do not appear to some people sufficient, and various applicants have asked the following questions, which with their answers the president and council would be greatly obliged by your publishing for the information of others:—

"The contents of each tube must consist of one variety only." Am I to understand that *Coreopsis grandiflora* and *C. Drummondii*, or *Nasturtium Cloth of Gold* and *N. Crimson King*, and so on, may not be exhibited in the same tube?—*They may not.*

Are the tubes "not to exceed 3 inches diameter at the top side?"—*They must not exceed.*

"The vases must be provided by exhibitors, and must not exceed 6 inches in diameter inside." Does this apply to the "plain glass vases" only?—*Yes; the tubes must not exceed 3 inches, nor the vases 6 inches.*

Who provides the tubes?—*Exhibitor, unless he is content with the stoneware jars the society provides at all times.*

Will Regulation XI. be enforced—"All specimens must be the bona fide property of and grown by exhibitor?"—*Yes.*

Must exhibitor stage, i.e., arrange his own exhibit, or may he call in professional help?—*A special person may not be procured for this special purpose. Exhibitor or his gardener, or some member of the family of either, must arrange exhibit.*

Can the exhibit be repeated?—*Yes.*

Will other foliage be allowed?—*Only the foliage of the variety itself.*

May grasses be mingled with flowers.—*No.*

Odontoglossum Wilckeanum.—Last week at Messrs. Frotherode and Morris's auction rooms,

after spirited bidding, a plant of this variety was sold for 72 guineas. On the same occasion, *Lelia anceps Schrederiana*—one of the finest white aneeps known—realised 35 guineas, while small plants of *Cattleya Trianae* fetched from 4 guineas to 10 guineas each.

Supposed poisoning of two fillies by Wellingtonia leaves.—Two valuable yearling fillies, says "Y. T. T." in *The Field*, were turned into a fresh pasture, in which there is a Wellingtonia, the boughs of which hang somewhat over the metal tree guard. Shortly after, they were seen nibbling at these lower branches, and were driven away from the tree. Soon afterwards they were both found lying dead. There appeared to have been no struggle, but they had lain down and died quietly, and apparently within a very short period of each other. A *post-mortem* has been made by an experienced veterinary surgeon. Have any of your readers ever met with a similar case? Cattle and horses had pulled at the tree in question, and others of the same kind, frequently before without any injury. The stomach and intestines of one of the fillies did not contain more than a couple of handfuls of the Wellingtonia leaves, the field was good pasture, and the stomach was full of grass. Both fillies were in perfect health.

PUBLIC GARDENS.

Our common lands.—The commons adjacent to the metropolis are being gradually brought under proper government. The latest that has been taken in hand by the Board of Agriculture is that of Harrow Weald, Middlesex. It is proposed to appoint a body of conservators whose duty it will be to preserve the turf, shrubs, trees, plants, and grass, to execute such works of drainage, levelling, fencing, planting, &c., as may be necessary for the protection and improvement of the common, and to set apart a portion or portions for games. They will also be empowered to frame and enforce bye-laws for the preservation of order.

Botany in London parks.—A joint committee of the Parks and Open Spaces Committee and the Technical Education Board of the London County Council has been considering the practicability of laying out plots of ground in certain of the London parks in such a manner as will afford assistance to scholars at elementary and secondary schools in the study of practical botany. Reports have been presented to the committee on the educational side of the question by Dr. Garnett and Dr. Kimmins. The following suggestions were contained in these reports: (1) That a very valuable experiment could be conducted on a scale sufficiently wide, if, in each of three parks, about twenty rods of ground were devoted to the cultivation for school purposes of hardy typical plants belonging to twenty natural orders. (2) The beds should be arranged near the paths, one bed being devoted to each order. They should differ in size, the largest being a little under 500 feet square, and the smallest about 100 feet square in area, so that the average of the twenty beds would be approximately one rod. (3) The specimens selected should be such as are suitable for growth, and each should be labelled with its common name and its Latin, or systematic name. (4) Labels giving the names and natural orders should be attached to the more important trees, shrubs, and plants throughout the parks selected. (5) A botanical guide to the parks selected should be published under the superintendence of the Technical Education Board and the Parks Committee jointly. (6) Teachers holding printed orders from the Technical Education Board should be able to obtain from the superintendent in each park such specimens as might be required for botanical study in the schools, so far as could be applied without detriment to the specimens. In a report upon the matter the Parks and Open Spaces Committee adopt these suggestions, and, putting them in the form of recommendations, will shortly submit them to

the County Council for approval. They point out that some further suggestions were made, but they thought it would be better in the first instance to deal with the subject quite in the sense of an experiment, and if, later on, it should prove to be resulting advantageously to the schools, possibly the arrangements might be extended to the cultivation of important types of the lower orders of plants, such as fungi, Mosses, Ferns, &c., and facilities might be afforded for the study of aquatic plants. The chief officer of the Parks Department reported that the proposed arrangements were quite practicable at any of the larger parks, but that some expenditure would be necessary. Upon that point the chief officer had been instructed to submit a report. It is proposed that the experimental beds shall be formed at Battersea Park, Ravenscourt Park, and Finsbury Park.

Galls on Oak.—The galls sent by Mrs. Anderson, Jersey, are formed by a gall fly known as *Cynips calicis*.—G. S. S.

Key Guild.—We are asked to state that the annual general meeting will take place on Thursday evening, February 24, at 8 o'clock, in the lecture room in the Royal Gardens. Entrance by Melon Yard gate.

Matthiola odoratissima.—Can any of your readers tell me where I can obtain plants or seeds of this species? It was figured in the *Botanical Magazine*, No. 1711, and was much grown in greenhouses some years ago, but appears to have gone out of cultivation. I have applied to the leading seed merchants and nurserymen in vain.—CORYNDON MATTHEWS, *Plympton St. Mary, Devon.*

RAINFALL IN 1897.

THE GARDENS, TAN-Y-BWLCH, R.S.O., N. WALES.

Month.	Number of days on which 0·01 in. and upwards was registered.	Greatest fall in 24 hours.	Date.
Jan.	2·59	16	·38 25th
Feb.	5·94	21	1·07 19th
March	6·16	26	·77 3rd
April	5·02	15	·72 14th & 17th
May	1·86	15	·42 28th
June	4·57	17	·75 18th
July	2·57	14	·53 21st
Aug.	6·79	24	1·18 10th
Sept.	5·78	17	1·10 4th
Oct.	2·41	13	·67 14th
Nov.	7·98	14	1·58 12th
Dec.	7·70	21	·92 29th
Total	59·37 in.	213	

—JNO. ROBERTS.

INVERIE GARDENS, INVERNESS-SHIRE.

	Total rainfall.	Most in one day.	No. of days no rain fell.
January	1·78	·35	22
February	8·03	1·05	6
March	8·77	1·26	6
April	4·50	1·05	15
May	4·88	1·04	13
June	3·79	1·05	14
July	7·19	1·33	14
August	6·00	·95	13
September	10·96	1·21	8
October	4·91	·87	16
November	7·30	·85	10
December	9·39	1·32	11
Total	77·50 in.		

—J. HUGGINS.

Names of fruit.—C. W. Blou.—Apples: 1, Bedfordshire Foundling; 2, Lincolnshire Pippin; 3, small Yorkshire Beauty; 4, Minchal Crab.

Names of plants.—A. C. Bartholomew.—1, *Crocus chrysanthus fusco-tinctus*; 2, *C. stellaris*; 3, *C. Mont Blanc*; 4, *C. susianus*.—W. Rickardson.—We have had several flowers like those you send.

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ROSE GARDEN.

THE PRUNING OF ROSES.

WITH February like January, some 8° or 10° warmer than the average of these months, and April-like growths on our Roses in beds and borders in the middle of February, not a few growers may be tempted to start pruning. It is very trying to note so many shoots and embryo buds rushing to their almost certain fate from harsh winds or biting frosts later on; but this may prove the less of two evils—the second, or a comparatively roseless summer, being far the worse of the two. Fortunately, the highest, or crown buds on Roses break and grow first. Another fact of importance is that the faster these shoots grow, the more dormant the buds at their base remain. In this fact lie the hopes of experienced rosarians. True, all these myriads of forward shoots with their embryo buds may be hastening to total destruction later on, but meanwhile they are acting the part of safety valves to the semi-dormant buds at their base, and it would prove at the least impolitic and might be ruinous to prune them off. It would, in fact, concentrate vital forces and the extra temperature of this April-like February into the only reserve buds at the base of the growing shoots. The net result would be unseasonable growth and activity of our last reserve buds that could yield us a full harvest of Roses in season. The rate of growth would also be dangerously accelerated through the unnatural activity of the roots, stimulated by the unseasonable and extraordinary growth of the crown shoots on the branches. By pruning the latter off now, we place our Roses at a double disadvantage. These crown shoots have grown so fast and so far as to have roused the roots into vigorous action, and if we suddenly contract the area of their expenditure by severe pruning now, we increase the speed of growth in our reserve buds in a dangerous ratio. As the season gets more advanced, we may safely prune our Roses back to the best

dormant or semi-dormant buds with this tolerable certainty, these then proceeding into their blooming stage in fairly genial weather. Now, however, the less pruning the better. There are still, however, Rose growers among us who prune the bulk of their Roses hard back in the early winter or spring. So far these escape the risks and the dangers incident to the early growth of crown buds. It must also be admitted that the dormant buds at the base of the shoots break later than those on the crowns and to that extent early pruning may contribute to late breaks and growth in the spring. But in such mild seasons as this the danger of breaking the only reserve buds too early for their safe growth and perfect blossoming outweighs all other considerations and becomes a powerful plea for the late pruning of Roses in the spring. But though the Roses ought not to be pruned now, their present forward condition forms a powerful plea for the mulching of their roots.—D. T. F.

Some alarm will naturally be felt at the present time among inexperienced Rose growers at the very forward condition of their plants. Many rosarians can recall several such seasons as the present one. I was talking recently to a well-known Rose grower on this subject, and he said he well remembered the year 1844. From November of 1843 to March, 1844, it was a similar season to the present, and he had pruned all his Roses, and they had fully 6 inches of growth upon them, when on March 13 frost set in so severely as even to cut down such shrubs as Laurels. My advice, then, to Rose growers is, do not be in a hurry about pruning your Roses. Doubtless when the operation is performed the plants will "bleed," as they are in such a forward condition, but I have never found any ill effects to follow. Roses on walls, fences, and pillars should claim our attention first, and these may be taken in hand at once, bearing in mind that the fine long growths produced before midsummer last year will give the best flowers if retained almost intact. Rather would I sacrifice one or two of the older shoots than these. Indeed, this is often necessary. Cut them clean out and other strong shoots will be induced to break up from the base. Do not

trouble to retain the late strong shoots, for such being unripened are practically useless and should be totally removed. The Ayrshires, Banksians, and similar tribes will require little or no pruning, merely removing dead wood and also an old shoot now and then to avoid overcrowding. Semi-climbers on walls, such as Marie van Houtte, may be left rather longer than plants of the same kinds in the open borders, but it is not advisable to overdo this. Good plump eyes give the best blossoms, and we do not, as a rule, require such Roses to get too far up the wall. Summer-flowering Roses, such as Gallicas, Mosses, Hybrid Chinese, &c., may also be pruned now. The vigorous growers must be left quite 12 inches long from last year's pruning, and in a few cases even longer than this, or we run the risk of obtaining no flowers at all. Scotch Roses require no pruning, and the Austrian Briers should have the points of the little twigs slightly shortened back, or the growths may be bent over, when they will flower from every eye. For the Hybrid Perpetuals and the Hybrid Teas closely allied to them, the middle of March will be soon enough to prune them, but the Teas should be left until April. When pruning the Hybrid Perpetuals they should be cut back to dormant eyes. I remember one season I left a quantity of young growth on my Hybrid Perpetuals, but a May frost dispelled all my hopes of some early blooms, and not only that, but those shoots that apparently escaped proved to be almost useless, for the flowers were thin, almost single, and many of them came green-eyed and malformed. Although these green centres are oftentimes the result of over-feeding, in this case it was clearly brought about by the frost; therefore, when pruning this season, do not be tempted to retain this young growth, but cut clean past it to good plump eyes, and, if possible, to one pointing outwards, which tends to preserve a well-balanced plant. In the case of these Hybrid Perpetuals, the late shoots should be cut clean away, only retaining the sound, hard ones that were formed before midsummer. As a guide in pruning, vigorous growers such as Her Majesty should have their shoots left long, say, from 12 inches to 15 inches from last year's pruning; the Duke of Edinburgh, Charles Lefebvre, and similar types from 9 inches to 12 inches, and the Baroness Rothschild habit,

to the plumpest eye either near the top of shoot or at the base; for such varieties are sure to flower even if cut down level with the ground. The very moderate growers, such as Marie Cointet, must be cut back hard—almost to last year's pruning. All weakly shoots must be removed, and the centre of the plant kept as open as possible. The plants should be carefully watched, and during April and May it may be advisable to remove one or two of the shoots that appear wrongly placed, and of course severe thinning of weakly shoots during the latter month will have to be done in order to secure the best results from the plants. Pegged-down Roses should have their laterals shortened, and, where possible, bring down fresh, well-ripened shoots, as this plan of growing Roses soon wears out the bent-down branches. The Polyantha and China Roses may be treated similar to the Tea-scented excepting under special circumstances, such as when grown as hedges or edgings; then they will require merely to be trimmed over and dead wood cleared away.—P.

— Although it is full early for pruning, doubtless many will have commenced before these notes can appear. Much of the future success and pleasure depends upon how we use the knife; and whatever good and promising wood may have been obtained during the past summer and autumn, and carried through the winter well, the whole may be spoilt by bad pruning. As early as the middle of January I saw several dozens of Roses that had already been pruned. I write the word "pruned" with much hesitation in this case, because I feel the more correct word would be "mutilated." Almost the whole of the plants were extra strong growers, including Mme. Bérard, William Allen Richardson, Aimée Vibert, Gloire de Dijon and Rêve d'Or, yet they had been pruned upon exactly the same lines as General Jacqueminot, John Hopper, Baroness Rothschild and other old favourites. Year after year these plants have been treated the same, and the owner has more than once threatened to cut out the extra strong growers, because, as he says, "they grow well, but never hardly bloom." Nor will they ever flower freely so long as the knife is used in such a thoughtless manner. We have no freer bloomers than these very Roses which are so often condemned. The sole fault lies in pruning. Simply because a strong shoot did not flower last year is no reason why it would not do so this summer. Rather the opposite, for we get our best and showiest crop from such shoots. Just as many other flowering shrubs have the peculiarity of blooming from growths made the previous season, so is it with this class of Roses. Near me is a grand plant of Rêve d'Or, covering the whole front of a by no means small house. It is never pruned, except when a quantity of flowers is cut, and every year it is one mass of blossom. If we were to prune any of these extra strong growers, even that old favourite Gloire de Dijon, we should get but very few flowers. The best rule I can give is to prune a Rose hard or not according to whether it is a weak or extra vigorous grower. The weaker the variety the harder it should be pruned.—P. U.

Rose Princess of Wales.—This is one of the finest of the Teas. The colour is rosy yellow on outside with deep buff-yellow centre. The magnificent outer petals are often prettily marbled with a rosy pink tint. Anyone having a nice warm border under a south wall could not do better than plant some of this Rose in such a spot, or, better still, train it on to the wall between climbers. It is sometimes found a difficult Rose to grow, but like Comtesse de Nadaillac it well repays a little extra trouble in its cultivation.

Rose Mme. Auguste Perrin.—Perhaps with the exception of the Teas, Hybrid Teas, and Monthlies, no Roses are so free-flowering, both in summer and autumn, as these Noisette Perpetuals, of which the above is one of the most charming. The colour of this variety is exquisitely beautiful. It may be best described as a soft pink, with a

delicate flesh tint towards the edges of the petals. For cutting it comes in most useful, as fine long stems may be obtained usually crowned with immense trusses of blossom. The individual flowers are not large by any means, but this fact should rather enhance their value for decoration. However grand the exhibitor's monsters may appear in an exhibition box, they have a very incongruous, stiff, and clumsy effect in vases.

ROSA LÆVIGATA.

It is difficult to understand why this very ornamental species of Rose is not grown in every amateur's garden, but perhaps its want of popularity is due to the great number of names which have been applied to it, one after another. It is, in fact, remarkable that this species, which is so distinct that it would appear impossible to confound it with any other, has, nevertheless, been mistaken by some eminent botanists and possesses a most involved synonymy well calculated to not only confound the mind of the amateur, but even to lead astray a specialist of the highest authority. I have, therefore, thought it might be useful to give an account of its varied nomenclature, together with a description taken from a living specimen of this superb Rose, and to direct the attention of the public again to its ornamental value.

First of all, we should retain the name *Rosa lævigata*, given to it in the year 1803 by Michaux, who collected specimens of it in New Georgia. Lindley, in his "Monograph of the Genus *Rosa*," describes *R. lævigata* as his 68th species, and as his 69th species a *Rosa sinica*, which, he says, differs but little from the preceding species. As his 71st species he mentions a *Rosa Hystrix*, which appears to be only a setigerous form of *Rosa lævigata*. De Candolle described it in the year 1813 under the name of *Rosa nivea*, and under this name Redouté figured it in his work "Les Roses." A note by De Candolle accompanies the illustration, stating that the plant grows to a height of hardly 2 feet (*sic*), which shows that this botanist had an imperfect knowledge of the species, a specimen of which, in the year 1807, covered an arbour in the garden of M. Boursault, at Yerres. The rest of De Candolle's description agrees pretty well with the species.

Seringe and, after him, Trattinick admit *Rosa lævigata*, *R. Hystrix* and *R. nivea*, and, moreover, from a badly-drawn Chinese illustration of *Rosa lævigata*, they (according to M. Crépin) each erroneously created a new species, viz., *R. amygdalifolia* (Seringe) and *R. cucumerina* (Trattinick). Box gave it the name of *R. trifoliata*, under which it was generally known to horticulturists at the commencement of the present century. Poiret described it in 1804 under the name of *R. ternata*. Don named it *R. cherokeensis* in the year 1815, and Prévost, jun., grew it at Rouen about the year 1820 under the names of *R. trifoliata*, Box, *R. ternata*, Poiret, *R. sinica*, Lindl., and *R. nivea*, D.C. De Ronville in his "Nomenclature raisonnée des espèces, variétés et sous-variétés du genre *Rosa*" (Paris, 1818), and also in his translation of Lindley's "Monograph of the Genus *Rosa*," declares that he had only seen this species in the herbarium of Michaux at the Muséum, where, he says, the specimens were poor and not easily recognised, and he adds that these were the only specimens which were then to be had.

In addition to the foregoing, I may mention that this superb species has been recently re-introduced into France under the name of *Rosa Camellia*, which, however, is the name under which Von Siebold grew it in Japan. Here we have, I think, a rather perplexing number of

synonyms, and I must confess that I have never been able to comprehend why such a long series of names, one after another, has been applied to a species which is so distinct and has such well-marked characteristics.

The following is a description taken from a living specimen in the year 1897:—A climbing species, growing to a great height in warm countries, and quickly attaining a height of several yards in the climate of Paris when its growth has not been checked by severe frost. Leaves almost always trifoliate, large, quite smooth, of a peculiar fine, brilliant green colour, and glistening as if varnished. Flowers very large, of a handsome porcelain-white colour, which, in conjunction with the form of the corolla and the appearance of the foliage, gives it a marked resemblance to a single white *Camellia*. Blooms in the latter part of May and in June in the climate of Paris. Found in the wild state in China, Japan, the island of Formosa, New Georgia, &c.

A pink-flowered variety has been recorded, but this I have never seen. It is admitted that *Rosa Fortunea* is a hybrid obtained by crossing *R. lævigata* with *R. Banksia*. From a purely horticultural standpoint, *Rosa lævigata* (Michaux) is of the highest order of merit and exceedingly ornamental. The only defect it has is that it does not withstand severe winters in the north of France, and it is not the only one of the genus which has this drawback. Grown either budded close to the ground or on its own roots, with its base protected in autumn by a slight mound of soil, and sheltered by some old matting when necessary, it will easily withstand ordinary winter weather. We have a plant here which has passed through the last two winters uninjured in the open air without any protection. This splendid species, when trained along a wall or forming a column, will, by the beauty of its brilliant foliage, the size of its magnificent flowers and by its unique general aspect, largely repay the amateur for any additional trouble which the care of it in severe winters may involve. In the south of France it is quite hardy.

I have attempted to render it more capable of enduring cold by crossing it with *R. rugosa*, and the seeds of the crossing which I gathered this year (1897) appear to be fertile. If, as I hope, the operation has succeeded, we shall know the value of the new hybrid in due time.—COCHET-COCHET, in *Revue Horticole*.

Rosa lucida plena.—This very pretty double form of *R. lucida* makes a good subject for the rock garden, if only for its handsome foliage. It does not like pruning, and if allowed to grow naturally the somewhat pendulous branches soon become clothed with tiny, deep pink-coloured flowers of a most exquisite form, which doubtless suggested the name of Rose Button sometimes applied to this variety.

Rose Duke of Wellington.—After a lapse of over thirty years, this Rose still holds its own as one of the most brilliant varieties we possess. It has been frequently described as moderately vigorous, but in reality it is a very good grower when on the stock which suits it best, namely, the Brier. Exhibitors find it a very reliable variety, for amid the numerous crimson Roses introduced far too many of them fail at the moment they are wanted most. The form of Duke of Wellington is of the style known as pointed, such as exhibitors always hail with delight, and it has also a fine substantial petal. The colour is bright velvety-red, edged with a very vivid scarlet, which appears to light up the flowers in a remarkable manner. It is an excellent autumn-flowering Rose, and succeeds well as a pot plant under cool treatment. A variety named Rosieristo Jacobs was sent out some twenty years later than Duke of Wellington, but experts consider the two varieties identical.

FLOWER GARDEN.

DAFFODILS.

HERE is a view giving something like a fair representation of the fine way in which the larger Daffodils have been massed at Warley Place, where the soil suits them well for their life in the grass. The effects were wonderfully fine, and as fine may be had almost anywhere where there are cool meadows or moist, holding soil in any position in covert, orchard or lawn.

Planting Gladioli.—The bulbs of these beautiful flowers are feeling the influence of mild

rows. The great thing in cutting the spikes is to leave the lateral spikes that may be seen by the time the first one is fit to cut, and cut just above it, for a strong root will push up three or four spikes from each bulb. I find that *Gladiolus The Bride* planted in November has already pushed up right through the litter placed over the beds in case of frost.—J. G., *Gosport*.

Crocus Fleischeri.—This pretty little Crocus, which has been in flower for some time, is not often seen in gardens. It is said by some to require greenhouse cultivation, but I have had it here since the autumn of 1890, so that it may be said with some confidence that it is at least hardy in a light soil. During all this time it has had no protection, except that in some winters it has had a sheet of glass placed overhead to throw off heavy rains from the flowers. C. *Fleischeri*

My corms were purchased from a firm in Italy, as I could not procure them in Britain at the time. The flowers have been compared with the figure in Mr. George Maw's monograph.—S. AINSWORTH, *Carslithorn, by Dunfries, N.B.*

LEUCOJUM ESTIVUM NOT FLOWERING.

So far as my experience goes, the non-flowering of the above species, to which "S. W. F." refers at page 96, is rather exceptional, the more so when the vernal Snowflake under, I presume, the same conditions of soil flowers freely. It is the more difficult accurately to determine what is amiss with "S. W. F.'s" plants as they appear to grow freely and retain health. Now and again in certain gardens and soils, and with certain species of plants, a method exactly the reverse of



Narcissus Horsfieldi on the lawn at Warley Place. From a photograph sent by Miss Willmott.

weather, and must very shortly be planted. As the soil intended for this year's plants is now in splendid condition, I shall begin to plant about the third week in February. When planting, select a fine bright morning, and break the surface soil down with a fork, so that it gets dry on the surface in a couple of hours, then stretch the garden line the whole length of the ground. One man with a spade lifts the soil deep enough for another man, with a boxful of bulbs, to place one in each spot. The rows are 2 feet apart and the roots 1½ feet. If planted about 6 inches below the surface they are perfectly safe from any frost we get after the middle of February, frequent surface stirring of the soil is all the summer attention they require, and it is surprising what a quantity of spikes may be cut from a few

comes from the limestone hills of Asia Minor, and is also found in Lycia and Cilicia, so that growers will not be wrong in adding a little lime to the soil should it be deficient of this. It is a pretty Crocus, but the flowers are rather thin in substance. Still, it is a very pleasing little species, and I think its beauty is heightened by the flowers appearing among the leaves. The throat is yellow and the segments white, the outer segments being marked on the outside with three purple lines. The anthers are orange and the stigmata a kind of brick-red. C. *Fleischeri* belongs to Maw's Section IV, or *Intertexti*, so called from the corm tunic having plaited or stranded fibres. Mr. J. G. Baker places it in his Section III, *Schizostigma*, in which the style branches are cut into several capillary divisions.

the orthodox way is found to succeed admirably. I have known this to occur in more than one instance in the *Iris Kämpferi* where the heavy soil, by its too retentive character, has brought about a too sluggish rooting, and thereby failure. As I pointed out in my original notes on the Snowflake, the moisture conditions are not essential, and my advice to "S. W. F." is to wholly discard them with the above pretty plant. In quite dry soil on a south border, in rather sandy soil also, and again in rather heavy, though drier, woodland soil, I have always grown and flowered this species with perfect ease. Indeed, it is among those I would have recommended as suitable to both a variety of soils and positions. I would now advise "S. W. F." to allow the plants to remain till the end of July, then to lift them and

give a complete rest out of the soil for six weeks. At the end of this time replant in fresh soil with good drainage. This, I imagine, is the item at fault, as not a few plants delight in abundant moisture, with free drainage, yet dislike the water-logged condition ever present at the roots. Unless the drainage is remedied, the deeper planting in this instance would end more disastrously. Should the garden soil generally be wet and retentive of moisture, I would then advise planting in proximity to, or amid, shrub groups, where the roots of these latter, by absorbing some of the moisture, play a useful part in assisting this Snowflake. At times these every-day subjects are brought into a debilitated condition by planting when in full leaf and in crowded clusters. At such times the simplest remedy is to lift when the bulbs are resting and replant after dividing and separating them. I do not think that mere shallow planting in this instance is the whole cause of failure, if, indeed, at all. At the same time there is evidence of something wrong, but which a lighter and more perfectly drained soil should rectify another year. Though usually more robust in a rather moist soil, it is quite possible the usual attainments of the plants will be surpassed if a little special care be given in the present case.—E. J.

—It is difficult to account for the non-flowering of the summer Snowflake in the garden of "S. W. F." (page 96). I do not think the shallow planting can have anything to do with it, as I have *L. aestivum* and *L. pulchellum* at various depths, and both flower at greater or less depth than even the 3 inches. Neither flowers so freely as the spring Snowflake, but they never fail to bloom, although I have seen the buds of *L. pulchellum* injured by late frosts. When planted at greater depth the foliage is more vigorous. "S. W. F." might try this Snowflake in drier soil. I have never before heard of anyone who has grown it for five years without obtaining a flower.—S. ARNOTT, *Carsehorn, by Dumfries, N.B.*

Galanthus Charmer.—This is one of Mr. Allen's double-flowered seedling Snowdrops, and shows how much variety we may obtain by raising these flowers from seed. Personally I do not care much for double flowers, but all are not alike, and even those who admire the beauty of the best single Snowdrops can find some interest in the double forms. Charmer is quite distinct from the ordinary double Snowdrop (which, by the way, as all Snowdrops do, looks best on grass). The green markings are much deeper in colour, the doubling is extremely regular, and there are no extra outer segments. I have omitted to ask Mr. Allen if this is the one mentioned by him in his conference paper which appeared in THE GARDEN of September 19, 1891.—S. ARNOTT.

Fancy Carnations.—Mr. H. W. Weguelin's letter in last week's issue has doubtless been read by many lovers of these beautiful flowers. There are in it, however, several statements which deserve attention from an exhibitor's standpoint. The opening sentence (an extract from Mr. Weguelin's "Hints on Carnation Culture") is much too drastic a rule, for then under the category of "fancies" must come almost all the yellow ground Picotees. I am prepared to admit that up to the present no hard-and-fast rule has been framed by any Carnation Society, hence every exhibitor has shown a doubtful bloom among the "fancies;" whereas very often it should have been classed among the yellow ground Picotees. Things have become so extremely awkward that the Midland Carnation and Picotee Society in their schedule for the coming show have made a genuine attempt to solve a very thorny problem. Their definition is as follows: "A yellow ground Picotee is one which has a continuous edge upon a yellow ground. More than one colour upon the ground disqualifies, and makes it a fancy." Under that ruling (and it appears to me a good one temporarily) yellow grounds become a much more

numerous class than Mr. Weguelin supposes. I should class as Picotees Mrs. Robert Sydenham, Countess of Jersey, Mrs. Douglas, Mr. Nigel, Voltaire, Miss Alice Mills, Empress Eugénie, Dervish, Hygeia, Wanderer, Stanley Wrightson, The Gift, &c. These all have a continuous edge, either light or heavy, and although some are marked on the petal, that is no detriment provided the markings are of the same colour as the edge. The above society has also made a distinctive feature of the border classes. They have been thoroughly revised with the object of inducing amateurs and the trade to cultivate a better class of flower.—R. CHATWIN CARTWRIGHT, *Selly Park, near Birmingham.*

NOTES ON HARDY PLANTS.

Adonis amurensis.—It may be too soon to speak of time of flowering of this species, since stock was available only a year or so ago for planting, and, besides, this abnormally mild winter may have something to do with the early flowers. Anyhow, its big yellow flowers with me were passed and gone ere the last day of January. In an ordinary winter I suppose it might be quite a month later.

Earliest Saxifrages.—In the last week of January the kinds in flower here were *S. luteo-purpurea*, *S. Malyi*, *S. Bursariana major* and *S. Boydi alba*. So far as I know, *Bursariana major* may not be in commerce, and it may be useful to mention that the plant in form and habit closely resembles the type, but the flowers are grand in size, a shilling would barely cover one. They are perfectly flat and snow white, and opened here on January 16.

Iris reticulata.—Is it not a curious fact that this early Iris should be so indifferent to temperature? I cannot see that its Violet-scented flowers are likely to open before the usual date for all the mildness of the whole of January; besides, when I have tried to force a few of the bulbs, I have never got them more than a few days earlier than plants in the open air, and not half so good in substance or texture.

Gentiana asclepiadea.—This should be given a shady place even in our cloudy climate. The finely-pointed leaves are soon injured by powerful sunshine; hence the plant is often seen with browned leaf points, small flowers, and few of them, and often not more than a foot high; whereas in suitable garden conditions you may grow it nearly 3 feet high. In giving a shady place, it should not be too shaded: due east or west sunshine will not hurt, but it also likes a deep, rich soil, and to find it shade from mid-day sun in a shrubbery where the soil is full of active roots would not do. I find it does best among dwarf shrubs of a thin habit, where the soil is known to be rich to a good depth. Once you get a strong group of this tall and free-flowering *Gentiana* into good form, you will admit that it is one of our most valuable summer flowers and worth every care, though, when once properly planted, it needs nothing but the keeping back of other things that might overgrow it.

Pyrola umbellata and **P. maculata.**—These are, perhaps, better known by the generic name *Chimaphila*. I have grown both with some protection in frames for several years, but I cannot say they have been a success. So distinct and beautiful in both habit and form and colour are these subshrubs that they are worth all care. If any reader of THE GARDEN should chance to have these, or either of them, doing well, I should be most grateful for particulars as to the conditions under which they are growing, especially minimum winter temperature, for though they are N. American plants and they may stand plenty of cold in their wild state, a corresponding degree of cold here with the damp and fogs of our climate may make all the difference; besides, I believe the plants are found only in the more Southern States of N. America.

Oenothera speciosa.—I never saw this at its best on heavy land, and its type of root implies a

light and deep soil. In rich, deep, black soil I have seen it in magnificent form nearly a yard high, with stems thicker than an ordinary lead pencil. Who can mention a more glorious and profuse white flower than this? Each bloom is from 2 inches to 5 inches across, and a succession is kept up for nearly two months. Where the land is heavy, I would suggest that a couple of barrowloads of sandy loam and leaf-mould be provided, leave them in a sort of small hillock altogether above the ordinary surface, and plant. Very soon the whole will be knit together with the running roots, and the group so grown will not only prove a permanent feature, but one worthy of the best style of gardening.

Shortia galacifolia.—By preference I would set this in turfy loam with a fourth of peat and plenty of the finer silver sand. This is especially suited for pot culture. It will do also for the border or the rock garden, only it should there be made quite firm and the position should be such as to get plenty of natural moisture. It is really a fast grower once you manage to get it going. Small imported bits of three years ago are here now overgrowing 9-inch pans, the leaves large and flower-buds abundant. J. Wood.

Woodville, Kirkstall.

Androsace pyrenaica.—This little alpine gem is now flowering freely at Woking, owing probably to the mildness of the season, as its proper period of blooming is during the summer months. Some of the plants are literally covered with their diminutive flowers, which are white with yellow centre, and borne on scapes each about a quarter of an inch high. *Androsace cylindrica*, another Pyrenean species, is also very pretty, but is not yet in flower. This is a very rare species, although not difficult to grow, needing a damp situation in a soil consisting of peat and leaf-mould, and planted in partial shade. This also has pure white flowers. Both of these species are deserving of more extended cultivation, as they associate well with *Saxifraga oppositifolia*, *Morisia hypogaea*, and other alpine plants at this season of the year.—E. S., *Woking.*

Single Pæonies.—"E. B." inquires as to the duration of these in a cut state if the flower is taken before expansion, and continues "Is there any difference in the several kinds mentioned at page 74?" The answer is that the flowers of none of the single Pæonies are very long-lived when cut, though they are decidedly the best when cut from the plants as soon as it is seen the petals have nearly attained the full size. Removed from the plant in this stage, and while the buds are still cupped, the flowers remain good for several days, provided they are plunged in a deep vessel that will ensure the stems being nearly two-thirds their length in water and kept in a dark place till required for use. There is but little difference in the lasting properties of any of the kinds, though for effect the forms of *tenuifolia*, by reason of their graceful and elegant leaves, are usually much admired. The varieties *hybrida* and *laciniata*, both forms of *tenuifolia*, are more vigorous in growth, and with broader leaf segments. In both these, as also the type, the colour is very striking. *P. albiflora*, figured last year in THE GARDEN, is very fine for grouping; the satiny-white petals glisten in the sun, and are rendered more conspicuous by a fine tuft of golden anthers. This is of taller growth (2½ feet) than several mentioned by "E. B.," and therefore better suited to cutting. There is now considerable variety in this latter section alone, some of the forms being decidedly pleasing, while possessing greater vigour than is found in some named by "E. B." in his inquiry.—E. J.

Ranunculus Lyalli.—"E. J.," in his paper on *Ranunculi* in your issue of October 2 last, writes of *R. Lyalli* as though it were an aquatic. How it can survive such treatment is a puzzle to me, as I have grown the plant for many years in my garden, and have frequently seen acres of it in its native haunts. It is true it is a moisture-loving plant in its season of growth, but it is also

mpatient of excess of moisture when at rest, as the roots are when subjected to such treatment apt to rot. It thrives best in a peaty loam, kept damp but well drained. It will grow fairly well and flower in any good garden soil not too wet in winter. I have gathered it in the neighbourhood of Mount Cook from gravelly banks composed of moraine débris, and one of my specimens was brought from that locality, where I got it at mid-summer with its leaves all yellow and withered through the lack of moisture, but as the root was a large one its growth must have been vigorous at other seasons. After having it about seven years I observed it was dwindling, and on taking it up I found that the root was much smaller than when I got it. It had been rotting off at one end and growing at the other. I made a deep hole, which I filled with stones and brickbats to within 8 inches or 10 inches from the top, and over this I replanted the Ranunculus, which seems to be doing well. Like many New Zealand plants, it does not flower equally well every year. In the localities where it grows wild one will always find some flowers in the season, but in some years every plant seems to bloom in the greatest possible profusion. As it grows high up in our Alps, it ought to be hardy in Britain, and would probably prove so with proper treatment. I observe that at home it is called the Roekwood Lily; here it is called the Mountain, or Mount Cook, and occasionally the Shepherd's Lily. The first-mentioned name is the most usual, and as it is a mistake to multiply names, I think the New Zealand Mountain Lily the most appropriate name. "E. J." makes no mention of our *R. insignis*, a handsome species with a yellow flower, as large and strong-growing as *R. Lyalli*, and more easily cultivated. It would be an acquisition to British gardens.—A. BORTHGATE, *The Glen, Dunedin.*

KITCHEN GARDEN.

SIZE IN VEGETABLES.

I AM surprised to read (p. 71) that anyone who has to supply vegetables for table can advocate size in preference to quality. I am aware size in every case does not denote inferior quality, but in many cases it does. Of late years at shows the coarse things in some instances get more notice. I fail to see where the value comes in with coarse vegetables. "E. C. B." Claremont does not notice Potatoes, but from many years' experience I find the medium-sized Potato the best. Large Potatoes are often split in the centre, others are discoloured and lack quality. Paragon Brussels Sprout is given as a type of coarseness, but this with me is anything but coarse. Can "E. C. B." have the right kind, as Paragon is of compact growth, bearing medium-sized solid sprouts, not at all large? I find large sprouts are often loose, and the first to run or bolt. "E. C. B." must, I fear, have some leaning to the market quality of vegetables, as size in these is an important factor. I would not care to send a large Drumhead Savoy weighing 10 lb. to my employer's table. I think for private use a Drumhead Savoy as bad as Cow Cabbage, and though it may be a marketable commodity, I do not think anyone will class it as a good vegetable. I am not of the same opinion as "E. C. B." that large Cabbages or Savoys are not strongly flavoured; I consider them so, and cannot see where the comparison comes in with smaller kinds. I admit they have one thing in their favour. A large, coarse Cabbage or Savoy is grown with less trouble than a number of small ones, but I think this should not be considered by those who wish to supply the best. After reading "E. C. B.'s" notes I had a Bijou Savoy cooked and a medium Drumhead, and as regards quality there could be no question, as the smaller,

having less heart, was greener and sweeter. I do not think there is a more delicious winter Cabbage than St. John. I am also equally at variance with the remarks made concerning huge roots. I would not sow roots so early that they got so coarse as "E. C. B." notes. I am sure small or medium Carrots grown in half the time cannot be compared in any way as regards flavour with those so many more months in the soil. Of late years, many growers who have to study their employers' tastes have found that roots grown in a shorter time are more liked, and are certainly more palatable. If we accept "E. C. B.'s" theory, we shall be told that huge Carrots are equal in quality to frame roots. If this is the case, why is there so great a demand for French Carrots in the early spring, when large roots are plentiful? What does "E. C. B." say to the keeping qualities of coarse vegetables? They are the first to lose quality and go bad. I am rather surprised that Turnips are mentioned, as nearly everyone knows a coarse, huge Turnip is not liked. I admit one may find an odd root here and there, but the majority I have found poor in the extreme. I should never think of storing the large, coarse roots, as these would be the first to go wrong. I admit it shows vegetables at times are favourably noticed if large, and there is a tendency to make size superior to usefulness. Tomatoes at one time were looked upon as superior if large, but they were in nine cases out of ten found deficient in flavour. There are few who would favour a Cauliflower as large as a peck basket. A small or medium-sized head will never lack quality.

A LOVER OF GOOD VEGETABLES.

Cultivation of sugar Beet in England.—

Experiments in the growth of sugar Beet which were initiated by the Warwickshire Chamber of Agriculture, and also simultaneously and independently by Mr. Sigismund Stein, of Messrs. Crossfield, Barrow and Co., Liverpool, promise to assume considerable importance. They are to be carried on by sending parcels of seed from the best French and German sources to farmers throughout the country to be grown during the present summer. In Warwickshire there will be fifty competitors, while in Shropshire there will be twenty-five, as well as thirty in South Wilts. Mr. Stein has already had 249 applications for seed from all parts of the United Kingdom. A certain number of roots from each experiment will be analysed for their saccharine properties.

Autumn Cauliflowers.—Could we but foresee the real nature of the winter to follow, how much more readily could the vegetable needs of the winter be provided for. Seldom has there been found so abundant a supply of Cauliflowers well into the winter as was seen up the end of the past year. Could it have been known that the season, at least to the present time, would have been so mild and open, by later and wider planting of the Autumn Giant and Self-Protecting varieties, there seems no reason to doubt but that the supply of these ever-welcome vegetables may have run on to the end of January at least. Oddly enough, whilst the weather has been so open, White Broccolis have been scarce. There should be plenty of later white ones, but all depends on the nature of the weather of the ensuing few weeks, and whether there be many grown. As a rule, market growers fight rather shy of White Broccolis, both because so long on the ground and the uncertainty of their surviving a hard winter. Whilst Cauliflowers are without doubt the most popular of all winter-grown Brassicas, they have to give place to Brussels Sprouts both for profit and popularity during the hard weather. The present mild winter has not been favourable, in a market sense, to these excellent vegetables. They have grown and pro-

duced sprouts too rapidly, and the heads have hearted so soon that it has been needful to eat them and send to market or allow them to spoil. The result is a pecuniary return hardly equal to the cost of marketing. So early in the season as February I saw large breadths in Kent being cleared, stems and all, the ground being manured and ploughed, and thus got ready for early Peas, Savoy Cabbages, Coleworts, and White Cabbages have hearted in prematurely and are practically useless. All the hardy Kales will doubtless be over early, and but for early small Cabbages there will be a vegetable dearth in April and May.—A. D.

EARLY DWARF UNSTAKED PEAS.

UNDER this heading an article by Mr. Iggulden lately appeared. He says that as far as he is concerned he does not trouble himself about trimness, and then goes on to describe his method of growing dwarf Peas without stakes just as if this were a new plan. In the first place it may be all very well for a market gardener to adopt this mode, but I doubt very much if it would answer in a private garden, where the most has to be made of the ground and trimness is a consideration. Gardeners in private establishments are not their own masters, and it is part of their duty to see that not only the most is made of the ground, but that everything under their charge is kept as tidy as possible. I have grown acres of Peas, both with and without stakes, and can testify to the extra yield per acre from those that were staked, to say nothing of the tidy appearance produced by having the stakes neatly put to the rows. Mr. Iggulden then goes on to describe the varieties to be grown without stakes, and as I have grown them all myself, both with and without sticks, I will here give my experience and will give them in the order he enumerates. First he says he has given up growing the small-podded Ring-leader type, as he considers them worthless, and then goes on to say that American Wonder is replaced by Springtide, which is a variety that may be briefly described as a dwarf William I. Mr. Iggulden should know that William I. is a small-podded round-seeded variety of the Ring-leader type; in fact, one is often sold in the trade for the other. Springtide, on the contrary, is a wrinkled variety, being a selection from Exonian. Chelsea Gem and William Hurst have been great favourites with Mr. Iggulden for sowing in pots and planting out. Has he ever tried them sown on a warm border in the autumn? If not, he will find them quite as hardy as the early round-seeded varieties. I grew a row of Early Morn 60 feet long last season, and had stakes 4 feet high put to them, half a pint of seed being used for sowing. Half a pint of this variety contains about 450 seeds, so your readers may judge the distance the seeds were apart. The haulm reached the tops of the stakes, and was clothed with pods for the greater part of its length, over three bushels of pods being gathered from the row. The same quantity of seed was used in another row of similar length which was not staked, and the produce was only a little over a bushel of pods. This latter row had haulm about 2 feet high, and though they both received the same treatment, the pods from the row that was staked were by far the finer. Now the question is, Did the extra quantity of produce pay for the stakes and staking, to say nothing of the tidy appearance produced? Chelsea Gem is a dwarf variety if grown on the best of ground, not more than 2 feet 6 inches high, while Springtide will, under the same treatment, attain a height of 5 feet. There is no comparison between Gradus and Daisy, for, growing side by side with sticks put to them, the former grows 5 feet high, while the latter reaches 2 feet. Both are good Peas, but with stakes the former will produce more than double the crop from a given piece of ground than it will without them. Peas are grown in fields both for gathering when green and for seed. It would be a difficult task to stake acres even if they would pay for the trouble, therefore a different mode is

adopted. Having grown acres without sticks, specially for gathering green, I can assure your correspondent this is no protection from the birds; it is rather the contrary, for in districts where wood pigeons are plentiful, the pods near the soil are the first to suffer. Grown for market, the rows are sown at various distances apart, varying from 2 feet to 30 inches, according to the variety and district where they are grown. If we take the dwarf varieties, such as William Hurst, Daisy, Early Marrow, Sutton's Seedling, American Wonder, and the like, a distance of 2 feet between the rows is ample. If possible, the rows should run east and west, and, when the plants are about 6 inches or 8 inches high, soil should be pulled up to them on the south side: this will cause the haulm to lie over to the north. If sufficient soil is pulled up on to the plants, this will prevent the wind from rocking them about, so that all will lie in the same direction. Single rows should always be sown when this mode is adopted, otherwise the haulm would be overcrowded. When grown in a field for seed, drilling is regular, so that all plants have the same space alike, the tendrils of one holding the other up, and as it is not necessary to go in amongst the plants to gather the pods, they remain in this condition until the seed is ripe. I would strongly advise those who want to make the most of a limited space to use stakes, as they will certainly get a far greater return from a given space unless the very dwarf varieties are grown, and these, as a rule, are not profitable to the poor man. There are many good varieties that might be grown without stakes where space and tidiness are no consideration, but where these have to be taken into account, then staking is by far the best. H. C. P.

FORWARDING PEAS.

In the list of choice vegetables, Peas take quite a unique position. There is no other vegetable so valued by gardeners or in the kitchen, and any means that can be taken to forward the crop are anxiously tried by those who have to supply vegetables in season. The plan usually followed is to sow in boxes or small pots during January or February, afterwards planting these out in the ordinary way. Perhaps in one season out of half a dozen this may forward the crop by a few days, but I am sure that in the majority of instances there is very little in it. For several years I have sown Ringleader and Chelsea Gem on the same day under glass and in the open, and though at first the indoor-raised plants looked better and were apparently forwarder than the outdoor ones, there has only in one season been any appreciable difference in the time of gathering. The space taken up by the Peas at this time of year under glass is very valuable, and though no one would grudge it if productive of any good, I think the advantage of these sowings is very slight, for the resulting plants have seldom quite the vigour of those grown entirely in the open. If suitable varieties are sown and protected in cold weather during the latter end of February and March by Fir boughs and rough dry litter, these give the better results, and, as noted above, are usually as early as those sown under glass. The best plan with Peas sown under glass is to keep them in boxes made large and deep enough to accommodate them until the Peas are ready to gather. These need not remain under glass all the time; in fact, they come out almost as soon as the others, but may be lifted under cover on cold nights. By the beginning of April the boxes may be set out in a warm corner of the frame ground or some similar place and covered over with litter, this being changed occasionally should wet weather set in. Varieties differ in height, of course, and the lower in reason the better for this mode of culture, but one I have grown with very satisfactory results is May Queen. There may be others as good, but I can safely recommend this variety, which is a good, clean grower, a heavy cropper, and of excellent quality. Mid-season and late Peach houses often make good

places to take early crops of Peas from, and in a span-roofed house I have a bed in the centre running the length of the house in which I always get a good crop of Peas before the foliage on the Peach trees gets forward enough to shade them unduly. In a neighbouring garden, where there is a fine lot of old standard Peach and Nectarine trees, the front border is utilised for Peas and small early salads with the very best results. Many other useful crops may be forwarded as indicated. GROWER.

Snow's Winter White Broccoli.—This variety is now considered almost indispensable if the supply is to be kept up during the winter and spring. I read with great interest "S. M.'s" remarks in THE GARDEN of December 25 (p. 512) on Snow's Winter White Broccoli, and I agree with him. It is a good old variety, and if once grown will always recommend itself for future planting. I was much disappointed to find the above-mentioned variety is losing the good reputation which it has maintained for upwards of forty years. I am under the impression that "S. M." has not the true strain. By making three successive plantings I have had it turn in very northern localities from the middle of December up to the first week of March. I am writing from where this variety was raised, and during the past winter I was able to cut as fine heads as might be desired, great care and attention being always bestowed on keeping the stock true. No other variety of Broccoli or Cauliflower is grown for seed.—GEORGE MACKINLAY, *Beds.*

Early Potatoes.—The high prices that Potatoes are now realising will cause growers to bestow more attention on the production of early outdoor crops, for if the old stock keeps up well in price, the new crop is sure to at least start well. In this locality we have a light, well-drained soil, and being close to the sea the spring frosts are light, consequently we can reckon on getting crops ready for market somewhat in advance of the inland growers. Even a few days make a deal of difference in the price. It is singular that, with all the new and improved varieties of vegetables that are every year brought before the public, the old varieties of Potatoes are in the greatest favour for the very early crop. The Ashleaf, that goes under a good many names, is still looked on as the one that combines earliness with quality, while Sharpe's Victor, of more recent date, is about equal in point of earliness, and, having very little top, is well suited to frame culture. Its somewhat yellow flesh is not much drawback, as it is of excellent quality. But for first crop in the open air I do not think any variety, at least that is grown in quantity, can surpass the White Beauty of Hebron, and on this light, dry soil it is very different in quality to what it is in stiff, wet land. The value of this variety is that, although such an early sort, it is equally good until quite late in the season. I think White Beauty of Hebron is more largely planted than all other sorts put together.—JAMES GROOM, *Gosport.*

Quality in Broad Beans.—With so much improvement in the Longpod section of Broad Beans it seems strange to see the old Mazagan advised for earliest supplies, as this variety cannot be compared in quality to the Green Longpod. The Mazagan is small and soon loses flavour. Most of the Longpod section are noted for their green colour and earliness, and they may be sown as early as the old kind referred to. On the other hand, the Longpod Beans are of poor quality if at all old. The Windsor type retains the peculiar flavour much longer than the Longpod section. On the Continent the Seville Longpod is more grown than the Green, and the giant variety is a Bean of first-rate quality, but with me so subject to blight of late years that I have not grown it. The old theory that only the small beans of the Mazagan type will stand hard weather has long been exploded. The Longpods are equally hard. Of late years we have an intermediate type of Bean, much longer in the pod than the old Broad Wind-

sor, and the beans are of excellent quality, as they have the green colour of the Longpod with the good qualities of the old Windsor. The best dwarf early Bean as regards quality was Beck's Green Gem, but this is now superseded by the larger Greenpod and the numerous types now in commerce. I think even now we may with advantage get a dwarf Bean with the good qualities of the old Taylor's Green Windsor, to my mind the best-flavoured of all the Broad Beans. A dwarf Bean with medium-sized pods and of the quality referred to would be a gain for private use. The Royal Cluster Bean closely approached the quality I describe, but it lacked the flavour of the Windsor type.—S. M.

EARLY DWARF BEANS.

At p. 71 "D." remarks that we rarely hear of dwarf French Beans being raised in pots for planting in the open in May. I fear "D." has not closely scanned these pages of late years, as I have seen it advised every year, and it is a general practice in large gardens, to forward not only dwarf Beans, but Broad Beans and Peas also. I would sow for May planting in a cold frame, not placing in heat at all. In this way there is no fear of a check when planting out. I find many plants raised in heat and not well hardened off are apt to fail. A frame is preferable to a house, as the plants get more light. Little moisture must be given at the start if the Beans are grown in cold frames. I give an occasional watering with tepid water and give air for a short time to dry up the moisture. The plants grown thus go away freely, planted as "D." advises. For gathering at the end of May or early in June I sow Mohawk, as it is earlier than Ne Plus Ultra or Negro Longpod. Five-inch or 6-inch pots are used, the seed being sown at the end of March and the plants raised in heat. As soon as they are a few inches above the soil they are transferred to frames and planted out at the end of April at the foot of a south wall. Hand-glasses or spare sashes are needed. I use both, and also cover at night with mats for a short time. From these plants one can gather in quantity in a month from planting. Of course, in cold places or wet, heavy soil it would be useless to attempt planting out so early as advised. My note refers to the southern parts of the country and a light soil. I have planted at the foot of a south wall early in May and only protected with mats and stakes at night, and, provided the plants are well hardened, they soon fruit, as the pots confine the roots and induce early fruiting. Many years ago I lived with an excellent grower who used turf pits for this vegetable. The pits were covered at night with straw hurdles, and I have never seen better crops. The kinds grown were Syon House and Osborn's Forcing, both valued for their dwarf habit. These were raised in heat, and followed crops of early Radishes and where Lettuce or Endive had been wintered. S. M.

GLOBE BEETROOT AND COLOUR.

I FEAR "W. S.," in common with many others, must have got hold of an inferior strain of the Beet in question, as for several years I have noticed the plants anything but true if the old Eclipse variety is grown. Last year I saw some so-called Egyptian Turnip-rooted Beet with white markings and poor in the extreme. These roots had been a long time growing, and in dry, light soil. I find to get Globe Beets of good colour one cannot give the same culture as to the longer roots. There must be quick growth, rich soil, and ample moisture, as the least check in the growth causes the roots to be of poor quality. "W. S." does not give us the kind of soil he has to deal with. The best I have grown is Sutton's Globe, a splendid Beet as regards colour, distinct from the older forms, being rounder, with more taproot, not unlike Snowball Turnip in shape, and of excellent flavour. Another equally good Turnip Beet as regards colour and quality is Crimson

Ball. This is of a bright crimson and of fine flavour. Doubtless there are others equally good. I noticed in a trial of these roots in the Royal Horticultural Society's gardens that these varieties differed with regard to colour from different seed houses, and "W. S." may have got hold of a poor stock. For many years previous to the introduction of the Globe varieties, I used to sow the well-known Dell's Crimson in 3-inch pots—a few seeds in a pot—and thin to the strongest. These roots were excellent, and no one could complain as regards colour. Of course the roots were small, but this did not matter for salad. This variety will never fail as regards colour, no matter how early it is sown. I note "A. D." (p. 84) thinks these Beets are not yet fixed. There certainly was great diversity in the Chiswick trials, but I also noticed some of the long rooted kinds were rather poor as regards quality and shape. Those he

every day and have been able to keep up a continuous supply all through the autumn and winter. I was fortunate enough to obtain a good strain of Snow's Winter White (a thing I have not done for years). This commenced to bear in during December, and with the new year Early Pezancee began. Should there be no severe frost the supply will be unbroken.—DORSET.

TREES AND SHRUBS.

MAGNOLIA CAMPBELLI.

THIS, a flower of which is here illustrated, has justly been described "as one of the most gorgeous of Indian forest trees." It is undoubtedly a lovely Magnolia. Messrs. Robert Veitch and Son, Exeter, sent flowers of this

sible care to make it a success. Against a wall in a very warm and sheltered position, with height ensured at the same time for development, is the most likely place for it, in time providing a display of its charming crimson-shaded blossoms.

Erica codonodes.—This South European Heath flowers quite early in the year, and where it is thoroughly hardy, which is, however, only in the especially favoured parts of this country, it occupies a prominent place among early-flowering shrubs. It will also flower well under glass, and as it blooms naturally at this season no forcing is required, simple protection being all that is necessary. It forms a shrub 3 feet to 4 feet high, the branches being numerous, slender, somewhat erect, and thickly clothed with small leaves. During the flowering period the shoots are completely wreathed with tiny bell-shaped blossoms, which in the bud state are pinkish, but become white after expansion. When flowered under glass the pinkish tinge is not so pronounced as in the case of plants growing in a sunny spot out of doors. The blossoms last a long time in perfection, especially where just protected from the weather.—T.

Prunus japonica.—This extremely pretty little member of the Plum family has been long known as *Prunus sinensis*, but in the Kew list it bears the above specific name, and Professor Sargent, in the "Forest Flora of Japan," also calls it *P. japonica*. It is an extremely free-flowering shrub, being one of the best for forcing that we have, as well as a charming object later on in the open ground. This *Prunus* forms a rather upright-growing, freely-branched bush, whose slender shoots are thickly studded for some distance with double blossoms each an inch or nearly so across. There are two forms, one in which the blossoms are white, tinged on the exterior with blush, while in the other they are pinkish. Plants obtained from nurseries are usually grafted or budded on to the Sloe and form a most pronounced object-lesson against grafting, for suckers and shoots from the stock are always a nuisance, and, as happens also in the case of the allied *Prunus triloba*, the point of union is often affected with canker. It will strike root readily from layers, while in the case of forced plants the young shoots produced under glass may be taken and treated as *Fuchsia* cuttings are. When rooted they can be gradually hardened off.—T.

CONIFER NOTES.

I READ with great interest Mr. Burrell's notes on conifers (p. 6), and should like to support his views respecting the merits of *Cedrus Deodara*. I have noted many specimens in diverse situations in the southern counties, where they have generally borne out the character Mr. Burrell gives this tree in his remarks. No doubt, like many other conifers, especially those whose native home is on the hillside, the *Deodar* may refuse to grow satisfactorily when planted in a cold, low-lying wet situation. Unfortunately, "W. O." (p. 37) does not mention the kind of soil or situation in which the specimen had been growing which had attained a height of 60 feet, and of which every root was rotten—although he says others are growing freely, but younger specimens. I should be inclined to doubt whether it was really a natural death in this particular tree, and should rather look for some specially local cause that might have brought about its destruction. If in a low-lying situation, a flooding of the roots, especially if any sea-water be present—and I believe I have read of Fota Island being partially submerged—may have set up an unhealthy condition and caused the death of the tree. As to the verdict of this conifer being short-lived, the specimens growing here, at



Magnolia Campbellii. From a photograph of a flower sent by Messrs. R. Veitch and Son, Exeter.

names were very good. Not one out of many stocks of the Cheltenham Green Top failed in colour. This Beet grown in rich soil is much too large. After growing it for fifteen years I still find it the best winter Beet. "A. D." also refers to the value of Globe Beet in a collection of vegetables, and though I thoroughly agree with his remarks as to the superiority of roots from a good stock of Beet for August, I do not think Beet in a collection of vegetables should be classed as a strong dish with a wealth of other vegetables in season to select from. G. WYTHES.

SHORT NOTES.—KITCHEN.

Winter Broccoli.—I never remember a winter so favourable for this vegetable. I can cut good heads

noble tree to the Drill Hall lately, the richly coloured blossoms gorgeous in the extreme and delightfully fragrant. The flowers were cut from a tree which had been planted twelve years. What a lovely subject for the dinner-table set in shallow bowls where the full light would be shed on the brilliant blossoms! Coming, too, from the open at this time seems only to show its greater value, particularly to those who live in favoured districts. Hundreds of plants, species, and varieties vastly inferior to this are grown in glasshouses. Such a structure, however, for this lovely plant would rob it more or less of one of its chief charms, viz., its lovely colour. At the same time it is so exceptional in every way as to deserve every pos-

least, do not bear out this theory, as no trees could be healthier than the oldest growing here, planted in 1834. These latter are three of a group of five originally planted, of which it is recorded in our conifer catalogue by my predecessor, the late Mr. Frost, "that one died soon after planted from some unknown cause, so that four remained. Of these one was destroyed by lightning. On July 5, 1881, a violent thunderstorm passed over at 8.30, and the lightning cut the top clean off as with a saw, about 15 feet up; it was then supposed to be the largest tree of the kind in the kingdom. Near the ground the trunk measured 12 feet 3 inches in circumference." The height was not recorded. Excellent boards over 3 feet in width were cut from this trunk; the wood is admirably adapted for cabinet work, being of fine grain, fragrant, and taking on a high polish. Of the three remaining trees, two are very fine specimens, now assuming more of the spreading character of growth which, I believe, is attained with age in their native forests. They are in robust health and annually make a free and strong growth; the largest exceeds 70 feet in height, with a girth of 10 feet. At what age a Deodar is supposed to have attained its majority as far as growth is concerned I am unable to say, but, at any rate, those between sixty and seventy years planted are here still growing vigorously. It seems pretty certain, however, that the Deodar will never reach the 150 feet or more in height in this country which it is said to do in the Himalayas. Other specimens planted a few years later (1840) exceed in girth the one mentioned above, measuring over 12 feet at 3 feet up. One or two trees among the many have from some cause suffered slightly, in that the points of the young branches have died some years since, but in these a renewed vigorous growth has taken place.

Mr. Burrell finds *Abies Smithiana* ragged and unsightly in specimens attaining any size. This is here one of the handsomest of the Spruces, the pendent branchlets giving a graceful and effective setting to the tree. There are three distinct types of this variety, varying in length and density of the branches. In some the drooping branchlets are 3 feet to 5 feet long, while in others not more than half that length, others shorter still, giving the specimens a distinct appearance. In our rather light and gravelly soil the trees of this variety grow fast and remain in perfect health. *A. Menziesii* is also here subject to the fault of accumulating a quantity of dead branchlets, which causes a certain unsightliness which might be lessened did time permit of their removal. The Hemlock Spruce (*Abies canadensis*), so sickly with Mr. Burrell, is, as a rule, in the best of health here, and appears to flourish in either light or heavy soils. *A. Albertiana* deserves to be more frequently planted, as it forms so handsome a specimen, is perfectly hardy, and of rapid growth. Among the Silver Firs, *Abies grandis* has here been a fast-growing tree; a specimen planted in 1861 is fully 70 feet in height, with a good spread of branches in luxuriant health to the ground. Reverting to the Cedars, the glaucous types of *Cedrus atlantica* are very desirable for planting where sufficient space can be given for future development. Among the Pinuses, mention may be made of *P. Jeffreyi*, one of the long-leaved varieties and a very handsome species. Elegant and quick-growing are also *Pinus excelsa* and *P. Strobus*, the Weymouth Pine.

A great point, especially in light soils, is to help these coniferous trees with an occasional top-dressing of soil or mixture of vegetable refuse of almost any kind when it can be given. On lawns and dressed grounds it is frequently

the practice to clear up and remove every particle of vegetable matter, decaying leaves, &c., that would eventually rot, and so nourish the roots in a small degree. Where the branches spread down well to the ground especially, any rubbish, as weeds and soil in mixture, that may be cleared from flower borders or kitchen garden might be utilised for the purpose, much to the advantage of the trees to which it is applied. C. HERRIN.

Dropmore.

ORCHIDS.

ORCHIDS FOR CUTTING.

As years go by and Orchid culture gets more and more understood by gardeners, the value of Orchids as cut flowers becomes better known. For choice table decoration and bouquets, sprays and button-holes Orchid flowers are in great request, their beautiful form and texture and their long-lasting qualities recommending them; so much so, that those who supply the markets with choice cut flowers have taken up their culture largely. Probably there has never been a season when cut flowers of all kinds were in such request as last, and at many of the principal functions Orchids entered largely into the floral decorations. There is a decided advantage in growing these plants for cut flowers as distinct from decoration on the plant, as it is a well-known fact that many kinds when in a suitable atmosphere carry their blossoms longer than is good for them. But when cut, the strain on the plant is relieved and it benefits accordingly. In forming a collection of Orchids with this end in view, it will be necessary to consider which species best combine freedom of flowering with ease of culture, and a succession of flower the whole year round being usually desired, this also must have attention. Three houses will usually be sufficient, as it is not necessary to grow those that are fastidious as to temperature, and they should be large, for it is surprising how many plants are required where the demand for cut flowers is heavy. These, for convenience, may be described as the warm, intermediate, and cool houses, and it will be found that with careful management and judicious arrangement of the plants all those named below may be accommodated.

Early in the year *Cyclopogon cristata* stands high as an Orchid for cutting, for there is no use that cut flowers may be put to for which this chaste species is not well suited. The loose racemes used entire are ideal dress sprays, and they go well with any other class of flower. A shady position in the intermediate house suits its best, but where room is scarce in the Orchid house it will thrive in ferneries, Peach houses, or in a warm, moist greenhouse. Some growers still persist in drying this plant in winter, and only during last week I was looking through a small collection in the neighbourhood where this is largely grown. The plants had been kept dry—why, it is difficult to say, for the shrivelled bulbs only too plainly told how little the treatment was to their taste, but possibly just because they are Orchids. These plants cannot possibly flower so strongly or produce flowers of the same substance as they would have done had they been more rationally treated. Where plenty of flower is needed the plants must not be allowed to get too large, but be broken up to obtain as many leads as possible. Peat fibre and Moss, with a little leaf-mould and plenty of charcoal, suit it best as compost. *Sophronitis grandiflora* is of a totally different colour and forms a

splendid contrast to the last named, the deep crimson blossoms being the showiest for their size in the whole family. This is easily grown, too, and as from twenty to thirty flowers may be grown on a plant occupying a 4-inch pan or basket, its value is obvious. It should be suspended from the roof, near a ventilator if possible, in the same house, though fine specimens may be grown in the coolest division. Very little compost, but abundant drainage is necessary, and the roots must be kept moist all the year round. *Odontoglossum Pescatorei* flowers somewhat later, though their seasons join, and this fine species is, in my opinion, far before *O. crispum* as a useful kind for cutting, though possibly the latter is more grown. But both are lovely Orchids, and they thrive under precisely similar conditions. The large and valuable spotted forms are not of course needed when growing for cut bloom, but they make a change from the whiter forms. Small, clean and well-drained pots, with a thin compost kept always sweet, is what these like, and a cool, moist and airy house, with plenty of root moisture all the year round, is congenial to their well-being. Other good free-blooming *Odontoglossums* requiring the same treatment are *O. triumphans* and *O. luteo-purpureum* (yellow) and the variously tinted hybrid kinds, such as *O. Andersonianum*, *O. odoratum*, *O. gloriosum* and the common but pretty *O. Rossi* and its varieties. The varieties of *O. grande* and *O. Ingleayi* are cheap and plentiful and extremely useful as cut flowers during autumn and winter. The roots of these are a little larger and more fleshy than in the last named, and may have rather rougher compost and slightly larger pots. If a house kept a little higher than the cool structure referred to is at command, these kinds will be better suited, but this is not absolutely necessary. A fernery where greenhouse *Adiantums* and *Pterises* thrive is quite to their liking, and comes very near to the conditions under which they are found growing naturally in Guatemala.

DENDROBIUMS

form a large and interesting genus, almost every one of which is suitable for cutting, and the various species keep up a display nearly the whole year round. Two kinds seem to stand out very prominently in this connection—*D. nobile* and *D. Phalaenopsis*. In late autumn and winter the magnificent racemes of the latter are the showiest and most beautiful of all Orchids, and it has with perfect justice been described as the king of Dendrobiums. Hundreds of plants of this delightful species have been imported, only to flower respectably for a little while and then die, but that it can be grown and kept in health there is no doubt. Several of the plants here were imported in 1891, and they have flowered every season since and are quite healthy. They should be allowed to have their own way, and when it is obvious that they mean growing, encourage them by giving plenty of heat, moisture, and light. If they are inclined to rest, let them do so in a genial temperature. *D. nobile* need not be dwelt on here, for it is one of those kinds that seem to thrive on neglect even, while, given reasonable care, it is one of the very best in cultivation. Most of the deciduous section and many of the evergreen kinds may be cited as useful for cutting, especially *D. crassinode*, *D. Wardianum*, *D. Bensoniae*, *D. Devonianum*, and *D. Pierardi* of the former, while *D. densiflorum*, *D. thyrsoiflorum*, *D. chrysoxum* and *D. Farmeri* are hard to beat in the latter section.

It is difficult to over-praise the labiate Cattleyas, for as cut flowers they have few equals. From the time the first of the autumn-flowering *C. labiata* opens till the last of the *C. Gaskell-*

liana there is not a month in the year but is graced by their lovely and gorgeous blossoms, and, what is greatly in their favour, all the best kinds may be grown in one house. Newly-imported plants of the more popular kinds are offered almost every week, and are obtainable at so cheap a rate that all should add them to their collections. There is always the certainty of obtaining a useful garden plant, while anyone might chance on a good form worth a lot of money. *C. Dowiana* and its variety *aura* and the bright and telling *C. superba* like more heat than the majority of kinds, but all the rest thrive in the intermediate house, flowering freely every year and adding to their size and value. A rough, open compost and a fair amount of pot room should be given, the plants taking rather less water during their resting season than when in active growth. Where bright shades of golden yellow are appreciated, the *Oncidium*s should be largely grown, their graceful spikes fitting them for light and elegant effects in vases or for table decoration. To mention a title of them is not possible here, but perhaps the best and most popular of all are the sweetly-scented *O. tigrinum*, the showy *O. Marshallianum*, *O. crispum* and allied kinds, *O. ampliatum*, and, not least, *O. varicosum*. The culture of all these kinds has often formed subjects for these pages, and many others could be named of sterling worth. *Masdevallias* of many bright and showy kinds we have in plenty all through the summer months. *Cypripedium*s are always with us, excelling for their lasting qualities and ease of culture, while among *Vandas*, *Aerides*, *Angraecums*, and *Saccolabiums* there are large numbers of species excellent for the purpose indicated. *Laelias* are only second to *Cattleyas* in gorgeous beauty, while some of these give us tints not common among Orchids. Such are *L. eimabarina* and *L. harpophylla*, their bright orange-scarlet spikes always eliciting the warmest praise from lovers of bright yet not garish colouring. No list of Orchids for cutting could be complete without the exquisite *Moth Orchids* (*Phalenopsis*), but these, of course, are more costly than many of those above named. They are the finest of the order, and it is a matter for regret that amateurs do not take up their culture with more spirit. It is not difficult when once the knack of growing them is caught, and certainly no other genus is more deserving of care. The last to be mentioned is the indispensable deciduous section of *Calanthes*, a group of plants that does much to brighten up our houses during the last dull months of the year. The hybridists have obtained some grand results from these within the last decade, but the oldest hybrid of all—*C. Veitchi* is still as popular and useful as any. This and the two best known forms of *C. vestita*, viz., *luteo-oculata* and *rubro-oculata*, form a trio of charming and effective Orchids for cutting.

***Cypripedium Swinburnei*.**—I have seen some nice forms of this hybrid during the week, some under varietal names, and all pretty and interesting. It is the product of a cross effected by Messrs. Heath, of Cheltenham, some years ago, and its parents are *C. insigne* Maulei and *C. Argus*. The leaves are pale green lightly tessellated with a deeper tint, the blossoms large and showy. The dorsal sepal has a pale green suffusion at the base, the margin and upper portion being white, more of this being shown in some forms than others. The petals and lip are of various tints of green and red, the former having a number of purple spots towards the base.—H. R.

***Oncidium pubes*.**—The flowers of this species are showy and bright, yet the plant is by no

means generally cultivated. It is a dwarf-habited plant, seldom growing much above 6 inches in height, the scapes being about 18 inches high and freely branched. The flowers are individually about an inch across, the segments chestnut-brown marked with bright golden-yellow, though this tint varies considerably. The plants thrive well in medium-sized pans or baskets in a good light, and if suspended from the roof all the better. In the cool end of the *Cattleya* house it does well, never allowing the roots to get dry. It is a native of Brazil, and has long been in cultivation, having been introduced very early in the century.

***Brassia Lanceana*.**—The flower-spikes of this *Brassia* are among the finest in the genus, and contain a large number of blooms. The elongated segments are pale yellow at the tips, the basal half spotted with brown; the lip is white, with a few brown spots. It may be grown in pots of medium size, and if these are well drained the roots will easily take hold of a fairly thick body of compost, this consisting of peat and Moss with a good sprinkling of large rough nodules of charcoal. It needs a very abundant water supply when once established, and must be kept free of insects. The warmest end of the *Cattleya* house is the best position for it, it being a native of Surinam, whence it was sent to the Horticultural Society by Mr. Lance in 1834.

***Oncidium Wentworthianum*.**—Although this class of *Oncidium* is very common, yet this pretty plant is still worth a place. It has pseudo-bulbs about 3 inches high, and produces long, branching racemes of flowers each about an inch across. The sepals, petals, and lip are all bright golden-yellow blotched with reddish-brown, and the contour of the spikes is very graceful. It is an easily-grown, free-flowering species, thriving in a cool house, and rooting freely in an ordinary description of compost. Water must be rather freely supplied the whole year through, especially while the plants are in flower. It is interesting just now as being one of the plants sent home from Guatemala to the late Mr. Bateman, with whom it first flowered in 1840.

***Dendrobium chryso-discus*.**—The flowers of this *Dendrobium* are not large, but they are extremely pretty and interesting. It is a secondary hybrid, raised by crossing *D. Findleyanum* and *D. Ainsworthi*. The sepals and petals are whitish with purple tips, the latter the broader of the two; the lip is yellowish white, with lines of purple and a purple tip. In habit it is intermediate, and the stems have the characteristic yellowish tint of *D. Findleyanum*. *D. chryso-discus* may be grown as advised for *D. nobile* and similar kinds and is fairly plentiful, yet would pay for propagating even now in the manner recently described. It was raised in Sir Trevor Lawrence's collection at Burford Lodge.

***Epidendrum variegatum*.**—This is one of the older members of the genus, not much grown, but one comes across it occasionally in out-of-the-way places. As to colour it is one of the most variable known, the usual tint being a greenish yellow, though I have seen flowers of quite a distinct purple shade, and there are usually spots or blotches of the latter colour. The lip is heart-shaped, white or rose-pink, with a few downy hairs about the crest. The stems, each nearly a foot high, are swollen in the middle, and bear two or three green leaves. The plants are of easy culture and thrive in the *Cattleya* house in a mixture of peat fibre and *Sphagnum* over good drainage. Water must be freely applied during the growing season, but sensibly diminished afterwards. *E. variegatum*, a widely distributed plant in South America and the West Indies, first flowered in England in 1832.—H.

***Odontoglossum Halli*.**—Good forms of this species are getting more common, and I have just seen a splendid spike of the white-lipped form. This was over a yard in length and bore a very large number of flowers, each about 4 inches across. The sepals have about three large blotches on a yellow ground, the fringed lip

having a few spots of crimson, a much superior flower to the ordinary *O. Halli*. It is one of the easiest species to grow, and is known by its thin, furrowed pseudo-bulbs from any other in the genus. In comparison with *O. crispum* and others of that ilk the plants like rather larger pots, with more material about the roots, though naturally small bits must not have too much room. Good drainage is necessary, as it likes an abundant water supply, and it may be kept in the cool house all the year round. It is a native of Ecuador.—H. R.

***Cypripedium calurum*.**—This pretty hybrid is now plentiful and cheap, but there are very few more beautiful among the newer hybrids in the same section, and certainly there is no more free-flowering or healthy-growing kind in the whole genus. The habit is like that of most of the longifolium kinds, and the flowers have the upper sepal white, with a rosy suffusion and veins of green and rose; the petals are greenish white, margined with rose; the lip pale rose, becoming deeper outside; the throat almost pure white. *C. calurum* does well in any moderately heated, moist, and shady house, and should be repotted in early spring, using equal parts of peat, loam, and chopped *Sphagnum*, with plenty of rough crocks, limestone, or charcoal. This hybrid was originally raised in Messrs. Veitch's nursery.

POTS FOR ORCHIDS.

A good deal has been said of late against the use of pots for Orchids, on the ground that they are injurious to the roots, and many of my correspondents have sent questions bearing more or less directly upon this point. One sends a piece of a broken pot that a plant of *Cattleya Pereivaliana* has been growing in, and this has several roots upon it, quite black and dead-looking—as he says—"as if they had been burnt." On the face of it this looks like a case against pottery ware, but the same thing has often occurred when wood has been used both in the case of baskets and blocks. The cause of this blackening is not always the same, but as often as not it is caused by the root having been broken higher up and dried up, not naturally, but with the moisture in it, preserving its form and getting quite hard, while had it succumbed in the ordinary way the juices would gradually have dried out of it, leaving only a white or greyish skin with a few fibres inside. The roots of the majority of Orchids are short-lived when compared with those of many other plants, and before falling out with pots when a dead root is found upon them, this individual root should be traced back to its source, when it may be found to have proceeded from a growth of several years back and died quite in the natural course of events. I am sure there is a class of pot that is bad for Orchid roots—pots badly, i.e., insufficiently or over-baked, while there may be certain descriptions of clay that are unsuited to the roots of certain kinds, as *Phalenopsis*. New pots should never be used for Orchids until they have been at least twelve months from the kiln, and they are much better stacked outside, exposed to all weather except frost, than kept in sheds or similar places. A new pot absorbs moisture like a sponge and never parts with it again, but a well-seasoned one holds moisture in suspension and gives it off to the roots adhering to it; else why do they cling to it so freely, ramifying in all directions and living for years on end? It may be hardly fair to quote the broken pieces of pots used for drainage or mixing with the compost, and yet I fail to see why, because the material is the same though exposed to different conditions. The roots take hold of these fast enough and cling firmly to them long after those in the compost are dead, and this is, in my opinion, a strong argument in their favour. But of course the most cogent of all is the fact that there are perhaps 100 Orchids to-day in cultivation growing in pots to every one in any other class of receptacle, and I use the word "pot" as meaning everything made of burnt clay. It is not necessary here to state where different constructions of wood, cane, wire, and

other materials fall short of perfection, but perfection they are not, as many of us have found to our cost. Nor of course is burnt clay, but it has for so many years been the standard article, and is to-day such a great aid to Orchid culture, that it will have to be a remarkably good substitute to oust it from its position.

Odontoglossum Wilckeanum (Rosslyn variety).—This is one of the most beautiful forms of this natural hybrid I have seen, the sepals each $1\frac{1}{2}$ inches long, three-quarters of an inch wide, pale yellow, heavily blotched with large chocolate-brown blotches. The petals are bright yellow with one large brown spot in the centre and numerous smaller ones at the base, the lip yellow with a large blotch in the centre and numerous smaller ones at the base. It is a distinct and remarkable variety. A plant carrying a raceme of thirteen blooms has recently been in flower in the collection of Mr. H. T. Pitt, Rosslyn, Stamford Hill.—H. J. C.

Cypripedium G. W. Law-Schofield (C. bellatum × C. callosum).—This is a remarkable form, and was exhibited at the Manchester and North of England Orchid Society's meeting, when it was given a first-class certificate by the committee. The dorsal sepal is upwards of $2\frac{1}{2}$ inches in length by 2 inches in breadth, the colour deep rose with some green at the base, heavily lined and spotted with dark brown, and having a narrow outer margin of white. The lip is rose-purple, shading to greenish white. The same parents have previously produced C. Woottoni, in the collection of Mr. R. J. Measures, and also C. callo-bellum, in Sir T. Lawrence's collection. I have seen all three, but consider this distinct from either, although all have to a certain extent similar characteristics, and must lead to confusion unless original names are recognised. Surely C. Woottoni (G. W. Law-Schofield's var.) should be quite sufficient, thereby recognising previous records.—H. J. C.

Cypripedium Youngianum superbum.—This is another distinct and beautiful hybrid, the result of crossing C. superbum (Veitchi) with the pollen of C. philippinense. This form differs from the original in its broader segments and superior markings. The dorsal sepal, $2\frac{1}{2}$ inches long and 2 inches broad, is white at the top, suffused with purple and a little green at the base. It has numerous dark brown lines running from the base to its margin. The ground colour of the petals is creamy white suffused with purple on the margins, with numerous pale green veinings running the entire length, and thickly covered with large rich purple spots. The lip is purple, suffused with brown in front, shading to pale green at the base. It is a free-growing and desirable variety, and was raised in the collection of Mr. Norman Cookson who recently exhibited it at the Drill Hall. It is one of the most satisfactory of the C. Morganæ section of hybrids, as it is not nearly so shy flowering as many of that section.—STELIS.

Cattleya Walkeriana.—A nice form of this beautiful Cattleya comes from a correspondent for a name, he having received it from a friend in San Francisco. He is lucky to get such a fine Orchid, as my experience of Orchids collected promiscuously and sent home is far from favourable. The plant is a fairly good grower, and should be grown in baskets or pans suspended from the roof of the Cattleya house, where they will get abundance of light and a good circulation of air about them. The compost may be of the usual character, but it is best to avoid giving very much, as the habit of the species is more to cling closely about the rods of the basket or over the sides of the pans than to push the roots through a great thickness of material. The plant does not flower from the apex of the growth, but from a small stem that occurs beyond it and seems to have no connection with the economy of the plant in any other way. Attention to details in keeping the compost sweet and the plants free

of insects is the likeliest way to keep them in good condition over a long series of years. Water must be given in accordance with the state of growth, but no drying off is necessary. C. Walkeriana is a widely distributed plant geographically, occurring in various parts of Brazil. It was discovered as far back as 1840, but for some years it was not introduced in good enough condition to make it a success. A few years after it was sent home by a continental collector and has frequently been imported since.—H. R.

Lælia harpophylla.—This showy and distinct species is nicely in flower, and there are few that make a finer display than this when it is well cultivated. From the top of a thin cylindrical pseudo-bulb the flower-racemes spring, these containing a large number of bright orange-scarlet flowers that last well in good condition. The culture of Lælia harpophylla is not difficult, not so difficult in fact as is usually thought, as many growers give it far too much heat, the consequence being that the growths produced are weak and incapable of withstanding the slightest check during late autumn and winter. The atmosphere it likes best is an airy yet moist and buoyant one in a good light, and a temperature rather below that of the Cattleya house if anything. In this the growths are far harder and flower more profusely than others in warmer quarters. During the winter months it is quite safe in a house devoted to the Mexican section of the genus. The habit is close and tufted, and the roots not being particularly vigorous, the plants are best accommodated in pots only a little larger than the base of the plant. Equal parts of peat fibre and Sphagnum do well for established plants, and they must have good drainage. From the time the young shoots are getting well away plenty of root moisture is needed until the pseudo-bulbs are finished, but during winter much less is needed. L. harpophylla has been in cultivation since 1867, but was a rare plant for a long time. It is a native of Southern Brazil.—H. R.

ORCHIDS AT CHELTENHAM.

WHERE a large collection of Orchids is grown there are invariably some in bloom, and when the list further includes some of the newest and best species and varieties of all the most popular families, then there is always something interesting. Such, at any rate, is the case in Mr. J. Cypher's Cheltenham nurseries. On a recent visit about the middle of February not only were many of the mid-winter gems still in a presentable condition, but those that are usually at their best, in large quantities too, during the spring were also fast expanding their lovely blooms. Evidently the display of Lælia anceps in variety had been alone worth a long journey to see. L. anceps alba, the most valuable and beautiful of all, was still well represented, and I noticed that on many of the spikes there were four perfect blooms. The other varieties of L. anceps still fresh and good were Sanderiana, Hilli, Williamsi, Percivaliana and Stella. In another house, the second long span-roofed structure built principally for Cattleyas, there was a fine display of Cattleya Trianae, which comprised several valuable forms. One plant of Cattleya Mendeli was blooming out of season, and the lovely Cattleya speciosissima was represented by several well-flowered plants. One span-roofed house and part of another are wholly devoted to Celogyne cristata and varieties. These were quite at their best, and a grander display of bloom could not well be found. The pure white variety, C. cristata alba, is doubtless invaluable, but scarcely so beautiful as C. cristata Lemoinei, white, with a blotch of citron-yellow on the lip, while for effect the Chatsworth variety is hard to surpass. Cypripediums, which always seem to the fore, were fairly numerous, and comprised several rare species. C. insigne Sanderæ and C. insigne Sanderianum had been in flower for two months and were still special objects of interest, while C. insigne Maulei still retains its popularity. Very beautiful are C. Leeanum and the

beautiful forms of it alongside, while the other noteworthy Cypripediums were Boxalli in variety, villosum, Calypso, Harrisianum superbum, nitens, Creon, Arthurianum, Spicerianum, and Sedeni candidulum, of all of which there are many fine specimens.

Dendrobies seem to grow "like weeds" at Cheltenham. In but few other nurseries or private gardens can such strong, healthy plants, many of them rooting in tiny pans, be seen, and nowhere else are they flowered more profusely. A speciality is made of them, and batches of seedlings raised from seed saved in the nurseries have already been the means of adding valuable varieties to the lists of choice Orchids—the beautiful D. Ainsworthi Cypheri as an instance. Those Dendrobies already flowering freely comprised perfect specimens of Ainsworthi, Leechianum, Leeanum, splendidissimum, Cassiope, Schneiderianum, and Dominyanum. Odontoglossums, again, are fast becoming gay. I noticed grand spikes and superior forms of crispum, Pescatorei, triumphans, cirrhosum, Blandyanum, Rossi in variety, luteo-purpureum, and others. Lycaste Skinneri, of which there were more than one good form noticeable, and the beautiful L. Skinneri alba never fail to attract attention. Much might also be said about the beauty of various Oncidium, Zygopetalum, and Masdevallias. I.

Cypripedium Sanderiano-superbiens.—This, one of the most beautiful hybrid Cypripediums that has ever been raised, is the result of crossing the species from which the name is derived, and was raised in Mr. N. Cookson's collection. The dorsal sepal is 3 inches long, white, becoming suffused with pale green in the centre. It has a broad band of purple running two thirds of its length, with numerous dark brown lines on either side. The petals, with a peculiar twist, each measure 6 inches in length, the ground colour creamy white, brown at the base, becoming more purple towards the apex, the whole being thickly covered with dark brown spots and blotches. The huge lip, the front lobe of which measures upwards of 2 inches in length, is rich purple suffused with brown. This lovely form was recently exhibited by Mr. Cookson at the Drill Hall. The plant bore two racemes of flower, with two blooms on each. Mr. Cookson is to be congratulated in flowering this variety. Like many others of this section, it does not bloom so freely as might be desired.—STELIS.

GARDEN FLORA.

PLATE 1159.

SINGLE ROSES.

(WITH A COLOURED PLATE OF ROSA ALTAICA AND R. TOMENTOSA WOODSIANA.*)

WE have so often spoken of late of the single Roses, or such of them as are now in cultivation, that it is needless to go over the ground again. The plate to-day tells its own story. Single Roses, like many other plants, have often "more names than growers"—that is, they do not differ so essentially as one would wish, but in the case of the Altai Rose it is not so, the bloom being quite distinct from any other and of great beauty and very gracefully carried. The Altai Rose is large and handsome enough to suggest that it might be used with advantage by the hybridiser. It is allied to our Scotch Rose, but the flower is bolder and larger.

* Drawn for THE GARDEN by H. G. Moon at Gravetye Manor, Sussex. Lithographed and printed by J. L. Goffart.



THE WEEK'S WORK.

KITCHEN GARDEN.

EARLY PEAS.—With so mild a season there need be no further delay in sowing the first lot of Peas in the open ground, selecting, if possible, a sheltered border. The small round varieties, white or blue, will now do in an open position and in soils where the Marrow varieties would fail. I do not think the small white round Peas of much value, the pods being very small, the Peas also, and they are of short duration, as they get old so quickly. In many gardens these varieties are still grown, but I would advise growing kinds which give a longer succession, are much sweeter, with Marrow flavour, and of a better colour. With the great advance in Peas of late years, there is now no lack of variety. When the Marrow type of Pea is sown, a warm border is advisable, as, though the plants are equally as hardy as the small early kinds, if the soil is wet or heavy the seeds do not germinate so freely. The soil should be well drained and made as light as possible. In a heavy clay soil the seeds may be sown in a wider drill and somewhat more thickly. It is a good plan with the earliest crop in the open in a heavy soil to remove a portion of it previous to sowing, replacing with any light compost, such as old potting soil. This will prevent decay in germination if the seed is at all weak. This plan will give the cultivator a little more trouble, but it is well repaid in the excellence of the crop and the certainty of success. In sowing Peas of any kind, early or late, the plants need a rich soil. It is much better to prepare the land for the early crop in the autumn. If prepared just before sowing, it is well to manure freely, placing the manure well below the surface and frequently stirring the top soil previous to sowing to get it as dry as possible. I sow the earlier varieties much closer than the later ones, as growth is less robust. In most cases 3 feet apart will suffice, as, though they are 3-feet-high Peas, if inclined to go higher it is an easy matter to pinch out the points, this also inducing early podding. In most gardens there is a scarcity of warm south borders, and it is well to make the most of them. This is why I advise less space between the rows. It is a simple matter to thin if the plants are at all thick. In light soils it is necessary to make the soil firm by treading previous to sowing, to enable the plants to make a sturdy growth. In heavy soils one may with advantage incorporate such aids as road scrapings, old leaf-mould, mortar rubble, or similar materials to lighten the soil. Those who prefer very dwarf Peas have a wide choice. These, if well moulded up, require no staking. Chelsea Gem rarely fails in heavy or poor soil. Wm. Hurst is similar, except in colour of seed. Harbinger, a new introduction, is a grand cropper and one of the earliest I have grown, and under 1 foot in height. Any of the above may be sown 2 feet apart. There is a splendid selection of 3-feet Peas, and on these I place most importance, as they crop longer than those named above and are almost as early. Gradus is a fine Marrow, pods large and the Peas of specially good flavour. Daisy, one of the best in heavy soils, cannot be beaten for crop, and is a true dwarf early Marrow. Bountiful is equally good for poor soils. It is wonderfully prolific and very early, and May Queen, if sown now on a south border, may be gathered in May. Though not a true Marrow, it is a delicious Pea when cooked. The true old Stratagem, still one of the best as regards crop, is later than those named.

FORCED PEAS.—Under this heading may be classed those grown in frames or houses from the start and those raised in pots under glass. I will briefly refer to the former, as only a few can give Peas house-room. The plants, to be productive, must be grown as naturally as possible, and with genial weather. Avoid hard forcing, as though the plants will stand heat fairly well, after the crop is set the blooms drop if they lack air or moisture. The best results I have obtained under glass have been with plants near the light and

staked, as even the dwarf forms, such as Chelsea Gem, should not be allowed to lie on the soil; indeed, early staking is important, as it allows the sun and light to reach the sides of the rows. When giving moisture it is well to use tepid water, and with healthy plants liquid manure may be given weekly. Should the plants grow too much to leaf, omit the food, give more air, and pinch out the points of the shoots, to cause side shoots to bloom freely. A gentle dewing overhead early in the day in bright weather is beneficial if much heat is employed. Such varieties as Chelsea Gem, Bountiful, and Wm. Hurst do well in a cold frame: the plants should be covered at night in severe weather and given supports early.

PEAS FOR PLANTING OUT.—The value of pot plants I touched upon in a note two months ago, and if sown in pots as then advised they will be in nice condition to plant out early in March. These will need care at the start in the way of protection from cold winds. I have in earlier notes advised using a fair-sized pot, sowing thinly to get a strong plant, and giving cold frame treatment from the start, as plants grown thus are much hardier and can be planted out with little trouble. In planting it is well to open out the ball of each plant, not using force or breaking the roots. Plant in rich soil on a warm border or at the foot of a wall, staking at the time of planting and well drawing the soil up to the plants as the work proceeds. When possible it is advantageous to place pieces of Yew, Laurel, or other evergreens along the sides of the row, and it may be necessary to cover with nets, as small birds soon play havoc with the tender growth. These plants will also need water frequently should there be drying winds and no rain after planting.

BROAD BEANS FORCED.—Plants raised under glass as advised some time ago will now be in condition to plant out. It is not necessary to give much shelter if the plants have been raised in cold frames and freely exposed previous to planting. An open border will suit these plants, as if given a dry soil they do not bear so freely. I usually plant them in the open quarters, drawing deep drills, as these break the force of cold easterly winds. It is well to preserve the ball of earth and roots intact, as the roots soon lay hold of the new soil if the plants are made firm at planting. There is a great advantage in raising Broad Beans under glass, as the plants are much dwarfed and may be placed closer together. I plant at 2 feet 6 inches apart in the row. This allows ample space for gathering and keeping clear of weeds. The plants raised thus only attain a height of 2 feet or so. After planting it is necessary to give moisture to settle the soil round the roots, drawing up the soil to form a ridge on each side of the row to ward off cold winds. If taken out of boxes it is advisable to place a few twigs between the plants if at all drawn, as they rarely do well if allowed to flag or bend over.

MAIN-CROP TOMATOES.—Now is a good time to sow the above for the summer supply. I treated upon an earlier supply a few weeks ago. At this date there will be much less trouble in raising seedlings, but it is well to get them as strong as possible. I am not in favour of raising the plants too long before needed to plant out, as many get starved if left a long time in one sized pot before planting out or potting up for fruiting. Early in March is a good time to sow. I have seen splendid returns by treating the seedlings much in the same way as Celery is grown, that is, sowing in pans or boxes, and when large enough pricking off into a hotbed covered with 3 inches or 4 inches of soil, which should be within 9 inches of the glass. The seedlings make a much sturdier growth than when raised over dry hot-water pipes and often far from the glass. The plants can be lifted in a few weeks' time, and may then be planted out or potted on. Of course, all may not require Tomatoes in quantity, but at this season a hotbed is often needed for other things, and a corner given up to Tomatoes as advised will give a good return.

EARLY CELERY.—The seedlings will now be large enough to prick out. Many use shallow boxes, which have their merits, being handy to move about, but in a few weeks' time the plants get crowded and so become drawn and weak. I advise pricking out into a frame. Only a little warmth is needed at the start, and the plants grown within 6 inches of the glass are sturdy and go away when planted out, as they scarcely miss their shift. When grown as advised, it is well to harden thoroughly by removing the sashes in fine weather as soon as the plants are growing freely. Preparations should now be made for sowing the main crop. I prefer to sow broadcast in a cold frame. I am aware grown thus the seeds are longer in germinating, but if the glass is covered at night to ward off cold winds the result is stronger plants. In cold districts it may be advisable to use bottom-heat, but it should be slight, as once the plants are growing freely they revel in the cool, moist, rich soil. S. M.

FRUITS UNDER GLASS.

VINES, EARLY, IN POTS.—These with me are now about all thinned, the earliest being well advanced in the first swelling stage. In every house of pot Vines there is almost invariably a slight variation in this respect, and for private supplies it is best that it should be so. I have often noted that it is these first early Grapes which are most liable to injury from rust (so called), the epidermis being more than usually sensitive in this respect. As early pot Vines are often grown in rather low houses or pits, every care should therefore be taken to avoid this vexatious defect. Do not on any account allow the bunches to be touched by the hand nor to be brushed by the hair, and in thinning avoid touching the berries with the scissors. Thin cautiously at first so as to leave a margin, and also keep at least one or two more bunches on the Vines as a reserve. No distress will result from doing so for at least another fortnight, by which time it can be seen how the crop stands. It is during the stoning, erroneously called oftentimes the standing still, period when most harm will be done and onwards during the second swelling. As soon as the thinning is completed a top-dressing of good turfy loam should be given, mounding it up around the sides of the pots and making it quite firm in so doing. A slight addition in the way of an artificial manure will assist them considerably, being mixed with the top-dressing. Watering will now have to be attended to more closely. If well rooted canes to start with it will be practically safe to water them every day. Regulate the growths by stopping the stronger and thereby encouraging the weaker shoots. Never stop all at once. Watch closely when there is a bright sunny day after dull weather; perchance a Vine or two may then show symptoms of distress. If so, guard against scalding by a slight amount of shading. At this stage and onwards until colouring commences the night temperature may range up to 70° during mild and quiet weather, but 5° lower when cold and windy. The day range may be up to 85° with bright sunshine, but 10° less when cloudy. Pay close attention to ventilation, never allowing a great inrush of cold air to cause a sudden chill.

POT VINES FOR NEXT YEAR, PREPARATION OF.—Being no advocate for starting these extremely early in the season, this item of work was not alluded to in the earlier weeks of the new year, but it escaped notice a fortnight back when it would have been quite soon enough to take action. In many cases, however, the convenience for an early start is not all that one could desire. Mine are starting steadily, their first position being in an old-established vinery now breaking kindly, since which they have been shifted into a low three-quarter span where the atmosphere will be more congenial to their requirements, and where a genial bottom-heat can be given them. The young shoots are now each about 2 inches in length, the disbudding to the best break having just been done. As soon as the roots are showing symptoms of fresh growth these young Vines will be

shifted into their fruiting pots, those of 12 inches in diameter being preferred. It is very essential to pot firmly; upon this much will depend the following season, although it will be possible to develop even larger canes, perhaps at times with feeding when not so potted. What is needed is a hard, solidified growth, all the better ripened when the potting is done well, with, as a natural sequence, more fibrous roots rather than gross feeders. Choose for the potting good fibrous loam, rather on the dry side than otherwise, so as to facilitate ramming, and depend upon this chiefly. If a non-calcareous loam, then add some lime rubble or be more free in the use of bone-meal; a dash of Thomson's manure would, however, supply both of these requisites in an easily assimilated condition. In my case the young Vines will when potted be plunged in leaves and manure, the temperature not exceeding 80°, and be kept there until well established. The night temperature will average 65° and the day 80° to 85°. Overcrowding will have to be guarded against, so as not to encourage a long-jointed growth or abnormally large leaves, but deficient in texture.

VINES FROM LAST YEAR'S EYES.—Unless the express method of culture be practised so as to fruit the Vines the following season in pots, and this I do not advise, there is no gain in starting too early in February. All that is needed the first season is a well-ripened wiry cane in a 6-inch pot to be cut back the following spring. Grow these Vines from eyes without any excess of bottom-heat or without any at all, but do not starve them in their earlier stages from want of a shift up to the size indicated. Should these young Vines be needed to plant out this season, it will be better to treat them a little more generously in order to obtain more vigour. I do not forget that some of the very best canes have been so raised and treated. In the case of all pot Vines, I have frequently noted that clinkers from the furnaces when broken up fine make the best possible drainage medium; the roots will permeate these in all directions. If the plan of raising the young Vines upon turves be practised, no better time than the present can be chosen. These may then be placed in a growing temperature, as in the case of the pot Vines already alluded to.

PERMANENT VINES—THE FIRST EARLY HOUSES.—Where pot Vines are not relied upon, these will soon be in flower under favourable conditions. If there be any symptoms of the bunches curling up and ceasing to grow or looking at all yellow, it will be as well to slightly increase the temperature and also to slightly check the moisture. This will often occur with Vines of weakly constitution or when the weather has been the reverse of favourable. When the bunches are in flower, 65° to 68° at night, with 10° to 15° rise during the day, will be a good line to follow. I do not believe, however, that it is necessary to keep an absolutely dry atmosphere at such times, but guard against any steaming of the pipes by all means. Do not thus early be too severe in stopping the secondary shoots.

SECOND EARLY AND MIDDLE-SEASON VINES will now be gaining strength daily. The former of these ought to have been disbudded down to the needful number of shoots ere this, but do not be in too great a hurry to tie down. The shoots will gain in vigour rather than otherwise by deferring this operation for a time. The Vines in later houses should receive attention as to disbudding as soon as the best shows can be selected. In doing this do not allow double breaks to remain, unless it be to supply a vacancy caused by a dead or dying spur. Close attention should be given to young rods, so as to secure as even a break as possible; continue to depress these if need be, or even to rub out a too much advanced shoot at the extremity. See that all inside borders where the growth is active are well supplied with water, not mere surface waterings, but such as will penetrate to the bottom of the borders.

LATE SUMMER AND THE LATEST VINES.—These may with advantage be brought steadily forward now, but do not unduly excite them, otherwise bleeding may ensue. If any dressing of styptic

has been omitted where by any possible chance it may be needed, do not defer it any longer. These later Vines do not require any assistance in the way of syringing; in fact, I prefer to do without this operation in their case.

STRAWBERRIES.—First earlies are now nearly ripe, and the first position must in my case be accorded to La Gresse Sucrée, though Royal Sovereign presses it closely. Thus far I cannot complain in the least as regards the way the plants are behaving. Nearly everyone shows its spikes kindly. The successional plants should have all due attention, guarding against starting any in too warm a house. Auguste Nicaise will now be a suitable kind as a companion to Royal Sovereign; it does not thrive so well when started too early. It will pay to still give close attention to fertilising; at any rate shake the shelves well every day. Look to the later stock of plants now in frames or pits, which are better places than outside treatment; probably some may be getting on the dry side. Ventilate freely, removing the lights on fine sunny days. When the first forced plants have been cleared of their crop it will scarcely pay to keep them, unless it be Vicomtesse H. de Thury, which variety will if planted out in good time give a fairly satisfactory return after the latest of the outdoor crop has been gathered.

HORTUS.

BOOKS.

THE PROPAGATION AND CULTIVATION OF PALMS.*

THE elegant little volume of 128 pages written on this subject by Dr. Udo Dammer (the well-known curator of the Royal Botanic Gardens in Berlin) will be hailed with delight by all lovers of Palms. The book is intended chiefly for the amateur who would have to grow his Palms in an ordinary room, but the professional grower also cannot fail to be pleased with the book, which in a concise form gives a great number of most useful hints based on practical knowledge and experience. The book contains twenty-four full-page engravings prepared from original drawings by the artist Herr C. L. Becker. These pictures are most excellent, and illustrate chiefly the varieties not so generally known, including *Phoenix Rebelini*, *Acanthorrhiza aculeata*, *Bismarckia nobilis*, *Latania Commersoni*, *Calamus cinnamomeus*, *Caryota Mitis*, *Chamadorea Ernesti Augusti*, *Morenia corallina*, *Synechanthus fibrosus*, *Oreodoxa oleracea*, *Archontophoenix Cunninghamii*, *Diplothemium caudescens* and others.

The first chapter deals with the requirements of Palms generally, their geographical distribution, required temperature, light, protection against sudden changes, mode of wintering, &c. How to obtain Palms from seeds and what to choose when buying in a nursery is next discussed. The author describes in a most interesting manner the process of germination in various types of Palms. The third chapter is devoted to the treatment of Palms. Here most useful hints abound. Speaking of soil, the author says that Palms with thick, strong roots after the Phoenix type require a heavy loam, mixed with small stones or gravel of the size of Peas. Palms of the type of Sabal or Kentia require a similar soil, but mixed with more gritty sand, while Palms whose roots are thin and much branched, like the *Area* type, require a light, loose soil rich in humus, and Palms with true stilt roots, which grow naturally by the waterside, require boggy soil. This

* "Palmeuzucht und Palmenpflege." Anweisung zur Anzucht und Pflege der Palmen. Von Dr. Udo Dammer, Kustos des Königl. Botanischen Gartens zu Berlin. (Trowitzsch & Son, Frankfurt-on-the-Oder.)

latter soil is best obtained from the bottom of slow-flowing streamlets traversing a plantation of deciduous trees, and containing, therefore, decaying leaves, &c. Potting, root-pruning, watering, drainage, &c., are discussed in such a manner, that no amateur could fail to grasp the meaning or remain in doubt. The manuring of Palms receives special attention in a separate chapter, and a description is given of various liquid manures and their use.

"Sick Palms" is the title of the fifth chapter which enumerates the various diseases of Palms, their causes, prevention and cure. Here the various insect pests and the best mode of their extermination are also described. In the last 77 pages of the book a synopsis is given of the most suitable Palms for cultivation with a full description of the different species. Though the various plants are described in a most popular manner, the classification and nomenclature are strictly scientific, and based partly on Drude's work in Engler-Prantl's natural orders and partly on "Index Kewensis."

That a very great portion of the names of Palms found in the nurserymen's catalogues is utterly wrong has long been recognised among botanists, and Dr. Dammer's book is, no doubt, a further step in the right direction towards establishing a universal nomenclature all the world over. But the gardener will be slow to forget the names that held sway for many generations and substitute the new names as required by the scientists. Our old friend *Area lutescens*, for instance, will, I am afraid, long be known by that name, although it is no *Area* at all, but should, according to "Index Kewensis," be called *Chrysalidocarpus lutescens*, and, according to Dr. Dammer, *Hyophorbe indica*. Of true *Areas*, we are told, only very few are in cultivation, and the plants generally known by that name belong to other groups, as for instance—

- Area aurea* should be *Dictyosperma aureum*.
- A. rubra* should be *D. rubrum*.
- A. Baueri* should be *Kentia Baueri*.
- A. sapida* should be *K. sapida*.
- A. gigantea* should be *Pinanga ternatensis*.
- A. crinita* should be *Acanthophoenix crinita*.
- A. rubra* should be *A. rubra*.
- A. madagascariensis* should be *Dypsis madagascariensis*.
- A. monostachya* should be *Linospadix monostachya*.
- A. oleracea* should be *Oreodoxa oleracea*.

In a like manner many other genera are renamed. *Chamerops humilis* remains a *Chamerops*, but its cousins, *Chamerops excelsa* and *C. Fortunei*, are *Chamerops* no longer, but are now called *Trachycarpus Fortunei*, while *Chamerops stauracantha* has become *Acanthorrhiza aculeata*. *Kentia Belmoreana* is altered into *Howea Belmoreana*, and *Xeroxylon niveum* into *Diplothemium caudescens*.

As the book can be had elegantly bound for the moderate sum of 4s., it must be confessed that it supplies a long-felt want, and if translated into English will doubtless be a success in this country. F. W. MEYER.

Elmside, Ereter.

GARDEN NOTES FOR THE COLONIES AND ABROAD.*

A USEFUL little handbook for those who are compelled to live in the colonies, India, and British and foreign possessions and spheres of influence, &c., and who carry their love of English flowers and vegetables along with them. It will tell them what seeds to get, when to sow, to prune, transplant, water, &c. The position of many of

* "Garden Notes for the Colonies and Abroad." Jas. Carter and Co., Seedsmen, High Holborn.

these colonies, dependencies, &c., in tropical or semi-tropical latitudes might lead one to suppose that any attempt to cultivate the products of temperate climes must be attended with great, if not insuperable, difficulty. This is not so, however, for experience has proved that with very few exceptions all our best known English vegetables and flowers will thrive under reasonable conditions. Such conditions are to be found often in perfection in those altitudes where the exhausted government official, merchant, lawyer, as the case may be, goes to revive his exhausted energies after the burdens and the heats of the plains, as in India, the Himalayas and other mountain ranges, or in the rich and fertile valleys which are sometimes to be found more to the north. In the flat, treeless, parched and dusty plains, also, given constant care and attention, much may be done. For more than half a century Messrs. Carter and Co. have made the exportation of seeds to all parts of the world a special study, and the experience they have gathered at great expense and constant effort they now place before the public at the modest price of one shilling.

THE METROPOLITAN PUBLIC GARDENS ASSOCIATION.*

THE fifteenth annual report of the Metropolitan Public Gardens Association is a record of good work done in the securing of open spaces for public recreation. The association depends on the generosity of public-spirited people for its funds, and its operations are strictly limited by its pecuniary resources. Wealthy persons making their wills should bear the association in mind. The chairman is Lord Meath. Attached to the report is a map which looks like one of those war maps published by a well-known firm of map-sellers. The whole face of London is dotted over with red marks, showing the acquisitions made by the association since the commencement of its useful existence—that is to say, 1882. This includes of course not only sites acquired for the use of the public, but also trees planted and seats placed in convenient spots, also undertakings in which the association has materially aided. As regards 1897, it saw the laying out of three new gardens, the provision of gymnastic apparatus for one playground, drinking fountains placed on three sites, seats placed in twelve localities, trees planted in three places, and assistance given in the preservation, acquisition or improvement of thirteen open spaces. We ought not to omit to mention that the Hampstead Heath Protection Society, whose praiseworthy efforts we have chronicled on former occasions, was formed with the assistance of the association. We commend the association to the support of all who desire the health and beauty of the metropolis.

A FLOWER HUNTER IN QUEENSLAND AND NEW ZEALAND.†

THIS is the story of an adventurous lady whose love for the flora of Australia led her into many out-of-the-way places where she witnessed many curious and often weird sights. Her experiences and impressions she embodied in letters to her friends, so that they have all the charm of freshness now when collected in a book. The style is graphic, as becomes an artist, and very little that is interesting escapes her notice. Near Mackay, Queensland, Mrs. Rowan took her first walk in the wild tropical jungle, and we will let her describe it in her own words:—

I entered sketch-book in hand by a narrow little pathway, probably made by an alligator. I kicked, as I thought, a grey stick aside; it was a snake, and quick as lightning it lighted off, while I grew hot and cold by turns. There was such a death-like silence

about me that I felt an intruder there, and the thick and tangled mass of rank vegetation completely hid the sun from sight. A few steps further on I came to an opening, and below me lay a miniature lake, its water covered with large blue Lilies floating amid their leaves on which the sun shone through a network of graceful Palms; scarlet, yellow-eyed dragonflies skimmed over its surface, while presently a great butterfly tremulously fluttered past, and the sun glint, catching the metallic lustre of its wings, changed them to every rainbow hue. The trees were clasped and linked together by delicate tendrils, and climbing Ferns and large Caladiums covered the ground. It was a scene of wild mysterious beauty, but in the distance there was the hum of a thousand gossamer-winged and hungry insects, and I hurried on with my sketch, for the mosquitoes had already found me out. Too much wrapped in my work to turn round, I pushed twice aside from my cheek what I took to be a hanging tendril; but surely it moved too quickly. One wild jump and I was yards away. It was a long tree snake that had fastened its tail to a branch, and, curious to find out what manner of being this might be that disturbed its solitude, was gracefully swaying backwards and forwards. . . . That same night I heard a great fluttering in the aviary, and going out, found a large copper-coloured snake hanging from a beam. It had already swallowed one bird and was in the act of crushing another.

Later on Mrs. Rowan had the "pleasurable excitement" of being introduced to the Nettle Tree, some branches of which she picked, not knowing, and hand and arm ached for many a day afterwards. Naturally she saw a good deal of native life and character, and was present at a "corroboree." Throughout the book she records her emotions with a simplicity of candour which adds greatly to the charm of the narrative. The illustrations are her own, and they are numerous.

JANUARY IN SOUTH DEVON.

DURING the past month the rainfall has amounted to 0.88 of an inch, which fell on six days, compared with 2.48 inches on sixteen days in January, 1897, the average for the month being 3.21 inches. The average of sunshine for the month has been very meagre, only eighteen days on which the sun shone having occurred. The amount of sunshine recorded has been 30 hours 50 minutes, the average for the month being 66 hours 35 minutes, while in January, 1897, the record was 59 hours 35 minutes. The temperature for January, 1898, has been unusually high, being over 8° higher than that of the corresponding month in 1897, the mean of the highest and lowest screen temperatures being 47.1° against 39.0° in January, 1897, and an average for the month of 41.5°. The highest sun temperature registered was 98.5° on January 21, the highest in the screen, 55.7° on the same date, and the lowest in the screen, 33.9°, on January 8, the lowest reading of the grass thermometer being 30.2° on the same date. On no day did the screen thermometer fall to 32.0°, while on only two days did the mercury in the grass thermometer fall to the freezing point. The total horizontal movement of the wind was 5839 miles, compared with 6610 miles in January, 1897. The greatest twenty-four hours' run was 763 miles on January 30, and the highest hourly velocity was attained between the hours of 9 p.m. and 10 p.m. on the same date, when the anemometer showed a speed of 44 miles for the hour. Two days prior to this gale occurred the calmest day of the past four years, a movement of only 10 miles being recorded for the past twenty-four hours. The direction of the wind has been from southerly to westerly on twenty days out of the thirty-one. The mean percentage of ozone in the air has been 42.5, against 47.4 per cent. in January, 1897.

In the garden the remarkably open weather of the month has marvellously forwarded the spring flowers. The Winter Aeonite (*Eranthis hyemalis*) has opened its bright gold cups on glossy whorls of leaves. This flower is seen at its best when natural seed about the boles of deciduous trees, but it does not succeed everywhere, often dying out even when the greatest care has been bestowed upon its naturalisation. Poppy Anemones have

been in bloom. Many blossoms have also unenclosed on beds of the Star Anemone (*A. fulgens*). In many places the rock garden is white with *Arabis alba*, and the honey-bees are already busy among the blossoms of the Mountain Snow, as it is popularly styled. The *Aubrietias*, purple and pink, have also commenced to don their coloured flower-robe, and on sunny mornings the *Crocuses*, golden, purple and white, make breadths of glorious colour, while the bright blue of the Snow Glory (*Chionodoxa sardensis*) has spread its deep azure over a bed hard by. The flower-spikes of this *Chionodoxa* are very strong this year, many of them exceeding 7 inches in height and carrying from a dozen to eighteen blooms. *C. Lucilia* is later, not having as yet opened its flower buds. *Cyclamen coum* is also in bloom, as is *Coronilla glauca*, while I remarked several scarlet blossoms on a large plant of *Ciantbus puniceus* growing against a sheltered south wall. The first yellow-brown blooms of *Dondia Epipactis* have expanded in the rock garden, and the great golden stars of *Doronicum plantagineum excelsum* Harpur-Crewe are already plentiful, though the flower-stalks lack the length they attain later in the year. In dry situations the little Mexican Daisy (*Erigeron mucronatus*) is still blossoming, and the Dog's-tooth Violet (*Erythronium Dens-canis*) has begun to unfold the petals of its white, flesh-coloured and pink flowers. The tint of the Forget-me-nots is slowly changing from pink to blue, and in sunny corners has the veritable azure tint. Of the Christmas Roses, the giant *Helleborus altifolius* had passed its zenith ere the commencement of the month, but its place was well filled by the Riverston and Bath varieties, *H. niger* Mme. Fourcade and *H. n. Juvernis*, St. Brigid's Christmas Rose, which in some gardens seems to be considered identical with *H. n. angustifolius*. The Lenten Roses (*H. orientalis*) have been in splendid bloom, the named varieties, *H. o. antiquorum*, *pallidus*, *punctatus*, *guttatus sub-punctatus*, *guttatus punctatissimus*, *guttatus Leichtlini*, *purpurascens*, *atro-rubens*, *olympicus*, *colchicus*, *Grechen Heinemann*, and *Commenzienrath* Benary, all having been covered with blossom. Some of these, especially the last two, are very attractive, but even the best are equalled, if not surpassed, by the choicest of the English-raised seedlings, many of which are of exceptional merit. These flowers are often found to fade shortly after being placed in water, but if the precautions of immersing them in water for three hours and splitting their stalks are taken, they will retain their beauty for some days. I have now before me a vase of flowers which were cut five days ago, yet show no symptoms of flagging. The Hepaticas have already commenced to bloom and the Roman Hyacinths are bearing their graceful white spikes freely, these flowers being infinitely more beautiful than the densely-crowded, stiff spikes of the florists' Hyacinths. *Iris stylosa* and its white variety still yield their lovely scented blossoms, and *Iris reticulata* has perfected its violet-purple flowers. The larger form of this *Iris* appears to possess a stronger constitution than the type, which dies off in many localities when planted out. The Spring Snowflake (*Leucojum vernum*) commenced to bloom on January 28. In 1895 its date was March 15, and in 1896, February 9. Its date of flowering last year I am ignorant of, being absent from home at the time. I note that "E. M." (p. 94) gives its date this year at Berkhamsted as January 25. The Musk Hyacinth (*Muscari moschatum*) is throwing up its bloom-spikes, and the Narcissus season has begun in earnest, many of the *Polyanthus* section being already in bloom, while the delicate little *N. minimus* and the Tenby *Daffodil* (*N. obvallaris*) expanded their blossoms before the end of the month. Untouched by frost, the Paris Daisies are still blooming in some gardens, while *Primrose* and *Polyanthus* are both in flower, and the lesser *Periwinkles* stud the bank with their faint blue flowers. January is not the month to write of outdoor Roses, yet many have been gathered from the walls during the past

* Fifteenth Annual Report for 1897 of the Metropolitan Public Gardens Association. 83, Lancaster Gate, S.W.

† "A Flower Hunter in Queensland and New Zealand." By Mrs. Rowan. London: John Murray.

four weeks, Safrano yielding by far the greater proportion of the blossoms. It is the Snowdrop season now, and Galanthus Elwesi has borne its large bells, while no more exquisite picture can be imagined than Galanthus nivalis naturalised in countless numbers. These are now in their full beauty, and stand in glimmering array by thousands along the wood-paths, clustering in colonies around the gnarled boles of the old Elms, and, from amid the Ivy trails that wreath the verge of the bank, mirroring their whiteness in the dark water. Unfortunately, however, for the Fair Maids of February, they are not permitted to enjoy the seclusion of their sanctuary undisturbed, for beauty has its price, and the flower-snatchers swoop down between the lights when the coast is clear, and, ruthlessly tearing them from their native soil, sell them into bondage in alien earths. In a few gardens, where the soil is light and the situation sunny, Schizostylis coccinea is still in bloom, and the Winter Heliotrope (*Tussilago fragrans*) bears its inconspicuous blossoms in a corner of the wild garden. The red Valerian (*Centranthus ruber*) is still in evidence here and there, and the Wallflowers have commenced to bloom. Violets are now flowering freely again, California producing a goodly number of its large, long-stalked, fragrant blossoms, with Princess of Wales, equally large and long-stalked, but with broader petals, following suit. The White Czar is also blooming well, as is its purple type, while the Red Russian is in full flower.

At Kingswear, on the banks of the Dart, Arum Lilies (*Richardia*) planted in a sheltered position by a streamlet were flowering in the open, and *Acacia dealbata* was in bloom, some of the flower-laden branches being as golden-yellow as if their parent stem was rooted in Rivieran instead of English soil. *Lithospermum prostratum* was blooming in the rock garden, and *Mesembryanthemums*, in many colours, held expanded blossoms, while a large plant of *Melanthus major*, with deeply-cut glaucous foliage, fully 5 feet in height, was in bloom, and the Banksian Rose, to which I referred in my December notes, was not altogether flowerless. Of shrubs, *Berberis Darwini* shows its orange blossom-sprays, and *Camellias*, red and white, are in bloom. *Cornus mas* is bearing its umbels of minute yellow flowers, and *Cydonia (Pyrus) japonica* has, in many places, its well-nigh leafless branches scarlet with expanded blossom. *Cytisus racemosus* is blooming freely in sheltered spots, and *Daphne indica* exhales fragrance from its blossom-laden sprays. *Jasminum nudiflorum* still shows from afar its golden gleam, and the orange fruits of the Passion Flower gleam brightly amid its dark foliage. The Jew's Mallow (*Keeria japonica*) against a cottage wall is bearing its orange-yellow blossoms. The *Laurustinus* is everywhere in bloom, the variety bearing large snow-white flower-heads being particularly attractive. Here and there *Olearia stellulata* is flowering, while *Pittosporum Tobira* is thickly set with sweetly perfumed flower clusters. *Prunus Pissardi* has also commenced to blossom, and the shrubby *Veronicas* are in flower.

The month has passed without a sign of the advent of that severe weather which the mildness of the concluding months of 1897 led us to anticipate. The Elder, which is popularly supposed to be dowered with such fore-knowledge in matters meteorological that it never buds until all danger of frost is past, is already unfolding its leaves, and one feels it possible that one may have misjudged the songster whose Christmas roundelay appeared such an anachronism: that, perchance, he shares the intuition of the sapient Elder, and may merit the compliment paid him by the poet Browning, who writes of him as "the wise thrush."

S. W. F.

Cypripedium, or what?—The botanists are at it again. Some one among them has discovered that the name *Cypripedium* is too small for the genus, and has therefore divided it into four, viz., *Phragmopedilum*, *Paphiopedilum*, *Selenipedilum* and *Cypripedilum*. Linnaeus's Greek was, it ap-

pears, faulty, and when he meant to compliment Venus's boot or slipper by the name *Cypripedium*, he was really complimenting her foot. Even the botanists cannot agree, however, on this point, one of the most eminent suggesting that *Cypripedium* should be preferred. And so it comes to pass that a name which has become as familiar as *Rhododendron*, *Iris*, and *Nymphaea* is to be altered out of recognition, and that plants which have been grown for generations as *Cypripediums* are in future to be called *Phragmopedilums*, &c. How does the practical gardener like the name of *Paphiopedilum Chamberlainianum* figured in the *Botanical Magazine* this month? Surely the pages of *Punch* are the proper place for funny philosophy of this kind. So far as I can see, there is less difference between these so-called new genera and the different sections of such genera as *Iris*, *Narcissus*, *Pelargonium*, *Chrysanthemum*, and hosts of others. Gardeners are justified in protesting against this tinkering and meddling with plant names. If the botanists will let our popular garden plants alone and restrict their squabbling to the dry chaff and hay of the herbarium, we shall feel less concerned. The questions of priority, etymology, and nice generic distinctions do not concern horticulture. The pity of it is that botanists are allowed to force their names upon us, or rather many horticulturists are too weak to offer any resistance to this nonsensical meddling. —ONE INTERESTED.

STOVE AND GREENHOUSE.

GREENHOUSE HARD-WOODED PLANTS.

HEATHS AND OTHER PLANTS.

IN Heaths there is as wide a diversity in habit as there is in the colours and forms of the flowers. Some, again, are quite slow growers, as *Erica depressa*, *E. Marnockiana*, and *E. eximia*. These are all types of compact habit, taking years before they become unduly large. Others, again, are of spike-like habit and more rapid growth. These are admirable for cutting. Take as cases in point *E. intermedia* (pure white), *E. mammosa* (reddish purple), *E. Eweriana* (dark red and greenish yellow), all of which are late summer or autumn-flowering kinds. To follow these we have the well-known *E. hyemalis* as well as *E. Wilmoreana* in the early spring, and later on *E. persoluta alba*, *E. hybrida*, and *E. Cavendishi*, the taller forms of *E. ventricosa*, as well as the varieties of *E. vestita*, against which the chief fault is their bad, or leggy, habit. These are all types of varieties that can with advantage to the plants be cut pretty freely. As small decorative plants in flower, but not so well suited for cutting, we have in *E. ventricosa coccinea minor*, *E. Parmentieriana rosea*, and *E. perspicua nana* three of the best types. *E. Cavendishi* should also be added here whilst in a small state. The whole family of Heaths is almost invariably popular, but I should much like to see some of the less common kinds taken in hand more extensively as small plants; such, for instance, as the following half dozen: *E. Eweriana*, *E. Austiniana*, *E. infundibuliformis*, *E. Victoria*, *E. Devoniana*, and *E. Fairiana*, which are not the most difficult kinds to manage. Next to the *Ericas*, the *Epacris*es claim attention. These, when well managed by annual pruning, early growth afterwards, and a thorough ripening, are, more strictly speaking, winter-flowering plants. With me these were always pruned by the first week or so in March, after having commenced to flower in October. Of these, note should be made of *E. Vesuvius*, *E. Vesta*, *E. Lady Alice Peel*, *E. hyacinthiflora*, *E. candidissima*, and *E. exoniensis*. *Epacris miniata* and *E. Eclipse* always flower later, being amongst the

most beautiful, but these do not bear pruning so well. *Chorozemas* are most profuse flowering plants, and no more difficult to grow than the average Indian *Azalea*, beautiful alike in any size of plant. Of these, two of the best for general purposes are *C. Lawrenceana* and *C. Chandleri*, and as a newer kind intermediate in a measure between these two, there is *C. Lowi*. Of white-flowered plants, the *Eriostemons* are amongst the best; these are, in conjunction with the *Chorozemas*, most beautiful spring-flowering plants. *E. luxifolia* and *E. linearifolia* are two of the best. Then there are the *Pimeleas*, in every way so distinct and amongst the most profuse flowering of all. There is nothing in flower during April and May of similar character that is so showy. Note, for instance, such as *P. decussata*, the most compact grower of any and as free flowering; *P. Hendersoni*, another beautiful variety, deeper in colour than any, and *P. spectabilis* with its var. *P. s. rosea*, which have the finest trusses, being also the earliest to flower. The only fault to be found with *P. spectabilis* is that it grows too fast. The *Polygalas* furnish another quite distinct type of plants, being of easy culture in every respect, lasting in flower a long time; no other plants furnish the same colours in their season so effectually as these, viz., the rich shades of purple as seen in *P. Dalmaissiana* and *P. oppositifolia*. It is hardly possible to select more distinct-looking or more showy plants than are to be found amongst the *Aphelexis*. In *A. rupestris grandiflora* and *A. macrantha rosea* are to be found two of the best of this genus. Lasting a long time in perfection on the plant and afterwards, if taken before too much faded, and some time longer still as "ever-lasting," is surely a sufficient recommendation, in conjunction with easy culture. As regards

THE GENERAL USES

of greenhouse hard-wooded plants, these will apply more strictly speaking to each individual case. Some hints have been given. The climbers are suited not only to trellises of globular form, but they may frequently with even greater advantage be grown or, more correctly speaking, trained to cover bare walls, and that with decidedly good effect, also for furnishing arches and columns in either the greenhouse or conservatory. For a somewhat shaded place there are the *Lapagerias*, *L. alba* and *L. rosea*, *Rhynchospermum jasmoides*, and *Pleroma macranthum*, neither of which, may be noted, is from the Cape of Good Hope or from Australia. *Daphne indica* will, I believe, thrive well against a wall with partial shade. When we come to the New Holland plants, then we have subjects which need more sunshine to ripen their wood prior to flowering. Such, for instance, are the *Chorozemas*, which are really beautiful plants for training over arches, up rafters, &c., and are never seen to better advantage than when thus grown. The tall-growing *Acacias* are suited to the same purpose, such, for instance, as *A. Riceana*. *Brachysema latifolium* can be used in the same way as the *Chorozemas*; also the *Kennedyas*, the *Hibbertias*, the *Hardenbergias* (of which genus *H. monophylla* is the best), and the *Sollyas*. These are all best suited to light positions where only a moderate amount of shading is used even during the brightest weather. Having enumerated the climbers, it is easy to include all the rest as bush plants. But some, perhaps, may say these even want a good deal of training; not so much, however, for home use as when taken out for exhibition. A deal can be done in very many instances by judicious training when young and by occasional or frequent stopping, as the case may be. Given a

young plant, the aim should be to lay a good groundwork in regulating the growth by stopping or depressing the shoots, then afterwards there will be far less trouble. The omission to do this results oftentimes in leggy, scrubby plants, not of prepossessing appearance certainly. Planting out in beds can be well applied in many instances, as in the case of the *Luculia*, the *Acacias*, and the *Rhododendrons*, the growth and limit as to size being kept in order by pruning, which can be largely accomplished when taking cut flowers. GROWER.

Boronia megastigma.—There appear to be two forms of this *Boronia*, one of more shapely growth and with more deeply-coloured blossoms than the other. As a set-off, however, the pale-tinted kind is the more fragrant. This *Boronia* is grown by some of our nurserymen in considerable quantities, and sells readily when in flower. One is often asked how to treat the plants after

long and about three-quarters of an inch across the mouth. They are a kind of mauve-purple in colour, with a stripe of a deeper tint. The individual blooms do not last long, but a succession is kept up for some time. To do it well this *Strobilanthes* requires the temperature of a stove, at least during the winter months, but in the summer it may be grown quite cool. This *Strobilanthes* can be propagated as readily as a *Coleus*. —H. P.

Scented-leaved Pelargoniums.—These plants are very useful where much indoor furnishing has to be done, and though they take up a lot of room where it can least be spared, a few plants should be grown by all. Varieties are very numerous, but there are few to beat the old Oak-leaved *Geranium*, as it is called. Cuttings of this strike readily in summer, and may be grown entirely in the open air till September, when they require a light, well-glazed pit. They should be pinched once while still in the cutting pots and about once after this, forming a nice bushy plant.

the loose, naturally-grown plants that yield a wealth of blossoms. *Bignonia*s of this class succeed best if planted out in a prepared border of good open loamy soil, and while they need plenty of water both overhead and at the roots during the growing season, less moisture is required when at rest. The same treatment is needed for another showy member of the genus, viz., *B. Cherere*, which, though kept in stock by many nurserymen, is very rarely seen in bloom. These *Bignonia*s are readily propagated by cuttings during the spring and summer months, and under liberal treatment they grow away freely. —H. P.

MESSRS. CARTER AND CO.'S PRIMULAS.

THE Chinese *Primulas* at Messrs. James Carter and Co.'s nurseries at Forest Hill are now well worth seeing, new forms and shades of colour being raised every year. There are now three distinct sections recognised by the foliage alone, namely, Palm-leaved (*palmate* would be more accurate), Fern-leaved, and Moss-leaved, each section producing a great variety of colour, ranging from the purest white, through pale and dark rose, crimson and scarlet, until a distinct advance towards true blue has been definitely fixed, and will no doubt be improved upon as time goes on. Among the varieties that struck us as being particularly vigorous in growth and beautiful in blossom were *Holborn Queen*, *Imogene*, *Venus*, *Ruby*, *Rose*, and *Elaine*. These are the most distinct of the Fern-leaved section, and among them the purest white and deepest ruby with intermediate shades are represented. *Bouquet* is quite distinct on account of its sturdy habit. It not only throws up a large umbel of white blossoms from the centre, but, in addition, other flowers spring separately from the base of the plant. *Holborn Elaine* (both Palm and Fern-leaved), *Princess May*, *Carter's Crimson*, and *Carter's Scarlet* are decided acquisitions, the three last particularly so. To these may be added *Hereules*, the deep rosy crimson flowers of which are of extra size and of fine substance. Among



Primulas grown for seed in Messrs. Carter's nursery, Forest Hill.

blooming. They should be cut back hard (not in a half-hearted manner), and as soon as they have broken into growth may be repotted. This must be carefully done, using pots a size larger and a compost consisting of good sandy peat. After this they may be kept closer for a few days till root action recommences, when they must be given ordinary greenhouse treatment. As the summer advances the plants may be stood out in the open in order to thoroughly ripen the wood, as a good deal of the future display of bloom depends upon this. —H. P.

Strobilanthes Dyerianus.—The pretty free-flowering *Strobilanthes isophyllus* has been recently noted in THE GARDEN as a very useful subject for the decoration of the greenhouse at this season, while *S. Dyerianus*, chiefly grown for the brilliant colouring of its leaves during the summer months, is not without merit when viewed from a flowering point of view. It blooms as a rule in midwinter, and the flowers, which are freely borne, are each a little more than an inch

The most useful sized pots is 4-inch, the plants in these making a spreading head nearly a foot across by the new year.

Bignonia venusta.—The general appearance of this magnificent climber is well shown in a coloured plate in THE GARDEN as long ago as April 22, 1882, it being in fact the first *Bignonia* to be figured therein. The specimens from which the plate in question was prepared were from Sir George Macleay's garden at Pendell Court, which at that period was remarkable for the interesting collection of plants brought together. Among other notable subjects that flowered there about that time was the *Waratah* (*Telopea speciosissima*), which was also figured in THE GARDEN. In common with several other members of the genus, it needs a good sized structure, for if cramped in any way, flowers may be sought for in vain. It requires little, if any, pruning, and when the shoots are allowed to dispose themselves in graceful festoons the result is infinitely more pleasing than if tied in a formal manner, while it is only

the double-flowered forms mention may be made of *Blue Rosette*, with lilac-mauve flowers; *Carmine Empress*, a free variety, with deep carmine blossoms; *Prince of Wales*, with flowers like a small rose *Carnation*; *Snowflake*, pure white; *Vivid*, deep crimson; *Aurora*, rose; and *Lilac Queen*, with charming lilac blooms produced well above the foliage, and in great profusion. There are many other fine things to be seen among the thousands of plants now in bloom. The plants here represented (the electro kindly lent by Messrs. Carter and Co.) are only six months old.

The Teneriffe Broom (*Cytisus filipes*).—This is by far the most graceful of all the *Brooms*; in fact, it is in elegance of growth surpassed by none of the occupants of our greenhouses and equalled by very few. Just now the slender green branches, which are pendulous, are studded

for some distance with white blossoms about the size of those of the common Broom. In the case of young plants a few trifoliate leaves are sometimes produced, but, as a rule, the specimen is almost if not quite devoid of foliage, a peculiarity to be found in several of the Brooms. For a couple of months or so a well-developed plant of this *Cytisus* will keep up a succession of bloom, and it is then most striking; but at all seasons, from its bright green, gracefully disposed shoots, it forms a particularly pleasing specimen. This Broom was introduced sixty years ago, but it is now very uncommon—why, it is difficult to say, as it is so beautiful and withal of easy culture. It is sometimes grown as a standard, either on its own roots or grafted on to its near relative, *Cytisus racemosus*. The *Laburnum*, too, is sometimes used as a stock, and the plant grows rapidly thereon, but I have occasionally seen it when grafted on this die off quite suddenly even when large. Seeds are sometimes produced from which young plants can be readily raised. Another way of growing it is to secure the leading shoot to a stick and allow the side branches to grow at will, when it assumes more or less of a pyramid shape. A structure from which frost is just excluded during the winter is quite sufficient for its requirements.—T.

MANDEVILLA SUAVEOLENS.

THE present is a good time to propagate this beautiful greenhouse climber either from seeds or cuttings, the latter for preference where a good variety of it exists. It is very disappointing in its earlier stages, and it is probable that this has led many to relinquish its culture without really giving it a fair trial. To be a success, the plants should have been grown on for a season in pots and then planted out in a well-prepared border, the shoots being taken up wherever they are wanted and the plant encouraged to make a strong and vigorous growth. Say it is to be grown over a large conservatory; let the border be made large enough in the first instance and filled with good rich compost. The roots will grow freely in this and large, strong shoots will be thrown up. These must be as thinly arranged as space will allow, as it is an important point in its culture that the wood be well ripened. Being so nearly hardy, the plant should be grown in the coolest house, for if exposed to fire-heat in winter it soon gets smothered in insects; but kept clean and well ripened and very lightly pruned in early spring, the plants will, when a few years old, surprise anyone who has only seen half-starved, insect-infested specimens growing in pots. Great clusters of the pure white blossoms appear all over the plant, and these are very sweetly scented. If trained up one or two of the principal rafters in a large cool house and some of the shoots allowed to depend from the main stems, it has a very fine effect. In many places there are glass-covered corridors and similar structures that could, by planting this *Mandevilla*, be made very gay all through the summer months, and by starting the plants early and keeping the young growths well syringed it will flower earlier and more continuously. In some of the southern counties in warm positions the plant succeeds outside, and probably with such winters as the last three have been it would prove hardy anywhere, but severe frost will kill it outright unless the roots are thoroughly established and well covered, and even then the stems would be killed. Still, it is well worth trying in suitable places, and one good flowering would well repay a lot of care. Any good soil will grow it, but the position must be well drained whether under glass or in the open. The unripe points of the shoots only need be cut back, and, as hinted above, the looser in reason the growth is left the better the effect when in flower. Seeds are offered, and should be sown as soon as received in a warm, moist house, the plants grown on as quickly as possible, but not in much heat. Cuttings may be taken of the short stubby side shoots and placed in pots of sandy soil, plunged in a

gentle bottom heat until rooted, when they may be grown on as advised for seedlings. It is important that the plants do not get pot-bound before shifting, as this checks the growth and renders it more liable to insect attacks. B.

IMANTOPHYLLUMS.

WHEN grown in an ordinary cool greenhouse it is generally late spring before these plants are seen at their best, by which time the conservatory is crowded with many other flowering plants, and cut bloom is to be had both in quantity and variety from outside borders. A nice group of these plants is pleasing at any time, but much more so, and certainly more useful, when they are induced to flower at mid-winter and onwards, when for a time after *Chrysanthemums* are over there is a lack of variety, especially of flowers that will last in a good condition for any length of time after they are cut. Indeed, it is this latter quality that makes the *Imantophyllums* so valuable and such a great help to those who are pressed for cut bloom in large quantities during the dull months of the year. This winter, by changing the water frequently, I have had large vases with as many as a dozen trusses of bloom in them which have not required changing for a fortnight in spite of the trying influence of the heat and effects of gas in large reception rooms. I do not think it possible to name another plant which can produce flowers to stand such a long and severe test as this. In fact, I am so pleased with them, that I have already commenced to divide those which flowered first with a view to increasing the stock as much as possible. I should not like to say how long some of these plants have been in the same pots without a shift, but, like the *Agapanthus*, it is often considered unnecessary to re-pot them until the roots, from the want of room, burst the pots. The plants will continue to exist for many years under such unfavourable conditions, but there is no comparison between the size and depth of colour in the flowers compared with those from plants which have received more generous treatment.

The cultivation is very simple, and they may be grown most successfully in a cool greenhouse or even in a brick pit for one half of the year. If a number of old specimens have to be dealt with, some little patience is necessary to disentangle the mass of fleshy roots and prevent the base of the different offsets being bruised. Having succeeded in dividing them, the different growths should be graded into sizes and potted into such pots as are likely to prove most convenient for the purpose required. I am using those of about 7 inches in diameter, which take either three of the strongest or four smaller plants. All the bruised portion of the roots must be cut off neatly, and if the foliage is inclined to fall over the side of the pots, this should be kept in position with strips of matting and a few small sticks until new roots form. The compost used is chiefly turfy loam, to which are added coarse sand, charcoal, and about one-fourth part spent Mushroom manure. Good drainage should be secured and the compost rammed firm, but not sufficient to bruise the roots. The object of potting as early as possible is to get growth completed by July, which will give a season of rest and enable the first flowers to form without much heat before Christmas. Having potted up the desired number, keep them by themselves in an intermediate house where they can be dewed over until growth commences, when water is increased according to the progress made by the roots. When the plants are growing rapidly plenty of

light is necessary to give strength to the foliage, but it would be advisable to shield it from the full force of the sun at mid-day. After the plants have made their growth they should have plenty of ventilation, and gradually give them cooler treatment until about a month or six weeks before they are required to flower, when with extra heat and water the trusses will push up at once, and a succession be maintained by introducing a few plants once a fortnight into the forcing house.

There are several new kinds which are improvements on the old variety both in size and colour, and a collection of these would form an attractive group in the garden, and, for reasons stated already, certainly prove one of the most useful for yielding plenty of bloom in winter. R. PARKER.

Goodwood.

AGLAONEMA VERSICOLOR.

THERE are many species, or probably several forms of two or three species, of *Aglaonema* in cultivation, most of which are characterised by curiously mottled leaves, in the colouring of which various shades of green greatly predominate. The most pronounced in this respect is *A. versicolor*, a *Dieffenbachia*-like plant, whose leaves, each from 6 inches to 8 inches long and pointed at the apex, are irregularly blotched with dark olive-green, two or three shades of lighter green, and a pale greyish tint, almost white, which give it a very singular and striking appearance. It is seen at its best when about a foot high, at which time it forms a very attractive decorative plant. One drawback to this class of *Aglaonemas* from an ornamental point of view is that they produce their blossoms (which are not at all showy) so freely, that the development of the foliage is arrested until the period of blooming is over. They strike root from cuttings as readily as their allies, the *Dieffenbachias*, and, like them, the leaves are somewhat thin in texture, hence they will not stand exposure to draughts as well as some other stove plants which are grown for the sake of their foliage. *A. versicolor*, which, in common with most of the others, is a native of the East Indies, is a comparatively new plant, having been first put into commerce some three or four years ago. Belonging to this group are the forms known as *A. pictum*, *A. pictum compactum*, *A. pumilum*, and *A. marantifolium*, while another kind, *A. costatum*, is of quite a different habit. This, which was introduced by Messrs. Veitch from Borneo and distributed in 1892, attains at best a height of little more than 6 inches. In this the leaves, which are produced in crowded tufts, are short-stalked, with a spreading blade of broadly ovate form about 3 inches wide. The ground colour of this leaf is a rich, dark, shining green, while the midrib is clear ivory white. The rest of the leaf is also blotched in an irregular manner with white. The distinct variegation of this plant is charming, and its low spreading style of growth eminently fits it for edging groups and purposes such as this. It is also a plant of easy culture if potted in fairly light compost and given general stove treatment. It is increased by division. H. P.

Amaryllis aulica.—Though in shape this cannot be compared to the numerous hybrid forms of *Amaryllis*, yet it is a fine bold-growing species of vigorous constitution, and with ordinary care and attention it may be depended upon to flower well year after year. The blossoms are of a rich scarlet, veined with crimson, but in the depth of colouring there is a certain amount of individual variation. The flower-scape reaches a height of from 18 inches to 2 feet, and the showy blossoms remain fresh longer than some of the others. It usually blooms earlier than the garden hybrids, for flowers are often expanded in December and January. *A. aulica* is by no means a novelty, having been introduced from Rio de

Janeiro in 1819. Several of the original species would no doubt be more generally grown if they were not eclipsed by the numerous garden varieties with their gorgeous flowers. *Amaryllis pardina* is a very pretty and distinct species, the flower of which is large and of a bright cream colour, with just a suspicion of green, while the petals are profusely dotted with crimson. The Barbadoes Lily (*A. equestris*) is a very common species that often makes its appearance in the London auction rooms in considerable numbers. This *Amaryllis* is sometimes met with under the specific name of *ignescens*. The flowers are small and of a reddish orange colour. In the case of freshly imported bulbs the flower-spike is often on the point of being pushed up, and if potted at once and placed in a warm house, the blossoms soon make their appearance.—H. P.

CAMELIAS.

I SUPPOSE the growing taste for flowers of a light and graceful character, small and apparently insignificant as many of them are, is answerable for the decline of the *Camellia*, a decline noticeable in the scant favour accorded it in private places and in the low market price, as it is now hardly at any time a saleable flower. There is, however, a refined beauty in many varieties very attractive to those prepared to recognise beauty in almost every flower; and certainly the long season of cutting afforded by *Camellias* is a very useful feature, especially in those places where there is little opportunity of supplying forced flowers in quantity. With just enough fire heat to keep out frost (as a matter of fact, the fire has only been used seven nights all through the present winter), I start cutting at the end of November and continue until about the middle of April, or as long as the flowers are required. It varies a little with the season, a hot summer with plenty of sun or one dull and damp making all the difference in an early development of bud; but this would represent the average duration of the flowering season. The exact time that the plants have been in their present quarters is not easily determined, the largest probably close on one hundred years, and as the flowers show no deterioration either in quality or quantity, it must be granted that there are very few greenhouse plants that wear so well. The dimensions of the house do not admit of the plants attaining a great size either in height or breadth, 15 feet by 8 feet being the maximum, and severe annual pruning is necessary to keep them within bounds. They have, however, developed some fine stems, the largest being 3 feet in circumference. One of these unnamed is evidently the variety figured in Mrs. Loudon's book as *japonica Pomponia*, and may be best described as loose *Anemone*-flowered, a bit erratic in shape and still more so in colour. In the latter respect the variation has seldom been more pronounced than during the present season, some flowers nearly a pure white, others a pale pink throughout, others white with a pale pink tinge after *Lady Hume's Blush*, and yet others with a white ground more or less splashed or veined with pink. This is the earliest variety I have. Some splendid blooms are now available of the old *Donckelaari* and *Conspicua*, the contrast between the bright yellow-tipped stamens and the parti-coloured or pink flowers being very fine. *Conspicua* throws the larger flowers, but the petal markings of *Donckelaari* are exceptionally delicate and beautiful. The former is seldom found in England. I believe our plant was brought from the garden of Buonaparte's birthplace in Corsica. Two old varieties that hold their own for button-holes are *Lady Hume's Blush* and *Cap of Beauty*. The groundwork of the latter is pure white with occasionally a very thin pink streak. This, although tiny in size, is very clear and well defined; the flower is comparatively small, retaining its cup-like character to the end. Other sorts in the beds are *Alba plena*, as large a plant as *Pomponia*, *Marchioness of Exeter*, *Woodsi*, *Chandleri*, and a dark scarlet under the name of *Rubens*.

The *Camellias* in question are quite a contradiction to the theory sometimes broached that a certain amount of open-air treatment is essential to the proper development of flower-buds. Not only have they been under cover all through their career, but the house is also poorly ventilated. It is a span with a brick wall at back, high front sashes, and a very flat-pitched roof. Of the back portion of the roof none of the lights are movable, and in front only one in three, ventilation being mainly supplied by means of the front sashes, as well as in summer by the opening of all doors. For some time I used no shading of any form, but, finding that the young growth was apt to scald a little owing to the hot sun striking on leaves that had been damped by rain driving through the open sashes, I have for the last few seasons shaded a little, as the young growth was well started. With the end of flowering a considerable amount of pruning is always necessary, especially at the top of the house and to the wall of foliage facing the front sashes. I like to get the pruning over as soon as possible, because if front growth has to be cut away it naturally means relying on back wood to furnish another season's display, and consequently this should get all possible benefit of light and air. Varieties differ considerably in the amount of flower-buds annually furnished, some only just about enough to get a fair display all over the plants, whilst in others they are produced in great profusion, necessitating a lot of disbudding. *Alba plena*, *Pomponia* and *Woodsi* are the most prolific in this respect, from five to nine buds often showing on pieces of wood not more than 4 inches in length. In such cases I generally leave one terminal bud and another towards the base of the shoot, a succession of flower being thereby secured. Watering is regulated by the seasons—in summer once a week, in spring and autumn once a fortnight, and in winter once in three weeks, care being taken, whether the operation is performed frequently or at wider intervals, always to give a thorough soaking. Cow manure is the only stimulant used, the invariable practice being, so soon as the flower-buds show signs of plumping up, to pick up a couple of loads from the park and cover the beds all over with the same rather over an inch thick. I used to put this on in early summer in May, directly after pruning and tying in were finished, but discontinued it until later in the year, finding that the earlier surface dressing had a tendency to promote rank growth, and that flower-buds under such circumstances were but sparingly produced.

Claremont.

E. B.

ORCHARD AND FRUIT GARDEN.

BUD-DROPPING IN PEACHES.

I HAVE a *Royal George* Peach which yearly casts a large quantity of buds during the winter. I shut up the house on February 28 last year. This year the buds are more forward. A great quantity has already dropped, the remainder, I think, will stand. I have a *Violette Hâtive Nectarine*, which in other years has been laden with blossoms. They expand all right and have an abundance of pollen. I have gone over them with a rabbit's tail daily, but they fail to set. They are good, healthy trees, been planted four years, and are just getting their allotted space filled. The house is due south, the trees being on the back wall. On testing the border the other day, I find the soil is quite warm, getting near the bottom. Do you think this will have anything to do with the cause? The back wall is 14 inches thick. I do not think want of water is the cause.—J. W.

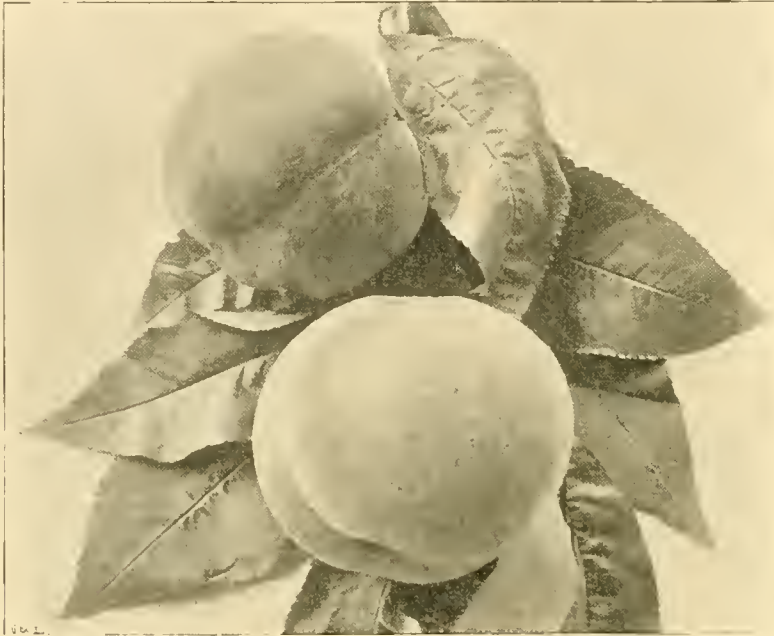
* * * Every season we hear complaints of *Peach* and *Nectarine* trees grown in heated structures dropping their flower-buds, but there

are more than usual this winter. Sometimes bud-dropping is a serious matter, though very often sufficient buds remain on the trees to expand and give fruit. Various causes are assigned for this premature dropping of buds, but none to my knowledge have ever been advanced that could be generally accepted as correct. Dryness at the roots, more especially during the autumn, is most often stated to be the cause of wholesale bud-dropping, but this theory will not bear investigation. For instance, I have a number of *Peach* trees on each side of a span-roofed house that are behaving very similarly in the matter of casting buds this winter, yet those on one side have at least half their roots in an outside border that has been constantly moist to its full depth since July last. The inside row of trees has spread the roots through into the border of adjoining house, and which is still occupied by *Tomatoes*, so that this is fairly moist and also much warmer than the outside border. These trees are about as forward as those rooting in the cool, outside border, and have cast no more buds prematurely. On these grounds then I attribute the partial failure described by "J. W." neither to the extra warmth in, nor a possible dryness of, the border in which the trees are established. Some varieties are more addicted to bud-casting than others. The greatest offenders are the early American varieties, notably *Early Alexander* and *Waterloo*. With me the trees of these two varieties invariably shed more buds than can be spared, and instead of good, evenly distributed crops of fruit I have to be content with all I can set in patches. After trying a change of soil, employing a stronger loam than formerly, also root-pruning and applying more water than hitherto without satisfactory results, I have reluctantly enough commenced cutting away the trees to make room for others of *Amsden June*—an early variety that does not shed its buds wholesale. *Royal George Peach*, however, is about the last variety I should expect to behave as described by "J. W." With me that is one of the few that expand far more flowers than are really required. *Crimson Galande* and *Sea Eagle* are two more sorts that invariably flower most profusely, the fruit set requiring to be thinned out very severely. *Barrington* is very different from these, this variety seldom retaining its buds satisfactorily. According to my experience, the most failures occur in the case of forced trees, very few being met with in unheated structures, and none where the trees are grown against sunny, open walls. Even those American varieties mentioned have with me produced heavy crops evenly distributed on trees in the open, so that it is not a question of imperfect ripening of wood, but rather whether it is not possible to overdo it. It would really appear that our forced trees have too long a period of rest. They have formed their buds and done most of their work for the season early in August, but instead of a perfect rest from that period till the time has arrived for forcing to be commenced, they are almost unavoidably subjected to various changes, and my theory is that premature excitement may be responsible for much of the bud-dropping that takes place. If, after the fruit is gathered, we could take the lights off the roof in the old-fashioned style, the chances are the trees would be far less liable to shed their buds prematurely.

It is worthy of note that the more vigorous young trees, or those, say, which have been planted three or four seasons, are the most difficult to fruit satisfactorily. Either they cast their buds, or else the flowers drop off without leaving a fruit behind. "J. W.'s" tree of *Nec-*

tarine *Violette Hâtive* would appear to be a case in point. It is just possible the introduction of a little foreign pollen, or that obtained from his tree of *Royal George* Peach, might effect a per-

of the tree one autumn and the other side the following season would, perhaps, be less likely to give a too severe check to the growth of the tree and prove equally effective. It is certainly



Peach Royal George. From a photograph sent by Mr. W. Parren, Canterbury.

fect set. If the Peach is first gone over, enough pollen should collect on the rabbit's tail to fertilise the *Nectarine*, and the "cross" do good service. The flowers formed on extra strong growth are not always so perfect as they appear to be. We are apt to think that because a fruit tree flowers abundantly no root pruning is needed. The owner of a grand Apple tree in an orchard at Leigh, near Cheltenham, has good reason to think differently. This particular tree flowered abundantly every season, but never produced the semblance of a crop of fruit. The remedy suggested was root pruning. A wide, deep trench was opened wholly round at a distance of 6 feet from the trunk, and all long, strong roots, of which there were considerable numbers found, were sawn asunder. No undermining was attempted, as that would very probably have crippled the tree beyond recovery, but the trench was refilled with the soil previously thrown out and a liberal dressing of farmyard manure applied to the ground inside of the circle. This work was done in the autumn, and the following summer the first heavy crop this large tree had ever produced was obtained. This by no means drastic measure of root pruning seems to have completely checked rank root growth, and as a consequence of abundance of root-fibres taking its place, no more gross shoots are formed, while crops are obtained from the tree whenever the season is favourable to the fruit setting and swelling.

If, therefore, "J. W.'s" trees, *Nectarine* as well as *Peach*, once more disappoint him, root pruning ought to be resorted to next autumn, a short time before the leaves fall. He may open a trench 4 feet from the stems and undermine to within 2 feet of the same, in particular searching out the deep running roots, pruning these severely and the rest lightly, relaying all in a mixture of old and new soil. The plan of root pruning one side

the safest mode of root-pruning that can be adopted by those who cannot afford to run any risks.—W. IGGULDEN.

— Mr. A. Hemsley's remarks on Peach bud-dropping at page 124 coincide with my own experience. Anyone having a set of pot trees and the convenience for so doing can soon satisfy himself as to the true cause of this trouble. The remedy will then suggest itself. I have no pot trees here, but I am expected to have ripe fruit at the end of May. I have therefore to force permanently planted-out trees under a fixed roof of large panes of glass facing south. The plan I adopt, and which I have before mentioned, I think, in these pages, answers well. Perhaps it is worth while to repeat it, which is as follows: As soon as the trees are cleared of fruit I shade the house with whitening. The young wood is then partially ripened. I tie old sackcloth round the tree stems and bare branches that are exposed and near the front ventilators. This packing and the trees are syringed with cold water twice daily, morning and evening, and the house kept as cool as possible day and night, this retarding and causing the partially ripened wood to finish off slowly and enabling the trees to pass through the trying months of summer in safety, not forgetting to keep the borders well supplied with cold water. Your correspondent says: "I have no doubt more buds will drop this season than usual." This is also my opinion, and, from the numerous inquiries which are appearing in the gardening papers, such seems to be the case. I may say I am indebted to one of your esteemed correspondents, D. T. Fish, for the hints on stem-protection. It is some years ago now since he referred to the subject. If he should notice this communication, I hope it will draw from him a few lines, which I am sure would be greatly appreciated by many Peach growers at the present day.—J. EASTER, *Nostell Priory Gardens*.

PEACH ROYAL GEORGE.

FEW varieties of Peaches have such a good record as this. *Royal George* is one of the best known and is largely grown in all parts of the kingdom. For forcing I have found *Royal George* rarely fail, and, what is so valuable to those who force hard, it will stand more heat than many of the earlier kinds. This latter point, I am aware, may not be the opinion of everyone. I find this variety forced yearly sets grandly. It does not drop its buds like many others and is not at all fastidious as to the position given. It makes a grand back wall tree, and, provided the wood is not crowded, the fruits are large and very sweet, with the distinct flavour so much liked. The fruits, given the best culture, are medium sized, skin pale, speckled with red in the shade, and marbled, as it were, near the stalk, the portion exposed to the sun being a deep red. The flesh is a pale yellowish white, the portion near the stone very red. The flowers are small and the leaves are without glands. In the open it may be termed a midseason variety, ripening at the end of August on a warm wall.

In cold, wet soils on open walls this variety is not reliable, as it mildews badly, no matter how well treated as regards food. Even in light soils in the most favoured localities at times it fails badly. Doubtless this failing is caused at times by the stock not suiting the variety. I have had the trees in splendid health up to the time the fruits were the size of small Walnuts, and with much rain or dull, cold weather the trees have been suddenly attacked, and, unless means are taken to check the mildew, it so badly disfigures the fruit that it is not presentable at table, and the trees present a wretched appearance. On the other hand, in even heavier soil, but in an elevated position near the sea-coast, trees have never been attacked. In the Thames valley it rarely escapes.



Apricot Moorpark. From a photograph sent by Mr. W. Parren, Canterbury.

For open walls, Stirling Castle, one of the Royal George type, is a grand variety where the older one mildews badly. This is hardier than the one described, and should find a place where Royal George fails. In cold houses it does at times mildew, but I think this is caused by too much moisture at certain parts of the day. This variety should never be syringed overhead so late that the leaves are not dry by sunset, as I have found mildew troublesome if the above is the case. I have also had trouble with this variety when grown too near the glass. In old houses the trellises in some cases are much too close, and the cold air near the glass, with warmth at the lower part of the houses, will cause mildew. In the most favoured parts of the country I have seen this variety on east walls never touched by mildew. As a pot tree for orchard-house culture, no one need be afraid of its failing. Grown thus, the fruit sets so freely that it must be thinned severely. In the open I have found dwarf fan-trained trees mildew less than fan-trained standards. GROWER.

APRICOT MOORPARK.

THIS well-known Apricot is a great favourite where it succeeds, and may be classed as one of the best varieties grown owing to its size and excellent quality. The shoot illustrated shows how freely it crops in some localities. The fruits of the true Moorpark are large, very juicy, and richly coloured. It ripens on a south wall in August and on a west aspect early in September. The tree is a free grower in its earlier stages. Gross wood should not be encouraged, as it often ends in canker if the knife is used too freely. Should the young trees make too much wood, lift in the early autumn in preference to pruning severely. In warm localities a south wall is not desirable, as it is too hot and often too dry for the Apricot. I have in warm soils seen splendid crops on an east wall; indeed, finer fruits than on the south wall. My best fruits are produced on trees grown on a west aspect. One rarely sees a very old tree of the variety in question. The oldest trees I know are at Farnham Castle, and though they have lost a goodly portion of branches, by nailing in new wood the trees bear grandly. I find old Apricot trees that have a hard border to root into do best. I had trees in the west of England whose roots were growing under a hard gravel path. The trees made a short, sturdy growth, but, on the other hand, there were no canker and always a fair crop. In soils deficient of lime it is well to give such aids as old mortar rubble or chalk, making the border firm. The disease to which this variety is liable is difficult to combat. There are several theories, but so far I am unable to state which is correct, as the branches die off suddenly when the tree is in a good condition, and often trees given ample attention suffer most, causing gaps at a time they cannot be made good. I notice this often occurs with trees at their best. An old tree which escapes often lasts for many years. The only consolation, as far as I can see, is to keep a reserve of young trees to make good the losses. I have tried Apricots on diverse stocks and adopted other means to secure a good healthy tree, but only met with poor success. There are two distinct forms of Moorpark, one being much earlier and with smaller fruit. This is the Early Moorpark, an excellent Apricot, but lacking the size of the old variety. In this the fruits are rounder, more dotted with small crimson spots, and three weeks earlier. G. WYTHES.

Apple Margil.—This well-flavoured and free-bearing variety does not do very well as a stan-

dard in the north, but where a suitable position can be afforded it on a wall it is one of the best, and in flavour equal to the popular Ribston Pippin, which has been grown in some of the East Lothian gardens to great perfection. I have seen it at spring exhibitions in capital condition. Extraordinary crops of Margil and of excellent quality used to be grown at Fulham, S.W., every year in the private garden of the late Mr. Thomas Osborn, nurseryman.—M. T., Carron, N.B.

Maltreated Apple trees.—I was asked a few days since to look at some young Apple trees which their owner informed me he did not think were looking well. I found that the trees in question, about 100 in number, had been planted in an orchard five years ago. It was apparent at a glance that the greater part were dead, and on taking some of them up the reason of their failure was palpable. They had evidently been grafted as standards in the nursery ground where they were grown, and had not been shifted until sold, probably a period of seven years. They had consequently formed thick and far-spreading roots, which, when they were sold, were cut off, only from 6 to 12 inches in length being left. Some of these roots were as much as 2 inches in diameter. There being practically no fibrous roots, these barbarously-treated trees had no chance of making growth in their new quarters or of taking hold of the ground. Those I examined had evidently made next to no fresh roots during the time they had been planted. Five years were absolutely wasted because the trees sent out were so maltreated as to be unfit for planting.—S. W. F.

ORNAMENTAL PEAR TREES.

I SHOULD be glad if someone would recommend me a standard stewing Pear which in time would be likely to develop into a large and ornamental tree. The site would be on a lawn. I planted two Catillac standards this autumn in my new orchard. I would plant another if this variety is thought to meet my needs. The only large ornamental standard Pear to my liking in this district are Hesses.—BEVERLEY.

* * As a lawn tree the Catillac would be hard to surpass. It is of a noble spreading habit of growth, is not particularly slow in arriving at a tree-bearing state, and is distinctly ornamental when in flower, as well as in the autumn when the fruits are maturing. When in flower the Jargonelle is the most beautiful, but Catillac is only slightly inferior, as it forms grand trusses of large pure white flowers, and besides, as a tree it is better adapted for growing in isolated positions. Stewing Pears are too often passed over in favour of dessert varieties, which fail to keep long and are far less valuable accordingly. It does not follow that the Catillac is the only variety well adapted for lawn culture. On the contrary, I have seen grand specimens of Autumn Bergamot, Windsor, Bishop's Thumb, Lammis, Eyewood, Uvedale's St. Germain, and Vicar of Winkfield on lawns. In but few instances, however, were the trees actually planted on lawns, but they either formed part of an orchard or else occupied sites previously devoted to the growth of fruit and vegetables, and were left when the pleasure grounds were extended in their direction. They form good object lessons, which few, unfortunately, have profited by. Forest trees too often occupy sites that ought to have been devoted to either Apple or Pear trees. The number of varieties of Pears adapted for planting on lawns is by no means limited, as, in addition to those named, mention may also be made of Pitmaston Duchess, Doyenné du Comice, Beurré Diel, Hacon's Incomparable, Marie Louise d'Uccle, Souvenir du Congrès, Beurré Hardy, and Chaumontel. Personally, I should give the preference to the "Iron" Pears of my youth, that is to say, those hard, stewing varieties, which few boys or adults care to steal, and which are not always battered to pieces when they drop. Black Worcester, Uvedale's St. Germain, and Catillac would be my choice. If fruit trees on lawns fail to make good

progress the blame generally rests with those who plant them. Very frequently the landscape gardener has had occasion to remove the best of the surface soil, while in many cases the ground is "made," or in other words is a mixture of foundation, and other earth collected from various sources, duly levelled and made solid. In any case, to plant without any special preparation of site or much as the average farmer sticks young trees into old orchards is only courting failure. What may safely be termed faulty planting consists in digging holes only just large enough to hold the roots in a cramped state, covering the latter deeply with ordinary soil and returning the turf on the top of this. That is the novice's way of doing it; whereas a circle 6 feet in diameter should be cleared of turf, the best of the surface soil thrown out, and the now bared subsoil broken up deeply with a fork and left where it is. On the sub-soil throw the turf, grass side downwards, chopping it to pieces, and on this distribute a little good loamy soil or compost collected for the purpose if the ordinary soil is very poor, making all firm. Place a long, strong stake in the centre, and against this set the tree, a better plan than planting first and staking afterwards. Prune the roots, cutting away all injured portions and broken ends, and then distribute them somewhat flatly and evenly through good fine soil. Fix with the beel, making the soil moderately firm, and finish off neatly. Properly planted, the "collar" of the tree, or that portion of the stem from which the topmost roots spring, would be well above the surrounding ground level, the settlement that follows not bringing it below the level. Three inches of soil over the topmost roots are sufficient. Mulch directly after planting with short stable manure, though that more strawy and therefore most conspicuous is to be preferred, not disturbing this mulch during the following summer. Turfing over the roots is a great mistake. Keep the grass from growing for at least three clear years.—W. I.

TRAINING PEACH TREES.

MR. W. JGGULDEN (p. 91) writes a highly interesting article as to quicker methods of bringing young Peach trees into a profitable condition. There he advises to plant maiden trees. I am sorry I was not acquainted with this new method sooner, because last autumn I planted one house with fine young fan-trained trees. I got them from England, and was pleased with them. Each tree is furnished with about eight shoots, that is to say, four on either side. The shoots, each about 3 feet in length, seem to be well ripened, and are chiefly furnished with triple buds. I am very anxious to learn how I shall proceed with these trees as to pruning and pinching, in order to get them as soon as possible into a bearing condition and at the same time quickly cover the allotted space, about 200 square feet for every tree.—R. K., St. Petersburg.

* * Let me undeceive "R. K." as to the newness of the method of training Peach and Nectarine trees I described on p. 91. Fully twenty years ago Mr. J. Simpson, of Wortley Hall Gardens, very ably advocated what he termed the extension system of training, and I was among the first to follow his advice, also taking every opportunity in succeeding years of drawing attention to its superiority over the older and slower methods. I have only planted one fan-trained tree similar to those described by "R. K." during the past fourteen years, and only then because it was sent in the place of a maiden. The plan usually adopted with these trained trees is to shorten the shoots to about one-half of their length, cutting the weakest the hardest. They are laid in much as they were trained in the nurseries, keeping the centre somewhat open. Disbudding is early resorted to, leaving one shoot at the ends to form leaders and another at or near to the base of each pruned growth, the latter filling in the spaces between the leading shoots as they spread. If all goes on well the foundation of a well-formed tree is laid

the first season, and the new wood formed may be of the right character to produce fruit. More often the young growth is of a very irregular description, becoming gross near the centre and weakly on the outside branches. Under such circumstances more than ordinary skill is required to train a well-balanced head. In the case of my trained tree very little growth of any description was made the first summer, but the following season four of the strong shoots springing from near the stem developed, and these I determined should have a chance of extending almost unrestricted. All the other shoots that pushed forth were rubbed off, and all the old wood or the remnants of the trained shoots that formed the tree when received were cut clean away during the summer. Those four reserved shoots attained a length of about 5 feet when they were topped. From the resulting side shoots a few of the best placed were laid in and the rest pinched or cut out, so that at the end of the second season I had a tree nearly as large as those grown from maidens and equally as capable of producing a good crop the following season. When the trained trees are dealt with in what is still the orthodox fashion, some of the old stumps or branches, formed by the two or more prunings given while yet they are in the nurseries, frequently fail to make good progress; they become stunted, in fact, and the almost inevitable consequence is gumming and ultimate loss of whole branches—one of the troubles growers of Peach and Nectarine trees under glass find very difficult to arrest. Having early got rid of my old wood and substituted clean, quickly-grown branches, my trained tree promises to keep as sound as those originally planted as maidens. I am not prepared to take the responsibility of advising "R. K." to severely prune all his trained trees with a view to obtaining a few strong branching growths, but if I had charge of them, a portion would be severely dealt with. The chances are, if two or even four of the eight branches are cut clean out and the reserved shoots shortened to a length of 2 inches, subsequently laying in four or six well-placed young shoots only, topping these when from 4 feet to 5 feet long, a healthy, well-balanced head would result the first season and some fruit be had next year. The branches resulting when the trees are treated much as I have attempted to explain seem to be always in a healthier state than those built up more slowly and by much pruning. They are constantly pushing out shoots, so that there is never any likelihood of the lower central portions of the tree becoming naked or void of fruiting wood. Extra strong shoots on Peach and Nectarine trees ought either to be rubbed or pinched out before they have made much progress, or else be allowed to develop freely, duly topping them and laying in some of the lateral growth. As previously stated, pinching out the side shoots only is a mistake. The worst of occasional strong growths is, that they out-grow and weaken the rest of the tree, and that is one reason why I would have two or four of them and let these form the tree.—W. IGGULDEN.

SHORT NOTES.—FRUIT.

Japanese Wineberry.—I am pleased to see several of your correspondents commenting so favourably on the above. Hitherto its merits as an ornamental subject seem to be more appreciated than its utility as an edible fruit, but it is undoubtedly a valuable addition to our hardy small fruits, and meriting more extended cultivation as such.—J. M.

Well-kept Apples.—The small collection of Apples shown at the Drill Hall recent meeting by Mr. Mount, of Canterbury, though chiefly Wellington, Lane's Prince Albert, Gloria Mandi, Cox's Orange Pippin, Bleuheim Pippin, and a few others, showed the excellent nature of the varieties as keepers when the storage is of the best. Very likely much of this excellence is due to thorough ripening on the trees.—A. D.

Fruit prospects for 1898.—Our Apple trees have all their buds as firmly rolled up as they usually are at Christmas. Pears are more variable, for while some varieties are quite dormant, others are bursting into flower more rapidly. Plums and Cherries are

fast swelling up, while on walls Peaches are certainly forward, and Apricots as usual will very soon flower, though this is by no means the first time I have seen the Apricot bloom expand in February.—J. GREEN, Gosport.

CHRYSANTHEMUMS.

ENGLISH AND AMERICAN CHRYSANTHEMUMS.

Will some reader kindly tell me the best English and American-raised varieties of the past two years suitable for growing for exhibition blooms?—L.

* * * The following list includes the best of the English and American-raised varieties of the past two years, and is given in something like their order of merit. They are selected for their value as large exhibition blooms. *Japanese* (English).—G. Warren (yellow Mme. Carnot), Mrs. H. Weeks, Ella Curtis, Lady Hanham (sport from Viviani Morel), Lady Ridgway, Robert Powell, Lady Byron, Jos. Brooks, Matthew Hodgson, Julie Scaramanga, Mrs. G. W. Palmer (sport from Mrs. C. H. Payne), Royal Standard, Dorothy Seward, John Neville, Emily Silsbury, General Roberts, Elthorne Beauty, George Seward, Mrs. M. Grant, C. W. Richardson, Mrs. H. Kloss and Milane. *Incurved* (English).—Duchess of Fife and Ernest Cannell. Miss Dorothy Foster and Miss Violet Foster were introduced into England, but I am not certain about their origin. *Japanese* (American).—Georgiana Pitcher, Western King, Simplicity, Modesto, Mrs. F. A. Bevan, Mrs. John J. Glesner, Belle of Castlewood, Sunshine, Mrs. S. C. Prebin, and Red Warrior. *Incurved* (American).—Rena Dula and King of Orange.

Although the above list is not a long one I would not like to claim all the sorts as being first-class. It is really a small number among these that have either been certificated or introduced. But somehow a large percentage of such fail to reach expectations on acquaintance. The fact is, many English-raised sorts are pumped up as it were by very skilful growers so that the coveted award may be obtained, and when they get into the hands of the average cultivator it becomes apparent that no improvement upon older kinds exists. On the other hand, novelties that improve as time goes on are introduced from all quarters. Notable examples are Lady Ridgway, Ella Curtis, Georgiana Pitcher and a slightly older one, Miss Elsie Teichmann.

In estimating the merits of new kinds the above facts should be borne in mind, and I hope the time may come when a growing plant with the blooms upon it will be insisted upon when awarding certificates. It would then be easier to determine whether or not a variety seen for the first time be an acquisition. Two sorts not mentioned that are being distributed this spring may be safely recommended, namely, Mary Molyneux and Joseph Chamberlain. The colour, size, and form of both make them decided gains. So, too, will be the sulphur sport from Mme. Carnot named Mrs. W. Mease, if it prove distinct enough from other yellow sports of the same variety.—H. S.

Chrysanthemum Mme. Carnot.—Judging from the note of "R. K." (page 138) the fault in culture is too early bud selection. Early buds of this sort do not open satisfactorily. On the other hand, very late ones do not develop into full, deep, handsome blooms. There is more than one mode of growing this highly-esteemed white variety successfully. The first is to strike the cuttings about Christmas, and root them when required. If the stems do not produce a break-bud early in April, pinch out the points, and select three shoots to grow on. These in their turn will produce flower-buds which, however, will be too early to retain. But the buds that come after the next period of growth may be kept. This will be about the middle of August—a capital time—and from these one may obtain

splendid blossoms. Another way is to strike the cuttings in March, select two shoots to a plant after the first break, and retain the earliest buds that form upon them. Mme. Carnot, like most white Chrysanthemums, is very free-rooting, but the roots are tender. The soil, therefore, should not be rich in manures, but rather a simple mixture kept porous and sweet by ample drainage. Nor does it require large pots; 9-inch size is recommended. Great care is required in watering, as ever-abundant supplies result in a loss of foliage. In autumn, when the soil is filled with roots, weak stimulants may be given with advantage, and shade when the blooms are opening because the variety is liable to damp.—H. S.

SOCIETIES AND EXHIBITIONS.

ROYAL GARDENERS' ORPHAN FUND.

THE annual meeting of this deserving charity was held at Anderson's Hotel, Fleet Street, on Friday, February 18. The executive committee in its report referred with pride to the progress made during the ten years which have passed since the starting of the fund. During this period a large number of orphan children had been helped and a small reserve fund established. Referring specially to the report of the past year, regret was expressed that the receipts were not so satisfactory as could be desired. One specially pleasing feature of the annual report was the receipt by the executive of letters of deep thankfulness from the parents and guardians of those children who have ceased to derive benefit from the fund. Not only have the orphan children received the weekly sum of 5s., but special grants have also been made in several cases to children, to give them a start in life by apprenticing them to some trade. Since the fund was first started ninety-eight children have been benefited, and sixty-two at the present time receive a weekly allowance, this number to be increased after the election on that day. A sum of £5807 5s. is the total amount paid to children since the fund was instituted. Very gratifying, too, are the amounts received from collecting boxes, proceeds of concerts, sales of flowers, &c., at provincial flower shows. Special mention was made of £50 received from the Scottish Horticultural Association, part of the proceeds of the fine exhibition of Chrysanthemums held in Edinburgh in November last, also £26 5s. from the Royal Caledonian Horticultural Society. The Chislehurst Gardeners' Society contributed £23 12s. 6d., and the Altrincham Gardeners' Society £18 8s., being proceeds of concerts. A bequest made by the late Mr. J. W. Thomson, of Haywards Heath, and represented by £457 5s. 11d., will henceforth be known as the "J. W. Thomson Trust." The annual dinner in April last realised in subscriptions the sum of £635, and the committee acknowledge their gratitude to Sir J. Whittaker Ellis, Bart., for his able advocacy of the objects of the fund. The investments now represent £9492 14s. 2d., divided up into Consols and Canada Stock.

In the evening the committee and a few friends met under the chairmanship of Mr. N. Sherwood, in the absence (through illness) of Mr. Peter Veitch. After the usual loyal and patriotic toasts had been proposed, the chairman proposed "Continued Prosperity to the Royal Gardeners' Orphan Fund." After stating his sincere regret at the enforced absence of Mr. P. Veitch, the chairman referred to the very able address last year of Mr. Owen Thomas, who then expressed the hope that that year would be a record one for the fund. In reading the report of the past year's work, he regretted that the year had not been so successful as could be wished. Looking into the figures, it was not so bad. He hoped that now the Jubilee was past they would use their best endeavours to make the present year a record one. They had just put on the fund nine children out of eighteen. On looking through the record of this charity, which was founded in 1887, they had reason to be

proud of what had been done. In ten years they had been able to help ninety-eight children, and spent some £5897, and had put by for the children in investments £9492. He was not satisfied, however, and thought they should do much better. He would like to see the £9000 increased to £20,000. During the year they had received some handsome donations. He mentioned Mr. H. J. Jones's contribution of £14 3s. 1d., which was made up of 2501 coins, thus showing how widespread the interest was. We want, he said, to get provincial gardeners and gentlemen having gardens to take an interest in the fund. Special mention was made of Mr. Miles, of Southampton, who had introduced no less than fifty-five new subscribers. Those are the things we must do, he said, to make the fund more generally known; and what gardener would object to pay 5s. a year? His sympathies were especially with the orphans. In nearly every case they are totally unprovided for, and with an average in each family of four or five.

Mr. W. Marshall, in responding, mentioned that in the election that day those cases had got in that ought to, and those most deserving had been successful.

Other toasts were given, including one to the secretary. The chairman, in proposing the last-mentioned, stated that Mr. A. F. Barron had done his utmost for the permanent good of the institution, and he hoped he might be spared for many years to come. The following is the list of successful candidates with the number of votes each received:—

Agnes McIntosh	...	349 votes
Robert John Smith	...	332 "
Jamesina Baird	...	278 "
Lydia Annie Milne	...	275 "
Hermine Kosbab	...	272 "
William Ewart Holmes	...	269 "
Ruth Amy Warth	...	241 "
Margaret Annie Richardson	...	232 "
Constance Mary James	...	209 "
* Annie Kathleen French	...	166 "

* Added by the committee at the meeting.

National Chrysanthemum Society.—A meeting of the general committee of this society was held on Monday evening last at Anderton's Hotel. Mr. T. W. Sanders occupied the chair, but the attendance of members was not so large as might have been expected. There was a long agenda paper, and a good deal of discussion on several points arising out of correspondence, &c. The secretary submitted the report of the classification committee, from which it appears that the following varieties are to be classed as incurved, viz.: Austin Cannell, Ernest Cannell, General Maurie, Lady Isabel Lyne, Jun., Mlle. L. Faure, Mme. Ferlat, M. Desblancs, Owen's Crimson, W. Carpenter, Yvonne Desblancs, Mrs. N. Molyneux, Harold Wells, and Sir Trevor Lawrence. This report was considered at length, and it was proposed to enlarge the work by referring the report back to the classification committee to prepare a list of too-much-alike varieties, the principal speakers on the subject being Messrs. Gordon, Waterer, Crane, Moorman, Jones, and Bevan. The draft annual report and financial statement were then submitted for approval prior to their being laid before the general meeting on Monday next. The past year promises to be a very satisfactory one so far as revenue is concerned and also as regards the roll of membership. A statement was also presented relating to the catalogue and reserve accounts. Mr. J. R. Starling intimated his intention of resigning the treasurer-ship, and a vote was passed appreciative of his long service in that capacity. The chair at the annual meeting will be taken by Mr. T. W. Sanders on Monday next. Nominations of new members brought the meeting to a close.

The weather in West Herts.—The past week has been the first cold one since the Christmas week. On the coldest day the tem-

perature of the air did not rise higher than 31°, and during the coldest night the exposed thermometer showed 15° of frost. Very similar readings to these were respectively registered on December 4 and 24 last. At 1 foot deep the ground is about at a seasonable temperature, but at 2 feet deep it is still about 1° warmer than the February average. Rain (including melted snow) fell during the week to the total depth of nearly half an inch. On the morning of the 21st enough snow had fallen during the previous night to nearly cover the ground. The sun shone on an average for 1½ hours a day—a low record for the time of year. A selected patch of *Chionodoxa Luciliae* came first into flower on the 16th inst., which is three weeks in advance of its average date in the previous ten years, and earlier than in any of those years, except 1894.—E. M., *Berkhamsted*.

NOTES OF THE WEEK.

Iris tuberosa.—This is a singularly beautiful species, of easy culture when planted in very sandy soil in a warm position. The flowers are a very curious blend of the richest violet-black and green, the latter almost a transparent shade, that renders the plant singularly beautiful when closely examined.

Spiræa Van Houttei.—When early forced for conservatory use or for decoration this is a most effective plant, if not indeed elegant in the almost endless trusses of pure white flowers that are disposed on small wiry stems. The plant is so informal in its habit and withal so attractive that it cannot fail to find many admirers.

Severe frost.—The district of Hampton, and generally this portion of the Thames valley, was visited by a very severe frost during the night of Sunday, February 20. In some parts quite thick ice remained on the pools of water till 11 a.m., which is not surprising, seeing from 10° to 14° were registered in the district.

Streptocarpus polyanthus.—This bears self-coloured flowers of a lovely shade of blue that is more frequently seen in some of the deeper shades of *Vanda cœnula*. It is quite a dwarf-growing species, the scapes not more than 6 inches high and numerous flowered. A charming group of this exquisite species is now flowering in one of the greenhouses at Kew.

Latania Commersoni.—This is, perhaps, the most elegant of the genus *Latania*. In a small state it is particularly attractive and well suited for the table or for single vases. The reddish purple hue of the stems is well-nigh unique among the Palms generally, yet it is most welcome and attractive in a group where green holds very great sway. This elegant species is as yet rare.

Prunus divaricata.—A handsome tree of this Caucasian species near to the succulent house in the Royal gardens at Kew will be a mass of bloom in a day or two. Indeed, on the 19th inst. it was ready to burst into flower, but the very severe frosts that have since intervened may check its progress considerably. The flowers are pure white and produced in small clusters as in the case of the May blossom.

Morisia hypogæa.—This pretty and interesting Crucifer has already begun its round of flowering, which, in common with many things, is much earlier than usual. It is a capital plant for the rock garden, where it may be grouped in a free manner to make quite a display of its rich yellow blossoms, which are produced in great profusion for several weeks, the earliest flowers appearing when but a few fresh leaves have been formed.

Irises at Winchmore Hill.—At the present time Mr. Perry has quite a feast of the early bulbous Irises in full flower at his hardy plant farm at Winchmore Hill. Many of the kinds, such as *alata*, *histrionides*, *reticulata* and its variety *purpurea*, are in considerable quantity, thus creating a very good display. One of the gems of this race, viz., *I. reticulata*, appears singularly vigorous, and in its splendour recalls the rich masses of this plant that were a feature in Mr. Parker's Tooting nursery many years ago.

Bismarckia nobilis is undoubtedly one of the grandest of tropical Palms, as noble in its bearing as it is distinct in general appearance. The species would appear singularly prolific in the production of new fronds, as in the case of a handsome example in the large Palm house at Kew three or four fronds are pushing simultaneously. The leaves have a large

spread, largely fan-like in shape save for those near the centre. On many of the stems or petioles, as also the trunk, appears a ferruginous substance. Native of Madagascar.

Narcissus Victoria.—We send you blooms of our new Daffodil *Victoria*. The bulbs were potted on October 25, and have been grown in a temperature of 45° to 50°, with 50° to 60° just to finish. This Daffodil is certainly proving the best bicolor for early forcing. The bulb has a tendency to produce two or three blooms.—BARR & SONS.

Rhododendron Countess of Derby.—I am sending you some flowers of a new hybrid *Rhododendron* which has been named *Countess of Derby*, and I think you will agree with me that it is a very beautiful variety. It differs from the balsamiflorum section in being a good grower and a free flowering kind.—Wm. ATKINSON, *Royal Nurseries, Handsworth*.

* * A large, semi-double, pale yellow flower. We should like to see a plant of it in bloom.—Ed.

Crocuses at Kew.—Many of the large slopes and banks in the Royal Gardens are now aglow with yellow Crocuses. The planting is not overdone, and the slopes, extending over a considerable area, are singularly pretty and effective in the distance. The large mound near the rock garden is also gay, but not yet at its best; a week or more hence this will be very attractive. In the meantime, however, *Narcissus pallidus præcox* is very pleasing, and will be succeeded by the double Daffodils and Jonquils a little later, and other things that continue the display.

Gladiolus tenellus.—This curious and interesting species is so dainty and frail withal that one may easily pass it unnoticed. The stem of the leaf-blade is exceedingly minute and rises perhaps from 9 inches to 12 inches high. A specimen now flowering at Kew in the No. 7 range bears a two-flowered scape, the flowers individually being an inch or so across and 1½ inches in length. The flowers are unique in their colour, which is of the palest silken green, a shade that renders it semi-transparent or apparently so. These singular flowers are streaked with purple-crimson. It is a native of South Africa.

G. F. Wilson's blue Primroses.—A little colony of these in a damp recess at the foot of one of our rocks commenced blooming freely in the autumn. It continued so through the mild winter, and is now a sheet of bloom, with every appearance of flowering for some time to come. In my opinion the various shades of blue produced are not pleasing in a mass, and I think if but half the perseverance and pains bestowed on obtaining the blues were taken to select (or raise) an equally early-blooming strain of our common Primrose without changing its colour, it would be of much greater value and capable of producing a far more charming effect.—J. ROBERTS, *X. Wals.*

The Glory of the Snow (*Chionodoxa*).—The first of the *Chionodoxas* came into bloom here on February 16. It is a seedling of *C. sardensis*, a species which shows more variety of shade than many are aware of. Out of a number of seedlings which came into flower for the first time two years ago, I have selected a few of a pretty pale blue shade. It is one of these and has again been the earliest of the season. Several others have come into bloom, and but for the arrival of wintry weather in the end of last week there would have been many others. Some *Glories of the Snow* which have come from seed of *Chionodoxa* crossed with *Scilla* are also in bloom. *C. Alleni* and *C. Luciliae alba* are also showing colour.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Tulipa violacea.—This remarkable species appears still to maintain its early-blooming character, seeing the flowers were fully expanded on a warm border about the 15th of the present month, and in this respect probably unique. At the same time it is quite as remarkable in point of colour, the exact shade being difficult to determine. Externally, the violet tint is very meagre, a sort of reddish carmine prevailing.

So far as can at present be determined, however, this species does not appear to improve so greatly under cultivation as some, *e.g.*, *T. Kaufmanniana* and others. The above species may, however, improve if better material is forthcoming, although the collected roots in most instances rarely have size to recommend them.

Saxifraga Boydi alba.—In spite of the well-known and intrinsic beauty so characteristic of Burser's Saxifrage, this kind may be said to compare most favourably with it. Indeed, by some it is regarded even as superior. In the above plant the petal is of the purest white and of much greater substance than in Burser's kind, which only produces solitary flowers, while *S. Boydi alba* usually has three on a stem. The flowers are so closely arranged, however, as almost to deceive on this point, yet they develop in course of time. The above plant, however, lacks some of the size of *S. Burseriana*, though it may possess a better constitution, which is a great point, as nothing is more vexing than to see fine patches of Burser's Saxifrage become rusty and perish.

Iris stylosa.—It can scarcely be too widely known that this winter-flowering species, which commenced unfolding its blossoms early in December, is still producing flowers in the end of February, having in the meantime provided an abundant supply of spikes without a break. There still appear growths with blooming sheaths that will carry the flowering well into the third month. It should, however, be stated that the plants have a warm and favoured position against a wall, and this, coupled with the fact of the clumps being well-established and large, will in some measure account for so continued a display. Other plants fully in the open have not shared the freedom of those referred to, a fact not to be overlooked when planting this species, which is best done early in April.

Asplenium Nidus multilobatum.—The Bird's-nest Fern is not uncommon in gardens, where it varies in size according to the treatment it gets, liberal treatment resulting in specimens 6 feet to 9 feet through, with a vasiform whorl of fronds 6 feet or more long and nearly a foot wide. Hitherto the only varieties known have differed from the type mainly in size of frond, but a new and distinct variation has lately been introduced to Kew from Queensland. This has fronds which are divided into numerous branch-like lobes a foot or so long, and these are again lobed, so as to give the plant the appearance of a gigantic crested form of *Scelopendrium vulgare*. Generally, Ferns reproduce peculiarities of this kind through their spores; consequently it may be expected that the batch of seedlings now at Kew, and which have been raised from the large plant received last year, will result in a large supply of this crested variety for distribution. It may not be generally known that the type is perfectly happy in an ordinary greenhouse temperature. This may be seen from the vigour and size of several specimens in the temperate house at Kew.

Violet California.—This handsome kind has been one of the most freely flowered this year in the open ground, where in rather strong and fairly good soil it is full of promise. Equally satisfactory is its growth. A year ago less than 100 single crowns with here and there a runner were planted, and these have so far proved a great success, making fine tufts full of flower-buds by the end of August, with a good crop of cuttings in sight. All the earliest of these were secured in the autumn as soon as possible; many that had appeared during summer, having been fixed by a stone to the earth quickly took root without any care. In six weeks these were planted out in a fresh bed, taking care only to remove as little of the runner as was possible, as this would still break with favourable conditions. The tufts of roots produced on the fixed runners were all that could be wished, and as a good deal of the holding soil came away in lifting, the plants quickly took fresh hold. Only the largest were replanted; the smaller were simply detached from the runner stem to remain for spring. This step

was regarded as best in view of a severe winter ensuing, but they are now capital plants, full of life and vigour. As further proof of the progress of this variety, several thousands of cuttings have been inserted since the year began, the old tufts flowering abundantly through the winter. The length of stem is a most acceptable item in this kind.—*J., Hampton Hill, Middlesex.*

PUBLIC GARDENS.

THE TEMPLE GARDENS.

MAY I draw the attention of members of Parliament and of your readers in general to a modest-looking little Bill, which is being introduced this Session, entitled the Inner Temple Buildings (King's Bench Walk) Bill? By this Bill the Honourable Society of the Inner Temple seek power to erect buildings in extension of their King's Bench Walk buildings upon some of the land which was reclaimed from the river when the embankment was made. By the Thames Embankment Act, 1862, the Metropolitan Board of Works was authorised to execute various works, including the embankment from Westminster Bridge to the eastern boundary of the Inner Temple, and it was provided that all the land reclaimed from the Thames, and lying in front of the then southern boundary of the Temple, should belong to the societies of the Inner and Middle Temples respectively. But the Act also provided that no building should be erected on this reclaimed land other than certain keepers' or gardeners' lodges, of one storey only, of which the First Commissioner of Works might approve. The present Bill seeks to give power to the Inner Temple to appropriate for building purposes so much of the reclaimed land as lies between the former southern boundary of the Temple and the District Railway tunnel, with a width of about 80 feet measured westwards from the eastern boundary of the Inner Temple. To this extent the Thames Embankment Act, 1862, would be set aside if the Bill passes, nor is any provision made for compensation to the public. But the restriction against building imposed by the Act of 1862 was a perfectly fair one. The frontage land was not created by the Metropolitan Board of Works with money provided by the Inner Temple, and if the land had been sold for building purposes by the Board it would have realised a large sum, which would have been some set-off against the cost of the embankment. One would have thought that the land should have been retained by the Board of Works as a public garden in extension of the existing Embankment Gardens. But the very least Parliament could do, in giving the land into the hands of those who can exclude the public therefrom, was to impose a condition that it should always remain as an open space.

If Parliament in its wisdom now thinks fit to allow this open space to be built on, then clearly the Inner Temple should be made to buy it at its market price as a building site, and the money so obtained should be devoted to open space purposes. But I trust that Parliament will definitely decline to allow our noble embankment to be seriously injured by the formation of a building frontage so close to the public thoroughfare. If this attempt of the Inner Temple to obtain building land on the cheap is successful, it will only be a question of time before they and the Middle Temple secure the remainder of the open space as a most profitable building site without payment, when of course the Temple Gardens, which add so much to the beauty of the embankment, will be much curtailed, and will be shut out from public view.—**BASIL HOLMES**, Secretary, *Metropolitan Public Gardens Association, 83, Lancaster Gate, W., in The Times.*

New Palm house for Liverpool.—Mr. Henry Vates Thompson, of Bryanston Square, London, and Thingwall Hall, near Liverpool, has arranged to provide for Stanley Park, Liverpool,

a Palm house somewhat similar to one he placed in Sefton Park in the same city in 1896. The Sefton Park Palm house and its plants cost over £12,000. That for Stanley Park will be about 120 feet long, and will cost about £6000. Mr. Thompson waited upon the Parks and Gardens Committee, with Mr. Mackenzie, of the firm of Mackenzie and Moneur, horticultural builders, Edinburgh, who submitted the plans of the structure which the firm will build. Mr. Thompson was warmly thanked by the Lord Mayor and Alderman Ball, chairman of the committee.

OBITUARY.

MONS. N. A. PAILLIEUX.

THE death of Mons. N. A. Paillieux on February 8 will be regretted by all who have known that worthy man. He was 85 years of age, and had been for many years engaged, with indefatigable perseverance, in introducing or popularising a great number of kitchen garden vegetables, the history of which he related in a charming book which he published, in conjunction with M. D. Bris, under the title of "Le Potager d'un Curieux." Mons. Paillieux was well known for having popularised the culture of *Stachys tuberosa*, to which he gave the French designation of "Crosnes" (from the name of his native village), and which has long since come into very general use as a vegetable for the dinner-table.—*Revue Horticole.*

Hyacinths failing.—I send you herewith a sample of my Hyacinths grown in water. They are a complete failure, 75 per cent. being as enclosed. Those which are grown in pots are very similar. As you will observe, the flower-stem has failed to extend from the bulb. I have grown Hyacinths for many years and never experienced such disastrous results as this season. Where the roots have become dried is simply because they were taken from the glasses before I had decided to write you. I shall be glad to have your opinion in an early issue of THE GARDEN.—*J. M.*

* * * From the samples of Hyacinths received, we fear your bulbs have had a check of some kind, either in the way of too much warmth at the start or from being placed too quickly in the light. Your bulbs have made too much top growth in advance of the roots, and this is, we think, the cause of failure. The roots of bulbs sent, with one exception, are much too poor for bulbs at the flowering stage, and the one exception is only a fair specimen. The roots of Hyacinths in water to be satisfactory should be long and nearly fill the glasses. Yours are much too short and poor. You give us no particulars, only that you have not failed previously. Have you given the same treatment, as the bulbs are fine and well matured? Do you not think this season your bulbs have been hurried too much? Do you start the bulbs in the dark and grow cool? The bulbs should not be exposed till root growth is well advanced. The water may have been stagnant or slimy. If you will give more details we may be able to help you as to cause of failure.—*Ed.*

BOOKS RECEIVED.

"Lessons with Plants" By L. H. Bailey, with drawings from Nature by Mr. S. Holdsworth. Macmillan and Co., Ltd., London and New York.

List of Seeds for Exchange Royal Botanic Gardens, Glasnevin.

Annual Report of Metropolitan Gardens Association for 1897.

Names of plants.—*Norman Rushworth.*—*Coronilla mas.*—*H. Rider Haggard.*—We have had several specimens this season of the flowers you send.—*Springhill.*—The Orchid is *Cypripedium villosum*; the succulent plant *Echeveria retusa*, and the other *Imantophyllum miniatum*, for culture of which see GARDEN this week. In sending flowers for name, please affix numbers to same, so as to identify.—*F. Clibborn.*—A very fine form of *Odontoglossum triumphans*.

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STOVE AND GREENHOUSE.

GREENHOUSE HARD-WOODED PLANTS.

CULTURAL HINTS.

FREQUENT failures arise in potting, watering, choice of soil, temperatures, and ventilation. First, as to

POTTING.

Never use dirty pots, nor new ones even, without first soaking them. Avoid over-large shifts, which are sometimes given with the best intentions, and for a time the results appear to be all that one can wish, but in proportion to the rapidity of advancement, so afterwards will frequently be the decline. Do what we will, the roots will always have a tendency to find out the sides of the pots. If, therefore, there be a considerable quantity of fresh soil surrounding the old ball, some of this does not get permeated with roots as it should do at the outset, and afterwards, as the fresh soil becomes less fresh, the roots will be less disposed to retrace their steps. The soil, therefore, that is not assimilated becomes sour, and in time too porous, as we can note when after a watering it runs away too freely. What was termed the "one-shift system" was at one time very popular. I remember reading of its advocacy by a gardener now dead, viz., Mr. Ayres, who then was living in the London district, but not such a successful exhibitor under this system, if the old records are to be relied upon, as others who preferred the slow and more sure method of procedure in potting. In shifting these plants, my advice is to proceed one step at a time, i.e., one size of pot larger at each potting; this will be found quite enough. As regards the potting itself, there is oftentimes room for great improvement. It does not pay to pot hard-wooded plants in the rough-and-ready fashion adopted by those who grow large numbers of soft-wooded stuff. The two cases are quite different. In one case it has to last much longer; therefore do it care-

fully and well; whereas in the other the plants are either shifted again or reduced at the roots, as the case may be, or are, after flowering, thrown away. Take Azalea mollis as a case in point. Plants of this when potted up are oftentimes rammed into the pots in a rough-and-ready fashion, with the result that they do not always flower so well the first season as they should do, and afterwards are of but little use. Pot them carefully and well in good soil and mark the difference; then they will, as I have proved, go on for years and give excellent results. I am a strong advocate for firm potting of all plants that are of permanent character, but in no case more so than when dealing with these now in question. So long as the pots are not burst the plants will not come to any harm afterwards. Never allow for any amount of surface-dressing when dealing with specimens or future specimens, but rather let the additional soil be at the bottom, where the roots will make better use of it. Make due provision for watering, but of the two it is safer to allow an excess rather than an insufficient space for this purpose; otherwise it may happen that the plants will not receive enough water to entirely penetrate the balls. Drainage, and that of clean material, should be used freely. Broken pots are the best, but I would favour a slight sprinkling on these of finely-broken clinkers or cinder ashes to make it uncomfortable for the worms.

SOIL.

For the major part of these plants peat is the staple soil, and that should be of the best. Peat that will suit Ferns, being somewhat soft in handling, will not answer so well as that which is harsh and hard to the touch with plenty of good fibre in it. In other words, peat with Bracken in it suits Ferns, &c., whilst that with traces of the Heather in it is best for hard-wooded plants as a rule. The best kind of peat is usually thin, never running so thick as the other, but the under side will often have some refuse on it devoid of any fibre at all.

This will come in for less important uses. To give the special soils for each particular genus is hardly necessary. As a rule, the following course may be adopted, viz., the finer the roots of any plant and the greater their profusion, the more need is there of good peat alone. Heaths and Epacris, Dracophyllums and Aphelexis are all instances of this. Chorozemas and Eriostemons, Pleromas and Hedaromas will thrive well with a small proportion of fibrous yellow loam, whilst Polygalas and Acacias, Statices and the Lagerstroemia will do well with even more loam in the soil. In some instances a little charcoal is an advantage. I would use it with Aphelexis, with the slower-growing Boronias, and with the larger-sized plants of Leschenaultias and with Hedaromas. Should the peat not be of the very best and no other obtainable, I would not hesitate to use a small amount of fibrous loam and silver sand more freely at the same time. Always, however, make a good use of the latter indispensable article. I am no advocate for the use of even the best of leaf soil; it leaves the soil too porous and open after a time as decay proceeds. Care should be taken that the soil is neither too wet and soddened, nor, on the other hand, too dusty and dry; a medium condition is much the best. See to it that the balls are well moistened throughout before potting; large plants often need a thorough soaking, otherwise trouble will afterwards arise. The reduction of the balls prior to potting should also be done cautiously. I do not favour it except when the soil is sour and the root action indifferent, such, for instance, as when the plants have been overpotted previously, or when inferior soil has been used. In some cases it will be better to cut the outside of the old balls away as cleanly as possible. This allows of the plants oftentimes being again placed in the same size of pot. The best time to pot young and small plants is in the spring, so that they become partially established before hot weather sets in. Specimens of such as have passed their flowering stage before the end of July or early in August can be potted at once.

Later kinds had better be potted the following spring, as a rule. Slight damping overhead and a moist atmosphere for a short time afterwards will be found beneficial, but guard against any excess. The

WATERING

afterwards must be attended to more closely, and do not, if possible, let specimens be exposed during heavy rains. Watering should at all times be attended to carefully and in a rational and sensible manner. Both extremes are bad enough, but of the two I think extreme drought is the worse—most certainly it is to healthy, well-rooted plants; unhealthy plants will suffer most undoubtedly from the other extreme. In watering medium-sized and large specimens the second dose is often needed, so that the balls are soaked to the drainage. Rain water is the best, most decidedly, and hard water, also that direct from wells, about the worst that can be used. I do not favour manures in any form whatever. I will not say that no good is ever done by their use, but there is more risk of doing harm than there is hope of doing good. Water that is slightly tainted with soot is as good as anything that can be used, but it should be so weak as to be hardly, if at all, perceptible, and then even there must be no semblance of sediment. When it is added, a small quantity in a small bag should be dropped into the tank and be left afterwards undisturbed. Sulphate of ammonia is used, I know, by some trade growers of small Heaths, &c., but its use can be detected in the darker colour of the foliage and a more robust appearance. Wait, however, and see what these plants will be like the following season after changing hands, or even before they flower sometimes. They look more attractive at the time, and I suppose that answers the purpose.

I like to stand the plants outside during the summer after the growth has been made or become partially hardened, but let them have all the sunshine possible. This treatment will tend to the thorough ripening of the wood and be largely in accord with what they receive in their native habitats, especially the Cape and New Holland plants. The second week in September is quite late enough to leave them outside in any case, but if it be a wet time, earlier housing is preferable. When outside let them stand on bricks or boards, so as to keep the worms out of the pots. Small plants in pits may have the lights left on during the day and be taken off towards evening, so that they receive the benefit of the dews. When housing, avoid by all possible means any overcrowding; this will never do, nor can its ill-effects be easily overcome. Present-day houses, it is true, are far lighter than the old-fashioned ones were when these plants were the pride of many a garden and its gardener too.

VENTILATION,

like the watering, should be done in a sensible manner; too much at times will bring on mildew, especially with dull weather and cold, cutting winds after a few days of warm weather. A light, buoyant atmosphere is much the best, any approach to stagnation being harmful to a degree. A little warmth in the pipes during dull weather in the daytime with air on is much better than warm pipes at night with the house shut up close. These remarks apply, of course, to the late autumn, winter, and early spring, and not to the rest of the year, when plenty of air should be given. During the quiet or resting season, 40° to 45° at night, according to the weather, is quite enough, but I would prefer to see the

glass at 35° or so in the morning rather than make the pipes too hot. There will be a slight rise as the spring advances, but it is never advisable to use any fire-heat when above 40° or 42°, unless in the daytime, as afore-mentioned, in ventilation. I have known plants to be frozen and come to no harm. GROWER.

CARNATION MME. THERESE FRANCO.

WRITING from the Thames valley, a district noteworthy for damp and fogs, it is a pleasure to find, from correspondents in Shropshire and Gloucestershire, that the above Carnation is a success in both instances. All the same, generally throughout Middlesex and some portions of Herts the variety is so far a failure as not to pay for its room, and has therefore been discarded. This last item frequently means a great sacrifice, or rather loss, for in some of the instances I could name it is not a question of one or two hundred, but thousands of plants. Within a mile of where I write at least eight market growers have discarded this Carnation for the reason I have already stated, while a little further away two of the largest Carnation growers for Covent Garden have thrown out their entire stock. One of my immediate neighbours, who grows winter Carnations by the 10,000, is very sorry he ever spent a penny on this variety, so that near London the experience is not an isolated one. I have one or two blooms struggling to open at the moment from nice bushy plants in 6-inch pots, but they do not open at all, as the calyx bursts prematurely and the petals refuse to expand properly. Other kinds in the same house with identical treatment throughout are all one could wish. Both Shrewsbury and Cirencester are excellent localities, which I know from experience; the red sandstone of the former and the pure air of the latter should help such things as winter Carnations. I would, however, like to ask your correspondents if they get more than a single flower to each stem in this variety, which is the usual number here. A few plants shown at the Aquarium Chrysanthemum show in November last only carried a solitary flower to each stem, and blooms of poor quality also; in fact, the petals incurve and not expand to the reflexing point at all. I notice "T. A.," Cirencester House Gardens, suggests I have not the true variety, and certainly his description of the above is enough to tempt one to try it again. "T. A." also says it flowers more freely than Miss Joliffe, yet the latter has produced from four to six flowers to a stem in this locality, while Mme. T. Franco will only produce one, and that of poor colour and bad shape. I am extremely obliged to Mr. Geo. Burrows, as well as "T. A.," for their frank statements, as it is gratifying to know this Carnation is not an absolute failure in all districts alike. E. J.

Camellia delicatissima.—This variety belongs to what might be termed the Hollyhock Camellias. As the intensely stiff and formal type has been undoubtedly the cause of the recent unpopularity of the Camellia, so will the semi-doubles, singles, and such varieties as the above tend to raise this grand winter-flowering shrub to its former position. This variety is very double, but the resemblance to the Hollyhock relieves it of any formality. The colour is a beautiful ivory white, somewhat tinged with lemon, and there is a faint line of carmine discernible on some of the petals.

Double Violets in frames.—Notes on these are helpful to many cultivators, and that from Mr. Jno. Roberts accords with my own experience. I never consider those left in the open where they are grown in summer pay compared with those lifted and planted in frames. On light sandy soil in Norfolk, Violets when left where they grow are very useful, coming in after those in frames. This I attribute to the soil and the drier state of the atmosphere. I find nothing answers so well as striking the cuttings in shallow boxes in March

and April, placing these in cold frames till rooted. I grow them on deeply-worked, rich soil in an open position during the summer, and lift them with good balls in September. I am not troubled with damping of the foliage, as I make it a rule to keep the lights off as much as possible. I grow my plants on old spent hotbeds. I give them good soakings of water during the months of September and October, and from this till the end of February they do not require any; this allows the surface soil to get dry, and as I am in a low situation and very damp I find this most helpful. Violets are not good this year, the single kinds outside being very poor. I attribute this to the plants blooming so much out of season last autumn.—J. CROOK.

ARUM LILIES.

I CAN only say in reply to "M. T." (page 152) that I suspect either some local influence has intervened, or that "M. T." has not followed exactly the cultural directions I have given. I have grown these things from a flower-producing standpoint largely for market, and for this purpose I strongly advocate permanent pot culture. When I fell "M. T." that I have obtained as many as five spathes per pot by the end of the year, he will see that an average of five for the season comes very short. Frequently—indeed, almost invariably—by the pot system two spathes come in quick succession from the same leaf; in fact, the second is frequently in sight when the first is cut. This is by no means so frequent when the corms are planted out during summer. With two spathes from a single leaf, the number I have stated is quickly forthcoming, and the system has found many adherents in my own immediate locality where these things are largely grown for market. "M. T." says the batch treated as I have suggested "is weak compared with the others." I am willing to admit that the pot-grown plants do not produce the exceedingly large leaves of those planted out, nor do I desire it. I have seen many plants 6 feet high where planting out is adopted; whereas by permanent pot culture, with re-potting each year, the plants commence flowering when barely 2 feet high. The question of producing the very biggest spathes possible is of no moment when grown for market; in fact, these gross, over-fed monsters are frequently refused for the smaller, better formed and usually more solid blooms that may be one third smaller. Very large examples are usually out of proportion in many floral arrangements, and are not regarded as the most desirable by florists generally. Private gardeners, however, have often different tastes to cater for, and of course do their best to meet the case. I need hardly add that after the first few weeks the plants are regularly supplied with liquid manure. I believe "M. T." to be the only correspondent who has given a contrary opinion of the pot system, while numbers who have succeeded are greatly in its favour.—E. J.

I have been interested in the remarks of "E. J." appearing in THE GARDEN respecting the drying of Arum Lilies in summer, and resolved to try some last year. I found (like "M. T." in a recent issue) that those treated as advised by "E. J." were not to be compared to those that were planted out. Certainly they are much dwarfer and have bloomed well, but the flowers are very small. I can get much larger flowers, finer plants, and equally as much bloom by planting out. Some may say that there is no necessity for very large flowers, and I quite agree with them when they are wanted as cut flowers for making wreaths and also for house decoration, but where the plants are wanted for either the conservatory or mansion they are nowhere alongside of large plants covered with fine flowers. I plant out about June 1 on a moist border facing north-east. When lifting in September I only reduce so that they can be crammed into the pots, and the result is an abundance of large flowers during winter and spring.—D. C.

TREES AND SHRUBS.

SPIRÆA PRUNIFOLIA FL.-PL.

FIRST impressions are not always borne out by facts. During my first spring here—when ten days after snow and frost disappeared I saw groups of Forsythia a mass of yellow, and Spiræas covered in bloom—the impression forced on me that surely I had never seen such profuse bloom before on these familiar shrubs. This is now more than sustained, not merely in one or two varieties, for every good flowering shrub known to me in English gardens—at least, such as are hardy here—gives us a display of blossom altogether surpassing anything I had previously seen.

The accompanying illustration shows one of a group of several plants of this Spiræa, and

mutilated stumps. Others plant Privet, doubtful evergreens, or Rhododendrons of uncertain hardiness, and such glorious possibilities as the picture portrays fall short of realisation

Madison, N.J.

A. HERRINGTON.

Azara microphylla is one of the evergreen shrubs now in bloom, a fact more quickly felt than seen, for it is the delicious fragrance in proximity to a plant that induces one to look for the insignificant flower that produces it—merely minute golden-headed stamens. The tiny flowers are borne chiefly at the back of the branchlets in the axils of the leaves, and are so inconspicuous, that they only appear as golden dust among the Box-green leaves. The mode of growth of this shrub is so suggestive of a wall plant, that one naturally plants it in such positions, and a beautiful object it is as a wall covering. In this district there is

the two species. In *S. nigra* the inflorescence is generally quite flat on the top and the flowers are sweet scented. In *S. canadensis* the inflorescence is generally cushion-shaped, and what odour the flowers possess is of rather a disagreeable kind. In all these particulars the Golden Elder agrees with *S. canadensis*, as it also does in its leaves and in all its other characters.—A. D. RICHARDSON, *Royal Botanic Garden, Edinburgh.*

Pyrus japonica as a shrub.—May I say, in reply to your correspondent, that I have long grown this beautiful plant in my shrubberies, and have never experienced the least difficulty with it. With me it has just to take its chance with Laurels, Lilacs, &c., and it succeeds quite as well as they do. Many years ago I noticed great bushes of it near the Lago Maggiore, growing in the greatest luxuriance, and covered with flowers. I was so struck with their beauty that on my return I determined to try it here. I had always grown the *Pyrus* on walls, but I have



Spiræa prunifolia *fl.-pleno*. From a photograph sent by Mr. A. Herrington, Madison, New Jersey.

its profuse bloom as shown is by no means an incident of the season, since the group in question was just as beautiful the spring before, and doubtless ere long will look like it again. It is not an outcome of good cultivation either, as the plants are growing in stony ground overlying gravel, and the only attention they have had has been to keep the weeds down. Such fine specimens, however, whilst they might be common enough on American lawns, are all too rare, owing to the ridiculous and excessive shrub-pruning that seems to be the rule here, so that you see Forsythias, Spiræas, Deutzias, Viburnums, Weigelas, &c., cut close into a semi-rotundity of outline, to the total destruction of their natural form; though even this barbarous treatment does not prevent them blossoming abundantly in due season on their

no necessity to plant it against a wall, for it thrives well as a bush in the open. Ripened shoots inserted deeply in sandy soil in a sheltered position strike freely and quickly make good plants.—J. R., *Merioneth.*

The Golden Elder.—In his interesting article on Elders, published on January 22, Mr. Beau describes this plant as a variety of the common Elder (*Sambucus nigra*). That the belief that it is a variety of that species is very prevalent is evident from the fact that in nearly all nursery catalogues, and also in a number of books, it is so designated. This, however, is a mistake, as may easily be proved by an examination of the plant when in flower. In *S. nigra* the prevailing number of parts in the calyx, corolla and androecium is four—rarely five. In *S. canadensis* the prevailing number is five, rarely six. There are besides these other differences between

found that it does even better as a shrub, and gives much less trouble so. The subsoil of our shrubberies is hungry enough, and in summer the roots of the trees rob it of every drop of superficial moisture. The *Pyrus*, however, seems to get its fair share, for I have never seen it looking dried up, and I expect that its roots go down deeply. I cut the plants back when necessary, as I should a Gooseberry bush, but the more they are cut the better they flower.—F. W. HARMER.

Hibiscus Manihot.—Referring to the notice of this plant lately in THE GARDEN, it may be of interest to know that the plant as used in Japan in the manufacture of paper from the Paper Mulberry (*Broussonetia papyrifera*) is always a perennial, inasmuch as the thick tap root is the part used. It is known as the Tororo, and the following description of the plant and its use is given in a report on the manufacture of paper in

Japan, issued from the Foreign Office in 1871: "The Tororo flowers in spring; the seed is enclosed in the flower and is small and hexagonal in shape, resembling the Sesamum. Neither the flower nor the seed is of any use in the manufacture of paper, but the root is used. The shrub is not unlike the Cotton plant. The root of the Tororo is taken during the rainy season of the fifth moon, after the flower has died and dried. The size of the root is about the same as that of the common Dock, unless it grows in stony ground, when it is shorter. The sprouts and skin of the roots are scraped off, and the root is then beaten. When required for use, the Tororo roots are boiled into a tolerably thin paste, a quart and a half of which is required for each 'boat' of the paper stuff. The Tororo paste should be strained through a fine hair sieve into tubs, and may then be used as required." The use of this root by the Japanese would seem to be one of some antiquity. Thunberg says: "In Japan the mucilage of the root is used to give consistence to paper." The sketch I send you is copied from a Japanese drawing of the plant, which accompanies the report, and gives a good idea of the root.—JOHN R. JACKSON, *Museum, Kew.*

PLEASURE-GROUND PLANTING.

AN inspection of old pleasure grounds often leads to the conclusion that planters who were doing their work from the middle to the end of last century did the same, as a rule, better than the generation that immediately preceded us. I do not know exactly why this should have been so, unless that the introduction of many things, of which Sequoias and Araucarias may be taken as types, coupled with the craze that suddenly arose for everything in the shape of coniferæ, led to an extensive and indiscriminate planting of the same without sufficient study as to the soil and situation suitable for them. One outcome of this taste was the planting of pinetums, some of which may have been a fair success, whilst the majority at the expiration of a generation show only a miserable collection of stunted trees, that have gradually to be removed to make room for common, but infinitely more beautiful trees. Even if a regular pinetum was not formed, the newer trees were, as I have said, stuck about with little regard to their surroundings, and so we find Araucarias and the most formal of the Cupressus in close proximity to fine deciduous trees, and *Cryptomeria elegans*, *Thuja*s, and things of similar character in positions for which they are utterly unsuited. As a contrast to this, it is a pleasure to contemplate work of, say, 130 years ago and to realise how the old planters, with far less material to hand, managed in the majority of cases to score a distinct success. Take the majority of the Lebanon Cedars, for instance, and I think we shall find that, whether as isolated specimens well developed on all sides, or in clumps that lack individually the size and spread of branch, but sending up fine straight boles, splendid in colour and great in girth, they are in touch with their surroundings and invariably seen to the best advantage. The Yew, again, a much neglected tree, but one which, bearing in mind its heavy, sombre character, may certainly be overplanted, is occasionally found in old pleasure grounds in positions for which it is admirably adapted as a tree that is developing at will, showing its true character and not cut and trained into fantastic shapes. The Yews are a case in point if planted in positions where they can show their true form without interfering with other things. Is it not better to have them so than trim them into the shape of a peacock, a Chinese pagoda, or anything the operator may incline to? Apart

however, from cutting and trimming into formal shapes, it is certain that indiscriminate huddling at planting time is answerable for a lot of severe pruning, and the chief considerations before planting are, therefore, the suitability of the different things for the positions to which they are assigned, and plenty of room in which they may individually develop. Trees not easily or, rather, satisfactorily associated with other things were treated by these old planters alike with boldness and discretion, and we have cases close at hand in clumps of Silver Firs—now, unfortunately, fast going to decay—and in isolated specimens of *Quercus Ilex*, the latter large and well furnished and very handsome trees. Where pleasure grounds are of sufficient size to admit of the presence of deciduous trees alike in considerable quantity and variety, it is always advisable to have more than one careful inspection before deciding what and where to plant, and it is obvious that in the case of solitary trees, as widely different in foliage as, for instance, the scarlet Oak and the Birch, the large-leaved Plane and the Mountain Ash must have positions chosen for them in which the variations in size, shape, and foliage may be seen to the best advantage.

In smaller pleasure grounds the lack of deciduous trees is often noticeable. Thanks, however, to the increased liking for tree and shrub life and with the increased liking a more careful study of the same, the fact that there are many deciduous trees with very handsome foliage quite adapted for small lawns is now generally understood and acted upon. Among the later introductions likely to be very useful in such work may be mentioned *Carpinus cordata*, *Magnolia parviflora* and *M. Watsoni*, whilst older things would include *Magnolia macrophylla* and *M. tripetala*, the best of the *Acers*, *Ginkgo biloba* and *Laurus Sassafras*, with good selections from the *Crateagus* and *Pyrus* families. The inclusion of any trees that will combine fruit bearing with spring flowers and summer foliage will naturally depend on the taste of the planter; personally, I should say by all means include them. They might be represented by Apples likely to grow into large trees, as *Blenheim Orange* and *Deux Ans*, *Bergamot Pears*, with an occasional *Quince*, *Medlar*, *Mulberry*, and *Siberian Crab*. The last might always find a place; it is a beautiful tree both in flower and fruit.

Claremont.

E. BURRELL.

ROSE GARDEN.

ROSE SPORTS.

MANY have been struck with the fact of several plants sporting in exactly the same direction and at the same time, but in very widely different localities. This is not so remarkable if looked at in the following light. We do not find plants that are usually produced from seed doing this; it is such as the *Rose*, *Chrysanthemum*, and *Pelargonium*—plants that are increased from cuttings, buds, or other parts of the original; therefore, the same tendency to variation may be in several specimens increased from the plant containing such, and which would develop at the same age. In a couple of instances this has occurred with me, while we have notable examples in *Souvenir de S. A. Prince* and *The Queen*; one an English sport, and the other an American, both appearing at the same time, and upon the same variety. *Catherine Mermet* gives us *Muriel Grahame*, but I had it here upon the same variety, and simultaneously with its appearance at Reigate.

Heinrich Schultheis gave us *Paul's Early Blush* and *Mrs. Harkness* at the same time; one in Yorkshire, and the other in Herts. I could mention other cases of simultaneous sporting. Perhaps the best sports have been given us by *Catherine Mermet*, a grand *Rose* in itself, and one that seems to impart all its good qualities to its offspring. *Muriel Grahame* is so good that it secured two of the *National Rose Society's* silver medals the first year after introduction. It always comes good. Now this same departure occurred upon a *Catherine Mermet* in my *Rose house*, and from that time the same part of the plant has always produced *Muriel Grahame*. In the autumn of 1895 Mr. R. Harkness happened to see a small flower or two upon plants I had propagated from this, and immediately exclaimed, "Why, you have got *Muriel Grahame*!" I had, and a good batch of plants, but not what I thought sufficient to send out. Upon such an authority as this, and the fact that I had seen a flower or two of *Muriel Grahame*, I decided not to send it out, and so create what would certainly have been another of our already too numerous duplicates. Since its introduction, I have grown both side by side, and they are absolutely one and the same in every respect. *Catherine Mermet* also gave *The Bride*, *Bridesmaid*, and *Waban*, the two first being among our very best *Tea Roses* for any purpose except as climbers upon high walls. Another instance of simultaneous sporting which came under my notice, was *Souvenir de S. A. Prince*, which not only sported in this country and America, but occurred in an adjoining parish (*Framfield*). I happened to be talking to a likely customer about the merits of Mr. Prince's introduction, when my companion said he believed he already possessed it. I was shown the plant, and it was *S. A. Prince* upon *Souvenir d'un Ami*. Since then the plant has died, and the sport with it; but I was allowed to bring home a piece, and I found plants secured from this the counterpart of *Souvenir de S. A. Prince* and *The Queen*, the latter name being the one given to the introduction from America. *White Baroness*, *Mabel Morrison*, and *Merveille des Blanchés* are all white sports from *Baroness Rothschild*, and I am under the impression that *Merveille de Lyon* is also. It is rather singular that this *Rose* should give all white sports, and no improvement as regards its own colour, in the way of more double form; nor do any of its sports possess scent. *Sunset* originated from *Perle des Jardins*, but it does not open the majority of its flowers so well as *Perle des Jardins*. The last named gave us *White Perle*, but this is not of much value, as we already had several white *Roses* of better habit and form. This also opens indifferently when compared to its parent. Six years ago, *Sunset* gave us a sport that will undoubtedly be a great acquisition to the so-called garden *Roses*. It is a grand flower under glass, and for the coat. Its chief peculiarity lies in being a deep crimson on the reverse of the petals, while in perfume none can surpass it. I was afraid it was tender, but for the past two winters it has stood well outside.

Mme. Hoste is given in one of the continental lists as being a seedling from *Victor Pallait*, itself a seedling from *Mélanie Willermoz*; but we so often see a flower of the same character upon *Anna Ollivier*, while the growth is so much alike, that I firmly believe it to be a fixed sport from *Anna Ollivier*; all the more so from the fact that a sport from this was shown at the Reading exhibition of the *National Rose Society* in 1896, which was similar to *Mme. Hoste*. I believe that Mr. S. Treseder, Cardiff,

has a white sport from Anna Ollivier, which appeared two or three years ago. It is described as having a pale lemon centre, with the exact habit and growth of the parent. This would come very close to a pale flower of Mme. Hoste, but if we could get a pure white of Anna Ollivier type, it would be a great improvement upon both Niphotos and Souvenir de S. A. Prince for outdoor culture. Comtesse d'Oxford gives us the best of all striped Roses in Pride of Reigate, also a good salmon-pink in Pride of Waltham. I have a plant which has borne Comtesse d'Oxford, Pride of Reigate, and Pride of Waltham, sometimes a couple of them simultaneously, and oftentimes Pride of Reigate scarcely striped at all. Heinrich Schultheis not only gave us Paul's Early Blush and Mrs. Harkness simultaneously, but a prettily striped bloom named Merrie England. I believe the last originated upon the same plant as Mrs. Harkness. I saw Merrie England several times before its introduction, and have grown it since, but never in better form than at Chester (National Rose show) in 1892, when both of Mr. Harkness's sports were staged. Since growing Merrie England I have found it revert to Mrs. Harkness. I had Mrs. Harkness in sufficient number without indoor propagation, so that there can be no question of mixing the wood, only Merrie England being used. Another sport that has reverted is Sir Rowland Hill, a very peculiarly coloured sport from Charles Lefebvre. Lady Mary Fitzwilliam has given us several departures, the best of which is White Lady. Etienne Levet gave us Duke of Fife, Duchesse de Morny produced Ellen Drew, Madame Willermoz gave us Letty Coles, Maréchal Niel the White Maréchal Niel. Several others might be mentioned in which there is absolutely no departure from the original except in colour. La France is responsible for a good many of these. Mrs. Rumsey is a grand sport from Mrs. Geo. Dickson, and has the merit of being mildew-proof.

By no means the least interesting point about sports is the remarkable way in which several of our dwarf and puny growers will suddenly send out a shoot of extraordinary vigour, even when compared to well-known strong growers. Perle des Jardins, Niphotos, Devonensis, Victor Verdier, Captain Christy, La France, Queen of Queens, White Pet, Souvenir de la Malmaison, and Kaiserin Augusta Victoria are examples of this. All grow with extraordinary vigour, and frequently produce growths of from 10 feet to 15 feet, or even more. They retain this characteristic so tenaciously that it is seldom indeed we find a plant reverting, and then only directly it is propagated. What I mean is that a Climbing Niphotos which has shown the vigour of this sport will not revert to the normal form, but you may now and again find a dwarf among those budded from the sport which will keep to the normal form, never showing the least tendency to extra vigour. I have also noticed that all of these climbing sports are erratic in their flowering qualities, some being very free and others scarcely producing a bloom, although propagated from the same plant, and treated in a similar way.

What I consider to be the best twelve sports here mentioned are Muriel Grahame, The Bride, Souvenir de S. A. Prince, Pride of Reigate, Bridesmaid, Duke of Fife, Mrs. Rumsey, White Lady, Danmark, Sir Rowland Hill, Pride of Waltham, and Ellen Drew; while Climbing Niphotos, Perle des Jardins, Souvenir de la Malmaison, Kaiserin Augusta Victoria, La France, and Captain Christy are all acquisitions. I have purposely missed Mme. Hoste, Merveille de Lyon, Mrs. Pierpoint

Morgan, and Augustine Guinoisseau as being doubtful sports. There is a grand new sport in store for us; I allude to that from Suzanne Marie Rodocanachi, exhibited by Mr. F. Cant at Portsmouth in grand form, but which was, unfortunately, the cause of his being disqualified.—A. PIPER, in *Rosarian's Year-Book*, 1898.

IN THE ROSE HOUSE.

PERHAPS we have no more busy time in the Rose house than the present. Plants are in full growth, or soon will be, while insect foes have already put in an appearance. March and April are always trying months for Roses under glass, as we so often get a bright sunny day accompanied by a keen wind; and even thus early in the season it is surprising what a vast difference half an hour's sun will make in the temperature. Whether in pots or planted out, in cool or heated houses, Roses will be well on the move. The first batch of pot plants is well in flower now, and those still in the cool pit have growths of some 2 inches or so. I would bring on the last batch now, or we shall find those in warm quarters outside coming into flower before the last of our late batch of pot plants is over, and Roses from under glass are of much less value then. A house where one can be sure of keeping out frost at night, and preventing too great a fall in the temperature, will do very well for the late batch. The fact of the plants being so completely sheltered, together with a little sun heat, will usually bring them on sufficiently when started at this date. It is quite different with plants that were started in December and are now in full growth. These must have a rise of temperature to give them as nearly as possible an equivalent to our summer. One of the most difficult points to manage at this time of year is ventilation. One hesitates very much about admitting air upon a bright day, and rightly so; and yet, unless we do open the ventilators a little, the temperature rises far too high. Roses can far better withstand 90° (Fahr.) of sun heat than they can 75° obtained from the hot-water pipes only, and we can assist the plants very much by seeing that the atmosphere is not parched. A little care with the fires and a slight study of the weather will generally overcome the difficulty of heating.

Insects will, of course, be a great trouble to many. But here, again, we can reduce the trouble very much by a little forethought. Why is it that year after year so many will let insect pests obtain such a strong hold before taking any measures to check them? When once insects have increased it is not an easy matter to kill without more or less injury to the plant at the same time. It is impossible to destroy all at one stroke, even when this is so severe as to almost kill the plants as well. Then why not take milder measures promptly and continue them? The question of liquid manures is of importance. There are not many gardens where a house is devoted to Roses in which it is not easy to obtain the drainings from a stable or cow stall, and these, especially the latter, have proved of most service with me. Guano and other artificial manures may be used, or a light surface sprinkling of the same may be given, when their feeding properties will be conveyed to the roots, as they become soluble through watering in the ordinary way. After a trying day of sun and wind I have found it advantageous to syringe gently overhead with tepid water. It refreshes the foliage and, if not over-done, does not leave the foliage too damp.

RIDGEWOOD.

Rose Mme. Noman.—It would be difficult to name a more perfectly formed Rose than this. The petals are so numerous as to give the flower a very tight appearance. In the season one may nearly always be able to cut a button-hole flower from it, and this fact alone should commend it to gardeners. The colour is white, with the faintest tinge of pink at the base of the petals. It is, un-

fortunately, rather addicted to mildew, and for this reason should be procured on the deep-rooting seedling Brier rather than upon surface-rooting stocks. It is only moderate in growth, but this does not imply that its nature is weakly.

Rose Caroline d'Arden.—Rose coloured Roses are perhaps the least admired of any, so many of them changing to dull magenta, but one should not condemn them wholesale, as there are a few among the number that are almost indispensable even in small collections. The above variety, which is very free-flowering, must be classed among the rose-coloured kinds, but its large full flowers are of that delightful soft shade that should please all lovers of bold massive Roses. Having the somewhat stiff, robust habit of Marquise de Castellane, the flowers are well displayed and their fragrance is delicious.

Rose Clothilde Soupert (Polyantha).—If I were asked to recommend a Rose for culture in small pots that flowers continuously and a good marketable variety, I should name the above as one likely to give the most satisfaction. The flowers are large for a Polyantha, very double and of most perfect form, and prettily imbricated somewhat like an Aster. The colour is pearly-white with a clear rosy-pink centre very liable to vary, producing often red and white flowers on the same plant. A sport emanating from this Rose and named Pink Soupert has not turned out a very great success, owing to the very dull colour of the flowers.—P.

Rose Comte Henri Rignon.—This makes a short, stumpy growth, which, in my opinion, is a point in its favour, for it is not from the strong and vigorous-growing kinds that our best Roses for groups are obtained. A quantity of this variety planted together makes a very effective display, being a perfect sheet of blossom, and, of course, one need not be too critical about the form of the individual flowers if garden decoration is the object. The crossing of Baroness Rothschild with Ma Capucine is said to have produced this Rose, and it certainly shows traces of both parents, although not very pronounced. The colour is salmon, tinted with flesh-pink and shaded with yellowish buff.

ROSES UPON THEIR OWN ROOTS.

THE question whether these are better than plants worked upon some foster roots has frequently caused a heated discussion between rosarians, but more especially so among a few amateurs. The truth of the matter is that some varieties will thrive in this form, and many are far too weakly in themselves to do well without the aid of roots with a stronger and more vigorous constitution. Of course we can grow all Roses in this form, but, as we naturally wish to have each variety at its best, it becomes necessary to study the habit and needs of the various kinds. In almost all sections or classes of Roses we have some that will do upon their own roots alone, and others that are almost useless in this form. To be so biased against any stocks, as are some of my rosarian friends, is little short of folly. There are advantages and disadvantages, and, so far as the experience of most Rose growers goes, the latter predominate. The question of soil, and whether the plants are in pots or in the open border, must also be taken into consideration. In France and in America many Roses that will take several years to make a presentable plant here are of full size and vigour two years from rooting the cutting.

These notes were suggested by a conversation with a friend who had just received a consignment of dwarf Tea and Noisette Roses from France, and which he believed to be upon their own roots. However, upon close examination, I was able to convince him that they had been grafted upon the seedling Brier. And such is the case with many plants that amateurs fancy are upon their own roots. When a dwarf Rose is budded as it should be, i.e., well down upon the crown of the stock's roots, and the age and size of the stock selected are in proper proportion to the variety,

the average amateur would find it difficult to determine whether it was upon its own or foster roots. I am convinced that a large number of amateurs mean such low-worked plants when they ask for Roses upon their own roots. A Rose so worked will generally push out some roots just above the junction of Rose and stock. This is especially the case when worked upon the Manetti. For this reason many have condemned the Manetti, under the not unnatural impression that as the Rose breaks upon its own root so freely, the stock is distasteful to it. The Manetti, like all other stocks, is very useful in its proper place.

It is generally, and rightly, suggested that only free and strong-growing Roses should be grown upon their own roots—that is, taking the three chief classes or sections, viz., H. Perpetuals, Teas and Noisettes, and Hybrid Teas. The Bourbons, Chinas, Provence and Mosses, as well as the Polyanthas, will do well in this form. It is a question of time in securing a representative plant of any particular variety. When worked upon foster roots we secure this end in one or two seasons only, but when upon their own roots the time is generally doubled. Still, if we look at the time taken to produce the stock of foster roots, there is not so much margin between the two processes. We root a dwarf cutting of Brier, Manetti, or De la Grifferaie, plant it out the next autumn, bud upon it the ensuing summer, and get our maiden Rose plant the season following, thus occupying three years, in which time many varieties would have produced a fair plant from the cutting. The great advantage of own-root over worked Roses lies in the fact of all growth being valuable. There are no suckers of stocks, hence no waste; nor need there be that doubt as to which is stock and which is Rose, a point that evidently troubles many amateur growers, if one is to judge from the quantity of De la Grifferaie and Manetti growth we frequently see carefully pruned and attended to in small gardens. A dwarf Rose properly grafted or budded upon any stock should be so nearly free from suckers as to give little trouble, and for all practical purposes this is the best form in which to purchase. The general public have an idea that puny and very indifferent plants have been foisted upon them by the nurseryman, when varieties of only medium growth upon their own roots are supplied.

RIDGEWOOD.

Rose Wm. Allen Richardson in the forcing house.—Such a unique coloured Rose as this will always be in demand for button-holes, and a hint as to the best method of flowering it may be opportune. As a rule, the Rose house cannot have climbers on the roof at a time of year when every ray of sunlight is precious; therefore to flower this Rose on the pegged-down system is by far the best method of obtaining an abundance of its lovely rich bronzy yellow buds. Pot-grown plants with well-matured long rods should be procured. Place the pots on the side stage as near the glass as practicable, and tie down the long growths to a framework of Bamboo canes raised about 15 inches from the bench. By so doing nearly every eye the whole length of the rod will yield a bud. W. A. Richardson does not like severe forcing. The best temperature would be about 60° by day and from 55° to 50° by night. The colour under these conditions is always good, and, of course, much improved by a sprinkling now and then of guano or some artificial manure. After flowering, cut back the long rods hard, leaving about three eyes from the top of pot. Put the plants into a vinery or stove where plenty of heat and moisture is maintained, and repot when the plants are on the move. As they grow train the rods to the roof, and by the fall they should be quite 12 feet in length. See that they are thoroughly ripened, removing them outdoors for this purpose, and the next season another crop can be taken from them. Any gardener will readily appreciate the value of a good supply of this well-known Rose during the months of February and March, and by adopting

the method described above he can have a profusion of bloom without encroaching very largely on his space.

FLOWER GARDEN.

PLANTING LILIUMS.

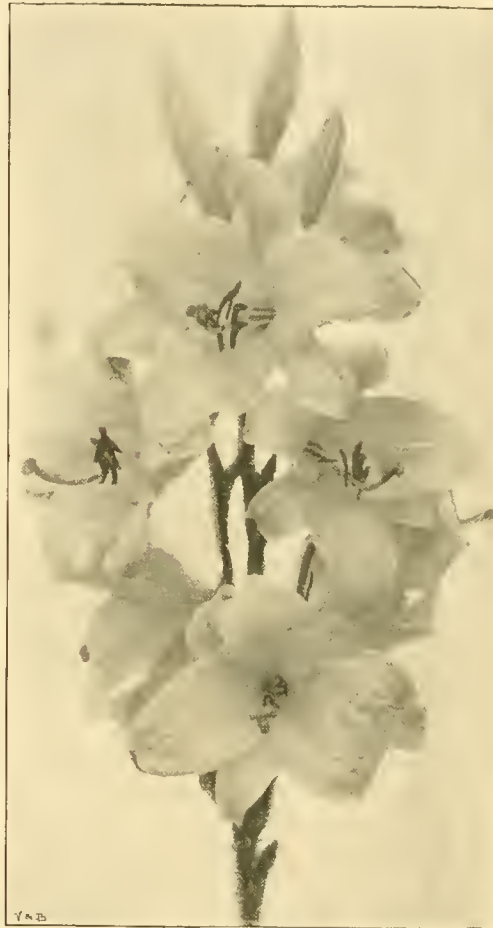
THE consignments of Liliams that have come to hand during the past few weeks have in the majority of instances been received in splendid condition. This is not so of one particular kind or of one consignment, but of many, and in a great variety of kinds. They are to hand with scarcely a bruise of any note upon them. In some cases, in fact, they are faultless; and to no group does this remark apply with greater force than the golden-rayed Lily of Japan (*Lilium*

permanently happy. Lily specialists will doubtless remember the famous collections of both in the late Mr. Macintosh's garden, Dunedin, where not only *L. auratum*, but all its forms were to be seen in fine condition every year. Nearly twenty years ago the now well-known *L. a. macranthum* and *L. a. rubro-vittatum* were really splendid in this garden, and the grand spikes of *L. Krameri*, that raised their delicately-tinted heads far above the *Rhododendrons*, were a feature in themselves.

That this lovely race of bulbous plants appreciates the companionship of other things in this way I firmly believe, and with so great a mass of root-fibre around there is no likelihood of undue moisture for the Lilies. Moreover, there is protection of a natural kind in spring from damaging frosts without unduly encumbering the Lilies with artificial covering, while again in summer the surface is sheltered from a burning heat that is not welcomed by any Lily in cultivation. For these reasons, therefore, there is much in favour of planting Lilies where shrub growth, while not overwhelming, will afford a timely protection at two seasons, if not indeed in winter also when more or less at rest. It should not, however, be thought that peat is essential to their successful culture, as in the light loamy soil of the Thames valley they do exceedingly well, and even when planted by thousands in the open fields minus shelter of any kind they give many splendid spikes with no more culture after the first planting than would be given to a field of wheat. Such rough and ready methods are not recommended for the better forms, as *L. a. platyphyllum*, *L. a. rubro-vittatum* and *L. a. virginale*. In none bearing the variety *platyphyllum* is perhaps the finest of all, and in its massive petals and remarkable size quite unique. Equally so is the spotless purity of *virginale*. All these exceptional forms merit special care. Happily, they are as easily cultivated as the typical species, and if afforded a rather deep bed of sandy loam with plenty of leaf-soil and road grit, are usually content in any sheltered part of the garden, though preferably among shrubs and their roots, as just stated.

Equally chaste and beautiful in the garden is the well-known *Madonna Lily*, a spike of which is also illustrated. Indeed, in those gardens where immunity from disease is enjoyed it is still a most desirable Lily, the glistening snowy spikes surpassing all else. It is, however, late for planting this kind now unless sound dry roots are forthcoming, which is not usual, as the permanent groups are now furnished with their full complement of radical leaves—a unique feature in this species. Where preference can be given, August and September are the best months for planting this species.

In planting, a depth of from 4 inches to 6 inches will be found sufficient. A point to avoid is a soil over rich in manure; this is generally more harmful than otherwise, and with sweet, fresh soil may be dispensed with altogether. The same is true of pot culture for these, providing a similar soil with well-drained pots, the former sufficiently moist that no water is needed for some time. For pot culture the following simple rule is best: Use ordinarily moist yet not wet soil, plant the very largest bulbs in 6-inch or 7-inch pots an inch below



The Madonna Lily (Lilium candidum). From a photograph sent by Mr. John A. Lloyd, Broad Hinton.

auratum), of which a fine group is shown in full flower in the accompanying illustration. The typical kind, always in the greatest quantity, is especially good; hundreds—indeed, thousands—of great plump, solid, and heavy bulbs that give promise of good variety, and, being still quite dormant and singularly good and fresh withal, are in the best possible condition for immediate planting. In the open garden, in pleasure-ground, shrubbery, or woodland there is room to plant or group such things with a free hand. This Lily, as indeed others, would appear particularly happy in the peat and leaf mixture that usually obtains for *Rhododendrons*, or where these latter thrive as a rule it is not at all difficult to make many Lilies

the surface, then plunge forthwith in coal ashes in a cold frame, covering not more than 3 inches deep. This will secure a perfectly uniform condition of the soil till growth has begun, and no water will really be needed till 4 inches or 6 inches of stem growth are visible. Careful watering in the early stages is necessary, but with bud formation later the supplies may be increased. Some prefer starting the bulbs in cocoa-nut fibre, but this involves a possible breaking of the very brittle roots in after potting, which should be avoided. E. J.

Lithospermum Gastoni and L. purpureo-ceruleum.—With the criticisms from the general

places (four other habitats besides Eau Bonne are given in Garnier and Godson's "Flore de France"), but it is still "rare" in the botanical as well as the gardening sense, though other plants, such as *Alyssum pyrenaicum* or *Jankea Heldreichi*, may have since "gone one better" in point of rarity. —J. C. L.

Californian Irises.—The following extract from a letter received a short time ago from Mr. Carl Purdy may help a little further in the identification of some of the plants already established in European gardens. He says:—"As to *Iris macrosiphon* var. *flava*, in all probability it comes from Oregon. No Californian collector or dealer has used the name, while Thos. Howell, the well-known botanist and former collector, listed 'I.

is heavy and very retentive of moisture the plants are apt to succumb to the effects of frost far more readily than in a dry situation; but even in the former case a light protection of Larch boughs and Bracken will generally suffice to avert the total loss of the plants, although I have known specimens growing in a damp soil fail to survive the winter even in South Devon.—S. W. F.

BUNCH PRIMROSES.

WHETHER known as Polyantheses or bunch Primroses it does not seem to me to matter very much, they have, as pointed out by Mr. Crook (p. 141), a peculiar fitness for the flower garden or winter pleasure ground borders, or under the shade of trees. Mr. Crook says he has not been successful in raising them in the open, but prefers sowing in the early spring in boxes. Since I have had a stock from which I can save my own seed I have found it much more advantageous to sow the seed as soon as ripe on a shady border. At the present time I have thousands of sturdy seedlings awaiting their removal to summer quarters, some of which are pricked out on a piece of ground set apart for the purpose with which to furnish the flower beds in autumn, others are planted permanently around the margins of the shrubby borders. Any particularly distinct are reserved when removed from the beds in summer and go to replenish the stock kept for seed, the rest being thrown away. Seed raising, as Mr. Crook says, is a very simple matter, so simple in fact that I am surprised he should find it unsatisfactory to sow outdoors where they give so little trouble. If recourse is had to purchased seed each year it certainly would be better to sow in boxes than outdoors, because one cannot foresee what the influences of the weather may be. With plenty of seed such as one may get from home-saved stock, there is not much risk of getting the desired quantity of plants, and thus sown and treated they cause very little trouble. I usually sow as soon as the seeds are ripe enough to gather, and from then until the seedlings are planted out no attention is usually needed beyond keeping down weeds with the hoe. The same remarks apply to their summer treatment. Shade from the summer sun is one of the principal objects to bear in mind. This can be obtained from lofty walls or the near proximity of trees. The bright yellow selections give much the best effect when grown in flower beds. W. S.

Wills.

VIOLET MARIE LOUISE.

I AM far from convinced by Mr. Roberts' note, or by that of "J. R. B.," that disturbing the roots of this Violet has not something to do with their frequent failure under glass. I am not saying that to plant them in permanent positions would prove an absolute panacea for the trouble. Indeed, I am sure it would not, but I have followed an exactly similar mode of treatment to that described, and still, unfortunately, have decayed leaves in greater or less number every season. The winter of 1896-7 was the worst I have known, but the present has been, perhaps, the best. I have been picking beautiful flowers for many months, and now the plants are full of flower-buds, so that there could not have been much wrong with them at planting time. I cannot agree with Mr. Roberts that the roots are inactive at planting time. In fact, if I did not see hundreds of young feeding points at the time of planting I should think there was something wrong. These young roots are so obviously searching for food for the forming buds that I should think no one would call them inactive or "comparatively inactive," for I take it they are as busy just then as at any time in the plant's career. Doubtless good, well-grown plants have the flowers in embryo when taken from the open air and placed in frames, but I am sure if plant food was readily available for them at this time it would be greedily taken up by the roots. We may as well say that Strawberries grown in pots



Lilium auratum. From a photograph sent by Mr. A. F. Scott, The Rectory, Bray, Co. Wicklow.

gardening point of view which have been passed on these plants I am afraid we must all agree, but with regard to the opinions expressed as to the relative brilliance of the blues I am somewhat disposed to demur. *L. Gastoni*, as people conversant with these matters know, is rare in gardens, and by far the best plant I have ever seen in bloom was in Mr. Wilson's wood-garden, near Weybridge. There the blue was equal in brilliance to that of any *Gentian* ever found at or near the snow-line, and certainly brighter and bluer, *i.e.*, less alloyed with pink, than I have ever known *L. purpureo-ceruleum*. However, in this respect plants may, and probably do, vary. With regard to the rarity of *L. Gastoni*, the plant which was figured some years ago in the *Botanical Magazine* was then stated by Sir J. Hooker to be "one of the rarest plants in Europe." It has since been found in some abundance, I believe, in other

macrosiphon var. *flava* for years. Now I hear that Howell is satisfied that his *I. macrosiphon* is a new species, and will name it." He adds (alluding to a plant of mine): "The fact that the bog variety does not retain its leaves would indicate an affinity to *I. longipetala* or *I. missouriensis*, and its living in a bog would indicate the same thing." This, however, will not do, for the plant in question has been absolutely named by Mr. Baker "*I. macrosiphon* var. *flava*." Moreover, it is rosy at the base of the young shoots, as are also *I. Douglasiana*, *I. Purdyi*, and *I. bracteata*, but the tint is entirely absent from the young growths of the two species named.—J. C. L.

Kniphofias.—"E. B." mentions the doubtful hardness of the above subjects in a note (p. 140), and points out that deep planting unaccompanied by surface protection is not sufficient to prevent destruction during severe frosts. Where the soil

for forcing cannot assimilate food after the crowns are made up. Then as regards pipes in the Violet frames. Surely because the 4-inch pipe is in the frame we need not turn the heat on in mild open weather, so the argument that the plants oftener need retarding than forwarding means nothing. If Mr. Roberts reads the last sentence of my note again he will find that I advised frames with a single pipe "for keeping up a succession through the winter," and this I cannot do in cold frames in Suffolk, though possibly in Wales it may be practicable. With the glass standing at only a few degrees above zero, Violets, hardy as they are, would be quite at a standstill, and would, moreover, have to be covered up through the greater part of the day in cold frames, but if a little warmth could be turned on and a chink of air put on top I know from my own experience that this beautiful Violet may be picked any day during the hardest winter. I am quite in agreement with both Mr. Roberts and "J. R. B." as to the attention needed to get the best results with this plant, and without a doubt it is worthy of every care.

H.

FLOWER GARDEN NOTES.

A GARDEN OF ANTIRRHINUMS.—I do not advocate such a monopoly, but it struck me the other day, when comparing notes as to the behaviour last year of different strains of this flower, that a display in which Antirrhinums predominated would be as gay, certainly more varied and effective, and possibly more lasting than one in which Begonias or Pelargoniums were the leading feature. The flower has been wonderfully improved of late years. It includes now variations in height from 6 inches up to 3 feet, in habit from a dense, compact mass to one in which the tall spikes are thrown irregularly well above the foliage, and in colour from nearly pure white to a deep crimson with mixtures of various shades, the most striking being those in which the cup and lip are quite distinct in colour, each well defined, and presenting a somewhat striking contrast. The mention of the different heights of the several forms is sufficient to indicate their value for large or small beds, and the question as to the arrangement of colour is comparatively easy, the Antirrhinum being one of the flowers of which it can be said that its several shades when planted together offer no objectionable contrast. The selection of anything to plant with them to break in some degree the sameness of the beds is not so easy a matter, for with all of them, especially the dwarf kinds, there is a certain formality that does not lend itself readily to an association with other flowers. Fine-foliaged plants, as *Grevillea robusta* or *Acacia lophantha*, are probably the best for the purpose. The treatment of Antirrhinums from an annual standpoint has often been discussed, and may, therefore, be summed up here in a few words, viz., to sow early and to prick out the seedlings as soon as they can be handled into boxes or frames in a bit of nice light soil.

CUPHEAS.—I notice that a leading firm responsible for the introduction of many sterling novelties that have helped to make the flower garden gay announces a new Cuphea of very striking appearance. I have not as yet grown it. If it comes up to the description it should prove a very attractive plant and a decided acquisition for small beds, especially if it is up to the standard of platycentra in freedom and endurance. In bygone days, before Pelargoniums and, after them, Begonias had swept away so many old-fashioned things, *C. platycentra* was rather extensively used, and some very charming beds were the outcome of its employment as a carpet plant to nicely-grown specimens of *Heliotrope*. There was nothing, perhaps, particularly striking about the combination, but it was very soft and pleasing.

TUFTED PANSIES.—Mention of carpet plants is a reminder to note that the plate of Tufted Pansies in THE GARDEN of February 19 comes

very opportunely, suggesting as it does to all interested in flower garden work the advisability of employing them in variety in this particular way, the dwarf habit sometimes dense and compact, at others slightly inclined for trailing, coupled with its profusion of flowers and its long-sustained character, rendering them among the best of things for the purpose. A great variety in the Violetta type that we may confidently expect, now that other distinct colours have been produced, will be a great boon; in fact, I think they will gradually oust sorts at present included among Tufted Pansies, but which can hardly claim the necessary characteristics. For the benefit of those who are growing these Pansies for the first time on a rather light soil, I would suggest that more than one variety in each colour be tried, first in nursery beds just in the natural soil, to make sure as to which are likely to be the most satisfactory. Here, for instance, some well spoken of, and certainly throwing nice flowers, could hardly claim to warrant a place in the flower garden where the preservation of a distinct colour and a long-sustained display are the principal considerations. With me the best are those of very dwarf habit approaching the nearest to the true tufted form as (in different shades) Bullion, Lilius and William Niel; also on this soil a good surface mulching is absolutely necessary if they are to flower right through the season. Two varieties grown last year for the first time that were much admired were Joseph and Hamlet. More accurate information as to their value for the flower garden will be obtained with another season's experience.

BEDS FOR HALF-HARDY ANNUALS.—It will soon be time to sow what may in this matter be termed intermediate annuals, that is, those it is not necessary to put in too early in the year, but which from certain causes are better sown under cover and transplanted than put in late in the open ground. Just a little warmth is advisable, and this will be supplied by a bed of good leaves where plenty is available, only if no other material is used the depth of the bed must be increased. Asters, Stocks, Zinnias, Phlox Drummondii, Nemesia, and other things of similar nature can be sown in this way. Sow thinly in rows 4 inches apart. Any new annual tried for the first time can be similarly treated. The quantities sown will depend on the amount of bed and border space available. It is not much use overdoing this class of plants if space is limited; at the same time it may be remembered that many of them are very enduring, and will make a better display than so-called bedding plants. Two things omitted above I can specially recommend: the best strains of *Salpiglossis* and the comparatively new *Tagetes Legion of Honour*, the latter a splendid little plant for small beds. When seed-sowing is practised on beds rather than in pans or boxes, a little extra care is necessary with very small seed, as, for instance, *Lobelia*, *Petunia*, and *Portulaca*. In their case, after getting a perfectly level and fine surface, slightly indent the soil with a smooth round stick, sprinkle a little fine sand along the rows and just a little over the seed.

SWEET PEAS.—If these were sown early in the open, a careful watch must be kept for signs of spearing and consequent visitation of birds. If on the flat, some rows of black thread or cotton, failing a supply of guards, will be the best preventive, and if in trenches a few Beech or Birch twigs may be placed along the rows until the plants require staking. Late-sown batches may probably be attacked by mice, and when these little animals find anything to their liking, traps possess little attraction for them. Under such circumstances, although always loth to use it, I have found a little poisoned wheat answer the purpose. Needless to say, it should be placed in position the last thing at night and removed very early in the morning before anything in the way of bird life is on the move—that is, if the mice have left any, which does not often happen. Where soil is naturally dry and light the trench system will be found the best, affording as it does opportunity for heavier mulching and the better

absorption and retention of moisture when this is applied.

E. B.

Claremont.

CARNATION NOTES.

THE winter on the whole has been favourable to the plants in the open ground, and where autumn planting has been delayed the layers should be severed from the old roots and put into their permanent quarters early in the month of March. Those who grow the Carnation for exhibition pot the layers in early autumn; in fact, keep them in pots throughout the season. I have noted this year the difference between plants wintered in cold frames and those on stages in light greenhouses. The appearance of the grass is all in favour of the latter. Carnations like an airy atmosphere, and the open lattice-work stages provide an abundance even among the pots. This condition cannot be obtained on the ash bottoms of frames; consequently spot is somewhat troublesome even if plenty of top air be given. In light houses the leaves are very clean, but the plants are overhauled every week. The ordinary black spot does not, however, affect the permanent well-being of the plant, but is a great eyesore, and should therefore be avoided. A disease of quite a different order is the rust-like fungus that comes by the formation of little warty lumps on both surfaces of the leaves. These develop, burst, and spread with too great rapidity, and finally attack the constitution of the plant itself. I know one careful cultivator who isolates every plant with the least sign of this disease from the bulk. Sorts more liable than others are destroyed. The best way to stamp out a disease like the rust is by constant watching, removing all affected parts before it has time to mature. So, too, with the maggot, which, however, is prevalent more or less in different seasons; the only way to battle with it is by watchful labour. In early autumn and winter we find this pest in evidence. The Malmaisons are particularly liable to attacks. I lost a considerable number of plants a short time back through it. These had been layered in the open and covered with glass, but even then the damp surroundings of autumn seemed to favour its spread. The soil in this neighbourhood is especially dry, and I fancied Malmaisons would do well in the open. This experiment will not, however, be repeated; they are essentially indoor types. It was time successful raisers of new varieties attempted the improvement of growth in Carnations, the old-class flowers, as they are called—the edged, flaked, bizarres, and so on—being generally too weakly for the ordinary grower. The Martin Smith varieties are exceptionally fine in both flower and habit of growth, but even they are scarcely a success in the open air. A hardier race, less tall, is desirable for border purposes.

The importance of keeping Carnations in pots on the dry side during dull weather can hardly be exaggerated. The roots of this plant seem to ramble among the drainage when the soil is apparently dust-dry. But in this condition the earth is sweet, and the plants are able to bear a dark, moist atmosphere outside without injury. I would only employ fire-heat in very wet weather—it is not needed to warm the plants—nor should the ventilators ever be quite closed.

The mildness of this winter has caused the plants to unduly push their growth, and some are anxious even at this early date to send up the flowering shoots. This is not desirable; still preparation has been made for potting, and quite early in March I shall begin to shift the plants into their permanent pots for the season. Nine-inch pots are employed. In the case of the strongest plants two are potted together, then three or as many as four of those of weakly growth. I do not use animal manure in the soil; in fact, none except what is contained in a dash of soot and broken oyster shells. The compost is—loam two-thirds, brick rubble, sea-sand, and the above-named articles. Soot must not be too freely

used, a 5-inch potful to one bushel of earth being enough, but the other parts are not so easily overdone because the Carnation roots are partial to anything of a gritty nature.

The coloured plate of Carnation Lady Ardilaun in THE GARDEN of February 3 portrays a very fine and distinct kind, but in reading the notes which accompany it it appears to me hardly necessary to have separate classes for yellow-ground Picotees and fancy yellow grounds. A class that includes Cardinal Wolsey, The Gift, The Dey, Voltaire, and Cowslip may well take in Mrs. Robert Sydenham, Mr. Nigel, Ladas, and Golden Eagle among others. There is too much division of types by florists. Few persons, for instance, care to inquire the difference between show and fancy Dahlias, and in Chrysanthemums the subdivisions of Japanese incurved and Japanese reflexed proved a source of trouble and never succeeded.

Woking.

ANEMONE FULGENS.

I BELIEVE success or otherwise with this is greatly dependent on the character of the soil. Here in the Thames valley (Hampton), as also in the light sandy soil at Tooting, the species was a success and invariably formed permanent patches. On the other hand, I have had experience in Birmingham, Gloucestershire, Che-hire, and Notts, where on heavy soils the plant was not seen, or if seen, useless after the first year. Indeed, the only way to get even a few flowers in the second year is to lift the tubers quite early in the season and dry them for a long time. Where lias clay constitutes the subsoil, and where the top soil is heavy and retentive, this Windflower is rarely happy, and though I can recall instances where sickly stock has been resuscitated, I remember others where the lifting and resting have proved of no avail. In Mr. Arthur Tilley's case I have but little doubt the summer drying referred to is of great help, and this, coupled with the light soil, is jointly responsible for its continued success. In the light soil of this district the plant grows and increases, many of the tubers being twice their original size after a season's growth. One drawback to this as a permanent subject here is due to the rapid growth in the event of early rains after a protracted season of drought, the beds being a dense mass of foliage early in November, and in exceptional seasons flowers appearing also. In such a case should a severe winter ensue all this growth would be sacrificed; indeed, in one instance, even with a rough frame and lights, this was actually the case, and for the safety of the stock, which was very large at the time, annual lifting was pursued afterwards. A short complete rest in this way prevented the early autumn growth referred to and saved the very severe check that otherwise is unavoidable. I am of opinion, however, that much more could be done with this species were the soil made very light and free, followed by lifting and resting, or covering after growth is matured till far into the autumn months. In such cases the lifting is, of course, the best way.

— Mr. Arthur Tilley's experience with *Anemone fulgens* (page 140) is certainly a most satisfactory one, but, unfortunately, such success is far from being general. Many years ago I planted a bed of light soil with tubers of this *Anemone*, which during the first season was a sight of surpassing brilliance. The second year, however, only a few tubers flowered, and in the third no blooms appeared. Procuring a second supply of tubers, I replanted the bed, and, being advised to thoroughly bake the tubers during the summer, I lifted them after they had flowered equally well as the first batch, when the leaves died down, and laid them on a sunny shelf in the greenhouse, planting them again in the autumn, but this method gave no better results than when the bed was left undisturbed. In heavy soil I now find their behaviour every whit as unsatisfactory, and I know that many are unable to

retain them in good health whether planted in light or heavy soil. Some of the best that I have seen were the result of self-sown seed, and possibly seedlings may possess a more vigorous constitution than imported tubers.—S. W. F.

LILIUM AURATUM.

I HAVE this winter overhauled some large beds of *Lilium auratum* which had not been disturbed for ten years. Late last May there was a hard frost, which lasted all night, with the result that many of the Lily stems, which were 3 feet and 4 feet high, turned brown at the tops and all chance of flowering was destroyed. I have always advocated that when Lilies seemed thriving the beds should be left alone, but the injured stems of last year suggested digging up the beds and examining all the bulbs. On doing this I found many fine bulbs, but a larger number of small ones produced by large bulbs having broken up. I found also, I am sorry to have to say, a large number of destructive grubs; some of these were the well-known cockchafer grubs, but there was a much larger number of a long, white, narrow grub. Not knowing them, I sent some to a friend, an eminent entomologist, who tells me "they are the grubs of the small swift moth (*Hippiatus lupulinus*), a destructive beast to anything underground." It is often said that, considering the great number of bulbs imported every year from Japan, it is curious that the number of the Lilies in this country does not seem to increase. I suspect that grubs have a good deal to do with this fact. Many bulbs of *L. auratum* are planted in unsuitable situations, either too moist or too dry; but many are planted in right places and soils by experienced gardeners, but yet the cry often comes that they bloom well the first and second years, but afterwards dwindle away. My old friend Mr. Macintosh used to grow *L. auratum* and some other Lilies for many years at the edge of his Rhododendron beds. I have grown *L. auratum* in Rhododendron beds for more than thirty years, but when you go in for quantity you cannot give this shelter. I had good evidence that under really favourable circumstances the bulbs will make good increase in this country. In one of my beds there were eight strong stems very close together. Thinking that by mistake the bulbs had been planted too near each other, I had them dug up, and found that one bulb had produced seven good bulbs. In the same bed a plant looked unhealthy and was dug up; I found a number of large dingy dark grey grubs all round it. I am sorry that I did not get their name, but I never found this grub before or since. In the year 1893 the large *L. auratum* beds made the best show, not having been injured by any late spring frost. The greatest enemy at Wisley is late spring frost, though I have never before had this nearly so bad as last year, and even last year in the wood at Weybridge, which is warmer and more sheltered than that at Oakwood, all the Lilies bloomed well. I believe that my practice in future will be to take up small parts of the beds every winter and judge by what I find how much farther it is desirable to go. Where many hundreds of bulbs are grown, it takes time that can ill be spared to dig up all the large beds, but after this year's experience I think the grubs must not be allowed to increase.

GEORGE F. WILSON.

Anemone fulgens in pots.—If liberally treated in the matter of soil and cultivation generally this is a very striking plant in the cool conservatory from Christmas onwards. All that is needed is to plant the tubers in August in fairly rich material, placing about four large tubers in a 6-inch pot 1 inch below the surface. Errors in using this attractive species in pots are that the tubers if much dried off shrink considerably, and often too many are planted together. Unless enlightened by previous experience, few would realise how great a mass of roots, leaves, and blossom the tubers of this plant have wrapped up

in them, and when six or eight have been planted in a 5-inch pot, it is very difficult to afford the plants sufficient moisture to develop all the flowers that should ensue. Six medium-sized tubers, or, as above stated, four large ones, are ample for a 6-inch pot. In this way by affording plenty of moisture and a little liquid manure this plant is very useful quite early in the year, excelling the Tulip in brilliancy and entirely superseding it in usefulness either in a cut state or in pots.

Anemone fulgens.—The notes by Mr. Wood and Mr. Tilley regarding this *Anemone* must be of considerable interest to many readers of THE GARDEN who have failed to bloom it after the first year. This is a very common experience, and many times I have been told of such failures. I am not disposed to attribute these disappointments to the cause assigned by Mr. Wood—that of the tubers splitting up. It is more likely that the failure to flower is due to the imperfect ripening of the tubers. This is the conclusion I have been forced to come to after making several experimental plantings and seeing the behaviour of the *Anemone* in other gardens. Here, unless planted in exceptionally dry and sunny positions, it will only flower the first season after planting. If planted in these dry and sunny places it blooms from year to year without further trouble. Mr. Tilley's success is not improbably due to the conditions under which he grows *Anemone fulgens*, and if his remarks on page 140 are referred to they will be found to support the view I advance. Light, dry soil thoroughly dried up in summer with full exposure to the sun will give some chance of securing flowers year after year.—S. ARNOTT, *Carsehorn, by Dumfries, N. B.*

FANCY CARNATIONS, &c.

I REGRET to see, by your issue of February 26, that your correspondent, Mr. B. Chatwin Cartwright, has not done me the favour of reading my letter on the above subject with attention. One object of that paper was to demonstrate the difference between a yellow ground fancy and a yellow ground Picotee. I said: "I am glad to see that in first-class shows now the mixture of the yellow ground Picotee and the yellow ground fancy is not tolerated." I referred of course to the National and Birmingham shows, and then, again, I say: "There are really only about a dozen true yellow ground Picotees; the rest are fancies;" and had I proceeded to give a list of the dozen I had in mind at the time, I should in all probability have given the same list as your correspondent, although the latter half, with the exception of The Gift, will not have been seen by the generality of your readers until the flowering season of the present year.

The subject of my paper was "Fancy Carnations," and to that subject I devoted my attention. That the definition of a yellow ground Picotee is a rather difficult problem to solve is certain. So long as the number of really true varieties of this class is so limited, there is always the desire of an exhibitor in this choice class to try and squeeze through with one or two doubtful blooms, and I think, until a hard-and-fast rule is laid down as to what named well-known varieties are yellow ground Picotees and what are considered fancies, there will always be a difficulty in this direction.

A short time ago I received a notice to the effect that a meeting was about to be held in London by the National Carnation and Picotee Society, the subject for discussion being given to "The Classification of Yellow Ground Picotees." As I was greatly interested in this particular subject, I wrote to the secretary, requesting him to kindly forward me the decision that was arrived at, as I could not personally attend the meeting, and in due course I received a notice that "Nothing had been decided upon."

The matter, therefore, stands *in statu quo*, but on the face of the rule given in the schedule of the forthcoming Birmingham show I cannot but think that if anybody exhibits a yellow ground in the Picotee class that has "spots or streaks on

the ground colour of the same colour as the margin," they will not stand the ghost of a chance, with such judges as they have there, with such exhibitors as are able to show yellow ground Picotees with a clean edge and perfectly pure ground colour.
H. W. WEGUELIN.

St. Mary Church, Torquay.

VIOLET CULTURE.

BEING a grower of Violets, I feel greatly interested in the several articles which have appeared in your paper of late. The cause of "A.'s" Violets going off so badly is, I think, due to excessive watering. The soil they are in has become sour and stagnant, which is fatal to them. I have had experience in growing Violets for many years, and now have about 3000 plants. I have never had any difficulty in their cultivation. I plant them on a piece of well-manured and deeply-dug ground facing the full sun. Just before the cuttings are planted out I work into the soil plenty of wood ashes or burnt soil and soot, from which they derive great benefit. I always get well-rooted cuttings ready for planting out by the second week in April. I plant 1 foot apart each way in beds of four rows, allowing a wider space between the beds for the convenience of working among them. When they commence to grow freely they require constant attention in keeping all the runners cut off. It is a great mistake to let them get 3 inches or 4 inches long before doing so. I give them a good dusting with soot several times during the summer, and after hot, drying days I give them good waterings overhead with the garden hose, and so keep them free from red spider. By the latter end of September they are nice plants, well set with bloom, and ready for their winter quarters. I plant them in cold frames as close up to the glass as possible, watering to settle them in. They require no more water for five months. I cover them well in frosty weather, but always admit air as soon as the thermometer rises to freezing point, and so prevent damping. Under this treatment I get an abundance of fine blooms from August to the end of April. Marie Louise and its white companion, Comte de Brazza, are by far the best varieties to grow for frames. I also grow the double Victoria, which has a beautiful dark colour, is very sweet-scented and free-flowering during March, but its season is very short. Among the single varieties, I think the Princess of Wales is the best; it is quite as free as The Czar. Princess Beatrice is also good, but more sturdy in its growth than the former and not quite so free. The California I was disappointed with, and shall now discard it altogether, as I consider The Czar much the better of the two. I have a few of the *Odorata sulphurea* this season. It is very pretty and sweet-scented, but the flowers are much too small to be of much use.

G. J. SQUIBES.

Llangedwyn Gardens, N. Wales.

Narcissus cyclamineus.—It may be interesting to record the fact that the first flowers of the above—one of the smallest, but one of the most beautiful of the family—opened on February 6, and the small space devoted to this variety is just now (February 16) very gay. I was, unfortunately, not cognisant of the conditions under which the variety was found on receiving my small stock of bulbs, and consequently planted them in a position that dries out rather quickly. They have, however, done very well and flower freely every year, not making the progress of some varieties, but still on the whole satisfactory. In this matter of annual strengthening, provided they are in a soil to their liking, I have previously noted the satisfactory progress of the late-flowering poeticus. The buds of this variety are just discernible, and an inspection of two or three clumps shows that I shall this year get an average of twelve to fourteen flowers from the single bulbs planted some six years ago. I gave the double *Gardenia*-flowered form, which does well

with me on a south border and is much prized for cutting, a heavy mulching last autumn of good manure, and the leaves are just peeping through.
—E. BURRELL.

Hellebores.—I see another of your correspondents has a difficulty with his Hellebores. I remember once finding a quantity of *Helleborus niger* growing wild in a wood near the Lake of Como. Just before, I had received from Mr. Archer-Hind some seeds which he had obtained by hybridising some choice kinds. Many of them came up, and I put some of the young plants into a wood within my grounds. I never saw anything do better. They are now full of flowers, varying in colour from dark crimson to greenish white. I generally grow Hellebores in the shrubbery in old petroleum casks sunk in the ground in order to protect them from the competition of the roots of the trees. If your correspondents are experienced gardeners, they will of course understand that when anything is planted in an old-established shrubbery, it is necessary, in order to give it a chance, that a fair-sized hole should be dug for it and filled with fresh soil. There is no part of the work of the amateur gardener more pleasant than that of naturalising really good things in woods or in the wild garden. It is much more likely to be successful, however, when we have seen the plants growing in their natural homes.
—F. W. HARMER.

HARDINESS OF ERIGERON SPECIOSUS.

"S. W. F." points at page 97 to an instance where the above plant has failed in some quantity each year. The circumstances, however, are exceptional, and it is more than likely that two-thirds of our reputedly hardiest subjects would succumb similarly if placed under the same conditions. Even in dry and well-drained soils I have known grossly fed plants lose all the usual tuft of leaves this forms on the surface, and, save for a few buds on the stems below, may even have perished outright. The circumstance, however, was so exceptional, that I did not mention it in connection with actual hardiness, a thing very difficult to determine when a plant will pass through a winter of severe frost unhurt, and succumb to a sort of combination winter where frost, snow, rain, thaw, and frost again occur in twenty-four hours. In this way I have seen *Helianthus multiflorus* pl. and other varieties killed outright by this mixed kind of winter and safely pass through another much more severe, where not only a steady dry frost prevailed, but where the land and the surroundings were dry when frost set in. Scores of plants considered quite hardy pass in their native haunts a winter of complete rest and quiet, not for a day or a week, but for many weeks beneath a bed of snow and leaves where real hardship never reaches them. Here they are dry, snug, and, above all, at rest. The same plants transferred to a British garden are forced to battle with a winter, unceasing in its changes, where excitement and unrest jointly play their part in undermining the constitution of many a plant. In such circumstances as these the hardiest of herbaceous plants are those that prove not only the most deciduous, but such as early seek shelter beneath the surface. Other things, like the *Erigeron* above-named, that have a tuft of growth on the surface have to face all the hardships that follow. Little wonder, therefore, in some instances that the plant suffers or is lost.
E. J.

Lilies from Japan.—Since Christmas immense numbers of Lilies from Japan have been disposed of at the London sale rooms, the varieties of *L. speciosum* being particularly well represented. Taken altogether, I never remember seeing them in better condition, even the bulbs of *L. auratum* being plump and good. The earliest importations of this last-named Lily are often far from satisfactory, for we seldom get any very good ones till just before Christmas, and this season the best have reached here in the new

year. The forms of *L. speciosum* are generally limited to three, viz., *Kratzeri*, with white flowers; *rubrum*, a good coloured kind, and *Melpomene*, the best of all the deep tinted forms. The bulb of *Kratzeri*, which, by the way, is often disposed of under the name of *album*, is of a yellowish colour, and is totally distinct from any other form of *L. speciosum* sent here in quantity. In the case of *rubrum*, which is also known as *rubrum superbum*, the bulb is close and compact, and flushed more or less with red. The bulbs of *Melpomene* are in most cases somewhat deeper in colour than those of *rubrum*, and not so symmetrical in shape, as they frequently show a tendency to divide up into two or three smaller bulbs rather than to form one solid whole. As a rule a few bulbs of *Melpomene* crop up among those imported as *rubrum*, but this does not occur so frequently as it did at one time. Apart from its more irregular shaped bulbs and their somewhat deeper colour, the true *Melpomene* can be detected as soon as growth takes place by the much broader and rounder leaves and the deeper coloured stems and leaf-stalks. The crimson banded form of *L. auratum* known as *rubro-vittatum* is very numerous this year. The bulbs of this are, viewed from the standpoint of the ordinary *L. auratum*, always small. Of other Lily bulbs sent here from Japan, perhaps the greatest surprise of all is the immense size of those of the woolly stemmed *Tiger Lily*, known by the varietal name of *Fortunei* or *sinense*. The bulbs of this, as compared with English or European-grown bulbs, are simply giants, and they yield a grand display of bloom.
—T.

GARDEN FLORA.

PLATE 1160.

PRESENT-DAY CACTUS DAHLIAS.

(WITH A COLOURED PLATE OF DAHLIA FANTASY AND D. WHITE CACTUS.*)

FROM the decorative point these have made great strides during the past few years. It is not more than three or four years since the single Cactus forms first came into notice, and even now they are being slowly recognised by the strict florists, but, nevertheless, it will take some time to oust them where they have had a fair trial. They are so free-flowering, with the blooms in the case of the best varieties thrown well above the foliage, decidedly more so than in the majority of the double Cactus forms; whilst in a cut state for vases, they are quite the ideal flowers to choose from an artistic point of view. Some growers may be surprised at this statement, I know, but let them give the best kinds a fair trial by cutting them almost before the flowers are expanded, then grouping each kind separately, and the result will not be a failure. All single Dahlias should be cut before the flowers are advanced. My selection for this season of single Cactus kinds from a large number grown last year is: *Guy Mannering*, creamy white; *Brenda*, chrome-yellow; *Pirate*, dark crimson; *Ravenswood*, old gold colour; *Novar*, crimson-purple; *Ivanhoe*, bright rose; *Marmion*, glowing crimson-scarlet; *Sir Walter Scott*, rose-pink, deep orange disc; *Alice Lee*, pink to white; and *Meg Merrilies*, beautiful clear yellow.

The form of double Cactus in the coloured plate called *Fantasy* originated only a year or two back. It is a most useful variety for cutting as well as for really decorative uses as a garden plant, as it is a most profuse flowering variety. The only possible complaint to be made against it is its rather short flower-stems.

* Drawn for THE GARDEN by H. G. Moon in Messrs. Cannell and Sons' nursery at Swanley. Lithographed and printed by J. L. Gofart.



DAHLIA FEINTON L. MIXED WHITE BLOSSOM

It is a decided gain as a garden flower and has no element of coarseness about it. The illustration depicts it at its fullest size. For use in a cut state it bids fair to be sought after extensively during the coming season.

GROWER.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

PEACHES AND NECTARINES—EARLIEST HOUSES.—The fruits in these should now be swelling away kindly with the more genial and sunny weather, but it is yet too soon to unduly push them by a much higher night temperature. I do not mind at all if I see in the early morning the thermometer touch 50° or even a little lower when colder than usual. If the temperature at banking-up time be 55°, there is sufficient room for the fall to 50° during the night. The day temperatures may run up a little higher, say to 70° or 75°, closing in fairly good time so as to catch the higher record. Do not, however, be too free in using the syringe, otherwise the leaf growth will incline to size more than to substance, whilst too much moisture will conduce to check the fruit growth for the same reason. What is wanted is a hardy close-jointed but not sappy growth. A due limitation of atmospheric moisture and judicious ventilation will greatly assist towards its attainment. See that the trees do not suffer from want of moisture at the roots; a check here and now may lead to disastrous results. What will govern and control one case, however, will not do so in another, for it must be duly considered how the border is constructed, whether concreted, or well drained or otherwise. If these matters were better considered, there would be less complaints of gross wood and of canker too. At the first watering now given, a light dressing of bone-meal or one of the best and most reliable of artificial manures will in most cases supply a need in time to assist the trees through the stoning period. Guard against surface-hardened borders, and do not allow them to be trodden upon. Disbudding has possibly been attended to ere this in some cases, but so far I have done very little, being no believer in early disbudding, which only tends to add vigour to the young shoots, a circumstance not in every case to be desired by any means. When it is done, guard against doing too much at one time, rather let it be gradual. Keep a close watch for any symptoms of green-fly. So far I have not seen any on the trees, whether in pots or trained. This I attribute to using a dose of XL All Vaporiser just prior to the first flowers expanding.

SECOND EARLY TREES invariably set better crops of fruit, thus with these there will not be much to fear, and it is oftentimes safe to thin out some of the misplaced fruits quite as early as it can be done in the most advanced cases. Do not excite these houses beyond 50° at night, with 45° as an early morning reading. The later and latest trees will no doubt be in flower now—mine out of doors even are upon the point of bursting into flower. With these there is not the same need of artificial fertilisation as in earlier houses. Keep the latest houses as cool as possible, consistent with not touching the freezing point. Should any of these not be heated at all and the weather be frosty, a few wax or composite candles will greatly assist in keeping out the frost; covering with canvas or matting will also assist in such cases. The latest trees in pots, if still out of doors, should now be brought under cover. Give these and all late trees an early application of the above vaporiser, and thereby save trouble later on.

APRICOTS UNDER GLASS will in all probability have set their fruits. Whether so or not, still keep them cool, only just excluding frost and, on the other hand, shade, if need be, when very bright and warm. (Note the derivation of the word "Apricot" and the French *Abricoté*, or in English, "shady-side" tree.)

FIGS—EARLIEST IN POTS.—The value of the newer kinds, as represented by St. John's and Pingo de Mel, have again been put to the test, and that in a thorough manner in my own case. My first early crop is now nearly all gathered, the forwardest of these having been ripe by the middle of February. The plants producing these were started the third week in October last. To follow them, another batch was started a month or so later, and these will, to all appearance, make a good succession. After that, say the end of March, the planted-out trees of older kinds will take up the running and keep up a constant supply onwards to the autumn. My treatment thus far has been given, and to again describe it in a few words is but to say it follows on similar lines to that of early pot Vines in almost every particular. Abundance of light is absolutely necessary to strengthen and solidify the growth. The beneficial effects of the brighter weather during the past three weeks or so have been surprising. The leaves gain wonderfully in substance, and now withstand the sunshine and a day maximum temperature of 85° very well indeed. At night the temperature for these early pot Figs now ranges from 65° to 70°. Watering has of course to be watched more closely than a few weeks back, occasional applications of weak farmyard manure being given, and at times a sprinkling of artificial manure.

FIGS IN BORDERS.—Where these show indications of making too luxuriant a growth, the wood itself being rank and the foliage also large, it will be found a good plan to modify the treatment in a measure by lessening the atmospheric moisture and withholding, but not beyond the safety point, water at the roots; thus, in conjunction with slightly more ventilation, some check may be given. It is well known that, unless the roots are under some control, there is at times this difficulty to contend with. To succeed the earlier houses of planted-out Figs, now will be a good time to start, beginning slowly and not in any degree hurrying them. These will give ripe fruits during July from the first crop, and in September from the second, or later even if the variety be Negro Largo, which for late work is the most reliable, as Brown Turkey and White Marseilles are for mid-season kinds.

NEWLY-PLANTED TREES, &c.—If this work be contemplated and not already done, now is a good time to do it, perhaps as suitable a time as can be chosen, provided in removal there is not too great a check given at the roots. In every such case arrange, if it can possibly be done, to limit the border. This should be possible by means of a brick pit, by taking out the sides of which it can be extended to meet the needs of the case as occasion may require. In making a new border, guard against using anything of an exciting character in the soil. Good turfy loam and lime rubble will supply all that is needed, taking care to have the soil on the dry side so that it can be thoroughly well rammed. The present is also a good time to put in eyes or terminals for a new stock of plants, treating exactly as Vine eyes. Success now is more certain than if done earlier.

PEACHES AND NECTARINES ON OPEN WALLS.—Possibly in some instances the nailing or tying, as the case may be, and the pruning, too, will have been done. It is not, however, as far as I have proved by a quarter of a century's practice, a good plan to be too forward with this the last of the wall tree work. Conclusively, year after year I have proved, by never missing a crop of fruit upon open walls, that this work when done late, even when the first flowers are expanding, is far more satisfactory. Never mind in the least if a few flowers are injured or displaced in the process; better this than wholesale destruction by frost through having been done too early, when protection even is not always sufficient to save the crop. Against this it may, I know, be urged that then it will take too long to do it properly in the usual orthodox fashion by one, or at most by two pairs of hands. My answer to this is do it quickly. It is an exploded fallacy that only one or two in a garden can do the wall tree work; let all hands as

far as possible take a turn and they will soon get used to it. It is best to let the pruning be done by one or two so as to have one line followed out. In doing this my plan is not to be too severe; it is an easy matter to foreshorten later on or thin out when the indications of the crop foreshadow the future. Some hesitate to let any one shoot overlap another, even if by so doing the wall can be covered in a more satisfactory way. Such practitioners seem to forget that very soon the walls will be covered with leafage and overlapping not visible. My advice is to bear in mind that fruit trees are grown (or they should be) for bearing crops of fruit and not as mere ornaments in the way of training.

PROTECTING THE TREES.—After the work already alluded to has been completed, do not allow any time to be lost in protecting the trees against spring frosts and sudden outbursts of stormy weather in the way of snow, sleet, and hail, as well as by cold rains. To do this some urge the necessity of wall copings (glass or otherwise). That they are very well is readily admitted, but they are not absolutely a matter of necessity. I have none, and do not want them. Perhaps if I had them the red spider would be troublesome; now it does not do so. My plan is to fix in a transverse fashion some long bamboo rods (12 feet to 15 feet), securing them to the top wire and allowing them to gain a footing on the soil at about 5 feet from the wall. These are placed at 8 feet or 10 feet apart, and are secured by two horizontal lines of tarred string. Then three or four thicknesses of square mesh netting, which covers better than the diagonal, is stretched upon the rods and the work is done. No frost or fall of any kind can then injure the bloom to any serious extent—at least this is my experience. HORTON.

KITCHEN GARDEN.

POTATOES IN FRAMES.—The tubers planted as advised in January will now be making good progress. The aim of the cultivator should be to keep the root growth equal to the top growth. Give air freely in bright weather, and in severe weather it is a much better plan to cover the glass at night than use much warmth in the hot-water pipes. With heated frames more care is necessary in airing, as the top growth is more tender. It is well to give tepid water when needed, giving a thorough soaking. I do not advise moulding up plants grown thus, provided there was a good depth of soil at the start, as I have found the newly-added soil is of little use, the tubers rarely getting any benefit from it. The soil often keeps the sun's rays from the roots, causing the new material to retain moisture. These remarks are only applicable to heated frames. It will be found the soil close to the pipes dries quickly, and here a little short straw litter placed over the surface would be beneficial. Many growers employ fertilisers at this stage of growth. I find liquid manure the best used with hot water, as it gives the plants assistance promptly, and if not given too strong is just the help needed, as the time is so short to build up a crop. On the other hand, much manure of any kind is not needed if the soil is good.

SUCCESSIONAL BEDS.—These are usually in frames without heat with manure for the roots. Here with care one can secure the best tubers. Of course, the season of growth is longer, but the results are better, as growth is more natural. Grown in brick frames one can better husband sun-heat, and by attention to closing early in the day just as the sun declines and covering the glass at night, the crop is much earlier. On beds made up a few weeks ago and planted, the growth will now be several inches above the soil. I find this the best time to add fresh soil if needed before the top growth is far advanced. Even in cold frames I am not much in favour of top-dressing, for the same reason as advised with the earlier crop. Less moisture is needed in cold frames with a good body of top soil, and if leaves can be used freely with manure to give the neces-

sary heat the bed retains moisture, and this the tubers delight in. Beds on manure with movable frames may require extra linings to conserve warmth if the heating material has fallen away from the frames. It is well to see that the glass is not resting on the haulm; if so, previous to adding the additional material, raise the frame. These beds will need ample covering at night and avoid cold draughts.

BEDS IN THE OPEN.—Now is a good time to make up any out-of-the-way corners that are sheltered for a crop of Potatoes to follow those in frames. This is more important in northern localities than in the south, and in many gardens there is a deficiency of south borders. For many years I obtained excellent crops in turf pits with thatched hurdles as a night covering. The beds should be of a good thickness to retain warmth. I usually save the rough leaves. For this purpose an early kind should be chosen and the sets well advanced. Previous to planting, reduce the sprouts to the two strongest, and it is well to make the bed as firm as possible, placing the soil in time to get warmed through, and having at least 9 inches to 12 inches of soil for the tubers. I usually plant at 15 inches between the rows, with 9 inches between the sets, as it is necessary to make the most of the beds. After planting, the whole surface is covered with litter or Bracken till the tops push through the soil. As growth is made the soil is gently drawn up to the growths, and then the hurdles or night covering are used. Beds made thus are of great value for other crops. I use mine for pricking out the seedlings of tender vegetables raised under glass, and they do well for Marrows if the root growth is not allowed to run wild. A few tubers may be found room for at the foot of a south wall, as here one may give protection in the shape of mats and a few stakes. If a south border with a warm, light soil is at command, the first lot may be planted. The grower will do well to make deeper drills, not filling up level at planting, as by so doing he will have more soil to protect with.

EARLY TURNIPS.—In light soils a warm border should be selected for an early supply of Turnips. In places where the soil is not suitable it is well to prepare a small piece of ground. Few vegetables are more appreciated than early Turnips. With a little care in preparation, Turnips may be had from the open ground at the end of May. The Extra Early Milan, of which there are two types, the red and white, is the best for present sowing. It is not advisable to sow large quantities. The roots need a good soil, as quick growth is needed. I prefer to sow on the flat, sowing thinly, as when too thick the plants run if dry at the roots. Succession crops should also be sown in a few days. These are best on an open border and in soil well prepared some time in advance, so as to be in a workable condition. Avoid thick sowing. It is also necessary to guard against birds. I cover the seeds with red lead, oiling the seeds first. For this crop Snowball is a splendid variety.

EARLY CARROTS.—With the soil in a nice condition there need be no longer any delay in sowing the first bed of Carrots in the open. Carrots, like Turnips, need a warm border—indeed, more shelter at the start, as the seed is longer in germinating. Much may be done to assist germination by placing litter over the beds at night, and in frosty weather also, by having raised beds if the soil is heavy, and by incorporating such materials as old potting soil, spent Mushroom manure, leaf mould, and other aids freely. A little extra trouble in culture is amply repaid by quality and earliness. For this sowing the Early Nantes is one of the best of the stump-rooted section, and though a few days later than Parisian Forcing, it is of better quality. Early Gem is a very fine Carrot, but needs more time to develop. It is excellent as a succession variety. I sow all three at this season and get plenty of roots in succession. In heavy soils a free use of wood ashes or burnt refuse before sowing and for covering the seeds is of great assistance.

EARLY VEGETABLE MARROWS.—In many gardens there is a demand for early Marrows, and a first sowing for the earliest may now be made. I prefer to sow the earliest lot two or three seeds in a 4½-inch pot, and when above the soil to thin to the strongest. Many fail by having a weak plant at the start. After the third leaf appears it is best to grow cooler—close to the glass, and keep free of insects. Marrows are well worth frame culture if the frames can be spared. The root growth must be restricted, as, given a rich soil and ample room, there are far too much leafage and only few fruits. For frames Pen-y-byd is good, but it needs using in a small state. Plants for beds in the open should be grown in cold frames after they have made their first leaves, and sheltered from the wind in cold weather.

ARTICHOKES.—The Globe section that has been protected should have the litter or other material removed, and any blanks made good by cutting away side growths with a portion of root attached and planting with a portion of fresh soil added. I usually pot up suckers in the autumn in case severe weather destroys old plants. Where new plantations are made it is well to give ample food and space, as the plants occupy the soil longer than many other vegetables. The Jerusalem varieties should all be lifted, the tubers stored under a north border, and covered with litter to keep them from growing. Artichokes well repay for attention, as though they will grow anywhere, they are of a better shape and quality when given good culture. In selecting seed tubers choose those above medium size; the rounder and freer of irregularities the better. Give an open position, and keep the plants to one or two principal growths. S. M.

THE MARKET GARDEN.

FRUIT-DRYING.

The subject of fruit-drying is a most important one, as hitherto the grower has been content to market his fruit in the fresh state, and has had to take what prices he could get, which were often very low and in many instances scarcely paid the freight and marketing. Great care must be taken in the selection of trees, keeping in view the necessity of choosing such as produce the best drying fruits—that is, for colour and size, and such as will lose the least weight in drying. One of the objects (in fact, the main object) is to produce a dried fruit of good size and bright, clear colour, which, when graded and properly packed, will present a most attractive appearance.

In districts where sun-drying is not practicable, good results may be obtained by drying in the evaporator, and where this process is used it has the advantage that, with careful handling after the fruit is dried, there is very little risk of the fruit becoming infested with moths.

APRICOT-DRYING.—As previously suggested, the planter should choose and grow only those kinds which make a good, bright, clear-coloured fruit, and one which does not dry away too much during the process. To begin with, the tree must receive, from the time of its planting, the necessary care and attention to enable it to produce a good crop of the very best fruit, both for quality and size. This necessitates systematic and judicious pruning and thinning. If it is seen that a tree has set too much fruit, or more than it can possibly develop properly, pick off or thin evenly over the whole tree, leaving only such quantity as the tree will properly develop.* If irrigation is carried on and

* I would advise that this thinning should be done at two different times, the first thinning to be done about three weeks after the fruit is well set, and a final thinning when the stone is well formed, as in stoning very often the tree thins itself, a good many of the fruits dropping at this period.

the climate is very dry, do not be afraid to irrigate the trees at the time of ripening if they appear to require it, as a little neglect at this particular time may make a great difference in the quality of the dried fruit. In a cool, moist climate I would recommend the grower to pay particular attention to his cultivation. To make the best dried fruit, allow the Apricots to hang on the tree until they are perfectly ripe, but not over-ripe, or so that they cannot be cut in halves with a sharp knife and still retain their shape. When the fruit is fairly soft, pick it carefully into cases; this will necessitate going over the trees five or six times in all probability. As soon as possible have the cases carted to the cutting-shed, where the fruit should be carefully and evenly cut in halves (not pulled apart) and the stones removed. Place evenly on the trays with the cut side up, and as soon as possible remove each tray to the fumigator, where it may remain, with the door closed, until the fumigator is sufficiently full to start the sulphur burning. This is of the utmost importance, as when once the fruit has been cut it must not be exposed to either sun or wind. When everything is ready, place sufficient sulphur or brimstone to fill the room with the fumes for about three hours (from 1 lb. to 2½ lbs., according to size of room); but if possible allow the fruit to remain in the sulphur-room from eight to ten or twelve hours, or until the cup* is full of juice. It can then be taken out and placed either in the sun or in the evaporator (as the case may be) immediately. If in the evaporator, do not place the fruit in the hottest part to begin with, but gradually work from the cooler to the hotter part, say, starting at that part which is 140°, and finishing off at 160° or 170°. In this way the fruit will dry in from fourteen to eighteen hours, but the greatest care must be taken not to allow it to burn, and some practice will be required to tell when it is just dry enough. If the fruit is to be dried in the sun, use wooden trays, 2 feet by 3 feet, which are made for the purpose, with a 2-inch cleat at both ends. These are easily handled, and can be used in connection with all fruits. In cutting the fruit and placing it on the trays, place it on the top part or so that the cleats at the ends will be resting on the ground, thus allowing a current of air to pass underneath and assist in the drying process. If the weather is hot, it will take from two and a half to three and a half days to dry the fruit, which will require to be sorted over, so that any which is not quite dry may be put on other trays and allowed to stand for another half day or so. The dried fruit should be taken from the trays and put into clean calico bags immediately and securely tied, so that the moths may not reach it. When sorting over in the above manner, any fruit which is small or of bad appearance should not be mixed up with the good, but sorted out and marked as inferior; while the good also can be marked accordingly. When the fruit is dried and bagged it should be at once stored in a cool, dry place; if exposed to heat it will become hard, lose in weight, and deteriorate in quality. Should, by any mischance, the moths have got into the fruit and deposited their eggs therein, an effectual means of cleaning or ridding such infested fruit is to dip it into boiling hot water for a few seconds, and then spread on trays and allow to dry by exposure to the sun's rays for a few hours.

PEACH-DRYING.—The process of drying

* That is the depression where the stone was removed from.

Peaches is very similar to that followed with Apricots, but there are so many hundreds of poor varieties grown that it is very difficult to find Peaches that make a first-class or commercial dried fruit. A freestone is really the only variety to grow for drying purposes, and one with a firm, yellow flesh, not too juicy and above medium size. A Peach of this description will make the very best commercial article, and one which when properly dried and packed would bring the highest price. A clingstone Peach will dry, but will not sell so readily, and brings a much lower price. It is true it will not dry away so much, but with the market as it is, with keen competition from America, it will not pay the grower to place an inferior article on the market, for three reasons, viz. :— (1) Inferior fruits placed upon the market tend to lower the prices of good fruits ; (2) they sell at such low prices that it barely pays the grower for his work in picking, curing, packing, and marketing ; (3) they are usually the last fruits on the market to be sold, and very few wholesale dealers care to handle such fruit, and, in consequence, will accept almost any offer to get rid of it. Although in California peeled Peaches have always brought a much higher price than the unpeeled, they have not in Victoria sold for sufficiently more to pay the grower for the extra trouble of peeling, and in consequence nearly all dried Peaches found on the market are unpeeled. With some varieties it is found that the skin will slip off quite easily with a slight pressure of the thumb and finger immediately after the fruit has been fumigated, while other varieties require the use of a Peach peeling machine. For drying, the Peaches should be cut evenly in halves, placing them on the trays with the cut side up, in every way similar to the Apricot, except that, at the most, they only require two hours' fumigating ; but if desired they may remain for a longer time in the sulphur-room, by opening the doors and allowing the air to circulate freely through the trays, after which they are placed in the evaporator or in the sun, as the case may be, and exposed to the same temperature as the Apricot. They should be removed from the tray while quite pliable and not allowed to over-dry, then tied in calico bags and stored in a cool, dry place until ready to pack. If Peaches are very uneven in size it is best to keep the different sizes together on the trays, as they dry more evenly than if the large and small fruits are mixed on the same tray.

NECTARINES.—This fruit is handled in a similar manner to the Peach, requiring the same treatment. I have seen them peeled, but, as they dry away considerably, the practice is to dry without peeling.

PRUNE CULTURE AND DRYING.—In the Prune growing districts of California and Oregon the following varieties of Plums have as yet been most extensively grown for converting into Prunes by the process of drying, have been found to bear fairly well, and proven profitable, viz. :—Prune d'Agen, or French Prune, which is of medium size, with greenish yellow flesh, full of sugar, rich, but clings slightly to the stone. Tree hardy and very productive. The Italian Prune makes a good-sized Prune, larger than the Prune d'Agen, but the tree is not quite so free a bearer. The dried fruit is of excellent quality, and is bluish black in colour when dried, and freestone. The Silver Prune is a rich fruit, of good quality, but is inclined to be a shy bearer. It dries a light colour, and is one of the largest grown. I have named the above three varieties, as in California they have produced the best crops of good, commercial fruit ; there are, however, several other varie-

ties which have done nearly as well, these being German Prune, Reine Claude de Bayay, Bulgarian and Giant. The fruit should not be picked until it is thoroughly ripe ; then dip it in a solution consisting of 1 lb. of concentrated lye to 10 gallons of water, to be brought to the boil, and the fruit immersed from five to ten seconds, according to the toughness of the skin, or just long enough to slightly crack the skins. The fruit, which should be placed in wire or perforated metal baskets, should be dipped in the solution when it is just off the boil, and immediately after immersed in fresh, cold water, so as to rinse it. It should then be spread on trays, and in the case of Silver or light-coloured Prunes, should be put into the fumigator just long enough to set the colour well. After this the Prunes are placed in the sun or evaporator (as the case may be). In the latter event the temperature should be about 130° to start, and increased to 170° or 180°, this usually covering from one to two days, according to the size of the fruit. The fruit, when done, should be pliable ; and when removed from the evaporator should be allowed to lie in sweat boxes for a fortnight, so as to even up ; then graded and neatly packed in boxes lined with white paper. There is a machine which is used to prick the skins in place of dipping, which some people claim does equally good work, if not better. The length of time required for drying the different varieties in the evaporator varies according to size. The smallest are sometimes dried in less than a day, while the largest take two days.

FIGS.—The Fig is only fit for drying when it is dead ripe, as if dried when only partially ripe the fruit will be found worthless, and possessing none of the rich flavour which characterises the well-developed and ripe fruit. The varieties which have been found to bear fairly well, and make a very good dried fruit, are the White Adriatic and White Genoa, the former, I consider, being the better of the two. The Smyrna Fig, as grown in Smyrna, makes the best dried article ; but, as yet, it has not been successfully grown here, as in no instance have I seen the fruit mature. When the Figs are picked they are placed on trays, with the bloom end down, and exposed to the sun for two or three days, when they should be turned. If picked when properly ripe, it should not take longer than five days of our ordinary summer weather to dry the fruit ; but they must not be allowed to get at all hard, being taken up while quite pliable. After the Figs are dried, it is well to place them in a tight box, with a weight on the top to press them firmly together. By this means they will even up, all being brought to a uniform degree of dryness. In a week's time they are ready for packing ; but before packing, the fruit should be dipped into a weak brine, which not only assists crystallisation, but also adds to its appearance. In packing, the Figs should be well worked out between the thumb and finger, and packed in boxes or drums holding from 1 lb. to 28 lbs. I have improved the appearance of Figs by the use of a little sulphur ; but, as I have seen so many dried Figs practically ruined by over-sulphuring, I would not recommend its general use.

APPLES.—With the exception of some of the very juicy Apples, nearly all of these will make a marketable fruit, although the most suitable are the larger cooking varieties, with firm, white flesh. It is necessary to have a good machine, which will peel, core, and slice at the same time. The fruit is then placed on trays (wooden ones being largely used for this purpose in America, as it is claimed by many that the galvanised wire slightly damages the fruit

during the process of sulphuring and drying ; however, as yet this is a disputed question), and subjected to sulphur fumes just long enough to set the fruit a nice light colour. Great care must be exercised in the sulphuring, as if the fruit is left too long it becomes strongly flavoured with the sulphur, and consequently of very little value. Also, it must not be allowed to stand any length of time before being placed in the sulphur-room, as it discolours rapidly. After being bleached, the fruit is placed in the evaporator and allowed to remain there until perfectly dry, that is, from six to eight hours exposed to a temperature ranging from 140° to 160°. Care must be taken not to allow the fruit to burn or bake, as it would in either case harden as soon as exposed to the air. It is then put into sweat boxes and allowed to stand for a few days, so as to even up the whole. Care must now be taken to keep the dried fruit away from the moths, otherwise they will get in and deposit their eggs and the fruit will be spoiled. If the fruit is to be kept for some time before packing it is always best to keep it in calico bags, securely tied. Pears can be treated in every way similarly to the Apple.

RAISIN GRAPES.—It will be found that the best raisin Grapes are grown on the lighter and richer soils, and I have never yet in the colonies seen a first-class raisin made from Grapes grown on a stiff soil. To make a good table raisin, the Grape must be grown to perfection, that is, the Grape when ripe should be large, thin-skinned, fleshy, and containing plenty of sugar, and the bunches must be well filled, the larger the cluster the better the appearance of the fruit will be. For making either pudding or table raisins, be sure that the fruit is perfectly ripe before picking, as for the latter purpose an under-ripe Grape, when exposed to the sun, will turn red (in most cases), and will also take longer to dry than a ripe one, and when dried will be a sour and inferior raisin. My experience with regard to picking is that, in nine cases out of ten, the inexperienced fruit grower imagines that as soon as his fruit is sweet enough to eat, the Grapes are ready to pick for raisin-making, and, contrary to all advice, will start picking, only to find out at the end of the first week that the Grapes are not turning a good colour. He then decides to stop picking (if, indeed, it is not too late and the Grapes all picked) for a fortnight, so as to allow his fruit to become thoroughly ripe. The only Grapes which have so far produced a good commercial raisin in Australia are the Gordo Blanco and the Muscat of Alexandria. I have had samples of raisins sent to me made from other kinds of Grapes, which did not present a bad appearance, but if the grower placed these on the market to compete with the raisins made from the Gordo and Muscat, he would find that they would not sell, so long as the latter were obtainable. The process of curing the table raisin is as follows : Pick the very best clusters—that is, only such as are well filled with large fine Grapes, cut out all damaged or hard Grapes, and lay the bunches carefully on the trays, which are then placed in the sun. By the end of one week one side should be fairly well dried, and the bunches should now be turned. This turning is accomplished by placing an empty tray on the top of the full one, two men can then take hold of the sides and invert the two, thus exposing to the sun the side of fruit which had been lying next to the tray. After this turning it usually requires another week to finish the drying process, if the weather is favourable—that is, dry, warm days and nights. It usually takes from two to three weeks, under favourable circumstances, to cure good layer raisins ; but if the

weather is damp or threatening, it is better to stack up the trays at night, covering the stacks up with empty trays. If a table raisin gets wet during the curing process, it darkens the stem and spoils the bloom, and thus lowers the grade and value of the fruit. I do not consider that it will ever pay to cure table raisins in the evaporator, as they require to be dried slowly, and when exposed to a temperature, while drying out of doors, of more than 96°, they will burn, and thus spoil the sample. I do not consider they could stand more than 110° in the evaporator, and I doubt if the green fruit could stand even this temperature without it having a damaging effect. Therefore I would not recommend growing Grapes for raisins in a climate where the evaporator would have to be resorted to. Grapes intended for pudding raisins or lexias should also be picked when fully ripe; all partially ripe and dried fruit should be removed, and the Grapes then immersed for about three seconds in a lye made in the proportion of 1 lb. of caustic soda to 8 gallons of water, and this must be kept just under the boil, as the dip will lose its effect if the lye is only fairly hot, and the fruit, instead of turning out a nice golden colour, would be brown. This, however, is not always the cause of the raisins being brown in colour, as it is impossible to make a good, bright lexia, or good quality of raisin of any sort, from Grapes grown on some of the heavier or stiffer soils. After the dipping, it usually takes from five to eight days for the fruit to dry—this depending on the weather. About the fourth day after dipping, the Grapes should be turned, but do not allow the fruit to become too dry before taking it in, a nice pliable fruit being always the best. If there is any uncertainty as to whether the fruit is sufficiently dry or not, it can be tested by squeezing a few of the raisins between the thumb and finger, and if no moisture exudes, then the fruit is quite dry enough. The lexias should be stemmed and graded as soon as possible after they are dry enough to remove from the tray to the sweat box, as if allowed to stand any length of time the stem becomes toughened and hard to separate from the raisin.

CURING SULTANAS.—My advice to those growers of Sultanas who have never yet dried any is to this effect: When you think the fruit is ripe enough to pick, leave it for at least another fortnight, as when they are quite sweet and fit to eat they are not by any means fit to dry. When they are a clear amber colour and perfectly sweet, without a trace of acidity in any of the berries, they should be about ready to pick. The last fortnight, before the fruit has attained this stage, adds considerable sugar, which means increased weight and a better quality of dried fruit—consequently it is best to pick when it is dead ripe, and dip as soon after as possible in a lye made in the proportion of 1 lb. of caustic soda to 8 gallons of water. The fruit must be dipped while the lye is just under the boil, but must not be immersed for longer than two seconds, after which the Grapes are spread thinly on the ordinary drying-trays and exposed to the sun for a day or two. If the weather is very hot, the trays may be stacked up and allowed to remain thus until the Sultanas are dry. Never expose Sultanas to too great a heat, or the colour will not be good, and it is essential, if the grower desires to get the best prices for his fruit, to make a good light-coloured article.

ZANTE CURRANT CURING.—The Zante Currant is very easily cured. Allow the fruit to hang until thoroughly ripe, that is, until some of the Currants begin to shrivel on the bunches, then

pick and place on trays, but do not fill these too full, or the fruit will roll off. Expose to the sun for four or five days, when they should be dry enough to put in bags. Care must be taken with this fruit, as, if exposed too long, the moths will infest it, so that I strongly recommend bagging it until the fruit is stemmed and properly packed. A good-sized room for an ordinary grower is one 9 feet by 10 feet and 6 feet 6 inches high on the inside, built of tongued and grooved boards and put together with white lead. Any small cracks can be filled up with putty, and if the room should be found to leak, it can be papered inside. Fruit sulphured in a large room rarely ever tastes of the sulphur, and this is the great advantage of having a good-sized room, even though it takes a little more sulphur. A room such as this will hold 300 trays quite easily, and requires about 2 lb. of sulphur. If the grower has only a small quantity of fruit to handle this could be sulphured by taking a good-sized packing-case capable of holding a dozen trays; paper it inside, and having stacked the trays one on top of another, place the box over the top of the whole. This should be placed partly over a hole in the ground, previously dug for the purpose, and from 2 feet 6 inches to 3 feet deep, wherein the sulphur is to be burnt in a small iron pot. When the sulphur is lit, cover the hole closely on the outside with a piece of iron or board so that the fumes cannot escape.—W. J. ALLEN, in the *Agricultural Gazette of New South Wales*.

THE PAST YEAR IN SOUTH DEVON.

IN comparing the temperature of the past year with those of 1895 and 1896 we find a considerable rise in the mean of the maximum and minimum readings. In 1895 this mean was 50·1°; in 1896, 51·5°; and in 1897, 51·9°. The highest sun temperature for the past year was 124·6°, recorded on July 16. In 1896 the record was 125·5° on July 10, while in 1895 the maximum was 125·3°. The highest screen reading was 78·7° on July 16, while in 1896 it was 78·8°, and in 1895, 77·0°. During the past year the mercury in the grass thermometer fell on thirty-three days to 32° or below. In 1896 the same thermometer showed sixty days of frost, and in 1895, eighty-three days, while the screen record shows on eighteen days readings of 32° or below in 1897, compared with twenty days in 1896, and forty-four days in 1895. In making a comparison of the monthly records of frost registered respectively by the screen and grass thermometers throughout the year, we find that in January, frost was registered on fifteen days in the screen and nineteen on the grass; in February, on no day in the screen and two on the grass; in March, one in the screen and five on the grass; in April, on no day in the screen and two on the grass; in November, on no day in the screen and one on the grass; and in December, two in the screen and four on the grass. The lowest screen reading was 24·0°, or 8° of frost, on January 24, against 26·2°, or 5·8° of frost, on December 18, 1896, and 18·4°, or 13·6° of frost, on February 12, 1895, while the lowest grass temperatures of the three years stand respectively at 20·0° in 1897, 24·2° in 1896, and 17·0° in 1895.

The average of the yearly sunshine stands at 1729 hours, while the amount registered in 1897 was 1706 hours 25 minutes. In 1896 the sun shone for 1712 hours 55 minutes, and in 1895, for 1818 hours 20 minutes. Of sunless days there have been seventy-three, against fifty-five in 1896, and forty-seven in 1895. The greatest daily amount of sunshine was, curiously enough, the same—14 hours 35 minutes in 1897 and 1896, being 10 minutes more than the greatest daily amount of 14 hours 25 minutes, registered in 1895. The month of July showed the greatest divergence from the average, the record showing an excess

above the normal sunshine of 56 hours 35 minutes, while April showed a deficit of 43 hours 55 minutes.

The rainfall for the past year has been slightly in excess of the average fall of 34·49 inches, the record for 1897 being 36·28 inches. 1896 was a singularly dry year, the measurement of the year's fall amounting to only 26·82 inches, while that of 1895 was 34·37 inches, so that the rainfall of the three years gives an average exactly 2 inches below that of the past eighteen years. If, however, we add in the fall of 1894, which amounted to 43·23 inches, we get a four years' average of 35·17 inches, or a slight excess. On five months the rainfall was below the average—January, 0·76 of an inch; May, 0·30 of an inch; July, 1·85 inches; October, 3·41 inches, and November, 2·79 inches, while on the remaining seven the excesses were—February, 0·46 of an inch; March, 3·47 inches; April, 1·64 inches; June, 0·38 of an inch; August, 0·56 of an inch; September, 0·70 of an inch, and December, 3·36 inches. The driest month was July, with 0·88 of an inch of rain, while December, with 7·16 inches, was the wettest. This amount, however, falls short of the record of 7·37 inches for December, 1896, while this is exceeded by November, 1895, with 7·98 inches. The greatest fall in the 24 hours occurred on December 29, when 2·14 inches were measured.

The anemometer shows the year to have been more boisterous than either of the two preceding, the total horizontal movement amounting to 86,793 miles, against 81,526 miles in 1896 and 82,464 miles in 1895. March, 1897, with a record of 11,759 miles, holds the record as the windiest month in the past four years, while December, 1897, with 10,541 miles, comes next, slightly ahead of March, 1896, with 10,486 miles. The calmest month in the past three years was September, 1895, with a total horizontal movement of only 3175 miles. The greatest daily velocity in 1897 was 925 miles on March 3, against 790 miles in 1896 and 862 miles in 1895. The highest hourly velocity of 61 miles was attained in 1897 on March 3. The highest hourly velocity of 1896 was 50 miles, and of 1895, 49 miles. In 1897 the wind was southerly to westerly on 233, while in 1896 it was blowing from this direction on 239 days. The ozone test shows an average of 51·5 per cent. of the possible against an average of 58·1 per cent. in 1896. The highest percentage of ozone in the air was reached in February, when 95 per cent. was recorded, whilst the lowest, 70 per cent., occurred during the dry month of July. The highest percentages of ozone invariably occur with south-westerly winds, while during easterly and northerly winds it often falls to 5 per cent. or lower. The highest and lowest barometrical readings of the year both occurred during the month of February, the reading on the 2nd of that month being 29·161 inches, and on the 22nd, 30·688 inches.

On the whole, the year in this neighbourhood has been a fairly satisfactory one. The drought, which seems to have affected some parts of the country, being never severe in the south-west, for in July, the driest month of the year, nearly 1 inch of rain fell, and the rainfall of the months on either side, June and August, exceeded the average. In January there were nineteen frosty nights, but the cold was never severe and came at a time when it was harmless. The April frost, 1° on the grass, was not felt at the height of 3 feet. Pears and Plums gave but a poor return, and Apples, as a rule, but half a crop, but the young trees benefited thereby and made good growth, a desirable consummation that is indefinitely retarded when they are allowed to bear heavy crops in a young state. Spring flowers were early, but not quite as forward as in 1896, nor as in the present year, but the wonderfully mild weather that marked the closing months of the year and the absence of disastrous gales, such as that of September 25, 1896, resulted in a protracted display of open-air flowers such as is seldom seen, even in this favoured region of the south-west. Dahlias were still in bloom at the end of November, and the outdoor Chrysanthemums were not flowerless until close upon

Christmas, at which time many large bushes of the Paris Daisy were white with blossom. Not a week has passed since May on which Tea Roses might not have been gathered in the garden, and the half-hardy plants that were put out in the spring of 1895 have made the most of their time in the eighteen months that have since elapsed to profit by the absence of frost, the Californian Poppy (*Romneya Coulteri*) having thriven well in the interval. This and many other plants are now throwing up strong shoots, and a hard frost at the present time would work incalculable damage. The large standard *Magnolia grandiflora* has for the second year in succession enjoyed a season of bloom extending over six months, and has produced, as in 1896, over 300 blossoms. *Solanum jasminoides* has been permitted by the absence of frost to extend its season of bloom into December. Its first flower-cluster expanded on June 23, so that it has blossomed for a period of twenty-four weeks. It is without doubt the climber *par excellence* for the south-west, as it is a very rapid grower, climbing to the eaves of a two-storied house in a couple of seasons, and being specially attractive throughout its lengthened flowering period. It is true that a prolonged frost, such as that which visited us in the early part of 1895, damages it, but I do not know of a single case in the neighbourhood where this climber was killed. There having been no frosts to administer a timely check to vegetation, it is slowly growing when rest would be more advantageous, and it still remains to be seen whether the present benefits we are experiencing will not be outweighed by their after results. S. W. F.

Torquay.

Greenhouse Cinerarias.—How diverse are these both as plants and flowers, even from the same strains grown under diverse conditions. I have seen just recently two large collections of plants of practically the same stock, one of several hundreds, rather early, many plants then blooming, but having leafage of quite huge dimensions, and rather discoloured, showing yellow blotches materially. The flowers were large and of rather uneven and irregular character, and the heads of bloom relative to the leaf area small. The discoloration in the leafage was doubtless due to rather early forcing or too much warmth, too little light and air, and both overpotting and excess of humidity. Through lack of light and air, chlorophyll was imperfectly formed, and the leaves, though so large, were thin and somewhat attenuated. The other collection included some 3000 plants, all in 6-inch pots, not one overpotted nor having unduly large leafage, air was freely given, and light was abundant. No heat beyond sufficient to exclude frost had been given, the plants having throughout kept comparatively cool and but just moist. They were all the same, very sturdy and robust, the leafage being very green and stout. That the blooms will presently be of the very finest there can be no doubt, as under this form of treatment annually they always are. The treatment consists simply in sowing seed early in July, getting the young plants early pricked off into small pots

singly, keeping them fully exposed to light and air, always as cool as possible, never overwatering, and especially so in the winter, and letting the plants come on and bloom quite naturally. It is thus such dwarf, compact plants, carrying such superb flowers, are seen in March and April, whilst from the very same stock, plants grown in warmth, seldom show fine quality in the flowers.—A. D.

ORCHARD AND FRUIT GARDEN.

APPLE GLORIA MUNDI.

THIS, one of our best cooking Apples, is often grown under the name of Belle Dubois. It has several other names, a favourite one in America being Baltimore. It has for many years been grown in France under the name of Belle Dubois, and is now well known in this country. As the illustration shows, it is a fine fruit. It



Apple Gloria Mundi. From a photograph sent by Mr. F. Parren, Canterbury.

was staged by forty-seven exhibitors at the great Apple congress held in the Royal Horticultural Society's gardens at Chiswick in 1883. Mr. Barron showing very fine fruits of it from trees on the Paradise stock. This is a favourite Apple with exhibitors, owing to its great size. It keeps well into the new year if given cool storage. Its season is from October to Christmas. At that season we have no lack of excellent cooking Apples, but this one well deserves a place for its size and appearance. It is a roundish fruit, with flattened base—at times when very large it is oblong—flesh firm, with a somewhat acid flavour. It is best used early in the autumn, as it soon loses its briskness. Many growers object to this variety on account of its being a shy bearer. In some soils it is not a heavy cropper; indeed, on the Crab I have seen poor crops. In a light soil on the Paradise it rarely fails to crop, and I have seen very fine fruits in the Chiswick Gardens in heavier soil. So far as my experience goes, it is use-

less as a standard—at least I have never seen profitable results when grown in this way. It makes a fruitful tree if grown as an erect cordon, and grown in bush or pyramid form it makes a handsome tree. I prefer bush trees, as if not too large the crop can be thinned. I have seen this variety described as quite distinct from Belle Dubois and recommended for orchard planting as a standard, but I have never been able to see any difference between the two. A variety very much like this as regards size and shape is Lord Derby, but a little different in colour and a very excellent kind. I have frequently seen this under the name of Gloria Mundi. Lord Derby is a better variety for standard culture. For market, doubtless Lord Derby is more profitable, but grown as a bush for garden culture, no one will regret growing Gloria Mundi. G. WYTHES.

Apple Lord Hindlip.—This capital late variety is not at all new. It has been grown for many years at Hindlip Hall, where it seems to have been alone found. The trees there were some ten years since regarded as quite old. The fine fruits of it recently shown have been doubtless produced on young trees, and thus its true character is much more clearly seen. It is a very abundant cropper. The fruit is very broad at the base, and, like Rosemary Russet, tapering to a somewhat sharp point, the skin being covered with russet and richly coloured. The flesh is sweet and pleasantly flavoured.—A. D.

Pruning fruit trees.—In THE GARDEN of February 19 appear two reprints from the *Country Gentleman* upon the above subject, the views of the writers being diametrically opposed. On page 146 we have Mr. S. E. Todd's opinion that there is no sound reasoning in cutting away the interior of a tree top so as to let in the sunshine and air, a dictum which, I venture to think, will find few adherents among our successful fruit growers of to-day, and which is directly opposed to the advice of his fellow contributor, Mr. D. E. Howatt, on page 157, the latter writing, "Do not fear to open the tree so that no limbs cross and so that daylight will flow freely through in every direction." A comparison of the results obtained by judicious thinning with those ensuing from the "let alone" principle should convince the most sceptical of the deterioration both in quality and quantity that follows the latter method, or want of method, of culture.—S. W. F.

Apple Gravenstein.—Referring to the remarks of "G. W. S." on the Apple Gravenstein (p. 54), I am much surprised that this gentleman and, as he states, other growers in England value this most excellent variety at such a low rate. Is it possible that the climate of England can effect such changes in an Apple which in Germany is considered to be one of the very best dessert varieties? It is true, indeed, that the Gravenstein attains its perfection in Northern Germany, especially at the seaside, and in Denmark and Southern Sweden, and that in warmer regions it loses a deal of its excellent flavour. Certainly it is only a fruit of autumn and early winter, being in use from the end of September to December (under favourable circumstances keeping to the end of this month), but at this period, as a juicy, briskly and finely-flavoured and beautifully coloured Apple, there is hardly a variety to beat it. It is highly appreciated by His Majesty the German Emperor, who wants to see it on his table every day during the time it is in use.—L. SPATH, Berlin.

Pear Glou Morceau.—This Pear, so well represented on p. 123, I happened to see fine at Syon House last season, and quite agree with all that Mr. Wythes so well says of it. I also know Budleigh Salterton, Devon, and can well imagine what Glou Morceau is capable of in that genial climate. I have also seen some fine samples in that county as well as in various others, and grown it successfully for many years in East

Anglia, though Mr. Blackmore, who ought to know something of Devonshire Pears, writes of this that it is bad on a standard and worse on a wall, flat and loose-textured, whatever that may mean. At its best, few experienced fruit growers will agree with him. Of course, we all know the seasons of fruits vary with locality, soil, aspect, and treatment, but I have frequently had this fine Pear carry me well into February. Then I grew it on several aspects, on walls and as cordons, bushes, and pyramids in the open. Generally, too, I found the fruit later as well as larger on the Pear than on the Quince stock. It would have added to the interest of the illustration to know whether the fruit was taken from a wall tree, cordon, bush, or standard, also whether on the Quince or Pear stock. This variety is a good doer and a free setter, and by thinning the fruits can be enlarged to 3½ inches long and 2¼ inches wide. The flesh is solid, white, tender, juicy, and of a rich sugary flavour. Its size and colour are all that can be desired. So much is this the case, that I never remember the most fastidious epicure find fault with Glou Moreceau, though it not seldom had a run at table for three months at a stretch.—D. T. F.

KITCHEN GARDEN WALLS.

WALLS covered evenly with well-trained fruitful trees are not the least important feature in a well-kept garden. Walls played a most important part in the production of the choicest kind of fruit long before Peach or orchard houses were thought of, and a well-grown and ripened Royal George Peach from a south wall is still unsurpassed by those produced under glass. It is a mistake to suppose, however, that, having gone to the expense of building a wall, full crops of fine fruit are to be the annual return without further trouble or expense after the trees have once made a start. Success in fruit culture is not so easily attained. Wall trees have a decided advantage over standards and pyramids if proper attention be only paid to root and branch; but should this be neglected, then I consider they are growing under greater disadvantages than those trees planted in the open, as the latter reap the full benefit of the autumn and winter rains, also the refreshing showers and dews during the growing season. Trees planted close to walls are to a certain extent cut off from these natural advantages by the height of the walls and the projections in the shape of copings, &c. The foliage also suffers after such a continuation of hot days as we have experienced the last three summers by radiation during the night from the heated brickwork. A thick wall with its massive foundations can absorb moisture from the soil for a considerable distance, and the roots of trees growing in close proximity must naturally suffer in consequence where this is not counterbalanced by copious and frequent applications of water. Without doubt at the present time, when there is so much need of heavy rains to swell the springs in so many parts of the country, there are hundreds of wall trees lacking moisture at the roots, the evil of which, I fear, will be heard of later on, especially with Peaches and Nectarines shedding their buds. The evil is not apparent to the casual observer just now, but if the soil was tested at the foot of south walls sufficiently deep, where most of the roots are located, growers would be surprised to find it quite dry. There will be sufficient moisture in the stem and branches, together with passing showers and dews, to cause the flower-buds to plump up to a certain stage; then there will be a sudden check, through the inability of the roots to keep up the flow, resulting in the buds shrivelling and dropping in consequence. This may be

taken as a hint by those who may consider their trees safe. A copious watering afforded south borders in early spring might not only be the means of securing a full crop, but the roots would be in a position to assist rapid leaf-development, and thus enable them to outgrow insect pests and blistered foliage, which generally follow enfeebled growth.

LARGE & SMALL TREES.

The pride of the fruit grower in former years was to cover the walls with trees, perfect models as regards correct training, and the more space each tree covered, the prouder was he of his handiwork. We are sometimes reminded that the present-day gardener cannot compare with the former generation in the management of wall trees, and that perfect training is a lost art. The change, however, in this department is only on a par with many others in the garden, and what found favour formerly could not be followed now, when everything is wanted not only in large quantities and variety, but at a season when it would have made growers of yore start with amazement. While admiring the skill and patience bestowed formerly on these fine specimens, many of which are still to be seen, there are serious disadvantages connected with them which cannot be ignored in spite of their ornamental appearance. As an instance I may mention that growing against a west wall 14 feet high there are several Pear trees with a spread of branches quite 12 yards; this means something like 500 feet wall space per tree. Nothing is complained of when the branches are well laden with fruit, but should the bloom be nipped by frost, or for other reasons the trees fail to bear, what a sacrifice of space! It is here the grower finds the value of small trees, such as cordons, which not only allow of a variety of kinds being planted, but should one or more happen to be in flower during perhaps only one frosty night, others only a day or so later in unfolding their buds escape, and perhaps out of a long wall the greater part of it is covered annually with an average crop of fruit. Again, it is not only a matter of securing a full crop of fruit that the present grower has to consider in many gardens, but the cost of producing it has to be taken into account when formerly this was of small moment, provided every twig was at the right angle. When these giant specimens become unfruitful and decay sets in, they prove a source of trouble, as they cannot be disposed of at once, so they must dwindle away gradually, and years elapse before others can be grown up to fill the space again. With small trees this is avoided, and the wall can be more easily and quickly furnished with healthy trees.

Cordons are undoubtedly the best for this purpose, and when well managed produce the finest fruit. Little or no attention is needed in training—a great saving—while the chief of the pruning required is the stopping of the shoots during the summer. The roots are easily kept within bounds and under the control of the grower, while should one or more varieties fail to suit the locality, removal is easy. Trees can be replaced by others without loss of crop, while they can be manipulated in other ways, especially in keeping them away from the wall in spring to retard their flowering—a simple process, but which may be the means of saving a crop without the aid and expense of blinds to cover them. The fruit, too, is of higher quality than that produced on larger and older trees, whose yield barely meets the expense of annual training. Cordons may be used for covering dwarf walls, as well as the tallest, with equal success. It matters little, I

think, whether they are trained upright or obliquely, the latter, perhaps, being best for walls less than 6 feet in height, as a longer run for the leader is obtained. In training them in this way they should be made to point south when planted against west or east walls, which allows the sun to strike between each tree, whereas they would shade each other, the fruit especially, if allowed to lean in the opposite direction. For one reason, I prefer single to double cordons, especially for Pears and Apricots, as it is not always possible to bring two leaders up equally furnished with fruit spurs, without which the wall presents a patchy appearance.

BORDERS.

Restricted borders, especially in depth, are to be recommended if the trees are to remain fruitful and their produce to be of the finest quality. If the roots are allowed to strike down into the subsoil, strong breast-wood is formed instead of short fruiting spurs, which no amount of stopping or pruning can produce. In one respect well-managed cordons are similar to fruit trees grown in pots, and no one can say the restricted root-run prevents these trees producing not only fine fruit, but also that of the finest quality, the secret being in the mass of fibres round the stem, these being easily fed while the crop is swelling. A restricted root-run also allows the greater part of the best borders in the garden to be fully cropped, which is no small gain. The expense of renewing exhausted borders may be the cause of many not grubbing out old trees and planting young ones, but this need not be made a laborious undertaking if properly gone about when preparing for cordons. The soil at the base of the wall might be taken out 2 feet wide and the same depth, and if labour has to be considered, this might be spread evenly over the rest of the border, and all that remains is to fill in the trench with fresh mould, even if this is taken from another part of the garden which has hitherto produced vegetables only. This may be improved somewhat by adding wood ashes or old mortar together with road grit, carefully avoiding rank manure, which would induce gross growth. This will provide a sufficient rooting medium to last the trees for years, provided the surface roots are properly fed and mulched during a dry season.

Goodwood.

RICHARD PARKER.

Fruit trees—under-cropping.—What to plant under fruit trees so as to profitably utilise the land without unduly exhausting it is still a vexed question with many, and although I cannot hope to give an answer to suit all cases, I feel sure that the following plan will suit some. The idea is briefly to plant standard fruit trees, with stems about 6 feet high, in rows about 30 feet apart, and allow them to form naturally wide-spreading heads, with scarcely any pruning at all, and between these rows to have three Asparagus beds, of about 6 feet wide each, with alleys between, the ground quite under the trees being entirely uncropped. The high culture necessary to ensure good Asparagus suited the fruit trees quite as well, and no deep digging or mutilating of the roots was necessary, as pruning and dressing the trees, cleaning and manuring the beds could be done in the winter. I feel sure that many growers of fruit living in remote rural districts, where it is impossible to retail either fruit or vegetables to advantage, would do well to lay out their land with late-keeping Apples, such as the Wellington, and erop between the trees with Asparagus.—JAMES GROOM, *Gosport.*

Cockle's Pippin and other late Apples.—I was glad to see Mr. James Groom's note on these (page 123). It is many years since I

made my first acquaintance with Cackle's Pippin, mostly called Cackle, though it was raised in Sussex by a person of the name of Cackle some 100 or more years ago. It is an excellent dessert Apple of the finest quality, in season at a time when most of our best Apples and Pears are getting scarce—from January to April. The flesh is yellowish, crisp, and juicy, with a rich aromatic flavour resembling a good russet or a mellow Ribston Pippin. The skin is a greenish yellow, merging into deeper yellow as it ripens, dotted with grey, and the base covered with brown russet. Had it only had red cheeks, it would no doubt have had a more brilliant career, though the colour and character of such Apples as Cackle's Pippin—also rather appropriately named Nutmeg Pippin—are a surer index of quality than the reddest fruits that now fill the markets and command the highest price. It must be cheering for home growers of useful fruits to have it affirmed again on the authority of Mr. Groom that such useful late Apples as Cackle's Pippin, Russets, and Wellington are very hard to get at the present time at even from 8s. to 10s. per bushel. The Wellington or Dumelow's Seedling continues in season till the end of March, or even later with cool storage. The Royal Russet or Leathercoat is an excellent Apple for cooking or dessert, and is in season from now to May. It is a good grower and a free bearer.—D. T. F.

THE ALENCONNAISE GRAPE VINE.

M. ROMANET DU CAILLAUD, who had forwarded to me some seeds or stones of *Vitis Romaneti*, V. Davidiana, V. Pagnucci, and V. Carrierei in the year 1884, sent me in 1885 also some seeds of *Vitis Chensii*, a Vine from the province of Chen-si, producing table Grapes as large as the fruit of the Service tree, of exquisite quality, and known in China by the name of Ma-nao-pou-tao. He obtained the last-named seeds from the Lazarist missionaries, who also informed him that these fine Grapes yielded a wine resembling Moscatel, a statement which we shall soon be able to prove. I sowed the seeds on May 3, 1885, and from them I obtained three plants, one of which bore in the year 1890 several large and small bunches of Grapes. The first Grapes thus obtained have a good appearance and are also good for table use. My opinion of them was verified on October 10, 1890, by M. Langlais, departmental professor of agriculture for l'Oise, and as the Grapes appeared to us to be of excellent quality, I resolved to continue cultivating the Vine, to which I gave the name of l'Alençonnaise. In order to propagate it speedily, in the year 1891 I layered the Vine, fastening down each of the rods to a pot well sunk in the soil. In 1892, after detaching the rooted layers from the parent plant, I took the latter up and replanted it, but as it did not again produce any fruit until the year 1897, it is probable that it suffered from having been deprived of the rods which were layered. In that year (1897) I placed one of the small bunches in spirits of wine to preserve it and to show the difference in size between the first Grapes (produced in 1890) and those of the year 1897.

As is well known, the first Grapes on all Vines raised from seeds are always small—very much smaller than those produced by the same Vine five or six years later on. Moreover, the same Vine when grafted on another must yield larger and better Grapes. Cultivators are not ignorant of these facts, and they do not throw away their seedling Vines because their first Grapes are of but middling quality. However, patience and perseverance are necessary. I have been sowing Grape seeds and making notes for twenty-eight years, and from my experience I have found that, although from 5 to 6 per cent. of the seedlings will commence to bear fruit in five years from the time when they were planted out in the open ground, many have not yet begun to bear, although from fifteen to seventeen years have elapsed since they were first planted out. Should these be destroyed on that account? My answer

is, "No." Let us try and find out the kind of pruning which suits them, and if we have not patience to wait for results, we can graft any of them that seem to be permanently vigorous and free from all kinds of disease.

It is an established fact that in countries where the Grape Vine did not exist the inhabitants can now make wine from the fruit of the *Præcoce Caplat* and other Chinese kinds of Grape Vine; they can henceforth, by cultivating the Alençonnaise, provide themselves with fine-looking Grapes of good quality for table use.—VICTOR CAPLAT, in *Revue Horticole*.

FRUIT TREES FROM SEEDS.

THOUGH this phase of fruit growing, which is so clearly and forcibly given by Mr. Tallack (p. 157), has no commercial interest, it undoubtedly conveys to the private grower some encouragement to carry on seed-raising as an experimental hobby. I thank Mr. Tallack for his reply to inquiries made for further information. I had not intended referring to the subject again at the present time, but the contribution by "J. C. B." (p. 124) on the raising of trees from seeds would seem to demand a passing reference. The opening and concluding paragraphs are at such variance one with the other, that one scarcely knows whether it is intended to condemn or commend the practice. It is scarcely possible to do both at one and the same time. "J. C. B." says, "No man in his senses would plant a wall with seedling Apricots and Peaches on the chance of their proving as good or better than existing well-tried kinds." Very few private growers would have the opportunity of doing this, for as a rule the planting of trees on walls is carried out to replace old trees or unsuitable varieties that are not in a profitable state. To clear a south wall of trees more or less established with a view to planting seedling Peaches or Apricots was not advised or intended by Mr. Tallack in his original article bearing on the matter. Such a course would be to court severe criticism. On the other hand, there is often sufficient room to be found on a warm wall to plant a young tree or two, seedling or otherwise, with a view to their being brought into a useful bearing stage at a later date, when they may replace others probably worn out or useless.

In another paragraph "J. C. B." says "that in raising hardy fruits from seed everyone has a chance of getting something good," and "if hardy fruit growers generally would make a practice of annually raising a few seedlings, the interest in their gardens would be much increased." This is quite true, and is what I take to be the object Mr. Tallack had in view. As I pointed out in my previous notes, the seedling Peach, Apricot, or any other fruit tree has commonly had a very low estimate set on its value, simply because of the uncertainty of obtaining anything equal or superior to existing kinds. Mr. Tallack, in giving his opinion based on experience, raises the status of the seedling tree and the prospect of getting something worth retaining, and I shall be surprised if even "J. C. B." does not set a higher value on the seed-raised tree, whether it be haphazard or intended. Your correspondent strengthens the conviction that seedling trees have a value apart from the interest their growth and attention entail by instancing the origin of such invaluable Apples as Cox's Orange Pippin and Cox's Pomona, Pershore Plum, Crittenden Damsion, and the cottager's Apricot. "J. C. B." truly says "there is certainly an element of luck in raising novelties among fruits and flowers," and the fact cannot be disguised that fortune does not favour everyone in obtaining

quality such as these names suggest. If my half dozen seedling Peaches in pots fail to produce even one of superior merit I shall not be disappointed, but if they furnish average-sized and fairly good quality fruits, they, in my case, will serve a useful purpose, at any rate for a time. Instead of trees, "J. C. B." has turned his attention towards the raising of seedling Strawberries, and he admits without any very satisfactory result. No doubt a great many others have a like experience, and would hesitate in advising anyone to embark on a work of such great uncertainty. What, however, has been the contention of Mr. Tallack and myself has been the attention in the matter of raising fruit trees from seed as a home study, or as a subject on which one may centralise his spare moments, and not so much with the object of attacking or interfering with a commercial interest. Were this attempted, it would in the majority of cases turn out a dismal failure. Gardeners who undertook the raising of a few trees would find it much more interesting to have a record of the parentage; results could be much more easily gauged and comparisons made, favourable or otherwise. It would seem strange that Plums and Cherries should have given so little satisfaction from seed-raising in Mr. Tallack's case. Judging, however, from the slow rate at which new ones are sent out, the same condition of things obtains in the case of those who make a speciality of it.

Wills.

W. S.

SETTING PEACH FLOWERS.

RARELY have those engaged in fruit forcing had so fine a time for fertilising the flowers and other details connected with the work as they have this season. Second early varieties have been especially favoured by the weather. Trees started here at the new year have set the fruit well, and during the whole of the flowering time it has never been necessary to shut the top ventilators entirely or to push the fires beyond just keeping the pipes gently warm. This has allowed us to damp freely at midday after shaking the trees well to distribute the pollen, and so a nice genial temperature and buoyant, natural atmosphere free from any suspicion of stuffiness has been maintained. The good results of this are two fold; not only has almost every bud on the trees set, but owing to the natural conditions obtaining there is not the least trace of insects of any kind. The practice of lightly dewing the trees when in flower is not sufficiently appreciated. The water should strike the trees in the most gentle of sprays, not enough being applied to wet the foliage even—what there is of it—and is best applied by keeping the forefinger very tightly over the jet of the syringe. The pollen is disturbed by the mist-like vapour being driven forcibly against it, yet is not sufficiently wetted to lose its potency. The best time to spray the trees is about eleven o'clock, so that there is plenty of time for what little moisture collects about them to dry off thoroughly before the sun loses its power. In dull, wet, or very cold weather, or at any time when free ventilation cannot be allowed without lowering the temperature, I should not advise the spraying. The best mode then is to use a rabbit's tail, though this is often the cause of much damage to those kinds having weak pistils. More care than is usually thought necessary should be taken in using it, and sooner than put it into the hands of a careless man or boy to use, I would depend on giving each tree a smart rap. With regard to root moisture while the fruit is setting, I believe it is much better to have every part of the border thoroughly soaked just before the trees come into flower, but rather than allow the roots to get dry I would not hesitate to water while in flower. If possible, I would choose a fine sunny day for the operation, and should turn on a little more warmth in the

pipes to allow of ample ventilation. To let the roots become dry for fear of moisture settling on the flowers is obviously bad practice. Nothing is more likely to cause the buds to drop, and it is surely wiser to even wet the pollen by watering than to run the risk of losing the flowers altogether. B. S.

ORCHIDS.

DENDROBIUM NOBILE AND ITS VARIETIES.

THE prominence during the past few years of both species and hybrids of *Dendrobium* has

from a photograph taken from a plant grown in the gardens of Mr. R. J. Measures, Ladymead, Rogate, Sussex. Although one of the old varieties, it is by no means to be despised. The deep rose-purple sepals and petals and beautifully shaped lip make it a prominent feature in a collection even when represented by a small plant, but the specimen here represented had nearly 400 flowers and was very handsome.

D. N. ALBUM.—This form, that originated in the Downside collection, has white sepals and petals, with indistinct tips of pink; there are also the usual maroon disc and a pale tip in front of the white. A variety flowered last year in Mr. T. Rochford's nurseries at Broxbourne is far more worthy of the name of album, the whole of the

and much larger. It is a most distinct and desirable form.

D. N. BALLIANUM.—This is one of the most distinct and beautiful forms; the sepals and petals pure white, of fine form and substance; the lip white, with a distinct salmon-pink disc. It is one of the most desirable varieties of recent introduction.

D. N. COOKSONI is a distinct and desirable variety, the petals blotched on the basal half with maroon similar to that of the disc. It is a free-growing form and one of the most beautiful in cultivation.

D. N. BURFORDIENSE.—This form differs from *D. n. Cooksoni* in having the basal half of the



Dendrobium nobile cerulescens. From a photograph sent by Mr. R. J. Measures, Ladymead, Rogate, Sussex.

brought the many distinct forms of *D. nobile* to the front, and it is remarkable the demand at the present time for imported plants of this species. The reason for this may be attributed no doubt to the fact that some very distinct varieties have cropped up amongst recent importations. This is not so much to be wondered at when we consider the countries that have been opened up of late years around its native habitat, affording fresh fields for the energetic collector, both amateur and professional.

DENDROBIUM NOBILE CERULESCENS, the subject of the accompanying illustration, is reproduced

flower being perfectly white, even the disc entirely disappearing.

D. N. ALBIFLORUM is a lovely form with pure white flowers, without the trace of any other colour, except the disc of the lip, which is a blackish maroon-purple. The segments, being of fine form and substance, give the flower a very striking appearance.

D. N. AMESLE is a variety that has turned up amongst imported plants of late years. It resembles *D. n. albiflorum*, with the exception that it is altogether larger than that variety, the disc of the lip being slightly different in colour

lower sepals blotched with maroon. It is a distinct and beautiful variety.

D. N. CYPHERI is an average-sized flower, the sepals and petals being covered at the back with deep rose-purple, giving the variety a very distinct character. The lip is very large, with a broad band of white in front of the maroon disc.

D. N. ELEGANS is remarkable for its form and substance, otherwise it resembles the typical forms.

D. GIGANTEUM closely resembles *D. n. nobilium*, but is a little lighter in colour. It is a desirable and lovely form that has originated from recent importations.

D. N. RAJAH is a distinct form in the way of *D. n. albiflorum*, but the sepals and petals are slightly flushed with rose, giving it a very pretty effect.

D. N. ROSEUM is in the way of *D. n. giganteum*. The upper halves of the sepals and petals and the apex of the lip are of a peculiar rose with a slight flush of salmon.

D. N. MURRHINIACUM.—One of the most beautiful of *Dendrobiums*, in the way of *D. Ballianum*; the disc of the lip rich violet veined with rose-purple, giving it a distinct and attractive appearance.

D. N. NOBILIUS.—This, the king of the species, was figured in *THE GARDEN* some years ago. It is the largest and deepest coloured variety known.

D. N. PURPURATUM is in the way of *D. n. elegans*, with deeper purple markings.

D. N. PULCHERRIMUM is a lovely form with deep purple sepals and petals, the whole surface highly polished, giving the somewhat small flowers a striking effect.

D. N. PENDULUM, one of the old forms with dark flowers, is very similar in many respects to *Cypher's* variety.

D. N. SCHREDERIANUM.—This is a distinct and lovely form in the way of *D. n. Amesiae*, but superior in all respects to that variety. It has a slight tinge of yellow in the lip with a slight indication of rose at the apex. The sepals and petals are very dark with a finely-shaped deep purple tipped labellum.

D. N. INTERMEDIUM is nearly white, the disc of the lip rich purple.

D. N. WALLICHIANUM.—In this the flowers are deep rose-purple, and often produced with the foliage, giving it a pleasant appearance.

H. J. C.

Odontoglossum cirrhosum.—This graceful and beautiful species is already making a fine show, and is perhaps the most generally useful *Odontoglossum* that flowers at this season. Though not so variable as *O. crispum* and others, there is a vast difference between the best and the worst forms, those having large blotches on a pure white ground being especially valuable. Grown alongside *O. crispum*, it gives little trouble if planted in small, well-drained pots and well watered during active growth. No dry season is needed, but a slight diminution of the water supply is necessary in winter.

Dendrobium Wardianum album.—A fine form of this rare and beautiful variety has been sent us. The sepals and petals are pure white, very fine both in form and substance; no trace whatever can be distinguished of the usual pink tips of these segments. The lip also is remarkably broad, white in front, the whole of the upper portion being rich yellow; no trace whatever can be discerned of the usual maroon disc at the base typical of this species. It is a rare and valuable variety, though of later years it has frequently made its appearance amongst imported plants. The form sent is one of the best shaped varieties we have seen, and is worthy of every attention.

Dendrobium speciosum Bancroftianum.—The type is a very well-known *Orchid*, but this variety is less common. It is smaller in all its parts and the racemes are more elegant. The flowers have longer sepals and petals, and there are a few very small blackish-purple spots about the base of the lip which give it a very pretty appearance. The culture during the growing season is practically the same as that of the type, but it will not need so severe a rest or stand such rough treatment during the winter months. It dislikes being disturbed, and should be well potted in the first place, using medium-sized pots and the usual mixture of peat and Moss over good drainage. It is named after Mr. Bancroft, its discoverer, who sent it home in 1881.

Aerides Fieldingi.—A nice plant of the "Fox Brush" *Aerides* is now in flower bearing three of the characteristic drooping racemes. These are crowded with the pretty lilac-rose blossoms, each

spike being about 18 inches in length. In any warm moist house where the leaves are not exposed to the brightest sunlight this species does well, growing freely and flowering every season. For large heavy plants large pots are needed, but small specimens look very pretty when in flower if suspended from the roof in suitably-sized baskets. Freshly gathered clean Sphagnum Moss and charcoal are all that is needed as compost, and an annual top-dressing of this is helpful just as the roots commence to lengthen. It is a native of India, and was sent home to the Chelsea nursery by Mr. T. Lobb in 1850.

Odontoglossum triumphans.—This is one of the most useful of the spring-flowering *Odontoglossums*. A fine form, flowering from an imported plant, has been sent us from Ireland. The sepals and petals are 2½ inches long and broad in proportion. The sepals have unusually large blotches of dark chocolate-brown, barred and tipped with greenish yellow. The petals have each one large blotch and numerous smaller ones towards the base of the same colour as the sepals. The lip, 1½ inches long and upwards of an inch in breadth, has a most distinct heart-shaped chocolate-brown blotch in the centre of the front part, margined with white, the upper portion white shading to yellow on the disc. It is a lovely form which should improve under cultivation and thoroughly merits every attention.

Dendrobium Wardianum candidum.—Though an old variety, this very seldom turns up now, and I was glad to get a flower from a correspondent this week. I can hardly call it an improvement on the type, for it has, in common with a few other white-flowering *Orchids*, rather a washed outlook. The sepals and petals are not tipped with bright purple as in the type, but neither, on the other hand, have they that pure waxy whiteness that is so noticeable in the species. The lip has the usual yellow area at the base and also the maroon blotches, but these are considerably toned down. The flower appears to me to be from a poorly-established plant, and such a one as I should put back for another year before feeling sure about it. I remember some ten years ago flowering a plant of *D. Wardianum* in which there was no trace of the purple tips, only the palest suffusion of rose or lilac, but the next year it was decidedly tipped, and simply a good form of the ordinary species.—R.

Cypripedium Antigone.—This, the result of crossing *C. Lawrenceanum* and *C. niveum*, was introduced many years ago through Messrs. J. Veitch and Sons, from whom it passed into Baron Schreder's collection, where it has recently flowered. Though one of the first of the *C. niveum* crosses, it has never been surpassed, the delicate rose tint that suffuses the whole of the flower marking it as distinct. The dorsal sepal is 2 inches in diameter, white, suffused with bright rose, shading to green at the base. It has numerous rich purple bands running from the base to the margin. The petals are each upwards of 2 inches in length and nearly an inch broad, pale green at the base, becoming suffused with rose; the lip is white, heavily suffused with rose; the disc of the column white, suffused with rose, with some green veinings in the centre. It has the intermediate characters of both parents both in the flower and habit of growth of the plant.—STELIS.

Oncidium undulatum.—This is one of the best and most easily grown of the *Oncidiums*, with long, twining spikes, and a handsome species when well done. The pseudo-bulbs are large and with the foliage deep green, the flower-spike appearing in the centre of the young growth. This attains a length of about 4 yards or upwards, and is covered from the second yard or so with small branchlets of flower. The pretty shades of chocolate-brown and purple make a welcome change from the yellow so frequent in the genus. *O. undulatum* may be best grown in fairly large pots, as the roots are large and fleshy. Use the compost in as rough a condition as possible and avoid elevating the leading pseudo-

bulbs much, as these naturally grow some distance one above the other and soon get out of reach of the compost. Annual top-dressings are advisable and are best given when the spikes are forming, this ensuring the young roots a hold as they are emitted from the base. If not covered, insects are apt to attack them. It is a native of New Grenada and delights in a cool, moist and shady atmosphere the whole year round, allowing as much air as possible during the summer and autumn and plenty of light in winter. It is more vigorous than *O. macranthum*, and when healthy takes a great deal of moisture. The spikes should be tied out to strings as they grow, not twisted round stakes, as is far too often practised.

THE MOCASSIN FLOWERS AT HOME.

THE article in the issue of *THE GARDEN* for January 29 relating to the culture of the Mocassin Flower has led me to believe that a description of its native habitat might be of interest to your readers. The plant is somewhat rare in the North-eastern United States, but it is occasionally found in the bogs of the Catskill region. One such swamp lies in the midst of a grove of trees growing in an extremely rocky country. Tall brakes, bound together by *Bedstraw* and *Cuscuta*, separate the wet, dark woods from an open, sunny marsh. A faint path winds about it, with tussocks of grass, very tall, coarse, and saw-edged, as stepping-stones. Underneath this waving grass and half smothered by it lie the rosettes of mottled green and purple Pitcher Plants, rather ragged from the winter's wear.

In early June the *Lady's Slippers* stand in thick clumps, perhaps as many as twenty together at a time, and about 2½ feet high, crowned by the gleaming flowers—a stalk sometimes bearing two blossoms. The groups are generally ensconced under bushes of *Poison Sumach*, which would be itself one of our most valued shrubs, with its red-stemmed, foreign-looking sprays bearing shining green leaves, were it not for its disagreeable qualities; or under the dull green swamp *Azaleas*, whose white flowers are extremely fragrant, and are so sticky that the shrivelled brown films of yesterday's blooms are tangled among those of to-day.

The purple and white *Lady's Slippers* all face one way, looking out from their semi-shade over the sunny marsh, on which the scanty leaf-tufts of a few broken *Larches* cast no shadow worth mentioning. The soil in which they all stand is black and filled with decaying Fern roots and Mosses. Doubtless, later in the season the *Utricularias* share the little pools in the marsh with the *Jewel* and *Joe Pye* weeds—the latter a wonderful magenta-coloured composite that looms up over our marshes in mid-summer.

There is another swamp *Lady's Slipper* (*Cypripedium pubescens*) which, I should think, would also thrive under cultivation. It has a large yellow flower, with all the members of the perianth, except the bulging sac, more or less narrow and twisted. Like the former, it grows in clumps on the shady tangled edges of swamps or slow-moving brooks, and is more common than the showy *Lady's Slipper*. With a smaller, rarer, yellow *Lady's Slipper* (*C. parviflorum*) it shares the doubtful honour of appearing in the American pharmacopœia, an extract of the roots of both being used as a medicine similar in its effects to *Valerian*. *C. parviflorum* prefers dry leaf-mould as a home, and seems to appear in solitary glory or with only a few stalks standing near one another. The flowers are each about an inch long, with much twisted perianth, streaked and splashed with burnt sienna

The commonest of all our eastern *Cypripediums* is the cheerful *acaule*, that springs up in sunny, dry woods about May 15. Its rose-coloured sac is covered with veinings of deeper colour and is long and nodding, beneath green and crimson perianth leaves, being peculiar in that its front is slit. A plant that I dug up rather carelessly and transferred to a back yard in Jersey City, so near the bay that tide water occasionally damps the next yard, a little lower, by creeping up through the made soil, blossomed for two years, and perhaps was killed then only by being thrown away in the spring.

New York, U.S.A.

H. INGERSOLL.

Cypripedium Swinburnei.—A distinct and pretty form of this hybrid *Cypripedium* has been sent us from the collection of Mr. W. W. Palmer, Rutland Lodge, Shortlands, Kent. It differs from the typical form in its broader, finely-marked dorsal sepal. The outer margin has a broad band of white shading to green, which is covered with numerous lines and thickly spotted with dark brown. The broad petals are pale green at the base, becoming suffused with purple and thickly covered with large dark brown spots. The lip is light brown, shading to pale green, veined with a darker shade of brown. It was purchased as an unflowered *C. Crossianum*. Mr. Palmer has every reason to be satisfied with the result of his purchase, as it is no doubt a fine form of *C. Swinburnei*. It is a cross between *C. insigne* Maulei and *C. Argus*, which was first raised by Messrs. Heath, of Cheltenham.

Lælia flava.—This species is not common, but I met with a plant of it in flower this week. In habit it is rather dwarf, having pseudo-bulbs each about 8 inches high, with a few narrow bronzy leaves towards the top. The spikes bear about half a dozen flowers—more in some instances no doubt—of a pleasing shade of bright yellow; they are much smaller than in the majority of the genus, the best forms I have seen being only about 3 inches across. *L. flava* may be grown in a light position in the Cattleya house, and the plants do well in small baskets or rafts or even in small pans. It has a great dislike to a heavy or sour compost, and may in fact be grown almost bare, provided the atmosphere is kept right. Watering should be very carefully done in the earlier stages of growth, for, like the nearly related *L. cinnabarina*, the young shoots are easily injured and will dump off from an overdose. The more thoroughly established the plants are, and the better they are rooted, the more moisture they will take, but it is not a thirsty kind by any means. A good compost is three parts of Sphagnum to one of peat, and so little of this is required that crocks or charcoal, except as drainage, are not needed. During the winter the roots may be kept almost dry with advantage, a little more moisture being necessary while the plants are in flower. Given attention to these few points, *L. flava* is not a difficult plant to grow, though not, of course, so robust as some others. It was discovered in Minas Geraes, in Brazil, and sent to this country in 1839.—H. R.

Oncidium pulchellum.—The colours in this *Oncidium* are distinct from most in the genus, being almost white. The only colour on the sepals is a suffusion of light rose-pink, and there is a yellow stain on the lip. It has no pseudo-bulbs and requires a good deal of care to grow it well. It likes plenty of warmth, and should be grown in three parts of Sphagnum to one of peat fibre, in pans just large enough to take the plants easily and allow a margin of about an inch all round for compost. Only a thin layer of this is needed, so considerable care is required in fixing the plants. Stakes are not ornamental, but it is better to use these for a time until the plants are well established than to have the latter rocking about in the pot or pan. A good clear light is of great importance in the culture of these West Indian *Oncidiums*, and as long as the foliage is not injured they will stand almost any amount

of sun and plenty of air. The atmosphere of the house should be kept fairly moist, but they do not need the saturation that is enjoyed by growing *Dendrobiums* and other plants from tropical Eastern countries. Well-established plants take a lot of water at the roots while growth is active, their position in the house making them dry up very quickly, and even in winter the plants must not be really dry for any length of time. *O. pulchellum* is an old species, having been sent to this country in 1827. It is a native of Jamaica and other parts of Central America and the West Indies.

KITCHEN GARDEN.

PEAS IN NORTH WALES.

COMPARED with many parts of the country, the past season proved a most favourable one for this crop in this locality. Situated in the wilds of Wales, I seldom get the opportunity of seeing either extensive trials of novelties or as exhibited in first-class shows, so that I have of necessity to gain information by description or hearsay of the novelties most likely to be an advance on older kinds. For these reasons I do not presume to set down the following selection of Peas as an up-to-date one, but merely note them as suitable for my purpose and satisfactory in this climate and situation. No extra early varieties are required here, but an unbroken succession extending over as long a season as possible after the middle of June, quality and productiveness combined being the essentials. Many kinds have been tried each year; a few retained, and some discarded. Although William I. has held the foremost place for years in the earlier sowings, I am almost convinced that it will have to give place to Gradus and Harbinger. I intend sowing less of it this year than usual, and shall probably discard it next. Prejudiced as I am against very dwarf Peas, I keep growing more of Daisy each year, for it has good qualities to recommend it, and only wish it was as tall as even Anticipation, an excellent Pea in every respect. As a succession to these and comparatively dwarf come Danby's Stratagem, Veitch's Main Crop, Magnificent, and Sharpe's Queen, all splendid kinds. From some cause Sutton's Marrowfat are not so satisfactory here as elsewhere, those doing best being Peerless, Matchless, and Perfection.

Of taller kinds fully equal in quality and cropping and coming in at the same season are Alderman, Criterion, Evolution, and Boston Unrivalled, and following in close succession are Chelsonian and Autocrat, while for the latest crops, Sutton's Late Queen, Carter's Michaelmas, Gladiator, and Omega are extensively grown. Although I have grown both Autocrat and Michaelmas each year since their introduction (sown late), I find that, should late September and October happen to be very wet, these two excellent sorts do not fill satisfactorily, while Gladiator, though not equal in quality to them, invariably fills well, and as the crop of this variety practically becomes fit to gather all together, it proves useful during a scarce time when a quantity of one kind is required. I prefer Omega, old as it is, to Sturdy. It will be observed that only two tall kinds are grown—Chelsonian and Criterion. This is owing to our exposed position.

The above are some of the sorts that are most satisfactory here, taking one season with another; but besides these there are some that I have not formed a definite opinion upon, for all have at least two seasons' trial. Others I am adding this year.

Tan-y-bwlch, Merioneth.

P.S.—There is one variety, excellent in every respect, that I have lost for some years. I believe it was named *Specialité*. Can anyone inform me if it is still in the trade, and, if so, where it can be procured?

Potato Challenge.—This is a rather new main-crop round variety. Challenge has tubers

of a flattish-round form. They bear the closest resemblance to Syon House Prolific tubers of any I have seen, but the tops materially differ. Whilst doing remarkably well in the north, the variety has yet to be tested in the south, but if it at all approaches in vigour and cropping the well-known Up-to-Date, it will become a popular variety.—A. D.

Potato Sharpe's Victor.—Having grown this variety for many years, I find it the earliest and best for private use. In the market it always commands a higher price than any other early variety I know. I am planting a large quantity of it this season in the open away from shelter, and it will be ready for market the second week in May. I have frequently dug it from under south walls the second week in April.—RICHARD NISBET, *Tudor Cottage, Market Drayton, Salop.*

Broccoli Vanguard.—This is one of the very best midseason Broccoli, the curd large and white, the heads well protected by ample foliage. It has very strong stems that are apt to suffer if severe frost sets in early in the season, but this is its only fault. It is larger than Snow's and a little later, though if two sowings are made it is hardly worth while growing the former unless the true form can be depended on. Sown in March and again in April, Vanguard will give a succession of fine heads for a month or five weeks at a very useful time, and before the handlight Cauliflowers are in.

Main-crop Peas.—Out of such an immense number of these as now exist, even of the popular 3-foot section, it is very difficult to make a selection of half a dozen that would suit all soils, but, having had several I mention grown in diverse parts of Surrey last year, I found all reports tallied with my own experience. Thus Senator, 3 feet, is a wonderful cropping second early marrow. Triumph, Magnum Bonum, Prolific Marrowfat, Magnificent, and Queen were first-class, giving fine pods and rich quality. The popular Autocrat is rather too tall, but is a splendid late Pea.—A. D.

Potato Bovee.—I have tried this new kind. Two years ago a friend sent me two tubers by post. These weighed 7 ozs. They were cut up and planted on good land. In the autumn I dug 40 lbs. These were saved for seed, except a few that were used for cooking. Last spring this seed was planted in the kitchen garden, and want of room compelled me to plant somewhat closely, which I considered against them. From this I dug 4 cwt. of good tubers. I consider it an early form of Beauty of Hebron. The quality was good. One of its greatest merits is that, coming into use and ripening off so early, the ground can be used for another crop. I am planting it again this year, using the very smallest tubers to try the results of small seed.—J. CROOK, *Ford's Abbey.*

Parsley.—I am quite at one with "A. D." respecting the poor forms of this useful plant that have to do duty in some gardens, though the number of places where really good strains are grown is larger than the tone of his note would imply. Many have the idea that the finest strains are not the hardiest, and, compared with the old pale green form still occasionally met with, they are not; but if we are going to grow a double curled variety, there is little difference in this matter of hardness between a good form and a bad one. I like to see a few Parsley plants coming up promiscuously about the rougher parts of the garden, between bush fruits. Sometimes after a hard winter, when protected plants even have been killed or used up closely, there are useful leaves on these semi-wildings that seem to possess a vigour and precocity that are quite unattainable with more highly cultivated plants. But where we are going to cultivate it properly by all means procure a strain that is worthy of a garden, for nothing looks worse than badly coloured, limp-looking leaves without enough strength in the footstalk to hold themselves erect. Parsley to grow it well needs a good staple and plenty of room for its development, and, if seed is to be saved, rigid "rogueing" every season. A

number of rough old frames in out-of-the-way places filled in autumn with strong plants are of the greatest value for winter gatherings where the demand is heavy.—H. R.

Potatoes.—In the short paragraph on page 84 Messrs. Carter have described very accurately the conditions under which the American varieties of Potatoes are seen to the best advantage, and in all cases where land is a little stiff it will be found advisable, failing a good supply of spent Mushroom or peat moss manure, to put on a heavy dressing of half-decayed leaves. Three inches thick will not be too much before digging is performed. Early Rose I have not grown for years. It was objected to as being strong and earthy. Duke of Albany, Beauty of Hebron, Early Puritan, and the best form of White Elephant have all been tried, and of the quartette I prefer the first-named. Duke of Albany is not quite so heavy a cropper perhaps as Puritan or Elephant, but giving in fairly good seasons an average of close on ten tons per acre of large sound tubers that both cook and keep well. It possesses the additional merit of not wearing out. I have planted my own seed for the last ten years. I have not tried White Beauty of Hebron, and, after judging dishes staged under this name at local shows, can see very little difference, if any, between this and Duke of Albany. Perhaps Messrs. Carter as Potato experts will say if they are synonymous. I ask because in the lists sent out by the best firms sometimes one is catalogued, sometimes the other; the two names very rarely appear in the one list. Two varieties now in use are The Bruce and The Saxon, and in cropping, keeping, and cooking qualities there is little to choose between them. The Saxon is a darker skinned tuber, a little larger, and being shallow-eyed is perhaps rather more economical.—E. BURRELL.

SEED SOWING UNDER GLASS.

NOTWITHSTANDING the oft-tendered advice, "sow thinly," it is surprising what an amount of seed is wasted by thick sowing. When seeds are expected to be of good germinating power the smaller kinds can hardly be too thinly sown; with larger kinds the mistake is not so often made. As an instance I have been just sowing *Thunbergia alata*, and though it gives a little more trouble, I always dibble in the seeds about an inch apart, pressing them in slightly. Then, in consequence of this, the young plants lift out singly with a little soil to each, while had the seed been sown broadcast on the surface, many plants would be in pairs or larger numbers, and it would be impossible to separate them without injury. Tomatoes, Capsicums, and other similar seeds are often carelessly and thickly sown, with the result that they get crowded at the first and are bad to transplant; but of a batch of several hundred Tomato plants I have not lost more than half a dozen by the flagging that often takes them off after potting up, and this I attribute to thin sowing and firm soil. In a less degree the same thing applies to small seeds that are sown with a view to pricking off. There is only room for a certain number of plants in a box, pan, or whatever is used, yet some growers persist in sowing about four times as much seed as is necessary. Provided the plants were thinned very early not much harm would be done, though there would still be a waste of seed, but when left long enough to become drawn, the stems of all of them become weak, and a very bad start is the result. When sowing fine, delicate seed, the soil should if possible be sterilised by placing it in heat. It should be firmly placed in the pans and thoroughly soaked with water before sowing the seeds, covering them afterwards with dry soil. Most seeds germinate quickly in total darkness, so they may be placed in a propagating frame with a double thickness of mats over, or the pans may be covered with a little Moss. *Grevillea robusta* is one of the most difficult plants to raise freely from seed in the ordinary way, and though occasionally one gets a good batch, more often than not about half a dozen plants are all

that appear from a packet of seed. Last year I happened to be in a neighbouring garden and noticed a fine batch of young seedlings just through the soil. On inquiry I found that the seeds had been pressed into the soil point downwards, as one plants Cucumber seeds. I am far from saying that this will make any difference in the results, though I am trying it myself; still, I give the hint for what it is worth. Possibly other readers have tried it. My opinion is that the seeds in question were newer than are usually sold and their germinating power was above the ordinary. I have never found any advantage in using peat alone as a seed-bed for this plant, though the plan is often recommended. R.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

ANNUAL MEETING.

ON Monday evening last there was a large attendance of the members of this society at Anderton's Hotel, when Mr. T. W. Sanders occupied the chair. When the secretary had read the notice convening the meeting and also the minutes of the previous annual general meeting, he submitted the proposed annual report and financial statement for the past year. The chairman, in formally moving the adoption of them, said that they represented the work of the society for the past year, and it was for that meeting to say whether they considered it satisfactory. The motion having been duly seconded by Mr. H. J. Jones, the discussion, a somewhat lengthy one, was opened by Mr. Starling, who had tendered his resignation. He commented on the financial position of the society, and explained that the society had of late years grown to such an extent that he could no longer give the proper attention to the duties which he considered were required of a treasurer, and he also thought that the accounts required to be kept in a different form. He regretted leaving after having been with them for twenty years, and hoped the society would see its way to having the accounts properly set forth and also to appoint paid auditors.

The secretary replied to several of Mr. Starling's criticisms, and considered that the committee was justified in saying that the society was in a sound financial condition.

Mr. Geo. Gordon at considerable length reviewed the question of finances from several points of view, commenting upon the expenditure for luncheons, annual dinners, show expenses and prize money. He thought something should be done to check the increasing expenditure, and that it was a matter that ought to be faced by the members. He moved as an amendment that the annual report and financial statement be referred back to the general committee, with instructions to prepare a proper balance sheet, an estimate of expenditure for 1898, and to report on the advisability of a reduction in the number of shows or of the prize money. This was seconded by Mr. Moorman, who objected to the statement that the society was financially sound, as there were amounts remaining unpaid. Mr. T. Bevan supported the view expressed by the previous speakers. He thought a proper balance sheet should be prepared, and that the meeting should be adjourned until that was done. Another member objected to being asked to pass accounts unless they had been printed and previously circulated amongst the members.

The secretary explained that the schedule sub-committee was responsible to a great extent for the increased expenditure, and pointed out that the prize-list was larger this year and that it could not go on increasing, as, although many new members joined every year, yet the loss in numbers was considerable.

In the end Mr. Gordon's amendment was carried. Mr. Cholmely moved that the accounts be printed and in the hands of the members at

least seven days before the date of the adjourned meeting. He thought such a course only a usual one.

Subsequently it was resolved that the meeting be adjourned to that day three weeks, at 6 p.m.

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, March 8, in the Drill Hall, James Street, Victoria Street, Westminster, 1 to 4 p.m. The committees will meet as usual. At 3 o'clock the Rev. Professor Geo. Henslow, M.A., will lecture on "Some of the Plants Exhibited."

NOTES OF THE WEEK.

Narcissus Countess of Annesley.—No Trumpet Daffodil can compare with this in the great abundance of its flowers. It is handsome, too, when fully open, with its widely expanded and heavily recurved rim.

Corydalis rutæfolia.—This is one of the most distinct and pretty of early flowering plants. It is distinct by reason of the somewhat trailing stems and glaucous leaves signified in the specific name above given, and pretty in the reddish pink to purple of the blossoms. For a cool and shady position in loam and peat this is well suited.

Narcissus Trimon.—This is a chaste and beautiful form for pot culture, or for any mode of culture, though as yet it is scarcely sufficiently plentiful to be grown otherwise. A few plants of it growing in a warm frame were well in flower in Messrs. Barr's nursery at Ditton quite early in February, so that an especial value is secured to it by thus adapting itself to this treatment.

Scilla sibirica alba.—This is, perhaps, one of the neatest among white-flowered bulbous plants early in the year, and well worthy of being freely planted in the rock garden or grown in pots for the greenhouse. For the latter purpose it is useful for fringing the stages in the conservatory, and is also attractive where inside window boxes of such things have to be frequently replenished.

Pitcairnia corallina.—A large example of this attractive species, that, without the flowers, may be regarded as *Curelugo recurvata*, has been flowering in the Kew Nepenthes house. The peculiar part of the plant is the production of the inflorescence at the base of the growth, almost, in some instances, barely escaping the soil. But the brilliancy of the entire inflorescence is beyond doubt. One example had three strong spikes about 15 inches long. It is a native of Colombia, in the heart of the tropics.

Colchicum libanoticum.—Compared with the autumn-flowering species of this genus the above kind is small in all ways, dwarf, free, and somewhat varied in point of colour. In this latter we have shades varying from pure white to deep rose, the flowers compact, and appearing quite early in the present month. A nearly allied species flowering also in early spring is *C. montanum*. These dwarf kinds are quite easy of culture and suited to grouping in the rock garden.

Narcissus Bulbocodium.—Perhaps one of the most useful of small kinds is this charming yellow Hoop-petticoat *Narcissus*, as, besides being remarkably cheap and easy of culture, particularly when grown in pots, it is showy and very profuse in flowering. Indeed, it is simply surprising how great a number of flowers are produced by a single bulb, and when well cultivated is among the most useful of such things that the private gardener could possess. The small well-coloured blossoms are singularly effective in quite small glasses on the table.

Megasea crassifolia, which was advanced towards flowering when the cold weather began a few days since, is now in fine condition, more particularly a large sheltered plantation where it receives constant protection. This latter is afforded by a large belt of shrubs, while the *Megasea*, occupying a raised position, are well drained and warm. In one position in the garden, where

it well-nigh carpets a large space near some trees, this species performs a very useful work, and, mingling with common Ivy, its rose-pink trusses and picturesque leaves is very effective.—E. J.

Solandra grandiflora.—I am sending you a flower of *Solandra grandiflora*, a plant one seldom meets with, although of very easy culture if confined in pots and well ripened in summer, thoroughly drying up and standing outside in the full sun. It comes in at a good time by so doing. A bush in a 12-inch pot with two dozen expanded flowers is refreshing for its fragrance. The flowers have been gathered two days, so I am anxious to see how they carry.—GEO. BOLAS, *Wirksworth, Derbyshire*.

* * Fine flowers of a very distinct plant, the flowers large and beautiful in form. They travel very well. A coloured plate of it will appear soon.—Ed.

Daisy Blush Queen.—A little tuft of this miniature quilled Daisy has given me much pleasure during the past winter on account of the constancy with which it bloomed. I do not think it has been out of flower since October. The flowers are small and the colour is pretty well described by the name it bears, although the pink may be a trifle too pronounced for the word "blush." The double Daisies, large and small, deserve to be looked up, and an effort to gather a few varieties together has been productive of some pleasure. The names are, it is to be feared, a little doubtful, but the flowers, if a little stiff, are very pretty. Seedling-raising is a little tantalising, as the proportion of poor flowers, both single and double, is large.—S. ARNOTT.

Anthurium Dr. Lawrence.—This handsome novelty, exhibited by Sir Trevor Lawrence (gardener, Mr. Bain) at the February meeting of the Royal Horticultural Society, well deserved the first-class certificate that was awarded it. It is one of those striking forms that require but a single glance from any plant grower to determine its worth. Beyond this, it is one of the most distinct hybrids that has yet appeared. The spathes are singularly bold and handsome as well as striking and effective in colour, the latter a salmon-red shade, and, so to speak, reflected in a higher degree by the finely varnished surface. The spathes are 7 inches long and 6 inches broad, and borne on long stems. The foliage, too, is very handsome, as becomes so decided a novelty, broadly sagittate in form, and some 18 inches in length. These, as also the spathes, are supported by strong petioles some 2 feet or so in length.

Scilla bifolia Pink Beauty.—This is one of the many beautiful seedlings of bulbous plants raised by Mr. James Allen. Its colour is well indicated by the name given by the raiser, and is quite worthy of it, which is more than can be said of many flowers with attractive names. Pink Beauty is a bright little *Scilla* of dwarf, sturdy, upright habit, and having a good number of flowers in a truss. One of its good points is its early flowering. Here for the last two years it has flowered several weeks in advance of *Scilla bifolia rubra*, of which it is, I believe, a seedling. It flowered this year in the beginning of February, and to-day (February 28) *S. b. rubra* is only through the ground. Very few of us seem successful in seeding the red two-leaved *Scilla*, or we might obtain some interesting seedlings such as the one under notice. Another of Mr. Allen's seedlings is *S. bifolia ruberrima*, which has bright pink buds and chocolate-coloured leaves. Two others, *S. b. Rose Queen* and *S. b. White Queen*, are in bud.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Adonis amurensis.—Mr. Wood refers to the season of flowering in this species, and surmises it is too early to fix its rightful period for flowering. Under these circumstances Mr. Wood will be interested to learn that the first flowers appeared quite early in February both in 1896 and in 1897. The fully expanded flowers in the latter year appeared about the 10th or 12th of February, so far as the established specimen in the rock garden at Kew is concerned, and

though the flower-heads were laid level with the earth by subsequent frost and snow, these did not apparently injure the beauty of the blossoms. It will be remembered that the flowers of *Adonis* generally only expand with sunshine, so that the blooms would receive an attack of frost or snow when closed. In this way injury would be merely external, and this the fully open flowers would not reveal. A small pot plant of this species was noted at the Drill Hall on February 8 last, so that it is generally an early species. Singularly enough, the Kew plant this year is not flowering so early as in previous years.—E. J.

Iris reticulata.—Is not Mr. Wood's experience somewhat exceptional when he speaks of the forcing of this beautiful Iris at page 164 of THE GARDEN? In my experience, it is quite easy to get it to flower in pots from Christmas onwards, but one or two things are absolutely essential to secure this. First, the bulbs should be potted early, preferably by the end of August or even before, and plunged in ashes for some weeks so as to get well rooted. In this way scarcely any water is needed for some time, which is an advantage. Finally the pots should be introduced to the cool greenhouse, giving if possible an airy shelf near the glass. The plant will not in reality endure forcing as this term is understood, and a temperature by artificial means exceeding 48° or 50° appears to act in a retarding capacity, and the flowers absolutely refuse to emerge from the bulb. This is so with other bulbs, e.g., many *Narcissi*, where these are either put in too early or into too much heat at once. For the above Iris the end of November is quite early enough, and if the "forcing" just keeps frost at bay, a gradual growth will ensue and flowers be obtained at Christmas or shortly after. A temperature of 40° to 45° is all the forcing this species can with safety endure.—E. J.

Saxifraga oppositifolia vars.—The pretty group of *Saxifragas* distinguished by the above name is now making a pleasing display in its several forms. Without exception, so far as my knowledge of the varieties of this section is concerned, I believe all the kinds are of comparatively easy culture—i.e., in a general way. There are, of course, exceptions, for these things do not care for heavy soils, and equally so they are not content in very dry positions. But with good drainage and a free supply of moisture when growing, and, not least, exemption from a position that is very hot in summer, these pretty plants grow freely and flower abundantly. As a whole perhaps this section lends itself to many useful positions in the rock garden with success, and by reason of its early flowering of some kinds and the free carpet of growth that it forms, is worth more attention. It is not improbable that by seeding and selection this group may be vastly improved, particularly in good, bright-coloured forms in place of the rather dull shades of some existing kinds. In the coloured forms it is not possible to say what would be the outcome of a series of crosses. Certainly such would prove of interest, while intermediate or possibly distinct shades might be added. Size is already secured in some, but a greatly improved white would be welcomed by all.—E. J.

Fritillaria aurea.—Already the handsome drooping flowers of this well-marked species are with us, the earliest blossoms appearing, as is almost natural, on plants that have remained undisturbed in the pots. In some instances, however, where the resting season of these pot plants was not so complete, a loss of vigour and therefore of stature is the result. This is obvious where the complete rest of former years was not adopted, and affords striking proof of the value and importance of a definite resting period in the case of some bulbous-flowering plants that have but a comparatively short existence above ground. With some other bulbs, and notably many trumpet *Narcissi*, despite the fact that all the root fibres perish each year, the exact opposite is the fact. That is to say, in these latter the loss of vigour and stature follows the lifting and resting, while

in certain other instances, of which the above species is an example, the loss of vigour ensues when the resting period is either not complete or when insufficiently prolonged. Doubtless this *Fritillaria* when in open groups in the rock garden or similar place is influenced for good or the reverse by this rest, and where it cannot be given entirely, a good plan will be to select a position where the sun may to some extent assist to the fullest ripening. Where the plants are grown in pans or pots all this is greatly modified, and its beauty and usefulness are such as to render it worthy of this special care. After flowering, the bulbs may be ripened up to any extent on a greenhouse shelf without removing them from the flowering pots.—E. J.

Destroying bullfinches.—Can any of your correspondents recommend a plan for trapping or destroying bullfinches? Circumstances preclude me from shooting them in this garden, and the damage they do to the fruit trees is almost inconceivable. Scarcely a bud is left on the Gooseberries and Currants, and nine-tenths at least of the flower-buds are destroyed on several of the Pear trees, which are for the most part in bush form.—H. MIDDLETON ROGERS, *Tunbridge Wells*.

Cypripedium unhealthy.—I enclose you three leaves cut from *Cypripedium Sedeni*, *C. Crossianum* and *C. barbatum*, which have been curiously affected for the last few months. The plants were all clean and healthy until this brown appearance arose. Can you inform me what this brown appearance is caused by? They were watered for a short time with water which came through some newly-laid iron pipes, and perhaps the water had been affected by the black tar paint applied to the pipes. This water is not used now. I should be glad to know if this is a known disease affecting Orchids, and if it is likely to spread, as in that case I would destroy or isolate the plants affected before it touches the remainder of my collection.—J. BURNETT RAMSAY (*Captain*).

* * * The rust on the foliage of *C. Sedeni*, *C. Crossianum* and *C. barbatum* sent us from Captain J. Burnett Ramsay is due to the plants having been severely attacked with yellow thrips, which occurred probably during the hot, dry weather of last summer. This has had the effect of crippling the foliage and taking most of the substance from the leaves, consequently during the damp, dull winter months the atmospheric moisture has been too great for the plants to withstand in their weakened condition. The damp spotting is the usual result of such conditions. The yellow thrips are very difficult to dislodge. Being so minute they work their way down into the axils of the foliage, whence it becomes difficult and well-nigh impossible to dislodge them by the ordinary methods of cleansing. The most successful way to deal with them is to fumigate the houses with Richards' XL All fumigating vaporiser on three successive evenings. After waiting a week, which will allow any eggs in a forward condition to show signs of life, repeat the fumigation on two successive evenings, after which it should be done through the summer months once a week. Through the winter months once or twice a month is sufficient. There is no occasion to destroy the plants affected, but it is advisable to isolate them from the others to prevent the thrips attacking those plants that are clean. As the young growths advance, it will be necessary to keep constant observation, and where there are any signs of thrips, the houses should be fumigated without delay.—H. J. C.

BOOK RECEIVED.

"Bulletin of Miscellaneous Information: Report of the Economic Resources of the West Indies." By D. Morris, C.M.G., M.A., Royal Gardens, Kew.

Name of plant.—*Lyminster*.—*Dendrobium primum*.

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ORCHARD AND FRUIT GARDEN.

GOOSEBERRIES ON TRELLISES.

THERE is much to be said for this form of training this useful fruit. Doubtless, where much of the produce of the trees is gathered in a green state, a greater weight of fruit may be taken from bushes, but there is often a place for a short espalier or some simple form of training where there would not be room for a bush, and when well-grown fruits are required for dessert there is no question as to the advantage of the trained trees. The growths being kept thin, air and light play upon the fruits from all sides, while the concentration of sap to the spurs ensures their fullest development as to size, and therefore quality. The large Gooseberries one comes across frequently at shows, where cottagers vie with each other in getting the largest fruits irrespective of quality, can possibly be grown as well on thick, untrained bushes as anywhere, but in the majority of instances these have nothing but their size to recommend them. But on the other hand fruits of good flavoured varieties cannot be too large or luscious. For flavour, no doubt a wall is the best position, as the temperature is higher, and many bare spaces between Peach, Pear, or other fruit trees may with advantage be filled with single or multiple cordons. But here, unless very carefully looked after, the trees are apt to be infested by insects, and especially red spider. This pest seldom attacks trees on espaliers made of light iron standards and wire—a kind of wire fence in fact. They are as much exposed to the elements as it is possible for them to be, while on a wall they are protected from cold winds and rain, giving earlier crops of course, but, as mentioned, requiring a lot of cleaning, syringing, &c., to keep the insects down. For espaliers, the best plan where a quick return is wanted is to obtain well-rooted trees in the second year, and plant about 3 feet apart. Trees with three good shoots are most

suitable, these being planted as early in the season as possible, and the centre shoot taken up, the lower ones trained horizontally on the lower wire. It is important that the trees are not tied to the trellis at planting-time, as any sinking afterwards would cause them to be strained at the ties. A loose tie with room for the tree to settle down is, however, of advantage, as it prevents the latter being blown about by the wind. By the spring, if planted in autumn, the trees may be tied, and when the buds break one should be secured on the horizontal branches at every 6 inches or thereabout, all the others except the leader being rubbed out. The additional strength thus given will ensure the formation of shoots at least 2 feet in length from these buds the first season, and these being carefully secured to a string or small stick running across the wires in an upright direction, a nice shapely tree the first year will be the result. The leaders of the horizontal shoots will be encouraged until they meet, when they must be stopped or turned upwards to form one of the vertical branches as is most convenient. Unlike many other kinds of fruit, Gooseberries seldom grow too strongly to fruit, so a good staple should be used for the borders.

In most cases a mulch of about 2 inches of half-rotten manure should be laid on, the exception being in very rich soil, when a mulch of loose, dry soil and half-decayed leaf-mould will be most suitable. In ordinary seasons no further attention to the roots will be necessary beyond keeping the ground clean about them, but if the weather prove very dry a couple of good soakings of water should be given. Frequent syringings morning or evening, or a few turns with the garden engine are of great advantage to the young growths, keeping green-fly in check and tending to the fullest development of the trees. Training after the first season is a very simple matter. The stems must be brought up until they reach the top of the trellis, all side-shoots not required for fruit spurs being rubbed off as they appear. To leave the latter

too closely is a mistake, as the trees—especially when young—make a lot of summer growth, and if this is allowed to form a mass, the whole of the advantage of this mode of training is lost. In this connection it may be noted that some of the stronger-growing kinds make much larger leaves than the weaker ones, and should on this account have more room left between the spurs. It is a mistake to pinch the summer shoots too early or before the basal leaves are almost fully developed, nor should they be pinched too far back. At least half-a-dozen good leaves must be left at the first pinching; more, if possible, with the larger growers. Sub-lateral growth should be kept closely pinched in, as the aim will be to plump the buds up well for about an inch from the main shoot. This much left the first season forms a good stout spur, from which there will always be plenty of choice of sound shoots another year. Constant spurting back weakens the shoots in time, and when this is found to be the case a young shoot should if possible be secured from the bottom branch and brought up to take the place of the worn-out one. But in most cases the trees by this time will be getting weaker, and a fresh lot is the easiest way out of the difficulty, adding any variety to the collection that may be found necessary. Winter pruning is usually left till late in the season, owing to bullfinches and other birds being so fond of the fruit buds; but if a thickness of old net can be laid over the trees this will keep the birds away, and pruning may be done any time after the leaves have fallen. A GROWER.

Peach buds dropping.—I cannot agree with A. Hemsley's note on the above (p. 124). I have had a great deal to do with Peach culture of late years, and I certainly think fogs, if of long duration, affect the buds. In bright seasons there is little bud-dropping, but in such winters as this there have been great losses. The theory of deficient water at the roots, as "South Wales" notes on the same page, will not hold good, as no good cultivator would keep his trees without water in

the autumn months, especially if he had been troubled with bud-dropping in past years. I can also inform A. Hemsley that trees in the open have dropped their buds badly this winter: indeed, the buds of some pot trees (not dry at the roots) dropped very badly in January, but this ceased when placed indoors.—WEST MIDDLESEX.

Pear Olivier des Serres.—I have just finished this variety, and it must be classed as one of the best winter Pears. I am aware with many it does not find favour, but I find it valuable to follow Josephine de Malines, and the quality is very good if the fruits are not gathered till October is well advanced. Few varieties shrivel worse than the above if gathered early. I have it on the Pear stock in pyramid form, and the fruits are not worth storing, but from an east wall on the Quince the quality is good, though the crop is not heavy. I also have cordon trees. They crop well, but the fruit does not keep well, being on a west aspect. With so few really good Pears at this period of the year, new kinds if late and good will be welcome.—S. H. B.

Thinning Strawberry blooms.—With very early forced Strawberries it may not be necessary to thin the flowers as they open, as there may be none too many on such a variety as Vicomtesse H. de Thury, but stronger growers will furnish a much greater number of flowers than will be needed, and thinning may be done with advantage. It may occur to many that to thin before the crop is set is a doubtful proceeding, but such is not the case, as the plants, relieved of a portion of their flowers, will make a stronger growth. In thinning, one may leave a dozen of the strongest flowers, and there will be no fear of a poor set. Indeed, I have, in the case of plants in small pots, thinned to nine, and that number will suffice if well-finished, first-class fruit is aimed at. By thinning at this stage there is less demand on the plants, and one can readily see which are the best when the flowers are sufficiently expanded. When all are allowed to set, it happens at times the thinning of the fruits is overlooked for a few days, and the plants suffer.—G. WYTHES.

LATE-KEEPING APPLES.

It is gratifying to learn that the planting of late-keeping kinds of Apples for market work is now receiving increased attention. The cultivation of late sorts of Apples is a matter that I have strongly urged growers to take into serious consideration for several years past, as I have always felt confident that it would prove a lucrative undertaking. When speaking on this subject to a nurseryman quite recently, it was pleasing to hear him remark that the demand for trees of late sorts of Apples had been heavy during the planting season. This is a step in the right direction, and it is to be hoped that the matter will now be taken up most earnestly, so that in due course our markets may become as well supplied in the late winter and spring months with English-grown Apples as they are in the autumn and early part of winter. Growers have been slow in awakening to the fact that it is greatly to their advantage to grow and store late Apples, but the scarceness of good samples of fruit of English growth at the time indicated has proved to many that there is not only a demand, but that high prices can be realised for such produce. It is a well-known fact that sound, well-kept Apples of good varieties, or such as are attractive from a market point of view, always command good prices in late winter and spring, surpassing in this respect the returns obtained for fruit disposed of earlier in the season, unless it should be extra fine samples of fruit. Fruit of the latter quality, as a matter of course, realises handsome prices, no matter what the season may be, but for average quality fruit the returns fall off con-

siderably when the American consignments come to hand. This happens, too, when the markets are often glutted, especially if the crop is a full one, and it is to be regretted that, in addition to rushing into the market early-maturing sorts, those which would pay their owners to store share the same fate. This, combined with the fact that foreign fruit is now plentiful, materially assists to depress prices, and leads many to run away with the erroneous idea that Apples do not pay for growing, while the fault is really their own. The early sorts invariably yield good returns, as they are disposed of before the importations of American fruit have a chance of competing with them. It is the mid-season sorts which have to run the gauntlet, as it were, of foreign competition, and if the output could only be restricted it would be greatly to the advantage of all concerned. In the first place, it would be a wise proceeding if many trees which bear second-rate fruit were grafted with late sorts, with the view to diminishing the supply of inferior fruit at the time named. This alone would in time tend to increase the yield, and if growers would store, instead of market late Apples prematurely, as is now so often done, it would soon effect a radical alteration, greatly to the advantage of both producer and consumer. After the turn of the year English Apples are often very scarce, and this at a time when the grower has the market, as it were, in his own hands, because the season for American produce is waning. It therefore generally happens that when high prices could be realised there is little or no fruit left to send to market, or, at any rate, nothing at all commensurate with the demand. Regarding the question of

STORAGE,

most, if not all, farmers who turn their attention to fruit-growing have plenty of facilities at command for this purpose in the shape of granaries and other buildings, which could be converted to such use for the time being. Elaborate buildings are not needed, and a structure from which frost can be excluded and an equable temperature maintained suffices for the storage of Apples. Cellars are not to be despised, and if the atmosphere is somewhat damp the fruit keeps all the better, so long as it can be kept cool. If a special building has to be erected, it is unnecessary to spend a large sum of money on the same. A good store can be built with hollow walls with the aid of Oak uprights and Spruce boards, filling in the intervening space with sawdust or dried Moss. Ordinary rafters will suffice to carry a good roofing of thatch with wide, overhanging eaves, and with a door at one end. This would form an effective and inexpensive building in which fruit would keep well for a long period. The tiers of shelves could be made of flooring-boards or the less expensive Spruce boards, as the latter could be papered over before placing the fruit on them. I well remember a building that was built in the side of a bank somewhat in the form of a cellar, and used for Potato storing. This to my mind would have formed an ideal Apple store, as the temperature was always cool at any time of the year. Apples may also be stored in barrels, large boxes, &c., the main thing being to keep them in a cool and rather moist temperature. Ways and means soon suggest themselves once the general principles as regards storing are mastered. Concerning the

GATHERING,

this should not be done until the last moment—that is to say, the fruit should hang as late as possible. Unless due regard be paid to this most important detail, it is useless to

expect the fruit to keep sound and plump. If allowed to remain on the trees until the end of October or the first week in November, according to season, late sorts of Apples will keep sound well into the spring months. The gathering must also be carefully done by hand, and no shaking down, with the consequent bruising, allowed. The same rule should also be observed in the storing of the fruit, and turning it out of the gathering baskets on to the floors, shelves, &c., should be discountenanced. Beyond using clean paper for placing on rough boards, nothing else is needed, as hay or straw imparts a peculiar flavour to the fruit. The floors, shelves, barrels, or whatever may be used, should be clean and in a dry condition previous to storing. During severe weather, if the fruit is in any danger of becoming frosted, the use of hay or straw as a covering would be permissible, but bags or covers would be better, and even old newspapers form a good protection.

By paying attention to the foregoing details, no difficulty would be experienced in keeping the fruit sound until the time arrived at which the grower could dispose of the same at enhanced prices, while the packing could be done at any time convenient to the owner. A. W.

Apple Gravenstein.—In reply to Herr L. Spath (p. 197), who writes from Berlin, allow me to say that this variety is highly prized in this country as a first-class Apple either for dessert or cooking. I have several trees of it, and they seldom fail to produce a fair crop of fruit. The trees grow vigorously and the fruit attains a good size. It is one of the very handsomest of all Apples, having a lemon-coloured skin, tinged and streaked with crimson, and when ripe covered with a greasy or waxy kind of covering. It has such a powerful perfume that even a single dish will scent the Apple store. During its season, from September to near Christmas, many people in this locality prefer it to any other Apple for dessert, as it is very crisp, juicy and with a piquant, yet sweet, flavour. With me the fruit is very liable to drop from the tree long before the whole crop ought to be gathered. I generally go over the trees at least three times and take off the forwardest fruit and place them in a box for a few days to get their beautiful colour to perfection. No matter how plentiful or cheap other kinds may be, the Gravenstein will always command a good price. My trees get the benefit of the sea breeze. I find it does best on a naturally-grown bush or pyramid.—JAMES GROOM, Gosport.

Apple Gloria Mundi.—The illustration of this fine Apple may mislead intending planters who are looking out for profitable late-keeping Apples. I find it anything but a profitable sort to grow for market; in fact, I have headed down the majority of the bush trees that I had of it and regrafted them with Lane's Prince Albert, for being a very vigorous grower it makes a capital stock for other and more prolific varieties. I have grown it in a good many different soils and situations, and although it usually carried some very large fruits, it very rarely bore anything approaching a heavy crop. The fact of its being staged by so many exhibitors at the Apple congress in 1883 is no proof of its value for market. Varieties that have only size to recommend them are grown specially by exhibitors of Apples on the chance of being able to pick out a good dish. I have had a good many years' experience of Apple culture both in private gardens and for profit, and any gardener who has had a long experience in private places will still have a deal to learn as to what varieties to grow if he embarks in Apple culture for profit. Mr. Wythes refers to Lord Derby, and says it very much resembles Gloria Mundi. With me one tree of Lord Derby would produce on an average as many fruits as three of Gloria Mundi and of more marketable size.—JAMES GROOM, Gosport.

ROSE GARDEN.

ROSA LEVIGATA.

THE Rose from which the photograph reproduced in the accompanying illustration was taken was sent to England a few years back from Abbotabad, in North-west India, and in the genial atmosphere of Kingswear, close to where the river Dart debouches into the sea, has found a climate that apparently suits it to perfection, since it has made vigorous growth and flowers well during the early summer. It is planted beneath a narrow verandah, through which its shoots have now found their way, and are now spreading over the wall above. If its growth was left unrestricted it would doubtless cover the whole house-front in the course of a

few years, many of them exceeding 5 inches in diameter, it is a sight worth travelling far to see. On the plant now under notice over 150 flowers were expanded at the same time, and even when its blooming season has passed, its handsome foliage of polished green imparts to it a particularly attractive appearance. The number of synonyms enjoyed by this Rose, and which M. Cochet-Cochet suggests may have tended to render it unpopular, may, perhaps, be not unreasonably attributed to the catholic appreciation of its beauty. If, as it is alleged, it is identical with *Rosa sinica*, its habitat is China, though it is evidently naturalised in North-western India, and its title of Cherokee Rose points to a long-standing connection with America, while it is said to have been common in the West Indies for a long period, and I have

coloured Roses. The flowers are very massive, perhaps a trifle rough in outline, but certainly very showy on the plant. This fact, combined with a very vigorous constitution, will tend to save this Rose from the fate of so many novelties, namely, utter oblivion after the first or second year of their introduction.

Penzance Briars in conservatories.—How refreshing is the fragrance of the Sweet Brier, especially after a shower in spring. As we endeavour to obtain in our conservatories a foretaste of this charming season of the year, what could be more appropriate than a few of these Sweet Briars twining around the pillars. They would require frequent syringings to keep them clear of aphides, but this operation would also tend to diffuse the sweet perfume of their foliage. Of varieties to grow we, perhaps, have a surfeit, but Lady Penzance should certainly be one, as it is very lovely with its coppery tinted buds. Other desirable kinds are Anne of Geierstein, Minna, Lucy Bertram, and Jeannie Deans. Possibly Diana Vernon, Matilda Marchant, and Alice Bridgnorth will be found more valuable than some of the above-named varieties.

In the Rose garden.—Wherever possible, let decayed weeds, leaves, and manure be mixed up together and used freely as a mulch between established plants. By mulching now, there is a good prospect of the feeding properties being washed down to the roots at a seasonable time. Stocks of both dwarfs and standards may still be planted. When planting dwarf stocks, be sure and bear in mind what class of Rose it is you propose working upon them, and let the stocks be at a suitable distance apart for such. My own dwarf Roses, budded last year, have been cut off close to the bud and dug between. Of course this has been done very shallow, while a somewhat heavy mulching of manure was given previous to digging. I have found this shallow digging very beneficial among all Roses. It loosens the ground and gets rid of the few autumn and winter weeds at the same time.—RIDGEWOOD.

ROSES WILLIAM ALLEN RICHARDSON AND MARECHAL NIEL UNDER GLASS.

AFTER having tried a large number of climbing Roses under glass, I have no hesitation in recommending the above as the best and most profitable where a wall or roof can be devoted to them. William Allen Richardson was sent out in 1878, and is still unsurpassed as a climber, whether indoors or out. As a climber under glass it has never failed with me. There are a few peculiarities worth noticing about this variety. It varies very much in colour, changing from that almost indescribable orange-yellow so much admired, and which undoubtedly made this Rose so popular, to a by no means clear or pleasing white. I frequently find several variations upon the same truss; a self-coloured orange, a bloom almost white, and combinations between these. This variation has frequently been the cause of much disappointment, and upon many occasions trade growers have been blamed for sending out a wrongly named plant because the desired orange colour was not present in the first few blooms. My experience is that we get a far greater percentage of the deep orange blossoms from plants under glass than among the earliest flowers in the open. This variety has been tried upon several stocks, and, so far as my experience goes, the De la Grifferaie has been most successful. William Allen Richardson is almost as much subject to canker as Marechal Niel. It also has the same peculiarity of erratic growth. A plant will either grow away at once, or remain quite as much a compact dwarf as Mme. Falcot and others. A second specimen, planted side by side, and at the same time, often behaves quite differently. I am not acquainted with any Rose that produces more blooms during a season than this, nor of any climber which continues flowering so long. Treated upon the long-rod system it is a certain bloomer, and every bud



The Cherokee Rose (*Rosa levigata*) in South Devon. From a photograph sent by Mr. S. W. Fitzherbert, Torquay.

seen it, as *Rosa sinica*, blooming in Algeria. Thus its distribution is world-wide. The single white Macartney Rose (*R. bracteata*), introduced from China thirty-six years later, is not unlike *R. levigata* in flower, though its blossoms rarely attain the size of well-grown blooms of the latter, and instead of being an early summer blossomer, the Macartney Rose flowers steadily from June until October, its foliage being very dissimilar from that of *R. levigata*. *Rosa levigata* is well worth a trial by anyone who can afford it a sheltered aspect and the protection of a wall.

South Devon.

S. W. F.

Rose Mme. Joseph Bonnaire (H.P.).—A Paul Neyron-sized flower of a silvery bluish-pink colour should be a welcome addition to our light-

or flower is useful. As a market Rose from under glass it is quite equal to *Maréchal Niel*, and as good a variety for forcing.

Maréchal Niel, unlike *W. Allen Richardson*, is not of great merit outdoors unless in an exceptionally favourable position. It is true we do now and again get some grand flowers outside, both early and late. *Maréchal Niel* is also changeable, some flowers being of a deep golden-yellow and others very pale and indifferent in comparison. The new variety, named *White Maréchal Niel*, is not any paler or whiter than I have often had the normal variety, but it certainly keeps more consistently to the lighter shade.

These two Roses are grand under glass, but both *Climbing Perle des Jardins* and *Climbing Niphotos* have rather disappointed me by not being sufficiently reliable as regards free flowering. U. S.

Rose Reynolds-Hole.—One cannot recommend this to the novice, it being so uncertain, but those who are able to bud a few stocks each year of this Rose (which is best as a maiden), will be well repaid if they only obtain a very few perfect specimens of its lovely flowers. The colour is a rich maroon, shaded velvety black, and usually flushed at the edges of petals with scarlet. The flowers are bold and massive, of a deep, globular form. Although preferring the Brier, it may be obtained in very fine form from the *Manetti* stock, especially in a cool season, which suits it best. It belongs to the Duke of Edinburgh race; wood smooth and of a reddish shade. As most of the dark Roses are free-seeders, it is rather surprising that so few sterling novelties have appeared during recent years. There is ample room for several more if they can be obtained with the requisite qualifications to secure them an enduring popularity, namely, free flowering, good habit, weather-proof, sweet scented, and of the rich dark shade equal to that of *Abel Carriere*. Our collections at the present day are teeming with pink Roses; it is, therefore, to be hoped that raisers at home and abroad will turn their attention towards improving the most popular colour, barring yellow and orange, that we have in the whole range of our collections.—P.

Striped or variegated Roses.—These are not universally admired, and yet one is compelled to admit that many of the varieties are most lovely. Take, for instance, *Rosa Mundi*, commonly, but erroneously, known as the *York and Lancaster*. What can be more lovely than to see its large, almost single flowers prettily flaked with red and white, or the beautiful, refined, perfectly-formed *Domitille Becar*, perfectly distinct in its form and marking from all others. Then, again, we have *Village Maid* and *Gillet Parfait*, both very old favourites and worth growing even to-day. All of these, however, are summer blooming only, but we have some good perpetual-flowering kinds, mainly of recent introduction. *Pride of Reigate* is sometimes prettily marked, but it is very inconstant, reverting frequently to *Countess of Oxford*, the variety from which it sported. This fault, combined with absence of fragrance, is not likely to commend it. *Rainbow* is a very beautiful striped form of the popular *Tea Rose Papa Gontier*, and it cannot fail to please. Our French friends two years ago sent us *Panachée de Lyon*, a striped form of the *Portland* or *Damask Perpetual Rose du Roi*. This is likely to prove a variety of merit. More recent introductions are *Panachée de Bordeaux* and *Coquette Bordelaise*, two varieties said to resemble *Paul Neyron* in size, and beautifully striped with red and white. If these only turn out constant they will be a great gain, for we all know how showy *Paul Neyron* is, especially in the autumn months. A very pretty and novel bed could be formed by mingling together the varieties named, or, better still, they might be trained in pillar form and planted about 4 feet apart. Their beauty is then seen to perfection, and if sparsely pruned an abundant supply of blossom is assured.—PHILOMEL.

FLOWER GARDEN.

CALIFORNIAN IRISES.

I HAVE read the interesting letters about Californian Irises by "J. C. L." and Mr. H. Ewbank, published in *THE GARDEN* of January 15, 1898, and while the subject is fresh I would like to add a few remarks. Mr. Ley is rather pessimistic as to the susceptibility of Californian plants to cultivation—at least in England. The only thing worth considering in such matters is that of trial, and "J. C. L." has undoubtedly had a wide experience. There are doubtless many plants in every country which possess a weak constitution, or whose requirements are so peculiar, that in a given climate it is practically impossible to grant them; but while this is true, the failure to grow a plant successfully is in a far greater number of cases caused by our failure to comply with some simple requirement, which it is quite within our reach to do, or which our neighbour may readily conform to. Nothing could more strongly emphasise this than "J. C. L.'s" *index expurgatorius* and the interesting correspondence it called forth. An *index expurgatorius* written here by the ordinary gardener would include many of the best garden plants in England, and, among others, Hyacinths and Tulips. Yet these failures are usually due to a neglect to adapt to changed conditions. With Hyacinths and Tulips, for instance, I am very successful where many others fail. One cannot too strongly emphasise the fact that in speaking of Californian plants or climates generalisation is entirely impossible. People who speak of all Californian plants as if their requirements or natural habitat were similar need to be reminded that between San Diego County on the south and Siskiyou on the north, the 750 miles in length and 250 miles in breadth which measure the limits of this great State, nearly every variation of climate from that of Algeria to that of the Swiss mountains, the highlands of Scotland, or the south coast of England can be found with the most abrupt transitions in soil and temperature. I must beg, therefore, to demur from "J. C. L.'s" opinion that the Californian habitat of a plant is of itself a presumption against its susceptibility to English culture. At the same time I will certainly agree that plants from the hotter and more arid portions of this State are not easily grown in England. Many of them are not here.

The rule of priority in botany now generally accepted, broadly stated, demands that a plant shall retain the name originally given it, no matter how long it may have been in mistake called by some other, or how long its proper name may have been applied to other plants. The original description may have been so loosely written as to make it possible for two or more species to be confounded under it, as in the case of *Iris macrosiphon*. In that case the only way to decide to which plant the name properly belongs is to either identify by comparison with the particular specimen (the type) from which the species was described by its author, or, where the exact locality is known to a certainty, by the examination of the plant as it grows there. Such an identification is practically conclusive. No one knows better than so eminent a botanist as is Mr. Baker how easy it is, in the absence of a duplicate of the original specimen, to mistake a species where it has not been very accurately described and figured in the first instance. *Iris macrosiphon* was first described by Torrey in *Pacif. R. R. Reports*, vol. iv., p. 144. In his description he stated that his specimens were from Corte Madera,

which is a place across San Francisco Bay from that city, and only twelve miles distant. At the point he mentioned, and for some distance in the same region, *Iris macrosiphon* is still plentiful. The only other *Iris* there is the true *Iris Douglasiana*. The identification of the original *Iris macrosiphon* is therefore, I think, perfect. I have now in my garden a number of large clumps of it collected only two miles from the original locality. I can state positively that these plants are totally different from *Iris Purdyi*, which has been called *I. macrosiphon* in England. I can also state that while these plants are much nearer to the *Iris californica* of Herr Leichtlin, yet from evidence at hand I believe them sufficiently different to justify him in creating the new species. On this latter point I can, however, speak conclusively when I have had an opportunity to compare the fresh flowers. Since writing the foregoing I have read Herr Leichtlin's letter in *GARDEN* of Jan. 22 (p. 72). He has evidently made a mistake in writing *I. bracteata*, as the photo published in *GARDEN*, Aug. 14, 1897 (p. 126), was *I. macrosiphon*. The plant in the photo cannot be *I. bracteata*, for it has not the characteristic leaf of that species. It is the plant in the photo (which he called *I. macrosiphon*) that I believe is identical with *I. Purdyi*. There need be no great trouble in proving the identity of the original of most of the old species of Pacific coast Irises, as with most of them, as with *I. macrosiphon*, the original locality is known and easily reached. Thus *Iris longipetala* and *Iris Douglasiana* were first collected by the Beechy Expedition at San Francisco, and *Iris macrosiphon*, as I have before stated, and *I. bracteata* near Waldo, Oregon, by Thos. Howell, the discoverer still living, and the locality accessible. The flowers of which I spoke in a previous letter were from the original locality. These flowers were of a much darker yellow than in either *Iris Purdyi* or any of the yellow forms of *Iris californica*. While this is true, it is by no means impossible that *Iris bracteata* at some other point in its range may be of the shade that Herr Leichtlin mentions. Other of our Irises are extremely variable in colour. Why should it not be?

As to the best time to move Irises, Mr. Ewbank's experience ought to be conclusive as to the fact that spring is the proper time to move them in England, and his experience coincides with that of Max Leichtlin as given in *Garden and Forest* a year or two ago. Really, however, these gentlemen have arrived at the same conclusion as myself, plus the difference in climate. My experience pointed to October as the best month to move them in. In California Irises lie dormant in the dry season from June to October, and start with the first rains. My plants, lifted in October dormant and placed in my moist garden soil, start at once and grow all winter. With you, on the other hand, it is evident that they take their rest in the winter and start in spring, and plants lifted there in April would correspond to those lifted here in October. Plants sent from California in the fall would have to be given a little artificial heat to correspond to our conditions and to allow them to strike root there. Again, plants sent from here in April would be far along in growth. *I. macrosiphon* flowers in April at San Francisco.

One more chapter of experience for a close. I planted a large bed of *Iris californica* (collected plants) last October. Avoiding my error of a year ago, I gave them a bed so raised as to give perfect drainage and a soil of about equal parts of sandy loam and ground spent tan bark—a loose, warm soil. The season has been ex-

exceptionally dry and cold. For two months it froze nearly every night, oftener going to 24° above zero, and once to 10° above. At this date every plant is alive and throwing down new roots. Still better, the old roots are sending out rootlets. Last year the same species, planted at the same time, but in cold, heavy soil, showed few living plants at this season.

Ukiah, California.

CARL PURDY.

VIOLET MARIE LOUISE.

THAT this is the Violet most sought after no one will deny, especially from a market point of view, good flowers of this always commanding a remunerative price. Being a fairly large grower of this variety as well as most others, perhaps a few words as to their culture and behaviour, especially the one under notice, may not be out of place. Early in April I lift and split up all my old plants, carefully preserving the strongest young growths or side shoots that have roots attached, discarding the centre of the old plants, also any weak or diseased ones. These are planted in rows 12 inches apart by 10 inches, the plot of ground having been deeply dug after a good dressing of well-rotted leaf soil had been put on the site, which is generally an eastern or northern one. The plants are kept well watered when at all on the dry side until they get established, all runners removed every few weeks, and the Dutch hoe run through them after this operation. In the meantime a brick pit of twelve lights that was filled with leaves in January, and from which a crop of Potatoes had been taken, had been prepared by taking out the soil, raising the bed up to within a foot or less of the sill with partly decayed leaves (no manure of any kind), well treading this, and placing the same soil back from 10 inches to 12 inches deep, sometimes with a little loam added. Early in October the plants are carefully lifted with good balls of soil attached and planted as closely together as the roots will allow, so as to work down a little soil all round; this generally leaves the plants clear of each other. They are given a thorough soaking with water, and about 2 inches of coconut fibre refuse placed amongst them. This acts as a mulch, as well as keeping the flowers clean. The lights are not placed on until there is a likelihood of frost. The lights are drawn off every day unless frost or hail should be experienced. The bed soon sinks a little, and leaves the plants within a few inches of the glass. But with all this attention, disease or damping occurs towards the middle of December, and continues for five or six weeks, or until the sun gains more power. This decayed foliage is promptly removed, or else the whole plant would soon succumb. I have tried dusty charcoal, also wood ashes sprinkled amongst them, but neither did much good, hand-picking being the only remedy. Swanley White in an adjoining pit escapes this evil, being much stronger in constitution than Marie Louise. The strange thing about it is the plants in the open do not exhibit the least sign of this damping, and they have given me a much larger quantity of bloom during the winter than those in the pit, and nearly as fine as regards colour and size. Of course, the season has been an extraordinarily mild one and all in their favour. I could not depend upon this supply every year. Now the question arises as to the cause of this decay of the foliage. There are two things I put it down to in my case. The frame ground is enclosed with a wall about 10 feet high excepting the east end, which is 3 feet 6 inches high. The wall in front of pit is about 30 feet away, so does not keep off much sun, but here I do not consider the plants get as much air as is beneficial to them. I think the higher and drier the position the more free are they of this decay. The other cause I attribute is being only 2½ miles from the sea-coast and but 100 feet above sea-level. This naturally makes the climate humid, and not in

favour of Violet-growing under glass in the winter. —J. MAYNE, *Bilton, East Devon.*

— Mr. J. Roberts' remarks on the culture of this Violet (p. 140) are eminently practical and worthy of the attention of all growers of this and allied varieties. As he observes, the check given to strong, vigorous clumps by being carefully transferred from the open ground to the Violet pit is infinitesimal, and, provided the plants are not neglected in the matter of watering at this juncture, the expansion of the flower-buds is not retarded. Last year plants lifted and transferred to a pit over 200 feet in length, late in September, flowered finely through the whole of October and November, and though not blooming with such freedom in December and January, have not been flowerless since. His advice as to artificial fertilisers being applied during the plants' period of growth in the open rather than after their removal to the pit is, no doubt, good. Plants well attended to in the matter of stimulants during their growing period are lifted as vigorous clumps studded with flower-buds, and immediately take hold of the new soil, which consists in the case I have in my mind of loam enriched with old Mushroom bed manure, the compost being fairly porous and not caking into a solid mass. Most growers, and certainly those in the south of England, will agree with Mr. Roberts as to the use of hotbeds being unnecessary, but I believe that a row of 4-inch pipes round the pit is an advantage, as this permits of the temperature being kept above the freezing point during spells of exceptionally severe weather. J. Roberts' method of raising his plants (p. 140) is no doubt an admirable one, and doubtless renders success doubly sure, but from the labour it entails is scarcely likely to find favour with many growers, especially those who make a livelihood by supplying the market, and whose profits are curtailed by any increase of the labour bill. These growers plant the runners permanently where they are to remain until they are lifted as strong plants in September, and, in South Devon at least, this practice is followed by excellent results, the plants commencing to bloom soon after they are pitted, flowering freely through October, November and part of December, and after an interval, during which the blooms are less frequent, producing an ample second crop of blossom during the early spring. —S. W. F., *South Devon.*

Iris reticulata major.—The netted Irises are not flowering freely with me this year, and there is no appearance of blooms on several plants of *I. r. Krelagei*, which I do not remember to have failed me before. *I. r. bistrioides* has not flowered either, so that one prizes even more than usual *I. reticulata major*. It can, however, more than hold its own as regards beauty with any of its relations. The large dark blue flowers are very charming. Fortunately, the dreaded fungus has not as yet appeared in my garden. —S. ARNOTT, *Carsethorn, by Dunfries, N.B.*

Dividing Lenten Roses.—On page 143 the use of a small hand-fork is advocated for the division of clumps of this *Hellebore*, it being alleged that the plants are less harmed by having their roots broken by this instrument than if the division be effected by cutting them with a knife. If, however, the roots are cleared of soil, the plants may be divided with a sharp knife, provided it is used with judgment and care is taken not to sever more roots than absolutely necessary for effecting division of the clumps, without in any way prejudicing the after-growth of the plants. An indiscriminate division of the plants by cutting into sections, regardless of the severance of roots that should be retained, is certainly to be deprecated, but wrenching the clumps asunder with a hand-fork is apt to cause a certain amount of root-breaking and bruising, which can be avoided by a careful division with a sharp knife, as above suggested. —S. W. F.

Violet California.—Mr. Goldring in the reprint from the *American Florist* (p. 140) on the

subject of Violets complains that no one will buy the flowers of California. In some districts of England its large sweetly-scented flowers are much appreciated and meet with a ready sale, as do the blossoms of its rival, the single Princess of Wales, which is equally large and long-stemmed, but possesses wider petals, and therefore, though exhibiting a more even expanse of bloom, lacks the grace of the former variety. In America, from Mr. Goldring's account, no Violets except Marie Louise will sell, and hence the culture of large single varieties and doubles, such as Lady Hume Campbell and Mme. Millet, would be waste of time and space. In England, however, each has its admirers, and individual taste influences the demand. —S. W. F.

CHIONOSCILLAS.

THOSE who wish to see flowers they admire obtaining a greater share of favour in the eyes of garden lovers must often regret the names they bear. Some who are, as it were, immersed in flowers and their nomenclature take but little notice of the difficulties of a name, but there are many—especially ladies—to whom a plant with a long or unpleasing name is, if not shunned, at least not sought after. The possession of an attractive English name by a plant is a passport to many gardens where Latin and Greek words are not favourites. Some, too, of the compound names, denoting the hybrid origin of the plants to which they are applied, are far from pleasing and are almost cryptogamic in their difficulties to those not well versed in plant nomenclature. So far as regards their scientific name, compound though it is, the *Chionoscillas* are more fortunate than many other plants, for, as is fairly easily seen, the word is a combination of *Chionodoxa* and *Scilla*, and the *Chionoscillas* are hybrids between these two genera.

The *Chionoscilla* is an interesting and pretty plant, possessing, it appears to me, considerable claims upon our notice at present, and giving hope of even greater beauty resulting from it in time to come. So far as I am aware, the only *Chionoscillas* as yet in cultivation have originated from *Chionodoxa Lucilæ* and *Scilla bifolia*. These hybrids are found where the *Glory of the Snow* and the *Two-leaved Squill* grow together, and appear to be now frequently occurring in gardens where both are cultivated. Mr. Edward Whittall, of Smyrna, informed me that he had seen these hybrids growing, and it appears that one was found on the rock garden at Kew among some *Chionodoxa* bulbs received from that gentleman. At Shepton Mallet, Mr. Allen has raised some, and from seed from one of his plants I have flowered seedlings. I have heard of others, and it is not unlikely that many have made their appearance and have been unnoticed in the gardens where they originated. Specimens in the Kew herbarium were sent by Rev. C. Wolley-Dod, Edge Hall, Malpas, and Mr. Allen. The general appearance of *Chionodoxa Alleni*, as this cross has been called, is that of one of the best forms of *C. Lucilæ*, but one received from Mr. Allen has, in my garden, been finer than any *C. Lucilæ* I have yet grown. A fine truss of flowers of good size and colour, such as it has shown, has given much pleasure. Mr. George Nicholson, in a note accompanying an illustration of *C. L. Alleni* in the *Gardeners' Chronicle*, well summarises its character in the words: "The colour and general aspect are those of a good *Chionodoxa Lucilæ*, but the perianth segments are cut to the base; in structure it comes near to *Scilla bifolia*." So far as I am aware there are neither pure white nor pink forms of *Chionoscillas*, but this want will probably be soon sup-

plied by crosses between the white or pinkish Chionodoxas and the Scillas of similar colours. It is, indeed, likely that a cross between Chionodoxa Lucilie alba and Scilla bifolia rubra would give us a pink Chionoscilla of better colour than we can find at present among the so-called "red" Chionodoxas, which are more of a vinous-purple than a red. In artificial crossing the larger Chionodoxa Alleni might be employed with advantage. Considerable variety may also be produced by crossing the Chionodoxa with Scilla sibirica and other species, which might be induced to bloom either by forcing or retarding growth. Beautiful and interesting as are our early flowers, the discovery among them of some hybrids such as the Chionoscillas renders them, if not more beautiful, more interesting than before.

This hybrid Scilla seeds freely, but the greater number of the young plants from the seeds reverts to one or other of the parents. Seedlings began to come into flower here last year, and this year still more are coming into bloom. Among them are Chionoscillas, Chionodoxas, and Scilla bifolia. They form rather an interesting little patch, and others who think of working among these bulbous plants will find they will derive much pleasure in so doing.

S. ARNOTT.

Corsethorn, by Dumfries, N.B.

fully exposed to the sun where they are planted. The position is, however, very sheltered from cold winds, whereas in my case the plants are exposed to the east. I have remarked that when cold winds prevail during the late spring months I get no bloom, and that when the growing months are genial and comparatively free from parching winds the flower-stems come up freely. One condition of success, therefore, in the culture of this bulbous flower may be shelter from drying winds.—J. C. B.

THE CYCLAMEN.

THE geographical distribution of Cyclamen is limited to the northern hemisphere in Central and Southern Europe, North Africa, and Asia Minor, none having been discovered in the New World or even in South Africa. The members of this genus are great favourites. All have most lovely flowers, some very fragrant, of long duration, and produced in profusion over very elegant and ornamental foliage. The hardy species are of the greatest value for planting on rockwork in the wild garden, under trees, and in shaded spots where no other plants would grow. The popular *C. persicum* is one of the

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| C. cilicium. | C. græcum. |
| 4. C. neapolitanum. | 5. C. repandum. |
| cypricum. | 6. C. persicum. |

all other supposed species being probably mere garden or geographical varieties. In "Hortus Kewensis" seventeen species are given. However, I will divide the Cyclamen into three groups, in which the botanical specific characters correspond exactly with the gardening differences.

FIRST GROUP.

Peduncle twisted after flowering; petals plicate or auricled at the base; autumn flowering, hardy species	}	C. africanum
		C. cilicium
		C. europæum
		C. cypricum
		C. neapolitanum

SECOND GROUP.

Peduncle twisted after flowering; petals not plicate nor auricled at the base; spring flowering, hardy species	}	C. alpinum
		C. Atkinsi
		C. coum
		C. ibericum
		C. repandum

GLADIOLUS GANDAVENSIS HYBRIDS.

WITH the exception of a few Lemoinei varieties exhibited in small bunches, all the remainder consisted of the gandavensis hybrids, and comprised mostly our own seedlings and some of Souchet's French varieties. I do not consider any other Gladioli equal in beauty or effect as garden plants to the fine gandavensis hybrids, which I find quite as easy of cultivation as any of the other sections, and which I increase stock of by growing a certain number of the small bulbs annually to replace the old corms, which naturally wear out after being cultivated a certain number of years. The spikes illustrated were cut from corms planted in April on strong yellow, well-drained soil, and which had been manured for the previous year's crop. I avoid as much as possible adding anything to the soil likely to create an excess of humus, which is harmful, in generating disease. It is generally supposed that Gladioli require a light sandy soil, but from careful observation over a number of years I would prefer to plant in heavy yellow loam, where the latter can be got into a finely pulverised condition by being well exposed to the previous winter's frosts and winds. Corms raised on well-prepared heavy loam I find have greater life and vigour than the large, soft, watery ones from light sandy soils, and that the size of flower and spike in no way suffers on the former, I think our exhibits over a long number of years fully bear out.

Cambridge.

J. BURRELL.

The Summer Snowflake.—I have about half a dozen clumps of this hardy bulb planted in the grass on a bank which edges a small pond. I thought that this would be an ideal position, as the roots in the growing-time can always touch moisture, and it is, I believe, under such conditions that this Snowflake grows naturally. The result has not fulfilled expectations, for, although in some seasons the flower-stems have come up freely, in others the flowers have remained partly buried in the sheath, much in the way that Lily of the Valley sometimes behaves when forced into bloom at an early date. In a friend's garden from whence my bulbs came this Snowflake blooms freely, the soil being light and the border



Part of group of Gladioli shown by Messrs. J. Burrell and Co., Cambridge, at the Royal Horticultural Society's meeting in September. From a photograph by Mr. A. J. Bowden, East Dulwich.

most important florists' flowers, being grown very largely for markets, and may be seen literally covered with bright flowers from the month of November until April. Immense quantities are cultivated for cut flowers. The tubers are strongly acid, yet they are the principal food of wild boars in some localities, hence their common names. In old times these tubers were supposed to possess important medicinal virtues, which have not the least credit at present.

The nomenclature of Cyclamen is one of the most confused and ambiguous; each species having a long list of synonyms, some names such as hederifolium, vernum, europæum, having been applied to almost every species, and it is most difficult to detect those described by old writers.

In considering closely the genus, I find only six distinct species, viz. :—

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| 1. C. africanum. | C. Atkinsi. |
| 2. C. coum. | ibericum. |
| alpinum. | 3. C. europæum. |

THIRD GROUP.

Peduncle not twisted after flowering; autumn and spring flowering, not hardy	}	C. persicum
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It is a well-known peculiarity that the peduncles of the hardy species get spirally twisted when the seed is formed, and naturally bring the capsule down to the ground, so as to bury the seed in the soil; whilst in *C. persicum* the seed-bearing peduncle always lies flat on the ground. The tubers of Cyclamen vary in size, shape, colouring, &c.; they are generally globose in their young state and flattened or depressed when old.

1. *C. AFRICANUM* (Boiss. and Reut.), *C. a. macrophyllum* (Hort.), *C. autumnale* (Tournefort), *C. macrophyllum* (Hort.), *C. neapolitanum* (De C., not Tenore); *C. robustum*; African or Algerian Cyclamen, large-leaved *C.* (French: Cyclamen de Corfou, *C. d'Afrique*, *C. à grandes feuilles*). North Africa; plentiful in Algeria and Tunisia in sandy Oak woods. This is the largest of the genus and closely allied to *C. neapolitanum*; tuber

4 inches to 8 inches in diameter, black, flat, irregular, producing roots from all parts; leaves very large, each 6 inches to 8 inches broad and long, thin, ovate or sinuate, serrate, sometimes angular, beautifully marbled with white above, purplish beneath; borne on petioles 8 inches to 12 inches long, produced with the flowers, but not fully developed before December; flowers of medium size, sweet scented, 1 inch and more in length, pale or deep rose, with a purple spot at the base of each petal, which is auricled and narrower than in *C. neapolitanum*. These flowers are produced in October and November. Amongst collected tubers white-flowered plants are occasionally met with. It is said that the form having green coloured leaves beneath is scentless, but this I have not experienced. This species requires slight protection in winter against sharp frosts if not cultivated under trees or in a cold frame. It is an extremely fine plant, producing large tufts of beautiful foliage; if cultivated in pots, plants may be used the whole winter for decoration, though the flowers are over.

2. *C. ALPINUM* (Hort.), Alpine Cyclamen.—A dwarf plant recently discovered on the Mount Taurus, in Asia Minor, at a very high altitude; said to be closely allied to *C. coum*; leaves faintly marbled; the flowers are pink in the type. It must be accepted with great reserve, as it may turn out to be a geographical form of one of our old species, probably *C. coum*. There is already a white form

3. *C. ATKINSI* (Moore's ex Lemaire), *C. hybridum* (Hort.), Atkins' Cyclamen.—A hybrid between *C. coum* and *C. ibericum*, raised by Mr. Atkins, of Painswick; others say it is the result of a cross between *C. coum* and *C. persicum*. The latter origin seems to be wrong, the plant having every character of the former parents; in fact, it is a fine form only of *C. ibericum*, from which it is hardly distinguished by its larger foliage, sometimes shaded with whitish-green above, and by its larger and more conspicuous flowers which are white, rose, red, lilac, purple, &c. These varieties are known in the trade as *C. album*, roseum, rubrum, lilaceum, &c. Valuable plants for spring flowering; besides their hardiness in open ground they make a splendid display when grown in pots or in pans, kept under a frame or in a greenhouse like *C. persicum*, producing in winter a profusion of bright flowers of long duration. For pots it requires the same culture as *C. persicum*, and must be treated like *C. coum* if planted in the open ground.

4. *C. CILICICUM* (Boiss. and Held.), Cilician Cyclamen.—Mountains of Cilicia and Asia Minor, in forests of Fir trees, near Mersina; 1849. Habit of *C. europæum*, from which it differs by its puberulent calyx and segments shorter than the tube; leaves entire or slightly serrate, purple beneath, contemporary with the flowers; in September—November; flowers pale rose or pure white, strongly scented; petals lanceolate, auricled, blotched with purple at the base; peduncle spirally twisted after flowering; probably a form of *C. europæum* due to climatic influence of the locality; perfectly hardy; same culture as *C. europæum*. This plant has been scarce for a long period, but it is easily procured now.

5. *C. COUM* (Parkinson), *C. caucasicum* (Wild.), *C. coum vernum* (Regel), *C. elegans* (Boiss. and Buhse), *C. europæum* (Pall., Led., C. A. Mey.), *C. hyemale* (Salisb.), *C. ibericum* (Stevens, non Goldie), *C. vernale* (C. Koch), *C. vernum* (Sweet, non Lobel, non J. Gay). The above synonyms are sometimes indistinctly applied to *C. ibericum* by some writers. Common round-leaved Cyclamen (French: Cyclamen de Chio, *C. de l'île de Cos*).—Asia Minor, Caucasus, Greece, Turkey, Syria, mountains of Thrace at a high elevation. 1596. The smallest of the genus, not over 3 inches in height. Tuber small, globose or flattened, 1 inch to 2 inches in diameter; leaves few, much like those of *C. europæum*, nearly round, entire or faintly serrate, dark green above (never marbled), deep purple beneath, borne on very short petioles; contemporary with the flowers, which are small, deep purple, scentless,

produced from December to March; petals not auricled at the base, peduncles twisted after flowering. There are several varieties in cultivation. A very interesting plant on account of its early flowering and easy culture. It is perfectly hardy. A remarkable fact is that its leaves and flowers are not hurt even after having been frozen. (See *C. ibericum* and *C. Atkinsi*.)

6. *C. CYPRICUM* (Unger and Kotschy).—This Cyprian Cyclamen, sometimes called *C. cyprinum*, is a native of Cyprus. It is so closely allied to *C. neapolitanum*, from which it differs chiefly in its unlobed leaves and longer and narrower petals; the tuber is generally globose, the flowers white, with a purple spot at the base of each segment, which is auricled at the throat; peduncle twisted after flowering. Same culture and uses as *C. neapolitanum*, of which I consider it to be a mere form. Very scarce if still in culture.

7. *C. EUROPEUM* (Linn.), *C. æstivum* (Parkinson), *C. autumnale* (Hort.), *C. anemonoides* (Hort.), *C. coninum* (Hort.), *C. cordifolium* (Stokes), *C. coum* (Reich.), *C. floridum* (Salisb.), *C. Iodonæum* (Loggers), *C. odoratum* (Hort.), *C. officinale* (Wender), *C. orbiculatum* (?) (Miller), *C. purpurascens* (Miller), *C. pyrenaicum odoratum* (Hort.), *C. rotollexum* (Mönch.), *Cyclaminus europæus* (Scop.), *C. autumnale*. Sweet European Cyclamen, Sowbread, common Sowbread. (French: *C. d'Europe*, *C. commun*, *C. odorant*, Artbanite, Coquette, Pain de Pourceau, Pain de Cochon, Rave de terre, Violette des Alpes.) Widely distributed in the mountainous regions of Central Europe, in the Alps, Switzerland, Caucasus, Asia Minor, Greece, &c. It is difficult to ascertain whether the Cyclamen orbiculatum of Miller belongs to this species or to *C. coum*. *C. europæum* is generally known in Dutch horticulture under the name of *C. pyrenaicum odoratum* and as *C. anemonoides* on account of rhizome accidentally produced under the tuber, which may be used for propagating if cut into pieces. *C. europæum* is a true gem for the sake of its easy culture, its neat, dense green, compact foliage, almost persistent all the year round, and its lovely, highly perfumed purple flowers. Tuber rarely flat, irregular, black, emitting roots from all parts, often throwing up a persistent rhizome-like appendix from its top centre, from which leaves and flowers are produced; leaves reniform, obtuse, deeply cordate at the base, firm in texture, usually entire, serrate, never angular, dark green, marbled with white above, purplish beneath, borne on petioles 5 inches to 6 inches long, contemporary with the flowers, and persistent nearly all the year round; flowers purplish red, darker at the base, strongly fragrant, produced from July until October, sometimes in June. There are several varieties, some being entirely out of cultivation, viz.: *C. e. album* (Hort.), *C. e. Clusii* (Lindl.), *C. e. littorale* (Reichb.), *C. littorale* (Sadler), leaves entire, with rosy flowers; *C. e. Peakianum* (Hort.), a strain with larger flowers. *C. colchicum*, noticed last year in THE GARDEN by M. Correvon, and discovered in 1892 by Alboil near Okoum, in Asia Minor, is a form of *C. europæum*, with larger tuber, the leaves more regularly serrate, and the petals more obtuse. *C. europæum* and its varieties are perfectly hardy. Like *C. coum*, they delight in the rock and alpine garden. Calcareous soil preferred, but they are impatient of pot culture.

8. *C. GRÆCUM* (Link), *C. persicum* (Sibth. and Smith, not Miller), *C. latifolium* (Hort.), *C. Poli* (Chiage).—Grecian Cyclamen. Native of the Caucasus, Crete, Morea, mountains of Greece, North Persia. A near relative of *C. neapolitanum*, of which it is probably a mere geographical form; tuber large, reddish, irregular; leaves intermediate between those of *C. europæum* and *C. neapolitanum*, small, hardly serrate, slightly marbled above, green or faintly tinged with purple beneath, produced with or after the flowers, borne on long petioles, twisted after flowering—in September—October. Flowers light or deep lilac (rarely white) with a purple blotch at the base of each petal. These flowers, variable in size and colour, are faintly scented. It is very

scarce, if not out of culture. Same treatment as *C. neapolitanum*.

9. *C. IBERICUM* (Goldie), *C. coum ibericum* (Boiss.), Georgian Cyclamen.—Iberian Caucasus. 1831. This is only a larger and finer form of *C. coum*, so near *C. Atkinsi* that the two strains are sold one for the other in the trade; leaves have a white zone above; flowers purple in the type, generally varying from white to pale and deep rose, produced a little later than those of *C. coum*, and scentless; petals sometimes blotched with purple at the base; peduncle twisted. It is a charming spring flowering plant, much more ornamental than the type, and requiring the same culture as *C. Atkinsi*.

10. *C. NEAPOLITANUM* (Tenore), *C. europæum* (Moore, Smith, Miller, Lindl., not Linné), *C. ficariifolium* (Desmoulins), *C. autumnale* (J. Boos., not Hort.), *C. hederifolium* (Koch, not Aiton), *C. hederæfolium* (Wild.), *C. subhastatum* (Reichb.), Neapolitan Cyclamen, Ivy-leaved Cyclamen. (French: Cyclamen de Naples, *C. à feuilles de lierre*, Rochelaise).—Italy, Corsica, Greece, south of France, but not in Asia Minor nor in England. This is the *C. europæum* of the Dutch gardens, and the *C. autumnale* and *C. hederæfolium* of several catalogues. This fine plant has much affinity with *C. africanum*. Tuber flattened or depressed and irregular when old, 4 inches to 8 inches in diameter, emitting roots all around; leaves variable, each 3 inches to 5 inches long and broad, elegantly and beautifully marbled with white above, purplish beneath, produced in succession in a luxuriant mass shortly after the flowering of the plant, and lasting until the ripening of the seeds in the following June; flowers of medium size, rose in the type, red or white in the variety, faintly fragrant, produced from the month of August until October; petals spotted with purple at the throat; peduncle spirally twisted after flowering. The following varieties are frequently cultivated: *C. album* (Hort.), *C. hederæfolium album* (Hort.), *C. autumnale album* (Hort.), a white-flowered variety; *C. rubrum* (Hort.), *C. hederæfolium rubrum* (Hort.), a form with red flowers; *C. grandifolium* (Hort.), a variety with much larger leaves, which probably is *C. africanum*. This plant, being perfectly hardy, makes a capital species for growing outdoors on account of its fine foliage, whilst it is very useful for pot culture, like *C. africanum*.

11. *C. REPANDUM* (Sibth. and Smith), *C. baleariicum* (Willk.), *C. europæum* (Savi), *C. ficariifolium* (Reichb.), *C. hederæfolium* (Ait., not Koch), *C. immaculatum* (Pieri), *C. romanum* (Griesb.), *C. vernum* (Ait., J. Gay, De Lobel, Bartoldi, Reichb.), angular-leaved Cyclamen, Spring *C.*—Native of Southern Europe, Greece, Majorca, plentiful in Central Italy and in mountains of Corsica, ascending to 4-6000 feet; 1581. Tuber small, globose at first, depressed when old, producing roots at its base only; leaves toothed, angular or triangular, 2 inches to 3 inches long, beautifully marbled with white above, purplish beneath; produced in March—May with the flowers, which are rosy white, fragrant, spotted with purple at the base of each petal, larger than those of *C. europæum*. *C. repandum* is the *C. ficariifolium* of Dutch merchants. In various catalogues *C. vernum* is offered as a distinct species, but the two plants are the same, unless *C. coum* is supplied for it. It is said there is a pure white variety, but I have never seen it. Like *C. africanum*, this plant may be a little more tender than other species, but when carefully grown it may be considered as perfectly hardy.

CULTURE.

The above Cyclamens are all perfectly hardy in the hands of experienced growers, who will give them treatment similar to that they enjoy in their native home. In their native localities they are found on rocks, sloping banks, generally shaded under trees, in a northern aspect; on chalky, stony, porous soil, out of reach of any stagnant moisture; or, as in Algeria and Tunisia, on moist arid, dry sand; the tubers

always, wholly or partially, above ground, amongst Moss, herbs, and buried in dry leaves in winter, which prevent the soil from getting hard frozen. Obviously if they are grown in gardens in open ground or an open space with no protection, the tubers may get seriously injured in case of severe frosts. As it is in most cases naturally impossible to give a situation equivalent to their home, the following advice may be observed: When planting, select a perfectly drained border or sloping bank of porous soil; if of a heavy nature add plenty of sand, well decomposed leaf-mould, limestone, pieces of old mortar, &c. Plant the tubers when they are at rest, viz., from June to August for autumn flowering species, and from July to November for spring flowering ones; surround the tuber with sand, and take care that the top of the tubers is level with the ground. If the soil is dry, give a good soaking, and apply immediately a thick layer of sand, leaf-mould, cocoa-fibre, Moss, or any other similar material. Be careful the first winter the ground does not get hard frozen, as the tubers, being not yet well established, might be lifted out of their position. In subsequent winters apply yearly plenty of decomposed leaf-mould and a thick layer of dry leaves, and let the plants remain undisturbed as long as possible. In spring protect the flowers to prevent them being spoiled by rain, mud, snow, &c. In THE GARDEN, February 13, 1897, it is advised to plant the tubers 3 inches to 4 inches deep. I do not feel inclined to try the experiment for fear of losing all my plants. Even in Tunisia *C. africanum* is growing on most arid, burnt sand, the tubers entirely above ground. Accordingly I conclude that deep planting is against the nature of these plants. Hardy Cyclamens succeed equally well planted amongst evergreen or deciduous shrubs or at the foot of a wall, and this always for the same reason—they are shaded part of the day, and the superabundant moisture is taken away by the roots of the shrubs or through the stones of the wall. For pot culture, treat them exactly as *C. persicum*, keeping them in a cool atmosphere, allowing plenty of fresh air, and in summer plunging the pots in the open in the shade. Do not allow them to get quite dry in summer.

PROPAGATION.

Hardy Cyclamens may be propagated, first, by cutting the tubers into pieces, leaving one eye attached to each division; second, by cuttings of leaves, leaving a small portion of the tuber attached to the base of the leaf-stalk. Insert these cuttings in pots or pans in a mixture of sand and peat, and cover with a bell-glass. Gentle moisture will prevent decay. Above processes are most barbarous, and must be avoided. The only practical way is by seeds, which are freely produced. When fresh they germinate in a few weeks, but when old they are very capricious, and sometimes do not come up before twelve or fifteen months. They will retain their growing powers for ten years and more. Sow the seeds as soon as ripe in pans or boxes in light, sandy soil; keep moist and shaded; six weeks after every plant will be up. Winter in a cold frame for the first year, and the following autumn, when the small tubers are at rest, replant them 1 inch or 2 inches apart, and subsequently treat them as adult plants. They will flower the second, third, or fourth year. It is not unusual to see the seeds scattered around the mother plants to germinate spontaneously and produce a quantity of seedlings, which may be treated as aforesaid.

12. *C. PERSICUM* (Miller), *C. alpeense* (Hort.), *C. alpeicum* (Fisch.), *C. indicum* (?) (Linn.), *C. hederaceum* (Sieber, not Aiton), *C. hederifolium* (Sibth. and Smith), *C. latifolium* (Sibth. and

Smith), *C. pyrolæfolium* (Salisb.), *C. utopicum* (Hoffm.).—Persian Cyclamen. (French: Cyclamen de Perse, *C. byzantinum*.) Asia Minor, Greek Islands, Syria, 1731. Tuber globose when young, flattened and depressed when older, of a brownish colour, 2 inches to 6 inches in diameter, producing roots all around; leaves ovate, irregularly crenulate, more or less marbled with white above, purplish beneath, contemporary with the flowers, borne on cylindrical purplish petiole; flowers large, petals oblong, ovate, four or five times as long as the tube. These flowers are produced in succession from October until April, and can be obtained nearly all the year round. A very strange fact is that in some plants the flowers are fragrant and on other plants they are scentless. They are almost of every shade of colour excepting yellow. *C. persicum* is by far the most conspicuous and the finest of the genus, and may be considered as one of the most important market plants. Improvements are wonderful, and the new strains compared with the old type show an astonishing difference, so much that the foliage and flowers are two or three times larger than the earlier ones. These marvellous results have been obtained in England as well as in France, Belgium, Germany and Holland. The following varieties are well known and extensively grown:—

C. P. GRANDIFLORUM (Hort.), *C. giganteum* (Hort.).—Above names are given to the new strains producing gigantic flowers of every colour, but having no specific or special characters. Some extra fine varieties received special names.

C. P. MONSTROSUM (Hort.).—In this variety, sent out a few years ago, the stamens have been transformed into narrow petaloid segments, reflexed and confounded with the regular petals, thus showing a flower with about ten reflexed petals.

C. P. FLORE-PLENO (Hort.), double-flowered Persian Cyclamen.—Here the stamens have also been transformed into petaloid segments, but they are shorter than the above and are drooping instead of being reflexed, thus giving the flower a very strange aspect with reflexed and pendulous segments. A plant with double flowers had already been noticed in 1883 in England, and another in 1886 in France. Sent out in 1895.

In the above two varieties almost every colour has been obtained. They are less showy than the large-flowered type and have a tendency to degenerate or spoil any other strain allowed to seed in their vicinity; the flowers also are less numerous.

C. P. CRISTATUM (Hort.), Bush Hill Pioneer *C.* (Crested Persian Cyclamen).—This very strange variety was exhibited in London by Messrs. Hugh Low and Co. on December 15, 1896, and figured in the *Gardeners' Chronicle* on December 19, 1896. The plant has the habit of the type, but on each petal was produced a fan-like crest, giving the flower a peculiar appearance. Such an anomaly has been produced in other places.

C. P. PAPILIO (Hort.).—A most remarkable strain, of Belgian origin, sent out in 1897. The name *Papilio* is probably an allusion to the flower resembling a butterfly. In this new variety the petals are not reflexed, but spread horizontally, and in some varieties the flowers are even standing upright and the petals fringed, giving the flower a very fine and strange aspect; several colours have already been obtained.

C. P. FOLIIS VARIEGATIS (Hort.), variegated-leaved Persian Cyclamen.—Another grand novelty, of French origin, which will not be sent out before the autumn, 1898. The plants have the same habit as *C. persicum grandiflorum*, but instead of having comparatively small, dark green, hardly marbled foliage, the leaves are of a gigantic size and beautifully marbled, veined and zoned with white, cream, greenish and greyish white. This new strain will be welcomed, not only for its fine fragrant flowers, but for its elegant decorative foliage, which produces a marvellous effect under artificial light. I am inclined to think that *C. africanum* had something to do with it,

although the peduncles of this new race are not twisted.

CULTURE.

A quarter of a century ago, two or three years were thought necessary to obtain a good marketable plant, but now seedlings are generally ready for sale when twelve or fifteen months old. The greatest mistake in their culture is to employ compost that has been used for growing other plants. The following mixture will answer well: Rich, light, turfy loam, three parts; dry leaves, two parts; sandy fibrous peat, one part; sharp sand, one part. Mix carefully the whole in a heap, turn it over once a month, and when the whole is thoroughly decomposed, twelve, eighteen, or twenty-four months after, it is ready for use; let the loam be as turfy as possible.

In private gardens sow the seed thinly broadcast, as soon as ripe, in well-drained pans; press the seed into the soil with the bottom of a flower-pot, but do not cover it; water thoroughly, put a sheet of glass over the pan and keep in a warm greenhouse. The seed will come up in three to five weeks; admit air gradually as the seedlings appear, and finally take the glass away. Transplant the seedlings into other pans when they have two leaves, 1 inch apart. About December they may be transplanted again into pans or potted in 2½-inch pots, and continuously kept at the same temperature, say 50°. In March or April give them larger pots or transplant them to a hotbed, where they must remain until the month of August, time of establishing them in their flowering pots. They will make fine plants ready to flower in October. Specialists do not sow their seed before October or November. They transplant the seedlings as soon as large enough into other boxes, and let them remain until spring, when they plant them on a temperate bed under frame, where they make their full growth, until the autumn, when they are potted into their flowering pots, then kept under frame until they are fully established, and finally taken into a warm greenhouse to expand their flowers, which takes place, according to the temperature, from November until March. To ensure success the following remarks must be fully observed. Keep the plants always near the light; cover the frames with mats in cold weather; shade when the sun is hot and bright; admit plenty of air each time temperature allows it; water the soil liberally in summer; syringe once or twice a day. In summer some growers replace the glass lights by wooden blinds, which is not a bad practice, thus saving a great deal of hand work. Cyclamens require to be firmly potted, and the top of the tuber must be level with the soil.

It is generally believed that plants having flowered once are not worth growing any more; such is not the case—in fact, fine specimens can be obtained from tubers three and four years old only, although no more than half of these plants will give good results. When the flowers are over, gradually withhold water, and about June stand the pots outdoors in a sheltered corner on a bed of sand or ashes, protect from rain, sharp sun, and cold winds, give the plants just enough moisture to keep them alive, and about September pot them up again, shaking away the old soil and leaving a small ball of earth around the tuber. It is the only way to obtain fine plants with a few hundred blooms open at one time. Flowers produced before Christmas rarely give any seeds, therefore selected plants for stock must be potted late in the autumn, say October, kept comparatively cool in winter, so that they do not expand their bloom before January, and,

if these flowers are daily fertilised with a soft brush or even the top of the finger, a fair crop of seed will be secured; but beware of excessive moisture during the winter. *C. persicum* does not require a warm temperature; it succeeds perfectly well in a cold greenhouse; it is even healthier, but naturally the flowers are produced much later in the spring. I have known tubers of this species planted in the open outdoors, and for three years they were not injured by frosts.

DISEASES.

Sometimes plants look weak, the leaves are curled and yellowish, and growth is suspended. In that case the tuber is generally infested with myriads of a small greyish mite and worms. There is no remedy but to take the plant away at once to be burnt. Mice are very fond of the tubers and of the seeds; they must be destroyed with traps. Slugs are very troublesome, eating the leaves, buds, flowers, and capsules of seeds; a sprinkling of powder of quicklime around the plants will keep them away. Green-fly, thrips, and aphid are most annoying, and are the result of want of air and moisture. The former must be watched for and got rid of by repeated fumigations, either with tobacco paper or by evaporating nicotine, which is the safest and most practical. A batch of *Cyclamen* infested with green-fly rarely recovers. Thrips and aphid must be destroyed and prevented in the usual way. Some growers dip the foliage in a solution of one part nicotine at 14° and ten parts of water. This is not advisable, as the plants have always a dirty appearance after. Caterpillars will destroy the foliage of a whole batch in a week if left undisturbed. They must be destroyed by hand and their grubs carefully looked for around the tubers. The greatest enemy to *Cyclamen* is earth worms, which are invariably found in quantity in each pot. They make the soil sour in a very short time; besides, they often stop the bottom hole of the pot. I have known specialists around Paris give up their culture on account of earth worms. Quicklime water, salt, nicotine, and several other remedies have been advised, but, although they destroy the worms, they kill or damage greatly the plants as well. However, a most efficacious and inoffensive remedy has been recently discovered. It is a powder called "lombricide," which is applied as follows: Put six or eight spoonfuls of the powder in a can of water, stir up well, and water the plants thoroughly when they are somewhat dry. Within half an hour every worm touched by the liquid will be killed. There is no fear of using too much powder; on the contrary, it is a first-class stimulant for all plants. It kills almost every kind of worm, and ought to be tried against bulb mites.

The following *Cyclamens* described by various botanists have never been brought into cultivation, I believe, therefore it is impossible from their abridged description to ascertain whether they are species, forms or varieties, or synonyms of the above. I will briefly name them as a mere reference:—

C. ANTIOCHUM (Decaisne, 1855).—A mere form of *C. persicum*, with entire leaves and oblong petals.

C. DELTOIDEUM (Tausch., 1829).—No origin, no description, flower laciniate.

C. HASTATUM (Tausch., 1829).—Flowers laciniate, no origin, no description.

C. INDICUM (Linn.).—From Ceylon.

C. INTERMEDIUM (Wenders, 1825).

C. LINEARIFOLIUM (De Candolle).—Discovered about 1800 in the woods of Seouves, between the Ares and Droguignan, in the south of France. Leaves linear, 8 inches long, 1 inch to 1½ inches

broad, entire; bearing flowers similar to *C. europæum*. Spite the most active researches, this singular plant has never been discovered again.

C. MACROPTIS (Zucc., 1846).—Orient. No description.

C. MACROPHYLLUM (Sieber, 1823).—From Greece.

C. VERNALE (Miller).—Italy. Most likely *C. repandum*. D. GUIHENEUF.

KITCHEN GARDEN.

SIZE IN VEGETABLES.

I do not hold any special brief for the advocacy of extra size in vegetables, and had no wish to imply that this should be the main consideration in their cultivation. The contention is simply that, given a combination of size and quality (and this is very often attained), the outcry against very large produce is decidedly unreasonable. Your correspondent in last week's GARDEN misses the point in connection with Paragon Sprouts. I did not say it was a coarse form or of extra size; on the contrary, having grown it since its introduction, am able to testify to its merits as a medium-sized sprout of excellent quality. From a break of Paragon some half a dozen distinct plants were picked out this season with sprouts nearly double the size of the type and equally good in quality. I may add that there was no sign of splitting; they were, although so large, firm and sound from base to crown. I admit that small Cauliflowers, as Early Snowball and First Crop, are very good, and are in request because they are small, but they are no better from a quality standpoint than a King or an Eclipse, which with good cultivation can be grown equally white and firm and nearly twice the size. "A Lover of Good Vegetables" scores against me in the matter of colour between small and large Cabbages, but I am yet open to conviction whether it would not require a very fastidious taste to tell the difference blindfold between a St. John's Day and thoroughly well-cooked specimens of the best strains of Main-crop or garden Drumhead. Again, would any grower be prepared to say that the marvellous increase in size in Beans, whether runner, dwarf, or broad, has only been attained at the cost of quality, always provided they are gathered at the proper time? A Bean nearly 12 inches long is certainly as good as one at 4 inches or 5 inches. They are welcomed in gardens as an instance of good cultivation, and always win on the show table.

It is just the same with Cucumbers and Tomatoes; a combination of size, quality, and colour is always appreciated. Certainly, market growers prefer a smaller Tomato because two or three fruits to the pound are apt to bring the remark from the customer that "he does not seem to have much for his money." Passing on to the root crops, I did not mention Potatoes, simply because, whether large or small, the quality in their case—that is, of course given a variety that can be done well—is altogether a matter of soil, and this failing, the necessary natural characteristics must be made to suit the tuber. Sutton's Supreme, to mention one of the newer varieties, will from a soil both light and fairly good come very large, the tubers sound as a bell throughout, white and floury when boiled, and of excellent quality. The catalogues of five different firms that have made a speciality of Potatoes are before me, and in every case the majority of new varieties, for which they are severally responsible and which have found favour with the public, are described as large. I readily admit the great demand for

young Carrots, and with three or four sowings manage to have them at least nine months in the year, but, given the attainment of full size and both young, is, for instance, a Scarlet Model better than a thoroughly good strain of Intermediate? Of Onions it is hardly necessary to write. The best growers have vied with each other for years in the production of immense bulbs until they have assumed astounding proportions. It has not been found that this is detrimental to quality; the keeping property, although an important feature, was hardly the matter of discussion. I was not treating of vegetables from a market standpoint, and, as stated earlier, should be sorry to advocate size if unaccompanied by quality. It is, however, simply a matter of fact that the two are very often (more often than not) associated. This can easily be verified by an inspection of the kitchen gardens of our leading vegetable growers, whether they cultivate solely for private consumption or to combine showing with this.

E. B. C.

French Beans forced in winter.—For many years I used to sow a goodly number of pots every three weeks or so. This is the advice usually given, but it often happens that there is a good lot of pods at the commencement of the crop and a falling off later. To avoid this I adopted a different system, and instead of sowing, say, 100 pots, I sow thirty every week, and by so doing there is no break in the supply. I find weekly sowings much better, as I get no gluts.—S. M.

Arctic Kale.—This is a very late and hardy form, as whilst all the others, with very few exceptions, are bolting, the new Arctic varieties are firm and show no signs of running whatever. There are two distinct types, the purple and green. I prefer the green, as it is more like the useful Scotch, but both are excellent when cooked and not strongly flavoured. Though the leafage is rather large, the stalk when boiled in plenty of water is tender and of excellent flavour. Any Kale that withstood the severe winter three years ago may be considered hardy, and these Arctic Kales did so.—G. W.

Parsley.—There is no lack of Parsley this season. Most growers are dependent on the seedsmen for their stock, as I find, no matter how good the strain of seeds is, if sowed year after year in the same soil, Parsley degenerates badly. I am pleased to find "A. D." at the conclusion of his note points out the value of hard thinning. This is a cardinal point. Many very excellent stocks have been ruined by sowing and growing the plants like Mustard and Cress. Many sow far too thickly. Parsley, like other vegetables, well repays the best culture, more especially in poor, gravelly soils.—S. M.

Onion The Queen.—In some gardens there is a demand for small bulbs for special purposes, and I find The Queen invaluable for early supplies. This is the quickest-growing Onion in cultivation, as sown now it will be ripe early in June. There are other varieties almost similar in growth and colour, but larger. The Paris Silver-skin is one of these, but it is less symmetrical and of stronger flavour. The Queen is of great value for cooking in seasons when the autumn-sown Onions are getting short and the spring crop is none too large. It is not necessary to sow this variety with the main crop, as given a warm border it will soon turn in, or it may be sown in July or August for late autumn use.—G. W. S.

A good Broccoli—Superb Early White.—So far the season has been a favourable one for the Broccoli, but with the most favourable weather some kinds do not always turn in at the time stated, so that those that are reliable are worth noting. Having failed for the past few years to get Broccoli in February, I gave several new varieties a trial, and Superb Early White is a reliable stock for the season named. It has a

pure white curd; the growth is compact. For many years I grew the well-known Snow's Winter White, but it has of late years failed to give a supply at the season required, and the variety in question was after a trial last year given more space. It is not unlike the true Snow's in shape and size and very hardy. This variety was ready at the end of January. I sow in April for the midwinter supply.—G. WYTHES.

Beck's Dwarf Green Gem Bean.—This is an excellent Bean and well worth "J. G.'s" remarks; but are not some of the newer green Longpod Beans of equal merit? Indeed, I think this class of Bean far superior to the old type, and, being quite as hardy, is an advance in the right direction. Only recently I saw the old Magazan Bean advised as superior to others, but most growers would hesitate before growing the last-named in preference to the newer early green Longpod section. The objection to the small Beans of the Gem type is that they so soon get old when the soil is light and the position at all warm.—S. B.

Globe Beets.—When Mr. Wythes takes exception to my including Globe Beets in a collection of vegetables in August because there is then a wealth of other vegetables, it is well to understand that my reference applied solely to a considerable collection, and not to a limited one. At that season of the year Peas, Potatoes, Runner Beans, Tomatoes, autumn or winter-sown Onions, and Cauliflowers are the very best possible six kinds, and to make up nine may be added Cucumbers and Marrows or Nantes Carrots, and what then is better than good Globe Beet? There remain Broad Beans, then out of season; Cabbages, seldom good or enticing just then; and dwarf French Beans. Globe Beets well grown are better than either of the last three.—A. D.

Vegetable Marrows.—Having of late noted the quality of the Bush Marrows, I gave them a fair trial and like them very much, but it is essential that the fruits be cut young, as they lose flavour much sooner than the trailing varieties. The well-known and much-grown Marrow in private gardens—Pen-y-byd—is not at all a market favourite; in fact, a large grower last year told me he could not sell it. The same remarks were made concerning the Custard and Bush varieties. "A. D.'s" remarks (p. 122) as to raising the plants are excellent for small quantities, but only last week I saw thousands of seedlings sown 2 inches apart over warm manure in frames. These will shortly be transferred to other frames, and early in May lifted carefully into their fruiting quarters. It is surprising how well these plants lift. They are sturdier than pot plants and go away more freely.—S. M.

Pea Danby Stratagem.—For fifteen years I have grown Stratagem Pea as a second early and it has never failed. Few varieties are superior in cropping and the quality is unquestionable. It is now, however, superseded by the above as regards size of pod, and the quality is equal to that of the older variety. Doubtless when the newer selection is as plentiful as the older favourite it will be largely grown by those who need early Peas in quantity. The new variety differs from the old in having larger, straighter pods, which contain more Peas. Doubtless it is a selection from the old type, and if it remains good as long it will meet with the same favour. The haulm is very robust, 2 feet to 3 feet in height, and equally as strong as in the older variety. It is specially good in light soils where Peas mildew badly. It should be given ample space—at least 3 feet or 4 feet between the rows. Treated thus it will crop down to the soil and give a long supply, the quality also being very fine.—G. WYTHES.

Bush Marrows.—I do not think that the want of popularity of Bush Marrows, as mentioned by "A. D." (p. 122), is in any way connected with their being but little known, but rather that they have been tried and found wanting. With me

they are never so satisfactory as the running type of Marrow; neither are they so prolific in proportion to the ground covered. The running varieties do, as "A. D." says, owe something of their popularity to the fact that they will cover unsightly heaps of manure and the like, and I know of no more practical use to which the residue of the manure heap and other semi-decayed vegetable matter can be put than to the growth of these Marrows. In almost all gardens there are accumulations of this sort which are not fit to be dug into the ground at digging time, and a heap formed of these may be profitably covered and hidden in yards or enclosures which would otherwise be lying to waste through the summer months. I have found the Bush type of Marrow useful for filling up blanks among other crops where such occur, but they are certainly not to be depended on to give a lasting succession of fruits, no matter how well they may be fed, and it is in this that they are beaten by plants of the running type.—J. C. T.

Planting early Potatoes.—When in such an open winter as is the present, because a few warm days lead to the belief that spring is here, those having gardens and allotments are induced to plant early Potatoes in February where shelter or protection against late frosts is not possible, what wonder if in April, being then precociously through the ground, the tops get cut hard back with frost and the entire breadth is greatly injured. Wherein then is found the gain in early planting and how relatively great is the loss. Unless a nice warm sheltered border be at disposal and some rough kind of framework is provided over which mats, nets or canvas can be stretched when the tops come early through, it is folly to plant before April, and even then not too soon. If the sets have been kept very cool and quite at rest, or if they have been sprouted in darkness so that the shoots are weak and spindly and have to be pulled off, then they may lie five or six weeks in the ground ere the growths appear above the surface. By that time all danger from frosts may have passed away. But where sets have been stored in shallow boxes and exposed to ample light and air, and the sprouts they push are stout and sturdy, such sets will often push their tops through the surface of the ground within three weeks from the planting. In such case to be safe the third week in April is early enough. The great thing desired in Potato growth is to have it robust and healthy and as quick as possible. When the tubers are planted very early in cold ground growth is very slow, and the shoots thrown out are commonly elongated and weak.—A. D.

Autumn and winter-sown Onions.—An interesting example of the value of winter or under-glass sowing of Onion seed is negatively furnished in the Royal Horticultural Gardens at Chiswick, where what was in the early winter a fine breadth of autumn-sown Onions has been much lessened by fogs during the winter. As the leaf cuticle of the Onion plant is somewhat stout and leathery, and does not present surface for the accumulation of soot deposit or of gaseous compounds, the injury thus done seems all the more remarkable, and strange, too, is the fact that some plants seem to be left in every row, which represents either a distinct variety or a diverse stock. The sown rows being 3 feet apart, it was purposed to lift from each row in the spring and replant a second row, and a third was to be filled by a spring sowing from the same stock. Now the proposed transplanting seems to have been rendered impossible. Had there been made a winter sowing of each stock in the same way that growers of large bulbs for exhibition or otherwise raise their plants, transplanting from these would have been easy. Of course to have done such would have rendered considerable labour and house space needful. On the other hand, the special object of the trial, apart from the discrimination of varieties, was to exemplify Onion culture in the open ground. The result has been to show how singularly amenable is the Onion plant during the winter to injury from fogs.

No matter whether Spanish, Tripoli, or what variety sown at Chiswick, all have alike suffered.—A. D.

GARDEN FLORA.

PLATE 1161.

SOLANDRAS.

(WITH A COLOURED PLATE OF *S. GRANDIFLORA*.)

THIS is a small genus of tropical shrubs related to *Datura*. It commemorates the name of Dr. Solander, the fellow-traveller of Captain Cook and Sir Joseph Banks. A native of Jamaica, whence it was introduced in 1781, *S. grandiflora* is now a favourite climber in many tropical countries. Gardner found it climbing to the tops of the highest trees of the forest in the Organ Mountains, in Brazil, ornamenting them with its large and beautiful yellow flowers, and Dr. Morris saw it recently in Madeira, covering an immense area of rock and trellis, and producing great masses of bloom in January. In our stoves it grows very vigorously, but, unless exposed to bright sunshine in a dry situation, it does not flower freely. In the Palm house at Kew there is a large specimen trained against the roof glass which never flowers, but there is also another in the Cactus house which blooms freely and continuously every summer. It is planted at the base of a pillar in a gravelly bed, its main stem being about 30 feet long and 3 inches in diameter at the base. It is grown on the short spur system as applied to Vines, every year making long succulent shoots clothed with bright green fleshy leaves and long trumpet-shaped creamy yellow flowers, splashed with purple inside.

When grown in pots the treatment should be one of starvation as regards root room and soil, with exposure to bright sunlight all summer and absolute drought from November to March. This induces a short growth and the production of flowers in autumn. The flowers vary in size and colour. According to the *Botanical Magazine* (t. 1874), they are pale flesh-coloured in Jamaica, and are known as Peach-blossomed trumpet flowers; in other gardens they are said to have been white and purple. Those on the Kew plant were coloured as shown in the plate, and measured 9 inches long by 5 inches across the mouth; they were produced from July to November. This plant has ripened fruits, which were heart-shaped, 3 inches long, green, and each weighing nine ounces.

S. CUTTATA is a Mexican species, very similar to *S. grandiflora*, differing chiefly in having hairy leaves and a narrow-tubed corolla, coloured ochrous yellow streaked with purple. It was introduced in 1832, and flowered in Tate's nursery in Sloane Street in early summer, when Dr. Lindley figured and described it in his *Botanical Register*.

S. LAVIS is described as a shrub of dwarfish habit, 2 feet high, with long trailing branches and white trumpet-shaped fragrant flowers a foot long, otherwise not unlike that here figured. It was introduced by Messrs. Lucombe, Pince and Co. in 1847, with whom it flowered freely in an ordinary stove. If in cultivation now (I have never seen it), it well deserves to be brought into prominence.

S. VIRIDIFLORA.—This is a dwarf plant of somewhat scrubby habit which was introduced many years ago from Rio de Janeiro to Chelsea Botanic Garden, and which is still to be seen in botanical collections. It blooms annually in a stove at Kew, producing its drooping, terminal tubular flowers

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by J. L. Goffart.



in midsummer; they are green, 5 inches long and curiously inflated just below the mouth. It has been referred to the genus *Dyssochroma*. Several species of *Fagraea* have been called *Solandras*, i.e., *S. nitida* and *S. oppositifolia*.

For large tropical houses there is no more worthy climber than *S. grandiflora*, and it is of the greatest service in gardens in the tropics for covering verandahs, screens, &c. Cuttings either of young shoots or the ripened wood root readily in sand.

W. W.

THE WEEK'S WORK.

KITCHEN GARDEN.

SOWING VEGETABLES.—From seeds of Lettuces sown now there will be abundant supplies through the latter part of May and in June if the beds are sheltered and the seeds sown thinly. Many sow the first crop in the open on a south border and thin early, using the thinnings to form a succession. Sown thus there is no check, as those left in the beds soon turn in for present sowing. Perfect Gem and Golden Queen Cabbage varieties are excellent. Of Cos varieties, Hick's Hardy Cos and Balloon Cos are good. It is best to sow every three weeks to avoid gluts, the next sowing being later kinds and on a cooler site. Cauliflowers for summer supplies sown now in the open will follow those sown last autumn or those raised in heat. Such kinds as Walcheren or Pearl are reliable. I advise both, as a succession is then secured. Those who need early autumn Cauliflowers will do well to sow for the October cutting. Many sow in heat in cold districts, but I prefer plants grown in the open from the start. The well-known Autumn Giant cannot be beaten, and a newer type, Extra Early Giant, is valuable if needed for use during September. Much the same remarks are applicable to the early Broccoli. Brussels Sprouts to be good should be sown early in March for supplies from October to Christmas. Many sow in heat. I usually sow a small quantity of seeds in heat for an early supply, but the best sprouts are obtained from plants sown in the open, given ample room and an open position. Paragon or Northaw Prize are good medium-sized types, and Dwarf Gem is suitable for latest supplies. A sowing of any of these now and in six weeks hence will give plenty of material. Cabbages sown now will give heads from June to September. Matchless and Model are good. I do not advise sowing Savoys thus early, as these plants make a quick growth. April is quite time enough for early supplies. Leeks should be sown in rich land. When planting out, select a flat border. The Lyon for early supplies, Model for mid-season, and Musselburgh for late cannot be beaten. The Kales are mostly needed for winter or early spring use. It is well to defer sowing till next month, or even May, for late supplies. Where birds are numerous it will be necessary to protect seeds sown now. There is no better plan than rubbing the seeds with oil and then rolling in red lead; if this is not done, nets must be used after sowing.

EARLY BROCCOLI.—The early Broccoli crop is always valuable, and most gardeners endeavour to get varieties that follow the autumn Cauliflowers. For autumn supplies, that is from October to December, I would advise two sowings of Self-protecting Autumn, one now, another in May; and though the latter may turn in during the latter part of October or early November, the heads may be kept if lifted and stored in a shed. For an early winter supply it is difficult to beat Snow's Winter White when a true stock can be secured. This should be sown this month for mid-winter supplies. For two seasons I have found Superb Early Winter (not unlike Snow's) most useful for February cutting. This sown now will be found good for the season named. Early White Penzance, Spring White, and Main Crop are all good for succession to the earlier kinds; these give heads through March and

April. The varieties to provide heads from Christmas to March need more care than later varieties, as these plants must be put out by early June if good results are expected. I am aware many growers are averse to planting liberal breadths of early Broccoli, as it is often destroyed by frost, but much depends upon variety and culture. The latter should be as hardy as possible from the start, and be given ample space.

VEGETABLES RAISED UNDER GLASS.—The early Cauliflowers grown thus will need removal into frames or where shelter can be afforded. I usually prick out on a warm bed and place movable frames or sashes over the plants, giving a rich soil at the start. Seedlings left too long mildew and soon lose strength in the seed beds if under glass. In pricking out give 3 inches of space between each plant, more if it can be afforded, to allow of lifting the plants with a ball. Make the soil firm previous to pricking off. The same mode of culture is needed for other plants raised in heat, such as early Cabbages, Brussels Sprouts and Lettuces. With a scarcity of Lettuce it may be desirable to leave these plants to finish, as lifting later on will check growth. A little warmth at the roots will be of great assistance. Beds occupied with plants as advised above come in useful later on for many purposes. Other seedlings, such as Celery, may follow, or Vegetable Marrows may be planted for a summer crop. It is well in forming the beds for the seedlings to use slow heating materials; strong heat means a weak plant.

LATE SEAKALE.—This vegetable this season will be exceedingly valuable, as, owing to the mild winter, most green vegetables have run to seed earlier than usual. Where Seakale is grown naturally for latest supplies, with care it may be had well into May. For April cutting, any crowns that were lifted for forcing and not used may with advantage be placed under a north wall and covered with litter. These will give nice dishes, but it is necessary to keep the growth dark to get it blanched. I always grow a good quarter of Kale for late use. This is grown for two years and then destroyed. The first year good heads are cut, but better the second; after that the roots get too wide and are not so good. To get these supplies I plant a plot yearly. For late use the roots should be 3 feet apart between the rows, as this allows of material for covering. I am aware many use boards or pots. I only use soil. A covering of fine coal ashes is at this season placed a few inches thick over the crowns, and the soil is then taken from between the rows and ridged up 18 inches high, made smooth with the back of the spade, and as the Kale grows it soon lifts the soil. Of course, grown thus it needs more care in cutting. I also place long litter over the soil if the weather is warm to keep it cool and moist and retard growth. Where only small quantities of Kale are grown for late supplies, pots or boards may be used for covering over the crowns, but even then there must be other materials, such as soil or litter, to exclude air and light.

NEW SEAKALE BEDS.—Now is a good time to plant roots for future supplies, and if the strong pieces of roots have been prepared for the purpose, they will make good planting material. The land should be trenched or double-dug, a liberal quantity of well-decayed manure being placed under the first spit. For ordinary culture, that is to lift to force, a distance of 2 feet between the rows and 18 inches between the plants is sufficient. I feed liberally from the surface instead of using large bodies of manure. For what may be termed permanent plants, manure liberally and give more space, at least a yard between the rows and half the distance between the plants. Many growers who force start the root cuttings in a little warmth, and by so doing they gain time, as the roots planted out early in April are on the move, the crowns are formed, and it is a simple matter to rub the weakest off, only leaving the strongest. In very heavy clay land I have seen excellent results by making large shallow holes with a Potato dibber, filling in with leaf-mould or spent manure, push-

ing the sets into the rich material, and finally firming round them by treading. Treated thus the sets make a much better start and are of a large size for autumn forcing. Many growers may have some small roots that are not worth forcing. These if cut over, trimmed and planted, will make very good forcing material by next October, as they will be earlier than those from root cuttings. It is important that the crown growths be gone over early in the season and reduced to the strongest.

ASPARAGUS BEDS.—No time should be lost in making new beds if it is intended to do this work this season, as owing to the mild winter growth is earlier than usual. I am not an advocate for making very costly Asparagus beds. There is no need, as if anyone interested in its culture would note the growth from plants in open fields sown merely for planting, they would see there was no need for so much labour and materials as are often employed, and with very poor results in some cases. Provided there is natural drainage, double-dug land, with a fair quantity of manure, is ample, as it is far better to feed from the surface during growth than plant in manure which sours the roots before they have strength to absorb it. In many gardens one can assist the land if clayey by the addition of road scrapings, burnt garden refuse, wood ashes and old mortar rubble. In light soil more food is necessary, and I find there is nothing equal to liquid manure from stables from May to September. Food given now in the shape of a quick-acting fertiliser is advantageous. Fish manure or guano is a good fertiliser mixed with soil, and this placed on the surface, raked in and the beds made trim for the season will be good work done. Salt should not be given for a few weeks, as it retards growth. When giving food of any kind, it is far better to give it say once a month or oftener than all in one dose.

S. M.

FRUITS UNDER GLASS.

NEW VINE BORDERS, SOIL, AND PREPARATION OF.—The remarks that will be made under this head will have more particular reference to private gardens than to market establishments. The two cases are wide apart as regards both means and treatment. In almost every instance the grower for market is sufficiently alive to the fact that suitable soils, with the minimum of labour expended in preparation, make all the difference in the outlay so as to be enabled to secure a reasonable profit. In the case of vineries in private gardens, however, these facts are not in many cases borne in mind at the time the houses are erected. It is also well known by all practical gardeners that the surroundings of many vineries are not such as they would desire, yet the best has to be made in each instance. I could easily name cases where it would be practically impossible to grow, much more to keep, Grapes. Fortune favours one, so to speak, more than another, but to judge by this alone of the respective abilities in each instance would be manifestly unfair. When one reads the glowing accounts that are at times written of what some market growers accomplish, it might be thought that Vine culture in private gardens was a failure. No case, however, can be rightly estimated without a thorough knowledge of the work; therefore such reports are altogether beside the mark, clearly indicating a want of practical information by the writers.

DRAINAGE A PRIMARY CONSIDERATION.—In any case this should obtain either by natural means or artificial, for without it a stagnation at the roots must inevitably ensue. In my own case I have had to drain carefully, having, in fact, only concreted borders to deal with. This arose through no fault of mine in the first instance, and it was caused by two distinct evils—one being a severe attack of the Phylloxera, and the other owing to the vineries being built on such low ground as to compel the making of borders sunk in the clay subsoil. By concreting, the first evil was cut off where it was not expedient to trace out all the

roots, and by the same operation the roots of the Vines then to be planted were prevented from permeating the clay, which would be a fertile source of shanking, a failure which with me is now a comparatively unknown quantity. With good drainage the soil composing the border will remain much longer in a sweet condition, making it a much safer course when manuring is practised. If there be a supply of clinkers from the stokeholes, this will be a convenient time for their disposal; they make an excellent drainage medium above and around the drain-pipes. Over this again some rough turfy sods should be inverted, and then the border will be fit to receive a portion of the soil. Those are most fortunate who can with safety plant right away without any previous preparation. For my part I prefer the top spit of an old pasture, upland being preferable to lowland, with less possibility of becoming too close in course of time. This may be used straight away from the digging if need be, but I would prefer it from a stack made last autumn. One great feature should be made of securing the soil rather on the dry side, so that it may lend itself more readily to being made firm by treading, for a solidified border is much the best in the long run. The work of making a new border, be it noted, should be fine weather work always. The soil will need to be turned about twice when it is found necessary to add anything to it, and whilst so doing, any pieces that appear to be too large can be broken down, but avoid crumbling the soil.

ADDITIONS TO THE SOIL.—When there is a tendency for the loam to be close or heavy, then the addition of burnt ballast will serve a good purpose. Chareol will do so, too, in any case, so will lime rubble and half-inch bones, but each case should be controlled according to its special needs. What has to be guarded against is that of the border becoming close, thus holding in suspension too much moisture, thereby also being rendered impervious to the air. To enrich the soil with manures too freely, whether they be animal or artificial, is a common error; for a time it may yield apparently good results, but ultimately the opposite will almost invariably be the case. When borders are being made, guard against making up too great an extent at the outset; it had better be done a few feet at the time. Of course the greater part of the foregoing notes does not apply when the natural soil and surroundings are favourable; this, however, in private gardens is rarely ever the case. And to further hinder one's best intentions, the most suitable loam is at times denied for various reasons.

PLANTING.—This work should be done during the present month in every possible case, the best time being when the buds are seen to be swelling. Having got good Vines with plenty of roots, the temptation to plant them with the balls intact or partly separated should not prevail, but rather shake them out completely, yet carefully. Having prepared the surface of the border with some of the finer loam, then lay the roots out somewhat in the same way as a fan-trained fruit tree is, and cover them first with rather fine soil and the rougher afterwards, so that the roots are about 4 inches under the surface. Then a thorough watering should be given so as to settle it well around the roots, and over all some light litter may be laid to keep a genial moisture. For the first season I prefer to start the young canes from the top of the side-lights if the Vines be strong ones; if weakly, prune back to near the base. For the first season, one leading cane is sufficient, more particularly if supernumeraries are provided for, as overcrowding must be avoided. At first let the temperatures be steady, with the usual treatment as regards moisture.

VARIETIES TO PLANT.—To some extent this will be a matter of choice. For the earliest house the four I recommend are Black Hamburg, Madresfield Court, Foster's Seedling, and Royal Muscadine; for mid-season, the two first repeated with Muscat of Alexandria; for late use, Lady Downe's and Alicante with the Muscat again, and Lady Hutt for the latest white kind. For quality, do not depend upon Gros Maroc or Gros Colman;

for exhibition or appearance merely they may be tolerated, but these ought to be minor matters.

CHERRIES UNDER GLASS.—These, if brought on steadily, will now be in flower, or approaching that condition. As a body, gardeners have something yet to learn as regards Cherries under glass. They are most sensitive to fire-heat, and on no account should they be hurried at any stage. The house should never be closed unless the temperature falls below or to about 40°. With a little heat in the pipes and ventilation at top and bottom, a light, buoyant state of the atmosphere can be maintained. Anything approaching a close or stuffy state of things cannot be tolerated in the case of the Cherry. Mine are now in some instances passing the flowering stage, having been all the winter under glass in a cool house; others are just at their best, and fertilisation by the use of a camel's-hair brush has from the first been diligently pursued, and will be to the end of this stage. A tree or two, if merely under pot culture, of the May Duke family is a great assistance in the way of pollen. French growers find the May Duke valuable for this purpose, and they excel us in forcing the Cherry. **HORTUS.**

ORCHIDS.

ORCHIDS ON BLOCKS.

THE growing season for all classes of Orchid^s is now commencing, and where there are many plants grown on blocks, the present will be a good time to look them over and renew any that require it. I do not recommend blocking in a general way, as in a great many instances the plants do as well in small pans or baskets, and these are less trouble to look after as regards moisture. But many amateurs like to see Orchids growing on blocks, and if they have time to look after them they do well. Again, some few species are best grown on blocks, their roots being of a kind that will not thrive when covered with peat and Moss. The best material for blocks is undoubtedly stems of Tree Ferns, the natural roughness of this material forming a splendid rooting medium for some of the smaller-growing Cattleyas and Laelias, and even Sophronitis have a very pretty and natural effect upon this material. Cork, again, is largely used, and, though a suitable material, is not so good as the last-mentioned. Some object to it as forming a harbour for insects, but I am afraid those who do so are not the class of cultivators to succeed very well with any kind of Orchids. It is no more trouble to keep insects out of cork than out of a basket of Moss and crocks. If any part of either is allowed to get dry and remain so for any length of time, insects, and especially woodlice, are sure to congregate there. This is, in fact, often caused by careless watering. If every part of the compost or block, as the case may be, is well moistened every time the plant is watered, insects find shelter in the one as little as in the other. Teak is largely used, and is excellent for the purpose; also Birch and good dry pieces of Apple or Pear. The plants once established on these will thrive for a long time if kept properly moistened, but when in course of time the blocks decay, the plants must be shifted to a fresh piece, or they soon go back. This is a more difficult job than at first appears; not to move the plants, of course, but to get them to take a fresh hold on the new block. When first placed on blocks, Orchids are usually newly imported, or, at all events, have not been very long under cultivation, and they take with a will to whatever is placed within reach of the roots. But by the time the first block has decayed they have lost much of their initial vigour,

and as in the majority of instances they are of dwarf habit, they will not take readily to the new piece or easily get over the disturbance consequent on shifting. The roots, too, will often be found to have run through the decayed parts of the block to where there is a little sound wood still left, and as these are naturally the best feeding roots, the plant feels the loss of these all the worse. Where they run on the surface of the block we are not in much better case, for, though the roots may with care be removed, it is impossible for these individuals to ever attach themselves to anything else. The work should be taken in hand before any young roots are produced from the new growths, as these will give the plants the best start possible. Whatever old roots are saved may have a little Moss placed over them to keep them moist, but as a rule they do not live long and the plant has to depend on the newly-formed ones springing from the young growth. Sometimes when flat blocks are used the old one may be nailed to the new, first cutting away as much as can conveniently be got at, including all decayed parts. Then, as the young roots take to the new piece, the old wood can be gradually removed and the plant brought down, or the old block replaced by Moss. Many of the Dendrobiums when newly imported are difficult to pot firmly owing to the weight of the stems, and one of the best modes of establishing these is to wire them to small blocks and place these in pots among clean crocks. By the time these blocks are decayed there will be such a mass of roots among the crocks and Moss that the plants will hardly feel their loss. Some of the smaller evergreen Dendrobes, such as *D. aggregatum* or *D. Jenkinsi*, have a very pretty effect when grown on rough forked pieces of Apple wood, and it is a good plan culturally, for these small-growing species never seem thoroughly happy in peat and Moss. With regard to the Tree Fern stems, it is a very simple matter to fasten the plants to these. *Zygopetalum rostratum* and others of this class should be wired on with very fine copper wire, this being passed over the rhizomes and around the stem. The roots of many Orchids when fastened on these stems run right through them, making it quite impossible to remove them. But it is not often necessary, as the material is very lasting, and when at last it does decay may be picked to pieces and the roots with these pieces attached may be potted up in the usual way without checking them much. Last season I treated rather a large *Cattleya Trianae* in this way, and the plant hardly felt the removal. This, of course, is a strong-growing species, and should hardly be quoted as an instance of a block plant, but the result is usually good when weaker-growing kinds are operated on. In fixing plants on cork blocks a little Moss is generally required about the rhizomes, and a wire may be passed through the block and over the latter very easily. The yielding nature of the material will allow of the wires being pulled very tightly, and if a thin strip of cork is placed over the rhizome no harm will be done to this. Ordinary wooden blocks should have the plants secured by copper tacks and wire without any Moss, or only a very little.

Epidendrum O'Brienianum.—This is a very bright and effective Orchid, a hybrid raised by Messrs. Veitch by crossing *E. radicans* and *E. evectum*. It is a slender-growing plant, with cylindrical stems about 2 feet in length, clothed with deep green leaves, and producing small white roots along its entire length. The blossoms are larger than those of either parent and a pretty bright crimson-purple in colour, the lip three-

lobed and fringed. It is very free in habit and succeeds well in medium-sized pots in the Cattleya house. No drying off is needed at any time, but water must be supplied in accordance with the state of growth.

Odontoglossum Ruckerianum.—The better forms of this lovely Odontoglossum are hardly to be beaten, and a flower to hand from "R. R." is certainly one of these. As large as those of a good *O. crispum*, the sepals and petals only lack a little width. The rose-purple margin to each of these is clearly defined and not spreading irregularly over the segment as in some varieties. There are a few spots, principally about the base of the petals, and one large blotch on the front of the lip. *O. Ruckerianum* is strictly a variety of *O. crispum*, but the true forms are quite different to those sometimes labelled as such, which are simply rosy tinted forms of *O. crispum*. It is named in compliment to the late Mr. Rucker, of Wandsworth, with whom it first flowered.

Ansellia nilotica.—This does not differ very much from *A. africana*, being similar in habit, but producing spikes of bright yellow blossoms with chocolate-brown markings from the top of the leafy stems. It should be potted in a mixture of Sphagnum and peat, strong plants having in addition a little fibrous loam, all being used in a rough, open condition. The growth is best in a very light, almost unshaded position in the East India house. While growing freely plenty of root moisture is essential, and though when growth is quiet the plants may be kept a little cooler and drier, the time of rest is not always constant. It is, perhaps, the best form of *Ansellia* known, and was introduced from the Upper Nile regions in 1853.

NOTES ON ORCHIDS.

SCARCELY a day passes now that does not bring with it something fresh in the way of flowering Orchids; consequently the flowering house is very gay. Growths, too, on many of the plants are getting well away and the houses are very interesting. Dendrobiums are making a fine show, all the varieties of *D. nobile* and many of the hybrids raised from it being in flower. Phalenopsis, too, are very showy, their elegant spikes giving a grace not attainable by any other description of Orchids. Cypripediums, Cymbidium, and others are all giving us of their best, but there is much work to be got through and little time for admiring the blossoms. Potting is in full swing, and many of the *Laelias* of the autumnal and aneeps sections will by now be finished. Cattleyas are easily damaged by disturbance at the root unless the proper degree of warmth is kept up in the houses afterwards, and though many of the *C. labiata*, *C. Percivaliana*, or even *C. Triana* may be repotted now, there are often cold, windy days in March and early April that make one feel timid for the safety of repotted plants, though established ones do not suffer. Where thoroughly good heating arrangements are in vogue and the houses can be kept at a proper figure, the plants may be potted now with advantage, for root-action will be getting brisk, and they will have a better chance of getting hold of the new material. Most Cattleyas like a very rough, open compost, consisting largely of peat and large nodules of charcoal with some chopped Sphagnum. The better growers, such as those noted above, may be grown in fairly wide baskets or pots, but for small-habited plants the suspended pans are better. All should have the decayed roots removed, and those that are alive spread out as well as possible, the material being worked around them with the dibber. Plants of *Cymbidium giganteum* as they go out of flower may have a shift if necessary, and so strong and persistent are the roots of this species, that they quite envelop the old material when healthy. Obviously it will not do to disturb these, so the plants must be placed in pots a couple of sizes larger, and the new material worked down firmly between the old ball and the new pot. The compost for this

species should be very substantial and contain a good percentage of loam fibre. The plants must be watered after repotting almost as freely as at any other time, thus differing from many other Orchids.

Cypripediums of many kinds may also be repotted now, including all the late autumn and winter flowering species and hybrids. Unless the plants are weak, small, or semi-established, there is no need to elevate them above the rims of the pots, the size of the latter being chosen in accordance with the habit of the species. To pot the large-growing kinds like *C. Roezli* or *C. longifolium* in the same sized pot as such as *C. Charlesworthi* is so obviously wrong, that one would hardly think it necessary to mention this point; yet it is impossible to look into many collections that are in the hands of inexperienced cultivators without seeing that the caution is still needed. There is not a large number of the distichous-leaved kinds, such as *Vandas* and *Aerides*, now in flower, and it is a good time now to look over these, giving fresh material where this is seen to be necessary and setting them right for the season's growth. The tips of the roots of *Aerides Fieldingi*, *A. odoratum*, and other large-growing kinds are already advancing rapidly, and those that are going to be disturbed may be done now and kept a little closer and warmer afterwards. Little else than clean Sphagnum Moss and charcoal or ballast is needed by these plants, which like a fairly good shift and then to be left alone for a few years. *Calanthes* and *Thunias* are getting well on the move, and, if not already done, must have attention without delay. Many other kinds may be mentioned as needing attention now or a little later, such as *Epidendrum*s of various kinds, *Brassias*, *Oncidium*s of the bulbous class, *Anguloas*, *Lycastes* that have finished flowering and many others, but in most cases it is easy enough to see what is wanted.

It is a great mistake to be pulling cool Orchids about at this time of year. Their most trying time after cultivation is usually the summer months, and not only this, but the roots are in nearly every case more active towards autumn. As yet we have had little sun, and shading has therefore not been required, but this is all the more reason why the blinds should be got ready and fixed, because the plants are all the more liable to be damaged when it does come. Fiftal weather gives a lot of trouble in ventilating, and it is quite a relief when closing time comes round, for then the houses are freely damped and are safe for the rest of the day. The warmer houses may still be closed as soon as possible after midday. There is nothing gained by keeping them open after the air has been changed. Open early in the morning and close early in the afternoon is a capital maxim, and should be followed as closely as circumstances will allow the whole year round. Fire-heat will now be a valuable aid to the Orchid grower, for the temperature now rises naturally by day and cold winds at night would make the temperature very low. Not only at night is it needed, for when the sun is shining the house may be opened much more freely if the pipes are nicely warmed, to the distinct advantage of the plants in every way. The increasing light is making a great difference in the appearance of cool house plants, the *Odontoglossum*s and *Masdevallias* especially. Flower-spikes are now abundant, so are slugs, and great watchfulness is required to keep these pests off. While on the subject of insects a word may be said on the Cattleya fly. This pest, I am glad to find, is being gradually exterminated. Fumigation with the improved methods in vogue is fatal to the female flies, and if these are killed, of course no eggs are laid in the young bulbs, and no swollen, unsightly growths will appear. The remedy for these is still the same as I have always recommended. They must be taken off and burnt without the least compunction, for no fumigation, however strong, can touch the young larvæ so snugly ensconced therein, nor can any method of treatment make the growths healthy when once attacked. If there are any arrears of

winter cleaning, these must now be brought up, for with every day increasing the amount of water needed and the number of plants requiring potting, there will be less time for sponging. But let whatever is done be done well; it is better to take a little more time in the first instance and do it thoroughly than to have to go over it all again directly. The East India house may still be kept at 60° by night, though the temperature will vary a little, higher or lower according to the weather. A rise from natural causes or a fall is not so injurious as a lot of fire-heat at night, this bringing plenty of insects and causing weak growths. The Cattleyas like a little extra warmth, but not much; let March be out before making any great advance. In the cool house the pipes should be just warm and a little air left on, this keeping the night temperature from 50° to 55°. H. R.

CELEGYNE PANDURATA.

THE blossoms of this fine species are quite unique and distinct from those of any other known kind. They occur on long semi-pendulous racemes and are upwards of 4 inches across. The sepals and petals are bright green, the lip paler in ground colour, but having in front a perfectly black blotch and several warty protuberances and lines of the same colour. Such a fine contrast as these two colours make is never passed by anyone who has not before seen the plant, for the one colour shows up the other to perfection. *C. pandurata* requires plenty of heat to do it well, and where there is a shady, moist corner in a house kept at the usual East Indian temperature, this will make a capital place for it. It is a very vigorous grower in such a position, pushing out over the sides of its pots or pans in a short time, and the best way to treat it is to let it have its head and try and provide something for the roots to take to as the rhizomes extend. Rafts lightly dressed suggest themselves, and they are excellent for the purpose, but beyond a certain size they are apt to be untidy and awkward to lift about. Pans, too, are suitable as long as the plants can be kept at home in them, and these may be nearly filled with drainage, a thin compost surface. Equal parts of peat fibre, Sphagnum Moss, and partly decayed leaves make a good compost. Some growers add loam to the material for potting *Celogynes*, but my experience with it has not been satisfactory. *C. pandurata*, like all in the genus, dislikes being pulled about at the roots, so it is best to give room enough at first, and if the plants need it afterwards, they may have the rhizome pulled downward or to one side to meet the compost. When rhizomes and roots are rambling about in the air it is bound to lead to weakness of the pseudo-bulbs, and in consequence the flower-spikes, so by all means get the roots in juxtaposition to the material they are supposed to occupy. With regard to root moisture, it will be found a very thirsty plant, delighting in a moist atmosphere and plenty of water at the roots. The thin compost allows this to pass away readily, so that almost daily waterings are necessary in summer when the plants are growing freely. No resting season, as generally understood, is required by *C. pandurata*, for no sooner are the pseudo-bulbs finished before the young shoots make their appearance. But this is the time when the least moisture is needed, only never let the bulbs shrivel for want of it. The only insects that trouble this species much are red spider and a small brown scale, the latter being rather difficult to eradicate. Frequent and careful spongings are the best means of destroying them, while a healthy, buoyant atmosphere is the best preventive. *C. pandurata* is a native of Sarawak, where it grows in the jungle close to the banks of streams, often on the trunks of trees. It first flowered in England in 1853.

Oncidium Marshallianum.—This is one of the brightest and most effective of *Oncidium*s, and a first-rate garden Orchid. It produces long branching spikes from rather small bulbs, conse-

quently the plants must not, unless quite strong and healthy, be allowed to carry their flowers until they fade. A nice spray of it comes from "R. R.," being just a good ordinary form. It does not, in fact, vary so much as many other kinds, though some varieties show a brighter colour and larger lip than others. It is a cool house plant, and likes fairly wide pots, but a compost of medium depth only. This may consist of equal parts of peat and Moss used in a rough, open condition by adding crocks or charcoal. It is a native of Brazil, and was introduced in 1865 by Messrs. Hugh Low and Co.

Odontoglossum sceptrum.—A fine spike of this Orchid is now open, the blossoms, though not so large as those of *luteo-purpureum*, being very richly coloured and of distinct form. It is usually classed as a variety of the above-mentioned species, and to this it is doubtless closely related, but is quite as distinct as many that are known as species—*O. lyroglossum*, for instance. The segments are bright golden yellow in ground colour, and the blotches are chestnut-brown. That in the front of the lip is very deep in colour, and in shape like a horse-shoe. It thrives well in the coolest house, and may be treated as advised for *O. luteo-purpureum*.

Dendrochilum glumaceum.—Large plants of this, the Golden Lace Orchid, with many of the pretty yellow spikes open, have a very graceful and pretty effect not always obtained from larger, more brightly coloured species. The pseudo-bulbs grow in clusters and the spikes hang in rich profusion on well-grown plants. They like warmth and plenty of moisture, especially when the growths are pushing and the flowers open. No great amount of pot room is needed, especially for small specimens, and the plants may have new material after the flowers are past. It is a native of the Philippine Islands, and was introduced by Messrs. Loddiges about 1840.

Phaius grandifolius.—Though one of the commonest and oldest of Orchids, a well-flowered specimen is sure to excite admiration, the colour being so distinct and pleasing. The sepals and petals are reddish brown inside, with a silvery white reverse, the lip white, with a yellow centre and crimson markings. The growth is very ornamental, the leaves being a couple of feet in length and deep green. It is very easily grown in an intermediate house, and should be potted in equal parts of peat, Moss, and loam fibre, with enough charcoal and potsherds added to keep the whole in good order. The young growths are usually far too numerous, and must be thinned out rather freely in the spring. Plenty of water is necessary in the growing season, resting afterwards in rather a cooler house.

Cypripedium tonsum.—I noted a fine plant of this during the week, and, though not exactly its usual blooming season, the flowers are always welcome. It is, in fact, rather an inconstant species in its time of flowering, plants being in bloom at least eight months out of the year. The spikes grow erect about a foot high, and the blossoms, remarkable for the absence of the hairs along the edges of the petals, are each upwards of 4 inches across, the dorsal sepal whitish, with green and purple veins, the petals broad, with lines of a deeper hue than those on the dorsal sepal, and several large blackish purple blotches, the lip brownish and tinged with green. It requires plenty of heat and moisture, being a native of Sumatra.—H.

Oncidium Kramerianum.—A plant in a 4-inch pot with me is carrying three flowers, the variety being very fine. The lip is very prettily fringed, and has a deeper, brighter margin than usual, the centre being very bright golden-yellow. The pretty frill on the sepals gives this a more graceful shape than *O. Papilio*, which it very closely resembles otherwise. Of the two, *O. Kramerianum* is rather the better Orchid, though the flowers of *O. Papilio* are larger. It may be grown in pans or baskets suspended from the roof in a very warm, light house, and the atmosphere must always be kept moist. They are very pretty,

too, when grown on rough pieces of cork lightly dressed with Sphagnum Moss, this being allowed to grow rather freely during the summer months, and in autumn cut back a little to prevent it holding too much water during the winter. At the latter season, and until there are signs of movement in spring, the plants must be kept well on the dry side, but in a fairly moist house, and they should be so arranged that the sun shines fully upon them. The foliage is a bronzy-green with a number of reddish brown spots, and the flower-spikes appear at the base of the bulbs, these producing a large number of blooms in quick succession all through the spring and summer months. *O. Kramerianum* is a native of Central America, and is named after a Hamburg gardener, Kramer, who first flowered it soon after its introduction by Warszewicz in 1852.—R. H.

CELIA MACROSTACHYA.

This plant will not appeal to lovers of large, showy flowers, but the pretty pyramidal rosy pink spikes of small Hyacinth-like blossoms are not devoid of beauty. They appear in spring at the base of the pseudo-bulbs, and on strong plants are about 18 inches high, the stem part clothed with green sheath-like bracts and the upper portion very thickly covered with flowers, each with its attendant pale brownish or white bracts of a narrow thread-like character. The habit of the plant is not unlike that of *Zygotalum Mackayi*, but the leaves are rather narrower and the base of the bulbs is covered with close-clinging, hard brown sheaths. It thrives well in a house kept rather cooler than the usual *Cattleya* house temperature, and likes plenty of fresh air the whole year round. In fact, if flowers are desired the latter is absolutely necessary, for the plants will not bloom in a close, stuffy house. I have had good results by growing it in a cool Peach house all the summer, and in winter keeping it cool and on the dry side until the flower-spikes appear. The plants may be repotted or surface-dressed in spring if no flowers are forthcoming, but flowering plants may be kept until the spikes are past. The roots are strong and vigorous, and like a substantial compost consisting of peat and Sphagnum, with a little loam fibre or half-decayed leaf-soil. Unless the roots and compost are in a very bad condition it is not wise to shake them out entirely, but nothing likely to become sour and close should be left in. A fairly good shift is advisable, as when in good condition it is a vigorous-growing plant and soon reaches the edge of its pot. Keep the base of the leading bulbs fairly well up, but there is no need to elevate the plants much above the rims. Water should be sparingly applied just at first, but it is a thirsty subject when healthy and well rooted. Keep the water supply going until the pseudo-bulbs are quite finished, when reduce it by degrees until the middle of the winter, when only enough to keep the bulbs and foliage fresh is necessary, until the spikes, or young growths on flowerless plants, appear. These, unless water is given, will soon weaken the pseudo-bulbs, causing them to shrivel and eventually to cast their foliage, the spikes themselves being weak unless well supplied. Insects in the atmosphere advised above are not troublesome; it is the weak, soft plants grown in stuffy, hot structures that suffer from these. But should scale put in an appearance it must be promptly removed, or the healthy green of the foliage is soon marred. *C. macrostachya* is a native of Mexico, and was sent in 1841 by Hartweg to the Royal Horticultural Society at Chiswick.

Oncidium Brunlesianum.—This pretty and very uncommon species is now in bloom, the spikes growing erect and branching, containing many flowers of a bright golden-yellow with a dark purple blotch on the lip. It comes from the neighbourhood of Rio de Janeiro, and thrives in the *Cattleya* house in rather small pots. It is a pity this pretty plant is not more frequently im-

ported and in greater quantities, for it is quite distinct from anything else in the genus, and would prove a very useful kind. It was first sent home about 1880, and has been introduced in small quantities several times since.

Dendrobium pulchellum.—I recently noted a very nice specimen of this pretty little *Dendrobium* growing in a basket about 8 inches across. The tiny stems had overgrown the sides and the rods were almost hidden with these and the bright little blossoms, not unlike those of *D. Devonianum*. It is an easily-grown little plant, at one time more popular than now, and may be cultivated in small pans or baskets in the East India or *Cattleya* house, removing to cooler quarters during the winter and keeping well on the dry side. Its correct name, according to botanists, is *D. Loddigesi*, but the above is the one generally used in gardens, and therefore the best known.—H. R.

Cattleya Skinneri.—The usual flowering season for this pretty species is April, but I noted a nice plant in flower this week. The spike was carrying eight of the pretty rose-purple blossoms, each about 4 inches across, and with the characteristic *Dendrobium*-like lip. It is a plant thought far too little of by growers, for it makes a very welcome change from the *labiata* group, and is as free-flowering a species as one could wish. It may be grown in the usual *Cattleya* house temperature, and may if convenient be allotted the warmest part of the house, where it gets plenty of light, but is protected from the rays of the sun a little. It cannot be grown too well or strongly, the colours of the blossoms coming out much better from strong plants, and the number of flowers produced on the spikes being larger. Good fibry peat, rid of earth and sand, may be mixed with half its bulk of Sphagnum Moss, and plenty of rough charcoal may be added. Repot if necessary after flowering, and place the plants with as little delay as possible in their growing quarters. Water freely during active growth, but diminish the supply by degrees after the pseudo-bulbs are fully matured. There is considerable variety among the flowers of this species, including a white form that is much prized. The type is one of Mr. G. Ure-Skinner's introduction from Guatemala, where he discovered it, not far from the coastline, in 1836. It has also been found further south in Nicaragua and Costa Rica, this wide distribution doubtless accounting for its variability.

Seedling Orchids at Langley.—I have been practically connected directly and indirectly with this department since I was a boy, although it has never been my good fortune to visit Mr. Seden since he left the Chelsea nurseries until now. It was indeed a great and agreeable surprise to find the various Orchids so numerous and in such vigorous health. The *Cattleya* family was represented by, I may say, hundreds of thousands, from seedlings just germinating to strong plants, many of them bursting into flower. As Mr. Seden has had the advantage of using the pollen of the various hybrid *Cattleyas* that have been introduced, he can throw more new blood into the seedlings than it is possible for any other hybridist to have obtained where these advantages have been impossible. The same remarks apply to *Dendrobiums*, many fine things now being in flower. Hybrid *Phalenopsis* are also well represented. A special feature is also made of *Epidendrums*. A charming new hybrid between the quaint *E. pseudo-Epidendrum* and *E. radicans* was noted. In this the sepals and petals were rich orange-scarlet, the four-lobed lip bright golden yellow, with a few purple spots at the base. The small plant carried a raceme of seven flowers. *Lycastes*, *Odontoglossums*, *Sobralias*, *Cymbidiums*, *Cypripediums*, *Masdevallias* and other species were represented by thousands of intercrosses; these being made by practical and experienced hands cannot fail to have satisfactory results. The bigeneric crosses are represented largely in various hitherto unknown combinations. This has been Mr. Veitch's special study for years past, and the enthusiast may

look forward to some startling developments in this direction from time to time. Numerically the hybrids represent far more plants than many trade collections can show in general stock. The houses being greatly exposed to northerly and cold winds, Mr. Veitch has carried a 1½-inch hot-water pipe around the roof to be used in cold weather, or at other times when the outside conditions require it. This is a system that could be followed out with advantage in exposed positions if necessary valves, so that the heat can be discontinued in mild weather, are provided. Mr. Seden is to be congratulated on the condition of the various subjects under his charge.—H. J. C.

PARK AND WOODLAND.

THE MONTEREY CYPRESS AT HOME.

ONE can scarcely imagine that the neat-growing bushy trees of *Cupressus macrocarpa* that are

dictum as to the survival of the fittest could not be more clearly exemplified than among the individuals of the same species in this grove. The point that impresses one most in this grove, as it does also in the Wellingtonia groves and the Redwood (*Sequoia sempervirens*) forests, is the paucity of young trees. Here and there one sees seedlings in the more sheltered spots, but even these seem to have a hard life of it in the poor soil and wind-swept exposure, and they appear even from their infancy to lean away from their enemy, as shown by the clipped appearance on the wind side. Can it be that this tree is slowly, but surely approaching extinction in a state of nature? The species is now almost confined to this small promontory on the American continent, and perhaps, unless artificial means are taken to assist reproduction, it will become extinct.

The Monterey Cypress is one of the most interesting conifers of the Pacific coast of America, which is so remarkable for its beauti-

ment of January. At the time of its removal a small portion was left with its roots protruding from the thin layer of soil, which surfaced a bank of rock that had to be quarried away, but in spite of its exposed roots and the hot weather which followed their disturbance, it has continued its growth and has now formed a fair-sized bush.—S. W. F.

THE MARKET GARDEN.

HYBRID PERPETUAL ROSES FOR MARKET.

Few cut flowers in their season are of greater importance among the London and provincial markets than Roses of the Hybrid Perpetual class, and they are grown in considerable quantities for this purpose. This is not to be wondered at when we remember the rich colour, the beautiful form, and, above all, the unique



The Monterey Cypress (*Cupressus macrocarpa*). This specimen is growing a few yards away from the Pacific Ocean, near Monterey, California. From a photograph sent by Mr. Luther Burbank, Santa Rosa, California.

now so familiar to us in the mild parts of these islands can be the juvenile stage of such a picturesque tree as is shown in the illustration. Hartweg, in the first account he wrote of the tree, described it as "a tree 60 or more feet high with stems 9 feet in circumference, with far-spreading branches, flat at the top like a full-grown Cedar of Lebanon, which it closely resembles at a distance." It is only when quite near the trees that one can discern the more feathery foliage and small cones, and recognise the characters of *Cupressus*. The Monterey Cypress grove is a very remarkable sight, but it does not quite accord with the dictionary rendering of the word where unbragous growth and luxuriance prevail. On the contrary, the feeling that steals over one in the Cypress grove is that of loneliness and desolation, where for ages there has waged an unequal struggle between the trees and the unceasing and relentless winds that sweep with full force from across the vast Pacific. It is the winds that hold the mastery over the trees, and the skeletons of a multitude show but too plainly that only the very strongest can outlive the struggle. Darwin's

fruits. It was one of the first Californian trees that attracted the attention of planters in this country, and has been very extensively tried, often failing. The reason is that much of our country is too cold and "inland" for a plant which comes from one of the most genial climates of the "temperate" world, and therefore it is seen at its best in Devonshire and on the Dorset coast. In Hampshire on high ground it escapes the winters fairly well. It is very commonly killed about London and in the valleys, but the tree is too good to give up wherever the conditions are at all favourable, that is to say, on warm coasts and high hills, especially where the soil is sandy or stony and the rainfall rather abundant.

Pyrus japonica in the open.—In South Devon *Pyrus japonica*, upon which subject a note appeared on p. 156, flourishes as a bush. A large plant which I moved in June, 1892, on account of some building operations, does well on the grass, and comes into bloom early in the year; indeed, this year, though in an open position, it has been in flower since the commence-

ment of January. At the time of its removal a small portion was left with its roots protruding from the thin layer of soil, which surfaced a bank of rock that had to be quarried away, but in spite of its exposed roots and the hot weather which followed their disturbance, it has continued its growth and has now formed a fair-sized bush.—S. W. F.

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fragrance of some of the best of the H.P. section. But perhaps one of the most remarkable things in connection with this type of Rose for market work in particular is the fact that not one in a hundred are suited for the purpose indicated. "Suited" in this sense is intended to imply that the majority of H.P. Roses either will not force at all or that they will not force early enough, or possibly either lose their colour or present far too many blind or flowerless shoots to render the variety profitable. Indeed, it all turns upon that one word, for if the thing pays, the grower can comfortably pocket any minor prejudices of his own that may perchance exist concerning it. A good H.P. Rose for market work must be of good habit and constitution, a free bloomer, and, above all, of good decided colour. And if to these can be added fragrance, so much the better. Colour, however, in the H.P. section is the primary quality, more especially so in the high-coloured class, e.g., crimson and scarlet shades. In all these colour takes the lead as far as price is concerned, for a so-called red Rose that is pervaded with the objectionable blue tint is well-

nigh valueless; this is so, indeed, even supposing that size, form and fragrance are of the best. Colour, therefore, may be safely regarded as the most indispensable quality in a cut bloom of this section of Rose, this being closely followed by form and size. Colour is the best proof that the culture has been of the right kind, not on one day or two, but throughout the entire growing season. Indeed, this much may be taken for granted by those who would succeed in early forcing of "red" Roses that there must be no fluctuating temperatures, no excessive temperatures, and likewise no heavy moisture-laden atmospheres. Any of these or a combination of them will surely end disastrously.

PURCHASING NEW STOCK.

New stock is always best secured in early autumn, say the month of October for the average of seasons. A little earlier or later will not make much difference, but this must not be unduly prolonged, and the plants should if possible be not potted later than the middle of November. The plants should always be bought to sample, and it should likewise be clearly understood what stock the plants are budded upon. This is far more important as regards the after treatment of the plants than it is as concerns establishing the new stock. Prior to purchasing the stock it should be decided for what purpose the plants are intended, *i.e.*, whether for early, midseason, or late work. "Early" is here meant for those plants that are forced into bloom by the end of January or up to the second or third week in February, the mid-forcing season taking March and April, and the late forcing those that come in May and June, just getting clear of those from the open. This last lot requires really no forcing at all, so to speak. The plants for the two first batches must be on the Manetti stock. I cannot too strongly emphasise this statement, since no other stock will lend itself to early forcing at all, plants on their own roots being quite useless also. The third set may with advantage be on the seedling Brier, as this is less excitable and comes more gradually when put inside, and as the object is to prolong this batch, something may be gained by the lateness of the plants to bloom. This dispenses with two items, *viz.*, the season for potting and the most suitable stock according to the seasons. The next in order will be

SECURING THE PLANTS,

an important item for which orders should be given as near home as possible, not for the sake of carriage merely, but with the hope of receiving the plants as fresh as possible. It is not, however, always convenient to secure plants in the immediate neighbourhood, and frequently plants from a distance do better. In the latter event, special instructions should be given to pack in large crates and surround the roots with packing material that is not dust-dry nor yet wet. The preservation of the small fibres is of the greatest importance, and these will require careful examination when the plants come to hand. Usually Roses of this class when ordered in bulk are bundled in tens, and if the plants have been delayed in transit or are at all dry at the root, they should be immersed in a tank of water without delay. Ten or fifteen minutes in at least 2 feet of water will fill them up, as a rule, but if badly dried this may be doubled with advantage. Having given the plants their fill, they should be heeled in by the roots, taking the precaution to unfasten the bundles and lay them in deep-cut trenches, so that the roots are well covered. Here the plants are safe for a few days, and if moistened overhead twice daily, so much the

better. Some growers prefer to put on all hands and pot the plants the moment they arrive, but from experience I prefer to first plump up the plants in the open ground, where they may be watered freely with impunity. When the plants are potted the moment they are to hand, it becomes an absolute necessity to saturate the soil in the pots to keep the bark quite plump. In fact, I have known serious results ensue from this over-saturation, as not only is the soil rendered too wet, for the new roots refuse to enter it, and many perish as a result. I have known many losses of freshly potted Roses that in all probability were lost owing to this over-saturation, and therefore excessively cold condition of the soil for weeks together. Indeed, an inspection of the plants has revealed the fact that fresh root-fibres have been emitted by the plant, but these have perished at the point evidently by contact with some deleterious substance. When heeled in for a few days they may be potted in a perfectly fresh condition. This, coupled with the fact that the plants may be potted without undue haste, is of considerable importance hereafter. A good soil for these will be two-thirds good loam, with the addition of a little leaf-mould, about one-sixth of decayed manure finely sifted, and sufficient sand or sharp grit to keep the whole porous. The soil should be comparatively dry, so that the potting stick may be used freely without making the soil adhesive or pasty about the roots. A few remarks on

POTTING THE PLANTS

may not be out of place. All pots should be clean and well drained and of sufficient size that the roots of the plant may be inserted without injury to the bark or skin of the roots, which is easily done. A little soil should cover the drainage and be made firm, then place in the plant and cover with soil to two-thirds the depth of the pot. A few sharp raps on the bench will settle this about the roots and prevent the potting stick from injuring by direct contact the root fibres. Eventually the soil should be made quite firm, and about three-quarters of an inch space allowed for watering. Frames or deep pits are of rare occurrence in sufficient numbers in market nurseries, so that daily attention in syringing will be necessary if the weather, perchance, is dry or drying winds prevail, while root moisture may be given as required. With fair weather and good treatment the new roots will start in about three weeks or a month, and when these become active, the plants are safe and on the high road to becoming established. Under any circumstance these plants should receive the protection of a cold house by the middle of December or earlier if severe frost sets in, and the same will be ready for

PRUNING

by the first week of January. The first pruning requires some care and thought, and of course will depend on the available wood. Branches of the size of an ordinary lead pencil, however, may be left about 8 inches long, while those of half this size may be pruned to two good eyes, and so on in proportion. Usually with ground plants of this description there is a sufficiency of large wood, so that the inferior may be discarded altogether and removed quite close to the stem. This is advisable for several reasons, more particularly because the larger growths will get a decided advantage of light and air, to the detriment of the smaller shoots. Moreover, the larger shoots will, as a rule, produce two and sometimes three breaks from a shoot, and a plant with three original shoots will therefore possess a good foundation for a

well-balanced plant in the future. So far as is possible or at least practicable in the original pruning, the shoots may be kept to one level; this will be rendered easier where only the strongest shoots are retained, and though not many growers care to remove moderately good wood, it is certainly a decided gain so far as the quality of the flowers is concerned. An original plant of three shoots producing two breaks each would, if allowed, carry two flowers to a shoot, and as such be regarded as within the bounds of profitable work. The same plant with all the shoots retained may have carried at least eighteen blooms, which for a recently established plant would be too much, and inferiority all round the inevitable result. Trusses of four to eight blooms are frequent, and I have known as many as sixteen on a single shoot, and though these have been reduced one half, both size and colour are wanting in the end. Indeed, it should be obvious to all that moderation is a good law with plants that at best are only emerging, as it were, from the "maiden" stage, and as years roll on it will be seen that age, while producing small wiry growth, will still provide Roses of the highest quality in form and colour. The pruning complete, the daily routine will be simple enough, yet it is most essential that no heat shall be given beyond what is needed to keep the plants at about 40° to 45°—in short, throughout the first season a very low, steady temperature must prevail, to be accompanied by abundance of top air on all possible occasions. During the present winter, even with air day and night in many instances, it has still been impossible to keep the temperature sufficiently steady for these freshly-potted Roses, a most desirable item if we would ensure growth of the right stamp. Care will also be needed in the matter of

WATERING,

more especially in the early stages of growth and up to the appearing of the bud. At this time new roots are more active, and likewise more plentiful, and while the plants must on no account be permitted to become saturated on the one hand, a state of habitual dryness on the other is equally disastrous. A very serious fault with many is that of giving "little drops" of water, thereby saturating the soil half-way down, while the bottom of the ball where most roots congregate does not get half enough. A plant never requires a "little drop;" it either requires thoroughly watering, or it requires none at all. And nothing more quickly brings soil into a sour state than this continued wetting without occasion. Two years ago I entrusted a man to take charge of an early house of Roses, giving him instructions how to act. In less than three weeks the whole of the plants were so saturated, that I was compelled to make fresh arrangements. So thoroughly soaked were the plants throughout, that scarcely a plant required a drop of water for about ten days. In fact, nothing is more generally disastrous to the quality of the blooms than this semi-sodden condition day after day without change, and it must be guarded against from the first. Too much root moisture, again, with too high a temperature quickly results in a quick and soft growth, and is the exact opposite of that required by a Rose of any class under glass. A dry, yet not harsh, condition is best, while stagnant air or a close, stuffy condition should be avoided. Side air should never be given. There is no more prolific source of mildew than this. It is also a mistake to rush all the air on at one moment, and equally so to close the house on a like basis. Watering should all be completed by midday, so that any

excess of moisture may escape before closing-time. The most troublesome time to cater for in ventilating a Rose house is in the event of a hot, scorching sun in the end of March or early April, accompanied by a biting wind. At such a time, and with the flowers expanding, it is difficult to know what to do for the best, as the buds fly open prematurely, or rather the outer petals do so, while the heart of the bloom is not ready. Hot, scorching sun is not at all desirable, and if likely to continue, a thin shade should be given. At such a time much may be done by judicious stoking, and generally with the developing of buds and blossoms very close attention is needed to details in general. Finally, the blossoms should be cut quite early in the morning with as much stem as is possible and placed in a cool and dark place, to be presently sorted into their various qualities, and then bunched for the market. Sorting is most important. Only the very cream should be retained as firsts, and so on into three sets, afterwards bunching into half dozens and placing in water for a few hours previous to packing.

VARIETIES.

The following are some of the best and most popular kinds for the supply of cut bloom: General Jacqueminot, Prince Arthur, Xavier Olibo, Duke of Edinburgh, Fisher Holmes, Mrs. J. Laing, and La France. Of all these the first is the best, and, well grown, is faultless in colour, form, freedom, and fragrance. Duke of Edinburgh is lovely in the extreme, but it is not so free, and must not be hard forced. Mrs. J. Laing and La France both require a long season of growth and plenty of time to open, the latter especially so by reason of the fulness of the blooms and the formation of the buds prior to expanding. Both kinds are best disbudded to a single bloom, and with a long season to open will develop finely-proportioned flowers. Formerly, Baroness Rothschild was grown, but at the present time there can hardly be said to be any demand for this distinct and beautiful, though unfortunately scentless, kind.

AVERAGE PRICES.

It is, however, by no means easy here to strike averages, though it should be stated at once that the colour of the blooms to which reference has already been made is a most important factor in the matter of prices. Within the past decade as much as 18s. per dozen blooms has been realised for those earliest on the market. The earliest blooms are upon the market by January 20 or thereabouts each year, the variety General Jacqueminot taking the lead. These if good realise about 6s. per dozen blooms during the first few days; exceptional prices extending to 12s. per dozen are at times paid for these when very early and of special quality. In the matter of averages, however, no two days are alike, but, taking week by week from January to the beginning of Lent, the prices range from 1s. to 4s. per dozen blooms. The exceptions to these prices are in the case of flowers with very long stems now greatly in demand, finely-formed and well-coloured flowers of General Jacqueminot on stems a foot long being eagerly sought after. This useful Rose, however, produces many trusses of bloom so that the best buds are obtainable only on very short stalks. From the opening of Lent 2s. per dozen blooms represents the average wholesale price of these red Roses—that is to say, the firsts, or prime, may fetch double, while the seconds and thirds bring considerably less. Other favourite Roses now are Mrs. John Laing and La France, both kinds being grown on the long-stem system with one bloom. In this way a length

of 18 or 20 inches of good stem is obtainable, especially with the former, when the good blooms are accompanied by splendid foliage right up to the buds. These specimen blooms bring increased prices, 6l. to 1s. each being realised, according to the season. Singularly enough, while these kinds may be grown with a margin of profit, the well-known Baroness Rothschild has lost favour, really excellent blooms selling at 1s. 6d. to 2s. per dozen, which means a loss all round. At the present time this Rose is not worth growing under glass, and, indeed, of the hundreds of kinds in commerce, not more than half a dozen can honestly be said to meet the requirements of the market man.

A GROWER FOR MARKET.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS WORTH GROWING.

It has occurred to me that a list of sorts, new and old, with a brief note on the uses of each, whether for exhibition, cutting, late or early, the peculiar manner of growth, and such items characteristic of individual varieties, might be of some service to readers of THE GARDEN interested in the flower. The same would serve a double purpose. Some of the finest varieties at exhibitions are disappointing to what may be termed the ordinary cultivator, they being either too tall in habit or weak in constitution; whilst others, which will not develop huge blossoms, produce a wealth of prettily formed flowers, with the addition of dwarf, sturdy growth. These latter may be quite lost because of the rage for prominent kinds at the shows. My notes are written from a southern and somewhat early locality; therefore growers in late districts should be a week or ten days earlier than the dates named for topping plants of certain varieties. Probably in the north, in the case of a considerable number of kinds where it is recommended that the plants be topped in April for intermediate or second crown buds, the better plan would be late propagation, say early February. I have not practised in late localities, but growers of the Chrysanthemum in the Liverpool neighbourhood, for example, have told me there is not the same difficulty in obtaining the proper flower-bud to perfect a fine bloom as we have in the south. Again, I shall assume that the plan of growing large blooms is known; that a plant is trained from its infancy with one stem (except as modified by topping), and that this stem produces side stems naturally through a bud forming called the "break," also that the subsequent flower-buds, which appear at different periods up to early autumn, are crown buds, the latest buds of all being known as terminals.

JAPANESE.

A. H. FEWKES.—This is not large enough for exhibition, but a first-rate kind for any other purpose on account of its excellent dwarf habit of growth. The blooms, yellow, of a deep and rich shade, are slightly incurving in form, very full and of good substance, therefore lasting a considerable time when cut.

A. H. WOOD finds admirers, and develops very large blooms with long narrow florets of a light yellow shade. It appears somewhat thin, and is not likely to last in favour more than a season or two. Early buds of this must be obtained, that is, crown buds, as the blooms take a long time to open. It lasts in a fresh state a long time.

AMIRAL AVELLAN.—This is of a striking shade of yellow, although there is a want of grace in its

formation. It is large, but flat. The growth is dwarf. In its early stages the plant is not easy to grow, the roots being especially tender, a fact that should be noted when potting. Ample drainage should therefore be provided and the soil made open by adding charcoal or brick rubble. Early buds must be retained. The variety is not a desirable one other than for show.

AUSTRALIE is a fine exhibition sort, of massive, yet graceful build, and not of bad colour. The surface of the florets mostly seen is a silvery rose shade; these are long, broad, and thick. The habit of growth is rather tall. The best blooms are produced when the plant is not cut back and obtained from a crown bud in August.

BOULE D'OR (the new variety) is worth growing because of its short, sturdy growth. The incurving blooms are not over large and of a nice shade of buff-yellow. By selecting different buds it may be had in bloom both early and late in the season.

CALVAT'S AUSTRALIAN GOLD.—A lovely light yellow bloom when seen at its best, and the habit of growth is all that one could desire. It produces large, extra deep flowers, with a great number of narrow intertwining florets. To obtain such, one must get what may be called an intermediate bud. An early one gives a rough bloom, late ones thin flowers. Strike the cuttings early, top the plant at the end of March, then run up three stems, and retain the second flower buds that appear.

CHARLES DAVIS is well known as one of the best. Of late years, however, it has formed a habit of developing premature flower-buds, and consequently there is some difficulty in getting a free growth into the plant. I would defer striking the cuttings of this sort till February or early March. It grows very fast when the above-named habit is absent. Do not retain flower-buds which form before mid-August, otherwise the shape and colour of the blooms will not be perfect. This is a first rate sort for providing a quantity of cut flowers as well as a grand exhibition kind.

CLINTON CHALFONT bears rather small blooms, but is so good in habit of growth and so free flowering that it is an excellent variety for cutting in quantity. The colour is rich, deep yellow, and the form of petals recurving.

COL. W. B. SMITH is not yet beaten in its particular form and colour. Terra-cotta shade of bronze describes the latter. The former is most distinct and handsome. The florets are long and have a tendency to point upwards. It is rarely seen in good condition now-a-days. Cuttings should be struck late and crown buds retained. To bring its peculiar colour out, the sun should not reach the blooms after the flower buds begin to burst.

DOROTHY SEWARD has fine blooms, but is an uncertain sort. It has a good sturdy habit of growth and must be topped in March, so that the flower-buds may be obtained in August. If not so topped, the buds appear too late in the season to give large flowers: colour terra-cotta, with crimson shade. This is useful for late work when grown for that purpose.

EDITH TABOR, clear yellow, is a handsome and highly finished flower for exhibition. The florets are long, wide and thick, the points having a graceful curl, which gives to the bloom a distinct character. The habit of growth is a trifle ungainly, the leaves being loose and far apart. The finest blooms are obtained from crown buds, a good time for striking the cuttings being the end of January.

EDWIN MOLYNEUX.—An old variety as Japanese Chrysanthemums go, but still the most striking flower of any when in good form; colour crimson and old gold. It has extra large flowers, composed of long, flat, thick florets and a strong habit of growth. Of late years in many instances the constitution of the plant has been impaired by the leaves becoming small and curling. A change of stock is advised in such cases. In the early stages of the young plant little water is needed; the sort often turns yellow in the leaf if overdone. But later it grows very strong and will bear a large amount of water and stimulants at the roots.

Strike the cuttings early, and should the stems not produce a break bud by mid-April, pinch out the tips. Then take up three shoots and secure the buds from the second growth, termed second crowns. Early buds will open, but the blooms from such will be wanting in colour. It is not a desirable kind except for show blooms.

ELLA CURTIS.—This comparatively new variety reminds us of the old *Boule d'Or* which ten years ago was grown so well. It has very long, broad, and thick petals of a bronze-yellow colour. The plant is sturdy and not over tall. I should say late struck cuttings and early crown buds will give the best results. It is essentially an exhibition kind.

ELTHORNE BEAUTY is a dwarf-growing sort with blooms of a bright shade of rosy pink.

EMILY SILSBURY, except for October flowering, is not particularly valuable. At that period it is about the best white variety to grow.

EVA KNOWLES.—This is one of the strongest-growing as well as the tallest of Chrysanthemums. The blooms, however, are so fine when well grown that it must be included. Its blooms have quite an apricot tint in their colouring and droop the petals into a striking form. I would top the plants in March so as to get an intermediate crown bud.

GRAPHIC.—Other than a show flower this is not desirable. Its blooms are of large size and fine shape, but, like the last-named, it is tall and requires similar treatment. In its best form the colour is a delicate mauve tint.

G. J. WARREN has hardly been long enough in cultivation to test its undoubted merits. Being a yellow sport from *Mme. Carnot* it is likely to prove equal to that splendid kind in size and remarkable form. I would advise an intermediate crown bud for show blooms in the case of this variety by topping the young plant in early April and training up three shoots, the first flower-buds being crowns which may not be retained. Those that appear earliest afterwards are those we most desire. These should come some time in August. Do not overpot this sort nor give it a rich compost. H. S.

TIMING CHRYSANTHEMUMS.

For some time I have followed the various articles on Chrysanthemums and their cultivation, and found them most useful. I should be much indebted for any information with regard to stopping and the right buds to take of the following varieties for large blooms to open about the second week in November: *J. Agate*, *Mme. G. Bruant*, *Mlle. Lucie Faure*, *Mr. W. P. Fowler*, *N.C.S. Jubilee*, *Oceana*, *Ma Perfection*, *Lord Mayor*, *Duke of York*, *Golden Gate*, *Mlle. T. Rey*, *Mrs. W. P. Lees*, *Emilie Nonin*, and *Mme. Ferlet*.

** It may be necessary to point out that in using the terms "crown" or "second crown," the first or natural break bud is ignored. When a young plant is topped, the latter is also removed—or, at least, in embryo—the topping being done to make a plant produce side growths at an earlier date than would result from growth not so operated upon. The flower-buds which come then after either the natural break or topping are called "crowns." If we do not retain these, another period of growth is assisted by removing them, and the buds which appear in due time on the points of such later growths are "second crowns." No. 1 on the list may be topped in early April, and second crown buds retained. 2. Do not top, but secure second crowns. 3, 4, 5, 6. Natural growth, second crowns. 7, 8. Top late March second crown, or root the cuttings in February and secure first crown buds. 9. Natural growth, second crown. 10. This may be topped in March for second crown buds, but it is rarely one can get the blooms to open so early as the second week in November. It is really a December variety. If early flower-buds be retained, they will not open satisfactorily. 11. Strike the cuttings in February or March and secure first crown buds. 12. Top the plant

end of April and retain first crown bud. 13 and 14. Natural growth, second crown.

I may add that if any of the plants produce premature side growths about the dates named (as Chrysanthemums, especially early-struck ones, sometimes do), the necessity for topping is thereby removed. When stopping, merely take away the points of the shoots or stems. This, the softest portion, will branch out more quickly than near the base of the plant.—H. S.

FUNGUS ON CHRYSANTHEMUM LEAVES.

I HAVE sent some Chrysanthemum leaves affected with a kind of fungus or rust. It has only appeared on some cuttings bought in from a well-known grower in December last. My own plants are quite free. *Simplicity*, *Sunstone*, *Western King*, and *Pride of Madford* are the varieties attacked. Perhaps you will kindly tell me what it is and the best means to adopt to stamp it out.



Cornus florida. From a photograph sent by Mr. A. Herrington, Madison, New Jersey.

The roots appear to be quite healthy and working in the soil.—T., *Tolley*.

** The leaves sent are infested with the fungus which is becoming known as the Chrysanthemum leaf rust, and is giving some trouble in many collections. It is believed to have originated, at least in this country, on the leaves of the variety *Niveum*. Last autumn when the plants were large it was noticed on the foliage of other sorts as well, but it did not appear to affect the blooms to any great extent, because in one striking case of fungus the collection produced flowers that won prizes at important exhibitions. Be that as it may, it behoves all concerned to try and stamp out a danger only in its infancy yet, and the best way appears to be to destroy every leaf with a touch of the rust whilst the plants are young. It has not been noticed on the very young points of the shoots, only the older leaves, and as the roots are not prevented from working, the loss of the leaves would not materially affect the well-being of the plant. Diseased plants, again, should be isolated, and

one must act promptly. Sulphide of potassium at the rate of one ounce dissolved in a gallon of warm water might be tried, the leaves being dipped therein. It would be useful to communicate the results of any such experiment to the gardening press, because more is needed to be known of this new Chrysanthemum complaint before it becomes widely troublesome.—H. S.

TREES AND SHRUBS.

CORNUS FLORIDA.

THE accompanying illustration shows a characteristic branch of a flowering tree that is widely distributed in the United States, and popularly known as the Flowering Dogwood. As we see it here it ranks next in beauty to the Chinese Lily tree (*Magnolia conspicua*), with this in its

favour, that being a native it is not quite so precocious, therefore less liable to be marred by spring frosts. Last year the *Magnolias* had been open about two days when a sudden drop in temperature occurred; the day broke with bright sunshine, and before noon the flowers were like a bed of *Coleus* after an early September frost. *Cornus florida*, however, was unhurt, and every spring it is among the finest features, lasting from a month to six weeks in beauty. Though common about us in the woods, it has been used largely in garden planting, and rightly so, for one might scour the world and find nothing to surpass this as a flowering tree in these latitudes. In a wild state it is found abundantly in thin, open woods, being low of stature, but with branches wide-spread, flat, and tabular, disposed tier above tier, as it were, bearing thousands of blossoms as pure and spotless as those of the *Water Lilies*. It has the merit of being free

blooming, whether small or large. The illustration shows two branches cut from a tree only about 8 feet in height, growing with many more on a southern slope with no overhead shade. In the woods you may often see trees 16 feet to 20 feet in height with a diameter of one-third more, and just as profusely bloomed as the branches here portrayed. One cannot but become enthusiastic over the beauty of such a flowering tree that will grow and bloom alike in sun and shade, and under a variety of aspects spread its feast of flowers over a prolonged period. Individually the flowers develop slowly, last long, and fade gradually. To speak correctly, these so-called flowers are not flowers at all, the true blooms being inconspicuous, quite small, and disposed in a close cluster. They are seen forming the dark centres of the so-called flowers in the picture, and to those unfamiliar with the tree they might be taken for the stamens, with showy petals spread around them. The attractiveness, however, consists in four large petal-like calyces, which in embryo unfold and protect the true flowers. These unfold gradually, are at first quite small, of a dingy brownish green, but as they expand and grow in size develop colour till they form a pure white saucer around the true flowers, sometimes 4 inches across. As will be seen, they come in advance of the leaves, but they are so persistent that they remain quite fresh till the leaves are well developed, ultimately fading off to a green hue. The flowers are succeeded by oval berries, which in autumn become a brilliant coral-red, and the effect of the berries, together with the pretty autumn tints the leaves take on, makes the autumn aspect of the tree hardly less beautiful than that of spring.

There are two or three varieties of the Dogwood, one of a decided weeping habit, and another whose flowers are rose-tinted, becoming quite red with age, but the colour varies in different seasons, although last year it was particularly fine, the effect of a group planted two years previously being quite vivid when seen from a distance. There ought to be some gardens in England where this tree would show somewhat of its beauty if planted where growth would not be rank, with ample exposure to ripen it.

A. HERRINGTON.

Madison, N.J.

NOTES AND QUESTIONS.

Acer Schwedleri losing colour.—My husband and I greatly admired some young trees of this (ten years old) growing in the nursery grounds of Messrs. Dicksons, near here, in 1895. We saw them in June and in September, and the colour was a splendid red. Desiring to plant a line of permanent red-foliaged trees along a particular verge of the park at our home in Dumfriesshire, we went with the intention of ordering *Acer Schwedleri* last October. To our disappointment we found the self-same trees no longer red in colour, but a dull green, not very distinct from the ordinary Maple. We were informed that the rapid deterioration in colour had only begun to take place within the last two years, and were given to understand that various growers had corroborated this fact regarding *A. Schwedleri* from their own experience, the deterioration always commencing about the same age. The fact, if it is so, seems a remarkable one, and I should be very grateful for an opinion on the subject. We are much disappointed at having to give up our plan of planting permanently red-foliaged (though, of course, deciduous) Maples of forest-tree size. I suppose among the Japanese varieties we should find several of the desired permanency of colour, but their size, &c., would not, I fancy, be at all suitable for the position in

question. We have been advised to plant *Prunus Pissardi* instead of the Maples, but it does not commend itself to us as comparable in style and habit with *A. Schwedleri*.—E. M., *Edinburgh*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 8.

THE meeting of Tuesday last was a most remarkable one, the hall being filled from end to end with exhibits. The arrangement was excellent in every respect, being well balanced, the stages filled as full as they should be, but not overcrowded. It would not have elicited any great surprise if the exhibits had been somewhat scanty, considering the cold weather. The bright sunny days of the past fortnight have no doubt had an extremely beneficial influence upon vegetation under glass, if not outside. The attendance, too, was most encouraging. The various exhibitors, as represented both by the trade and private growers, are deserving of every commendation in the spirited efforts they put forth to further the interests of the society at these (now) fortnightly meetings. The meetings are evidently looked forward to with the utmost enthusiasm, and thereby the number of Fellows continues to increase. The oft-repeated statement, that in order to obtain good exhibitions valuable cash prizes must be offered, does not, we are pleased to say, hold good in the slightest degree at these meetings, for frequently when cash prizes are offered the competition for them is not at all keen.

On this occasion the exhibits brought before the floral committee were the most numerous and extensive. These embraced almost everything now in season. Of Cyclamens there were four large groups, all indicating high-class culture. These made a brave show, being judiciously disposed in various parts of the hall. Of greenhouse plants there was an abundance also, notably of *Boronia megastigma* and *Tetradlea ricafolia* from Hassocks, and of *Acacias*, *Epacris*, and *Heaths* from Highgate. From Chelsea came one of the most instructive groups in the whole show, viz., one of forced flowers, in which Waterer's double-blossomed Cherry stood out most conspicuous. From Edmonton came admirable examples of *Clematis*, most attractive, and suggestive of what may be done with this family of plants. Roses from Canterbury again formed an interesting feature. Mixed groups, too, added to the general effect, but these, on the whole, do not elicit so much admiration as those which are individualised. Of *Azalea mollis* there was a splendid display from Highgate, whilst from Chelsea and Westninhurst came some choice seedlings of *Amaryllis*. From Tottenham was sent a large exhibit of *Daffodils*, *Musk Hyacinths*, *Squills*, and quite a feature in the *Windflower* (*Anemone Pulsatilla*). *Narcissus cyclamineus* from Thames Ditton was very fine. A highly attractive exhibit was again made of choice decorative Ferns, small plants chiefly, dwarf and sturdy, being in their respective kinds especially well coloured.

Of Orchids, the three best groups came respectively from Chelsea, Bradford, and Godalming, each comprising choice things, notably in *Dendrobium* and *Phaius*, all being very freely flowered. Special note should also be made of *Phalenopsis John Seden*, a charming spotted variety of hybrid origin; of *Odontoglossum crispum* (Baroness Schroeder's var.), richly coloured; likewise of the grand forms of the hybrid *Calanthes*, with their robust spikes clothed with flowers. For the season, the exhibits before the fruit and vegetable committee were good and varied. From Syon Gardens came first-class Asparagus and the fine new forms of the Jerusalem Artichoke, which must eventually drive the old kind quite out of private gardens. Kales in several colours came from Chelsea, well curled and compact. A few exhibits of late

Apples were to be seen, but Pears are now past their best.

Orchid Committee.

First-class certificates were awarded to the following:—

PHAIUS NORMANI.—A hybrid, the result of crossing *P. Sanderianus* and *P. tuberculatus*. The sepals and petals are creamy yellow, suffused with purple; the broad lip deep purple in front, becoming suffused with brown towards the centre and through the side lobes. There are also numerous bright yellow lines through the base and side lobes. The plant carried a spike of fifteen flowers and buds. From Messrs. Charlesworth and Co., Bradford.

PHAIUS NORMANI ROSEUS.—Similar to the last-named, but having a distinct rose colour suffusing the whole flower. It originated from the same pod as the typical form and promises to prove distinct. From Messrs. Charlesworth.

ODONTOGLOSSUM WILCKEANUM PITTE.—This is perhaps the finest form of this lovely hybrid yet seen, the sepals and petals of fine form and substance. The sepals have large blotches of brown, barred and margined with bright yellow, the petals rich yellow, with numerous large spots of deep brown. The broad yellow lip has a large brown blotch across the centre. The plant carried a raceme of seventeen flowers. From Mr. H. T. Pitt, Rosslyn, Stamford Hill.

Awards of merit were adjudged to the following:—

DENDROBIUM AINSWORTHII (Woodhatch variety).—A lovely form, with nearly white sepals and petals, the broad lip creamy white in front of the large purple disc. From Mr. T. B. Haywood, Reigate.

CATTLEYA MIRANDA (*C. Trianae* × *C. guttata* Prinzi).—In this the sepals are pale rose; the broad petals rose-splashed, and spotted with rich purple; the lip rich crimson-purple in front, which extends through the base; the side lobes rose, shading to white, with some yellow at the base.

PHAIUS NORMANI AUREUS.—This was from the same pod of seed as produced the two former varieties, the chief distinction being in its having yellow sepals and petals, and deep yellow on the lip. From Messrs. Charlesworth and Co.

DENDROBIUM ASTREA (*D. luteolum* × *D. crassinode*).—The sepals and petals are creamy yellow, with a broad blotch of rose-purple at the apex; the lip has a broad tip of rose-purple, margined with white, which is the colour of the broad band in front of the yellow disc, which latter is streaked and lined with rich purple at the base. From Mr. N. Cookson, Wylam-on-Tyne.

LELIO-CATTLEYA WARNHAMENSIS.—In this the sepals are pale yellow, the two lower streaked with purple; the petals yellow, suffused with purple, which is the colour of the lip. From Mr. C. J. Lucas, Warnham Court.

ODONTOGLOSSUM NEBULOSUM PARDINUM SPLENDENS.—This is a large form of this well-known *Odontoglossum*, the spotting being far superior to that of the type. A well-grown plant with two racemes of flower came from Messrs. Hugh Low and Co., Clapton.

Messrs. J. Veitch and Sons sent a large and interesting group, consisting principally of hybrids of various species of Orchids. In the centre was a fine batch of *Dendrobium*s, consisting of finely-flowered plants of *D. splendissimum grandiflorum*, *D. Edithae*, in the way of *D. splendissimum*; *D. Euryalus* (*D. Ainsworthii* × *D. nobile*), *D. Wiganiae* (*D. nobile* × *D. signatum*), the sepals and petals pale primrose, slightly tinted with rose, lip creamy white, with maroon disc; and *D. Cybele nobilium* (*D. nobile* × *D. Findleyanum*). In *D. Stratius* (*D. Dalhousianum* × *D. japonicum*) the sepals are pale rose, becoming darker at the apex, the flat lip rose in front, shading to white in front of the red-purple disc. *D. Wardiano-japonicum* amongst the species was finely flowered. The most prominent feature of this group was *Phalenopsis John Seden*, the result of crossing *P. Luddemanniana* and *P. amabilis*. The flower is about 3 inches in diameter, the sepals white,

tinted with rose at the base, shading to cream towards the apex, thickly covered with reddish brown spots on the upper portion, rose at the base. The petals are almost wholly suffused with rose, becoming cream at the margin and spotted similar to the petals. The lip is rose in front, becoming suffused with brownish yellow towards the centre, the side lobes rose, suffused with purple at the base. Amongst the Epidendrum was a batch of *E. elegantulum*, *E. Endroso-Wallisi* and *E. O'Brienianum*. Some finely-flowered plants of *Epiphronitis Veitchi* were also shown. *Cymbidium eburneo-Lowianum* was shown with three spikes of flowers. A silver Banksian medal was awarded. Messrs. Charlesworth and Co., Bradford, in addition to the forms of *Phaius Normani* referred to, sent several finely-flowered plants of *Odontoglossum crispum*. Fine forms of *O. Ruckrianum*, *O. Wilkeanum* and other interesting species were also included. A bronze Banksian medal was awarded. Messrs. H. Low and Co. sent a small group consisting of fine *Odontoglossum crispum*, *Dendrobium Brymerianum*, and *Cattleyas* in variety. Mr. C. L. Ingram sent three dozen finely grown and beautifully flowered *Dendrobium splendidissimum grandiflorum* (cultural commendation). Baron Schröder sent *Odontoglossum crispum* Baroness Schröder. This is the most remarkable form we have seen, the sepals and petals being almost wholly covered with rich brown, margined and barred with white. A collection of cut Orchids, consisting of *Calanthe Baron Schröder* in three forms, *Odontoglossum Coradinei*, *O. Ruckrianum*, *O. luteo-purpureum Amesianum*, a remarkably distinct and pretty form with pale yellow flowers, and a spike of *O. Pescatorei* with a dark blotch at the base of the lip was also included (cultural commendation). Mr. W. C. Walker, Winchmore Hill, sent a cut spike of *Acineta Humboldti*, and Mr. R. J. Measures showed *Pleurothallis punctulata*, a distinct species. Sir T. Lawrence sent *Dendrobium Euterpe* (*nobile* × *Wardianum*) and *D. Clio*, a lovely form with pale rose sepals and petals. The broad lip has a distinct blotch of yellow and brown in the centre. It is a cross between *D. splendidissimum grandiflorum* and *D. Wardianum*.

Floral Committee.

The following plants received awards of merit:—

AMARYLLIS PRINCESS OSRA.—Flowers of the largest size, and of a rich shade of vermilion with a broad central white band. Capt. Holford, Westonbirt.

AMARYLLIS NAVALA.—This is a self coloured flower of a decidedly novel and remarkable shade of orange-salmon, good in form, and of large size. Messrs. Veitch and Sons, Chelsea.

AZALEA GRANDIFLORA ALBA.—The flowers of this are of the purest white and nearly 11 inches across; the form also excellent. The habit of the plant as shown is not of the best. From the St. George's Nursery Co., Hanwell.

Messrs. J. Hill and Son, Lower Edmonton, again brought a large and highly interesting group of Ferns, set up in the most effective manner. The collection was certainly a most comprehensive one, and included such useful things as *Adiantum scutum*, *A. gracillimum*, *A. rho-lyphyllum*, *A. decorum*, &c., the warm tints in the young fronds being distinctly pleasing. Several kinds of *Cheilanthes* were very beautiful, as also the more hardy and vigorous *Aspleniums*, perhaps among the most useful for decoration. *A. Hilli* is a very fine, densely-set frond, slightly recurving, and building up a splendid plant. A noble piece of *Alsophila excelsa* had a fine head of fronds spreading over all. A silver-gilt Flora medal was awarded. Messrs. Veitch and Sons, Chelsea, brought a fine batch of deciduous flowering shrubs, notably *Cerasus pseudo-cerasus*, in splendid bloom, the plants 3 feet or 4 feet high in many instances, the group being flanked right and left by *Prunus sinensis* fl.-pl., *Staphylea colchica*, *Spiraea confusa* (a neat and pretty white species), *Corylopsis spicata*, and sprays of *Stachy-*

urns præcox, with pale yellow cupped blossoms very freely produced. The same firm brought a nice group of their well-known *Hippeastrums*, of which *Leonie* (scarlet and white), *Dryades* (dark crimson), and *Miranda* (maroon) were particularly good. The whole group was arranged in a setting of Maiden-hair Fern (silver Banksian medal). Messrs. R. and G. Cuthbert, Southgate, had a splendidly-flowered bank of *Azalea mollis* in named kinds and seedlings. Particularly noteworthy among the named sorts were *Comte de Germiny*, a fine rose-salmon, and *W. E. Gumbleton*, a pleasing shade of yellow (silver Banksian). Messrs. Wallace and Co., Colechester, brought a pleasing assortment of Irises that included the lovely yellow *I. orchioides*, *I. alata*, *I. persica*, a beautiful miniature of exceptional colouring, *I. sindjarensis*, *I. reticulata*, &c.; also pots of *Muscari conicum*, a lovely fragrant bulbous spring flower well deserving of pot culture for early work. Messrs. Cutbush and Sons, Highgate, had a large and interesting group of greenhouse plants that included *Eriostemon intermedius*, *Erica persoluta alba*, *Acacia Drummondii*, *A. cordata*, a rarely seen species, with nearly columnar-shaped growths studded with sulphur-yellow blossoms, very free and distinct, *Epacris Mont Blanc*, *Bornnias*, &c. Not the least pleasing feature here was a large batch of the *Otaheite Orange*, the small plants crowded with nice-sized fruits. A central feature of this group was about a dozen plants of *Richardia Elliottiana* in flower (silver Banksian medal). A group in some respects similar in character as well as contents came from Messrs. Laing and Sons, Forest Hill. The chief feature here was a central group of *Clivia miniata*, finely flowered, this being surrounded by *Caladiums*, *Begonias*, *Dracena Sanderiana*, *D. Goldiana*, and others, *Richardia Elliottiana*, *Crotons* in several kinds, while plants of smaller proportions included *Sarracenia*. The group also included *Streptocarpus multiflorus* vars. and a few Orchids (bronze Flora medal). Messrs. Balchin and Sons, Hassocks, Sussex, had a splendid lot of *Boronia megastigma*, the plants apparently only of two seasons' growth. These, owing to their healthy appearance and the perfume of the flowers, attracted much attention. A finely-flowered batch of *Tetrathecas* was also staged. Mr. George Mount, Canterbury, brought three boxes of cut Roses in fine form, one of these being devoted to *Catherine Mermet*, the remainder consisting of the best *Teas* and *H.P.'s*, &c. Some very handsome blooms of Mrs. John Laing, *La France*, and *Captain Hayward* were shown on long stems (silver Flora medal). A distinctly welcome and exceptional group of *Clematises* in flower came from Mr. H. B. May, of Edmonton, creating quite a new feature in these early exhibitions. Not the least important point of this exhibit was that it at once demonstrated the value of these lovely climbers for the conservatory and greenhouse at this time. The plants throughout were set in groups of one shade, thus giving a good result. Among the most prominent were *Lady Londesborough*, pleasing lavender; *Fair Rosamond*, white; *Sir Garnet Wolseley*, purplish shade, with dark bar; *Miss Bateman*, white, and *Mrs. Quilter*, of the same colour. The whole of the plants were in 5-inch pots. The effect was very light and elegant, and rendered all the more pleasing by the setting of Ferns from which the plants sprung (a silver Banksian medal was awarded). Messrs. Wm. Paul and Son, Waltham Cross, brought a fine lot of *Camellias*, many being handsome bushes 5 feet or 6 feet high. Very charming is the blush or flesh-tinted *Beauty of Waltham*, while by its side the old *Mathottiana* is gorgeous in the extreme. Very fine, too, is *Marchioness of Exeter*, a light scarlet shade, while the pure whites were represented by *Princess Charlotte*, as well as the old members of this colour. Boxes of cut flowers formed the margin to this fine lot of plants, to which a silver-gilt Flora medal was awarded.

Mr. T. S. Ware, Tottenham, had a large display of hardy plants, comprising many *Narcissi* that had been gently forced. Chief among these we

noted *Golden Spur*, *Henry Irving*, *Horsfieldi*, *Priniceps*, *Incomparabilissulphureus* pl., *Burbridgei*, *ornatus*, &c. The newer bicolor *Victoria* was also shown, likewise *Sir Watkin* and *Emperor*. Among various things in this group we noted the new *Adonis amurensis*, *Anemone Pulsatilla* and the singular *Ophrys aranifera*. A small group of hardy plants came also from Mr. P. Purnell, Streatham. This included many things of interest, such as *Cyclamen*, *Saxifrages* in several kinds, notably *S. Burseriana*, *S. cochlearis minor*, *S. oppositifolia*, &c.; *Soldanella Clusii* with a pair of its dainty blossoms; *Primula floribunda*, *P. denticulata alba*, *Iris persica*, and many pots of *Narcissi* in variety (silver Banksian medal). From Messrs. Barr and Sons came *Chionodoxas*, *Crocuses*, *Narcissus minimus* (very beautiful), *Bellevallia hispida colorata* (a pale blue kind), *Lenten Roses*, *Bulbocodium vernum* and such like. *Cyclamens* in pots were in strong force at this meeting, no fewer than four leading growers showing splendid groups, mostly of exceptional merit. The great variety of colour and the sterling quality of the strains were matters of general admiration. In point of excellence those from Mr. G. Bowles, Hanwell, were accorded the first place, and received a bronze Flora medal. The lot from Mr. J. May, Gordon Nursery, St. Margaret's, however, ran these exceedingly close, many of the plants in this group being crowded with blossoms of the very finest strain. Some of the pure whites here were marvels of purity and freedom, while those of dusky crimson and ruby were excellent. These well deserved the silver Flora medal awarded them. Another strong group came from the St. George's Nursery Company, Hanwell, and made a really fine display. Each group contained from 100 to 150 plants, though, in our opinion, the merits of each could have been more correctly determined had they all been staged on one table and not separated. From *L. P. de Langhe-Vervaene*, 150, Rue de Constantinople, Brussels, came a score of plants of the crested or feathered strain, all well flowered and of considerable interest. Messrs. Peed and Sons, Roupell Park, had a mixed group of *Primulas*, *Azaleas*, *Clivias*, *Lilacs*, *Acacias*, *Palms*, and other decorative subjects.

From Westonbirt, Captain Ho'ford (gardener, Mr. A. Chapman) sent splendid examples of *Anaryllis Princess Nena*, crimson; *Stromboli*, a blackish crimson; *Rucy*, a fine rich maroon; and *Princess Helene*, a scarlet, netted freely with white, and white bands in the lower petals, were exceptionally good. *J. C. Van Tubergen, jun.*, sent cut flowers of *Lachenalia pendula Aureliana*, a much improved form of the type; also *Galanthus Fosteri*. Sir Trevor Lawrence (gardener, Mr. Bain) exhibited two crosses between an *Azalea* and a *Rhododendron*. From the same source also came *Pavonia intermedia Kermesiana* with striking heads of scarlet linear bracts. Flowering sprays of *Bryophyllum calycinum*, a very singular stove succulent, came from Mr. W. Neild, Horticultural College, Holmes Chapel, Cheshire, the drooping cylindrical blossoms, some 2 inches long or more, being produced in a terminal forked panicle, externally striped red and yellowish green; and from *Gateshead-on-Tyne*, Mrs. Newall Ferndine (gardener, Mr. W. Hay) sent a flowering truss of *Rhododendron argenteum*.

Fruit Committee.

At this season of the year the exhibits before this committee are never very numerous. There were good collections of Apples from Amptill and Taplow, with grand fruit from Berkhamsted. The Veitch flavour competition was strong in Apples, but showed a weakness in Pears at this season. A first-class certificate was given to—

CUCUMBER EVERY DAY.—This was given an award of merit at the last meeting. Very nice fruits were now staged. In appearance it is very much like *Lockie's Perfection*, the fruits medium-sized, deep green, not ribbed, with few spines and a short neck. From Mr. O. Thomas, the Royal Gardens, Frogmore.

Mr. Empson, Amptill House Gardens, staged a collection of Apples in nice condition for the season. A fine dish was a seedling from Beauty of Kent, a very solid fruit, but of poor flavour. This was also shown in a cooked state. There were good dishes of Alfriston, Lord Derby, Beauty of Kent, Mere de Ménage, Annie Elizabeth, Cox's Pomona, Kentish Fillbasket, and Golden Noble. The dessert kinds of merit were Reinette du Canada, D'Arcy Spice, Claygate Pearmain, Brownlee's Russet, Clapham Beauty, Adams' Pearmain, with an excellent dish of Uvedale's St. Germain Pears (silver Banksian medal). A smaller collection came from Mr. R. Bullock, The Gardens, Taplow Hill, mostly dessert varieties, but of first-rate quality. The Cox's Orange were equal to November fruits, and not shrivelled in any way, the same remarks being applicable to such dishes as Court of Wick, D'Arcy Spice, Claygate Pearmain, Egremont Russet, Mannington Pearmain, and Blenheim (bronze Banksian medal). Messrs. Lane and Sons, Berkhamsted, received a vote of thanks for a basket of Apple Lane's Prince Albert, which was well deserving of a medal. These were splendid fruits, perfect in shape and colour and equally good in quality. This is certainly one of our best winter Apples, and not at all bad for dessert where a brisk flavour is liked. The same exhibitors staged St. John's, a seedling from Prince Albert and King of the Pippins, but it was evidently past its best. A very fine dish of Apple Bess Pool came from Colonel Evan Thomas, Frogmore, Ross. This is an uncertain cropper, but an excellent variety. Mr. Wall, Tenbury, Worcester, sent Apple The Ancient Briton, but of no special merit. A dish of Newton Wonder showed what a valuable winter variety this is. Messrs. Veitch, Royal Exotic Nursery, Chelsea, staged a collection of variegated Scotch Kalea. Mr. G. Wythes, Syon House, Brentford, received a cultural award for Asparagus forced in permanent beds in the open—excellent produce for the season. The same exhibitor sent a half-dozen winter Cucumbers and three distinct varieties of white Artichokes, one, a very long, smooth root, over 12 inches long and free of eyes, being much admired. Another, named Vilmorin's White, is a very fine Artichoke, Sutton's White being a rounder root of great excellence.

The Veitch prizes for flavour showed a great dearth of Pears, only one lot being staged, Bergamote d'Espereu taking the second prize. These came from Mr. Maher, Yattendon Court, Newbury. There were fifteen dishes of Apples, and Cox's Orange was again first—from Mr. Bullock, Taplow Hill. Cox's has had a lion's share of the awards, and others could with advantage have been noticed. Bess Pool, from Mr. C. J. Salter, Woodhatch Lodge, Reigate, was second. There were also excellent dishes of King of Tompkins Co. and D'Arcy Spice. Reinette du Canada was shown by several exhibitors, the other kinds being Court Pendu Plat, Sturmer Pippin, Dutch Mignonne, Annie Elizabeth, Reine très Tardive (a fine dish), Reinette de Caux, and Bess Pool.

The Midland Carnation and Picotee Society.—We have received the seventh annual report of the Midland Carnation and Picotee Society, which well shows the very spirited work which has been done by this society. The rules are sensible, the papers practical and useful, and the prizes liberal; and all who care for the Carnation must wish well to the society.

Gardeners' Orphan Fund.—Seeing your report of the meeting of the Gardeners' Orphan Fund in last week's paper, I cannot help thinking how much we who have its interest at heart have to be thankful for, especially to our committee past and present, also to our good secretary, for the able way in which they have used the money entrusted to them, and for the untiring labour they have given for the benefit of others. Then, again, there are those who have helped us with large sums of money, knowing that they themselves can in no way reap benefit for the same.

But how little have we to thank those who will be the first to apply for help in their need—I mean the gardeners of Great Britain, a body who seem to forget that in helping this fund they are helping themselves, and the consequence is that certainly not one-tenth of them subscribe. I wonder if they have ever thought what the annual income would be if everyone—gardeners, foremen and journeymen—would subscribe one penny a week. I think if they would sit down and work this out the result would not only surprise them, but it would, I believe, nerve them on to the effort, and with that income secured many more children would be enjoying help which now has to be carefully harvested, and the funded property would be increased each year.—CHARLES PENNY.

NOTES OF THE WEEK.

Clivia miniata.—A splendid group of this in one of the greenhouses at Kew is evidence of the sterling merit, beauty, and individuality of this easily grown plant. The fine colour effect, too, when freely grouped is a feature in itself.

Iris orchioidea.—This distinct and showy species is now finely in flower in a warm position at Kew, where its blossoms have been quite distinct from all else. Quite near are the green and black blossoms of *I. tuberosa*, a very quaint combination at any time.

Begonia dichotoma is in many respects distinct from other species of the genus. The tall tree-like habit and free-branching character, as well as the abundance of pure white though very dainty blossoms, render it quite distinct from the majority even of white-flowered kinds.

Begonia rhizocaulis.—In this compact species there is a resemblance to *B. hydrocotylefolia* on a reduced scale, the almost stemless leaves pressing closely on the soil. Notwithstanding its dwarf stature it is very free-flowering, so much so that the blooms well-nigh overlap each other. In this way it is very attractive.

Viburnum Opulus var. sterile is one of many useful deciduous shrubs suited to forcing in comparatively small plants and pots, an item the convenience of which can scarcely be over-estimated where large supplies and considerable variety also are needed. The puff balls are not so rounded in form as in some, but they are borne with equal freedom.

Solanum Seafortianum.—For the greenhouse this is a very pretty species of climbing habit, and producing many clusters of the most delicate blue or palest mauve shade. It is better suited by its neat habit for ascending one of the permanent roof supports rather than covering the rafters. In such a position it would be seen to advantage. Native of West Indies.

Datura sanguinea.—A fine old plant of this handsome species in the large greenhouse at Kew has recently commenced flowering. Planted out in the central bed the example in question is of large size, and, as may be expected, its flowers come in great profusion. Large blossoms hang down freely on all sides, and for some weeks to come will be a feature of interest.

Narcissus pallidus præcox var. Asturicus.—The forms of the beautiful Pyrenean Daffodil when brought into cultivation are not usually long-lived, yet a capital clump of this variety bearing some fifteen flowers and buds is very charming in the rock garden at Kew, where it has flowered well previously by the side of a tuft of *Vincet*. At present it is in perfect health.

Acacia pubescens.—This is one of the neatest species of this genus in point of growth and flowering, the leaves exceedingly minute and the pretty globular heads of flowers equally so. If planted out in the Camellia house or where a similar temperature prevails the plants provide a useful lot of material for cutting, and for this purpose small sprays with foliage complete are the best.

Citrus Aurantium (Sweet Orange).—A batch of small plants in pots of this well-known species has been flowering at Kew freely during the past few weeks, the sprays carrying a surprising number of blossoms for the size of the plants, which scarcely exceed 2 feet in height. It is a very old species, quite distinct in foliage and in fruit. The flowers inside are whitish and outside of a purplish tinge.

The blue Chilean Crocus (*Tecophylæa cyano-crocus*).—This lovely Chilean plant has been in full

beauty for some days past, the inimitable blue of its widely expanded flowers even surpassing that of the *Gentian* in splendour, and if only as amenable to our British climate it would indeed be invaluable. Mr. Perry, of the Winchmore Hill Nursery, has, we learn, been fortunate in obtaining a large importation of this in fine condition, many of the bulbs being of flowering size. If planted deep it is quite hardy in this country in a dry position.

Erythronium Hartwegi, one of the most satisfactory of the Dog's-tooth Violets, is flowering finely in the open ground in a rather cool and somewhat sheltered place at Kew. Indeed, a high wall a couple of yards off provides ample shelter from sun and wind at this early date, and under the uniform conditions guaranteed by the position the plants thrive and the flowers last a long time in perfection. This excellent kind also gives proof of increasing at the root when left alone a year or two.

Narcissus Golden Spur.—Growing quite in the open on a south border at Kew, we were rather surprised to note this handsome kind, as also its near relative, Henry Irving, flowering some few days in advance of the Tenby Daffodil, *N. obvallaris*. In truth, on March 5 the two first were approaching to full development, while the latter is several days later. As a rule, the reverse is the case. All the kinds appear quite healthy. The kinds mentioned are greatly in advance of all else, and the collection is somewhat extensive.

Gladiolus præcox.—This remarkable species, which is now flowering in the No. 7 range at Kew, is unique, particularly in the peculiarity of its flowers. The perianth tube is narrow and in the lower portion only about 1½ inches long, white in the upper portion; the corolla extends in an arching manner for some 2 inches, thus giving a singularly quaint appearance to the flowers. In colour we find a mixture of green, yellow and scarlet, the latter extending in a rather broad band on the upper surface. The species is of vigorous growth and very free flowering in the case of the stronger bulbs.

Arisæma fimbriatum.—This handsome and remarkable Aroid may now be seen in excellent condition in the No. 7 range at Kew. The spathe are singularly beautiful both in form and in the well-marked reticulations, brownish purple in colour, with slight shading of rose and somewhat heavily lined longitudinally with white. The spadix is slender and gracefully arching, the free end for more than half its length being covered with slender purple threads, resembling a miniature *Equisetum*. Usually a pair of leaves spring from each plant, these being thrice deeply divided.

Crocus vernus George Maw.—This very beautiful variety of the variable *Crocus vernus* is at present in full bloom. The flowers are white, and the tip of each of the outer segments is marked with a bright yellow line. It has not the size of the named white Dutch Crocuses, but is more compact and less liable to injury from bad weather. Size is not always a recommendation to some flowers, and the intrinsic beauty and neatness of this variety will commend it to many besides those who prize it on account of its bearing the name of the author of the magnificent monograph of the genus.—S. ARNOTT, *Carsehorn*, by *Dunfries*, N.B.

Scilla bifolia alba.—Desirable as are such pure and beautiful forms as this, they appear at times greatly in need of some sort of protection from heavy, pelting rains and the like—some sort of thin evergreen carpet from which they could readily spring and flower before the blossoms were spoiled by some pelting storm. Small groups in the rock garden may be easily protected, and certainly the snowy purity of the flowers of this pretty spring plant merits such care. Grown in pots or pans in a cold house all the purity of its blossoms is retained, and for this purpose it is well suited.

Glory of the Snow (*Chionodoxa*) is at the present moment one of the delights of Kew,

where stretches of it may be seen in many directions. In the rock garden it is particularly pleasing on the higher portions and on the sloping sides. In other places it carpets the otherwise bare places beneath shrubs, and again on the grass; and yet again it may be seen at the lower edge of the slope near Cumberland Gate, where quite a host of plants, mostly bulbous-rooted, are fast coming into flower. Here the Snowdrops are past, and, for the moment, the Crocus holds sway, with quite a feast of Daffodils to follow in rapid succession.

A new hybrid Fern.—Specimens of a new hybrid Fern named *Asplenium Hilli* were exhibited at the Drill Hall on Tuesday by Messrs. James Hill and Son, of Lower Edmonton. This Fern is undoubtedly a cross between *Asplenium bulbiferum* and *A. Belangeri*, and the characteristics of the two plants are at once evident and well balanced. *A. Hilli* is neither so loose as *A. bulbiferum* nor so dense as *A. Belangeri*, but it possesses a habit which, in my opinion, is superior in gracefulness to either, and I should not be surprised if it does not become a very popular plant. The fronds are gracefully arching and of a deep shining green, with paler and brighter green tips, and the pinnae are finely cut and produce an abundance of bulbils, as in *A. bulbiferum*, while spores are also freely developed.—J. W.

Stenomesson incarnatus.—The specific name in this instance implies an approach to a flesh-coloured blossom, though as a matter of fact it is of much deeper hue, some portions of the perianth rather inclining to vermilion, though not of a bright shade. The scape is about 18 inches high, and contains from four to six handsome blossoms, which, save for a dark green stripe in the middle of the segments, are of a uniform colour generally. It is a very showy species, and with good culture may be brought to a high state of perfection. Perhaps the best method to adopt is that of growing the bulbs singly—say in 6-inch pots. This is suggested for the reason that all the bulbs, even when of about the same size, do not flower simultaneously. This handsome member of the *Amaryllidæ* is a native of the Andes of Ecuador, and is now in flower at Kew.

Saxifraga Salomoni.—There is ample evidence of the hybrid origin of this pretty kind even before the flowers expand, a fact mainly due to the colour of the flower-stems, and in some degree to the solitary buds that crown the stem. In all these there is undoubtedly a touch of the beautiful *S. Burseriana*. The flowers, however, are distinct, as is the tuft of rosettes. It is very neat and compact, and, if free-flowering, will doubtless prove welcome. So far, however, some nice-sized tufts do not exhibit this much-to-be-desired property. Another year, however, should bring it into a flowering condition. Given freedom of flowering it would probably surpass *Bursera's* Saxifrage, which at times is liable to disappoint not only by its non-flowering tendency even in the largest tufts, but also by the way it becomes patchy with decay.

The weather in West Herts.—On the whole rather a warm week, both during the daytime and at night. On the night preceding the 25th ult. the exposed thermometer indicated 13° of frost, but since then on no night has the same instrument shown more than 6° of frost. At 1 foot deep the ground is now at about a reasonable temperature, but at 2 feet deep the reading is still about 1° in excess of the average. Rain has fallen during the week to the depth of about a quarter of an inch. The 26th ult. was the brightest February day I have as yet recorded here in thirteen years, the sun shining brightly for 9½ hours. February was a warm winter month, but not so warm as either the Februaries of 1894 or 1897. Rain fell on nineteen days to the total depth of 1¼ inches, which is three-quarters of an inch below the mean for the month. The record of clear sunshine was in no way ex-

ceptional, but on the whole the past month must be regarded as having been rather a sunny February. Five months of the present drainage year have now passed, with an aggregate rainfall of less than 7½ inches, against an average of 13 inches.—E. M., *Berkhamsted*, March 4.

—A cold week. On two nights the exposed thermometer showed 13° of frost. At 2 feet deep the ground is at the present time 1° colder, and at 2 feet deep 2° colder than the March averages for these depths. At the former depth the ground has not been so cold since the Christmas week. Only about one-tenth of an inch of rain has fallen since the beginning of the month, and none at all since the 4th. The sun shone brightly on an average for about 3½ hours a day during the week. The air has been dry, and the winds have come principally from some point of the compass between north and east.—E. M., *Berkhamsted*.

False teaching of garden design.—During the course of the past month a lecturer to the Gardeners' Association of a certain western town took for his subject "Geometry in the garden," and enlarged on the manifest advantages of the architect who designed the house being responsible for the laying-out of the garden. This system, according to the lecturer, "appeared to be again coming into vogue in the present day," and he held that, "whether one advocated formal systems or not, the garden immediately surrounding the house should be laid out by the architect to ensure unity of style and effect." He impressed upon the younger members of the association the necessity of acquiring this "higher knowledge" of geometrical gardening, suggesting that the possession of such attainments might lead to the "young hand taking a big step upwards," and concluded by demonstrating on the blackboard the various geometrical figures most useful in gardeners' work. There are, I trust, few true gardeners to whom the foregoing doctrine will commend itself. The "higher knowledge" in gardening lore is, surely, not expressed in ignoble patterns such as a child might work on a sampler, but in illustrating, as far as possible, the truth of the Latin maxim, "Ars est celare artem," keeping ever present in the mind Shakespeare's memorable precept, "Art itself is Nature."—S. W. F.

PUBLIC GARDENS.

Churchyard Bottom Wood.—We understand that the London County Council, on Feb. 22, voted £5000 towards the purchase of this wood. The scheme, therefore, can now be carried out.

Epping Forest.—The Epping Forest Committee of the Corporation have just issued their report upon the work carried out in the forest during the past year. It is stated that a large area of the forest has been judiciously thinned in order to encourage the growth of young and promising trees—namely, Oaks, Beeches, and Hollies—and with a view, also, of making the beauties of the domain more accessible. The portions thus dealt with include Theydon Coppice, St. Thomas's Quarters, Honey Lane Quarters, Loughton Forest, Whitehouse Plain, Lord's Bushes, and Walthamstow Forest. The committee also report that they have made an inspection of other portions of the forest where thinning is required, and instructions have been issued for the carrying out of the work during the present winter. In order to hide from view brick walls and other enclosures which do not improve the appearance of the forest in places, the planting of small clumps of trees has been carried on. Planting of a similar nature has been done on a portion of Wanstead Flats. At the desire of the inhabitants of the locality a portion of Bell Common has been planted with an avenue of trees in commemoration of Her Majesty's Jubilee. The digging-out of a large piece of swampy land known as Holloer Pond has been accomplished at a cost of £1228, to which the Leyton District Council contributed £300 and the Corporation £650. The result is a fine piece

of water some eight acres in extent. A suggestion by the Essex Field Club that the local museum in the forest should be enlarged has received due consideration from the committee, who report that the cost of the work is estimated at £250. The proposal will be further considered. The sale of thinnings during the year amounted to £643 13s. 9d. The keepers' wages were £1150 and labourers' wages £1085. The committee recommend that £4000 should be placed to the credit of the committee to meet the expenses of the coming year.

Open spaces.—At the monthly meeting on Wednesday of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Sir William Vincent, vice-chairman, presiding, it was stated that the Leathersellers' Company had contributed £10 10s. towards the funds of the association, and that the London County Council had acceded to the application of the joint committee for a grant of £5000 towards the acquisition of Churchyard Bottom Wood, Highgate. Progress was reported with regard to schemes for securing as public open spaces Albion Square, Dalston, the Paragon, New Kent Road, and some vacant land at Golder's Hill and Hatcham. It was stated that the work of laying out disused burial-grounds in Kipling Street and York Street and a playground in East Street was approaching completion. It was decided to lay out a disused and neglected churchyard at Plaistow, provided its maintenance could be secured, and to take steps to oppose the Inner Temple Building Bill, which sought powers to build on part of the frontage of the Temple Gardens, reserved as an open space by the Thames Embankment Act. It was agreed to further memorialise the Home Secretary and the London County Council not to give facilities for the conversion of the Cross Bones disused burial-ground, Southwark, into a building site, to ask the Lords of the Treasury to receive a deputation from the association in reference to the "Postmen's Park" and the promised Treasury grant towards its enlargement, and to protest against the frontage or any portion of the Acton recreation-ground being utilised by its custodians, the district council, for building. It was announced that through the co-operation of a vice-chairman of the association, who was the owner of the property, a new park of 25 acres in extent had been secured at East Ham and was being laid out.

Destroying bullfinches.—If H. Middleton Rogers will procure a trap cage for catching birds, also a hen bullfinch to put into the trap cage as a call bird, and put some Privet berries or a few twigs with fruit buds on them into the cage for a bait, he will soon catch them.—R. NISSET.

The yellow Moss Rose.—Can any reader give me any information about the yellow Moss Rose? I know that the one at Leicester Abbey died about fifty years ago. Has it ever been re-introduced? and does it still exist in France, where it was originally raised? It is a pity so beautiful a flower should be lost.—JUNIA.

Destroying squirrels.—Will any of your readers tell me how to trap or otherwise destroy a squirrel which is making sad havoc with my Austrian Pines? Although I am within 20 minutes' walk of the centre of a population of over 200,000 people, I have been plagued beyond measure by two of these pretty creatures. At first I welcomed them and fed them regularly, but they did so much damage that they were condemned to death. One was accordingly shot, and although the other has not since been seen, it is doing double duty in the way of destruction.—C. S. R.

Names of plants.—*Mrs. Leigh.*—*Amaryllis Ackermannii.*—*H. C. B.*—Please send a specimen of the flower you refer to.—*J. M. C.*—No. *Asparagus plumosus* is a fine-foliated greenhouse plant.—*W. Parsons.*—1, *Dendrobium Pierardi*; 2, *Cypripedium villosum*; 3, *Dendrobium cambridgeanum*; 4, *Oncidium sarcodes*; 5, *Dendrobium primulinum.*—*Alice Wilson.*—1, *Kerria japonica* fl.-pl.; 2, common Primrose.

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STOVE AND GREENHOUSE.

CARNATIONS—WINTER BLOOMING.

MENTION has been made lately of the beautiful Tree Carnation Thérèse Franco, which was raised at Nice about six or seven years ago, and shown with as many as eight fine blooms on one stem at a flower show in March. On the Riviera it is still by far the most prized of its shade of colour, and maintains its value in the market, which is a certain test of its worth in this climate. In England it evidently behaves differently, but I think the special reason of its failing near London is that it certainly requires more heat, light, and air than most winter Carnations. While many varieties of the type of Alegatière answer perfectly in the open during winter on these shores, Thérèse Franco requires some shelter; and too strong a soil, combined with dull, cold, or wet weather, will cause the blooms to open rough and speckled with deeper rose, instead of the pure, soft shade of salmon-rose which is so much admired. Having grown it myself in the north of England, I found that unless it had special conditions of soil, air and warmth, it was unsatisfactory under glass during winter, and out of doors only produced its lovely flowers to perfection in the height of the summer. Still, as it is when well grown so lovely, it is well worth coaxing a little, and will, I think, repay any special attention in northern climes. It is not often that the Carnations most in vogue on these shores are satisfactory when transported to colder regions such as England, but there is a Carnation that has here during the last three years made such strides in popularity that I would recommend it for trial. It has several extra points that will commend it to both growers and amateurs. Raised, I believe, at or near Monaco, it was first called Princesse Alice de Monaco, but now, curiously enough, it is grown under the name of "Malmaison," though it has nothing whatever to do

with that grand old variety. The way in which the florists insist "c'est la vraie Malmaison" is most amusing to those who know better, but very misleading to those who are apt to take their names and opinions from the first comer.

This Carnation is an extra good grower and free flowerer. Its blooms, moreover, have the power of lasting quite twice as long as other Carnations, which makes it much sought after for exportation, and the buds open exceptionally well also, so that I found a bunch of flowers and buds lasted more than ten days in a warm room when the water was duly changed and the stalks cut every third day. The flower is of large size for a winter Carnation, though not nearly so large as the real Malmaison; it is heavily fringed at the edge and has but little scent. Its colour is unusual, as it shades from bright rose in the centre of the flower and at the base of the petals to white at the edges, so that at a distance the effect is somewhat flesh-coloured. So bold and lasting a Carnation, and of the winter-blooming type, deserves a trial in England. If it happens to succeed, it will be most popular, as it contrasts so finely with dark Violets and lasts so long in water. I suspect it will require more air and warmth than the Lyons-raised winter Carnations, but is evidently hardier and more vigorous still than Thérèse Franco.

EDWARD H. WOODALL.

Toxicophlæa spectabilis.—This plant is well worth growing, where scented flowers are liked, in a large warm conservatory or stove, but the perfume is apt to be too strong in living rooms. The blossoms are produced on axillary corymbs, having the appearance and somewhat the scent of a Daphne. The plants grow upwards of 6 feet high, the bright green foliage being very ornamental. The best compost to grow it in is equal parts of light fibrous loam, peat, and dried cow manure, and the pots should be well drained. Cuttings of half-ripened shoots root freely in summer in a gentle bottom-heat, and these may be shifted on as they need it, soon making nice little specimens in a moist stove-heat. Old speci-

mens in large pots are improved by frequent applications of soot-water.

Coleuses.—To obtain the best results with these popular fine-foliaged plants it is necessary to strike young stock frequently and grow them from the first in a very light position. They are largely used for indoor decoration, being very bright and useful for helping to fill large vases and the different devices that are now-a-days brought into requisition for holding plants in the dwelling-house. Large plants, as a rule, are not needed, but nice little stuff in 4-inch pots with a habit that must differ with the variety. For instance, any of the large-leaved section like Countess of Dudley and Nabob look best when grown straight up on a single stem, except in so far as they branch naturally, and no stopping is needed, but the smaller, brighter-leaved kinds must be pinched as the plants are taken out of the cutting pots. Grown in a good light and with plenty of room all round, the once pinching causes a sturdy bushy habit, and in pots of the size indicated plants with heads upwards of a foot across may be grown. These are nice for standing singly in ornamental flower-pots such as are often used. Cuttings root very readily in sandy soil, and when potting use a very light description of compost, growth being rapid in this and well coloured. If plants are required over the one season or for growing on to specimen size, a firmer soil and less heat are needed, but, as a rule, these plants are grown, used once or twice, and then thrown away, a sufficient stock being kept through the winter to provide cuttings in spring.

Lachenalia pendula Aureliana.—This handsome variety of an old and well-known plant is now finely in flower here and is well worthy of a note. The history of this variety is nothing short of curious. It originated in the south of France, where it was found growing wild on the summit of Mont Esterel, Alpes Maritimes, in the vicinity of the ancient Roman Via Aurelia. A local botanist, the Abbé Pons, named it Lachenalia pendula var. Aureliana. How has this Cape of Good Hope plant come there? And, what would be equally interesting to know is, what agency caused it to vary from its original form? Must the variation simply be attributed to chance, due to local causes, or has the hand of

man contributed to its assuming a more brilliant garb? This is a question which, I think, cannot be solved. It differs from the type in flowering from three to five weeks later. The individual flowers are somewhat shorter, more open at the mouth, and they have longer pedicels; they are also much more brilliantly coloured. The spike is not erect, as in the type, but longer and arching. There is also a marked difference in the foliage, the leaf of the variety *Aureliana* being much longer and thinner; it also increases but very sparingly. Mr. Moore, in his elaborate article on *Lachenalias*, which appeared in vol. xiii., part 2., of the *Journal of the Royal Horticultural Society*, mentions a variety *gigantea* of *Lachenalia pendula*. Can anyone tell me whether or not the latter is identical with the *Aureliana* variety?—C. G. VAN TUBERGEN, jun., *Zwanenburg Nurseries, Haarlem, Holland.*

— Cut spikes of this from M. C. Van Tubergen, jun., were shown before the floral committee of the Royal Horticultural Society at their last meeting. Although no award was made, it is doubtless a much-improved form. At the same time, such things in a cut state, after a journey from Haarlem, do not display themselves to advantage on reaching London. Pot plants grown here would be quite fresh and good, and their merits seen at a glance.—E. J.

ARUM LILIES.

THERE appears to be a difference of opinion amongst growers as to planting Lilies out *versus* growing them in pots. I agree with all "E. J." has written respecting this permanent pot culture, and have adopted this plan for the past five years with far better results than I had when they were planted out at the end of May and potted up about the middle of September. My practice is when they have done flowering and late spring frosts are past, to stand them outdoors under a north wall and water them about twice a week if the weather is hot and dry, or if too wet the pots are laid on their sides. Early in July they are all shaken out, have their longest roots cut in and repotted into similar sized pots ranging from 6 inches to 10 inches, three rhizomes being placed in the largest sized pot, using good loam, cow manure, soot, a little leaf-soil, with enough river sand to keep it porous. Any old foliage remaining is carefully tied to a neat stake, and they are again stood under this north wall and kept syringed two or three times a day and watered if necessary. In a few weeks, when the roots have taken well hold of the new soil, and new leaves are seen pushing up, the plants are stood in the full sun, given plenty of space and turned around occasionally. At no time are they allowed to suffer from want of water. They remain here until the appearance of frost, when they should be removed to a cold house or pit. By this time the plants should be well rooted and should be afforded manure water twice or thrice a week. I find they take this fairly strong. Under this treatment I get a good percentage of flowers open towards the end of November, and very little inferior (as regards size of spathe) to those from plants planted out, while the foliage is much sturdier and requires no stake to keep it up. By this pot culture I get flowers much in advance of those that have been planted out, no mean advantage at that dull season of the year when the majority of *Chrysanthemums* are on the wane. It stands to reason, when they have been planted out and you start to raise and pot them up in September, a large quantity of fibrous roots must be sacrificed to get them into a medium-sized pot; consequently this gives them a severe check and retards their flowering by several weeks.—J. MAYNE, *The Gardens, Bicton, B. Salterton.*

— I can only add in reply to "E. J.," page 184, that I followed his cultural directions to the letter, and I fail to see what local influence can have to do with it. "E. J." says he has obtained five spathes per pot at the end of the year. If "E. J." will read my notes on page 152, he will see that my average was five spathes per plant for

the season. If I had grown three plants in each pot, as "E. J." does, the average would have been fifteen spathes per pot. "E. J." grows for market, and I have no doubt there is a much better sale for small flowers than large ones. I grow for conservatory and house decoration, and I would have liked "E. J." to have seen my batch (that were planted out), before they were introduced to the conservatory in November, carrying from two to four spathes each and foliage down to the pots. The conservatory is a lofty structure with thick glass roof and not at all suitable for *Arum Lilies* or any small plant, but even now there is not one with the foliage above 3 feet 6 inches in height. As regards feeding, I sprinkle a little fertiliser on the pots once a week and water with soot water occasionally.—M. T.

— As I said in my previous note I am greatly in favour of keeping these plants in pots as "E. J." recommends, for I feel sure that in no other way can such a number of scapes be produced from a plant, nor are they so early. The strong crowns may be all very well if they had not to be disturbed, but to grow these on by planting in rich soil and then shifting just as they are expected to flower seems to me absolutely ridiculous. I know of a north of England garden where these are planted out under glass, and the stems are not infrequently 5 feet high, with great bases at least a foot in circumference. The house in summer is frequently flooded with cold water from the hose, and in spring it is a fine sight from the number of large scapes produced. But these are not disturbed, nor have they to put up with mutilation of the roots such as plants get when put out in summer and potted in autumn. In a neighbouring garden last week I noticed a very fine batch of plants, and enquiries elicited the fact that these too had been kept in pots all summer; indeed, dried off as "E. J." describes. With such conflicting opinions it is very difficult for amateurs and others seeking for information to know what line to go on, but I have had experience of both plans and have found this to be far the better.—R.

— I agree with all "E. J." says about permanent pot culture of *Arums*. I grow some in 7-inch pots for cut blooms. Each plant sends up four or five nice spathes. I also grow some in 12-inch pots for the conservatory. The plants in the large pots have as good spathes and leaves as I have ever seen on plants planted out. There is no reason why *Arums* should be planted out, as after flowering they go to rest, and do not make any growth until the end of August or first week in September. Planting in rich borders or in barrow-loads of manure, as I have seen in my early days, is very little use. Let them rest in the pots they flowered in, and when you see them start to grow shake all old soil from the roots, repot in rich soil and you will have abundance of flowers.—A GARDENER.

NERINES.

I WAS much interested in "H. P.'s" article (page 128) on *Nerines*, though I looked for more information as to the best time for dividing the clusters of bulbs. Most writers on *Nerines* avoid this matter, either by accident or design, which is unfortunate, for a time comes when the undivided clusters become not only unwieldy, but comparatively flowerless—that is to say, a large number of the bulbs in each pot do not throw spikes, and many people would prefer to have their bulbs in small pots. That they may be flowered splendidly from single bulbs in tiny pots is certain, for in the grand display of *Nerines* put up by Messrs. Veitch, of Chelsea, at the Crystal Palace last autumn all were in that state, but the question arises whether these results came from established bulbs, which would be sure to go on and prosper, or from bulbs selected from divided clumps, which had only to push up their flowers irrespective of their future welfare, for the satisfactory condition of the scapes and flowers is no proof of the

bulbs being well established in their flowering pots.

Most bulbous plants are best divided immediately after flowering, but most of the *Nerines* throw up their leaves and scapes simultaneously, and by the time the flowers have faded growth is well advanced. What I should like to know is, whether it would be best to divide at that time, ignoring the fact that leaf growth is in progress, or later when the bulbs have ceased growth. I have been fairly successful in dividing the clumps while the bulbs are dormant, but should have no hesitation in adopting the other method provided I could be assured that there was no reason to fear the actual loss of bulbs so treated, for it seems to me the more rational way to get the roots established in new soil some months before the bulbs are called upon to flower or to make their next year's growth. I have found that the *Hippeastrums* succeed much better here when potted while in growth, as I have not the convenience for plunging-beds, which are necessary in treating these bulbous plants in the usual way, and I shall certainly try at least a small number of *Nerines* in the same way next year. Unfortunately, the stock of these useful plants under my charge is but small, or I should have proved the matter for myself long ago, as I should prefer small pots to large ones, provided dividing could be done without depreciating the value of the bulbs for more than one year. J. C. TALLACK.

Cissus discolor.—The present is a good time to look over plants of this fine climbing plant growing on the roof in the stove or similar positions. But little new growth has been made as yet, but it is easy now to see where young shoots are to be produced, and the removal of the badly developed ends of shoots down to these tends to a better appearance later in the season. Where stock is wanted, any chance bits of young or old wood may be placed in small pots of sandy soil and plunged in a gentle heat. They root freely and grow away at once, making nice little plants for putting out this season or for growing on. Where the young, brilliantly coloured shoots are used for table or vase decoration, these should be allowed to grow naturally—pendent if possible. *C. discolor* does well in a moist stove heat, where plenty of light reaches it, this bringing out the lovely colours in the fresh young leaves. If kept warm during the winter, the leaves remain on the plants, though naturally they lose a good deal of their colour, but in a cooler house it is quite possible to keep it. The foliage in the latter case, or most of it, will fall; but if lightly cut back in spring and again started, little harm beyond the defoliation is done to the plants.

Gesnera cardinalis.—The earliest blossoms of this *Gesnera* are just now expanded, and form a very bright feature in the stove, where they are particularly welcome. Though gesneraceous plants are very numerous and contribute largely to the floral display later on, this is the first of the section to blossom, and then only in the stove, as some grown cooler are only just starting into growth. The nomenclature of gesneraceous plants is in a very confused state, and many that are usually regarded as *Gesneras* have curious scaly rhizomes, while this produces a firm, solid tuber, in some cases as large as a man's fist. From the upper part of this the flowering stem or stems are pushed up to a height usually of about a foot. The stems are sturdy, and, in common with the bright green heart-shaped leaves that clothe them, are thickly covered with hairs, while the same may be said of the blossoms, which are borne in a terminal cluster. The individual flowers are about a couple of inches long, of a curved tubular shape, and bright vermilion in colour. As the season advances the foliage dies off, when the plant must be given a season of rest. In the autumn the tubers should be shaken clear of the soil and repotted, but little water being given till they show signs of growth. By varying the resting and potting period, flowers may be had at different times of the year.—T.

PRIMULA STELLATA.

THIS is undoubtedly closely allied to the normal form of *Primula sinensis*. Although the fine forms of *P. sinensis* may be generally preferred, *P. stellata* will commend itself to all who like a profusion of bloom and a bright display of colour. As will be seen by the illustration, the flowers are thrown up well above the foliage. Each flower-stem will produce several whorls of flowers, and attain to nearly 2 feet in height. This group also possess the advantage of seeding freely, and a bright display of bloom is easily secured. For early autumn flowering the seed should be sown in May, and to keep up a succession further sowings may be made later on. The raising of *Primula* seed re-

loamy compost, and when well established manure may be used freely, especially after they begin to flower. By the judicious use of stimulants the size and colour of the flowers will be improved and the flowering season considerably extended.

At the Royal Horticultural Society's Gardens, Chiswick, some years ago, the Chinese *Primulas* were made a speciality, both the single and double varieties being well represented. Of the single varieties, seed from some of the leading continental growers was received, and among these most of the colours were represented in the old form—that is, with each petal simply two-lobed and quite smooth. Having in my earlier experience had to discard all of this

ordinary varieties of *P. sinensis*. The tiers of blossom rise one above the other, something after the style of the old double white, but they are produced with the greatest freedom. All colours apparently are represented, a very pretty form I noted especially being of a pale soft rose. Such plants must be invaluable for cutting, the more so as the flowers are produced on long stems. They last well and do not drop so quickly as those of the Chinese *Primulas*.

THE NORFOLK ISLAND PINE.

(ARAUCARIA EXCELSA.)

THIS is now a popular market plant. A few years ago it was very scarce, but during the last four or five years we have received regular importations of young seedlings, chiefly from West Africa, which have come to hand in very good condition. It is very rarely that seeds prove satisfactory, as under any conditions they lose their vitality soon after they are collected. I believe the only safe way to import seeds is to pack them in moist earth so that they can germinate on the journey. Some years ago I received from Australia some seeds of *Araucaria Bidwill* which had just started before being packed in moist loam. About 95 per cent. grew. The seedlings of *A. excelsa* referred to above do not make pretty plants, but after growing them on for one season the tops may be taken off and put in as cuttings, and these make well-furnished plants. The cuttings succeed best if put in in the autumn or early in the spring. After the weather gets hot it is difficult to keep them from withering, and then they take much longer to establish. They should be put in singly into small pots, using good fibrous loam, leaf-mould and some sharp sand. They should be kept quite close and frequently sprinkled, but not too moist in the pots.

If the plants which have had the tops taken off in the early spring are taken care of they will give another good batch again the following autumn. Young plants may be grown on in warmth, but, after they are established, the cooler they can be kept the better, provided the temperature does not fall below freezing point. In a dry atmosphere they are liable to the attacks of thrips and red spider. The syringe should be used freely, but over-watering at the roots will prove very disastrous. F.

Cytisus racemosus.—Those who have only seen this plant in pots can have no idea of its value when planted out in a bed of good soil in a cold house and allowed to grow freely. I recently saw it growing thus in one of the cold conservatories adjoining the house at Cricket St. Thomas. It was a very vigorous specimen, had not been cut in for some years, and had attained to 9 feet or 10 feet high and many feet through. It was full of bloom. Grown in this way it is very useful for cutting. By its side is a vigorous specimen of *Arundo donax variegata*, showing off its fine striped green-and-white long leaves grandly in contrast with the *Cytisus*. Another useful plant growing hard by is *Salvia Grahami*. This is lovely when in bloom.—DORSET.

Carnation Mme. Therese Franco.—The notes that have appeared recently re this *Carnation* show what a vast difference soil, situation, &c., have on *Carnations*. But my experience coincides with that of "E. J." I am not alone in this opinion, nor can it be said that private growers are the only ones that condemn it. Last June when in London I visited a large market garden where *Carnations* are a feature, several kinds being grown by thousands. When passing through the *Carnation* houses I came on a batch of this kind, and asked the proprietor his opinion. He remarked that to grow this would starve anyone, and he should not grow it again. It is in such places as these where one can see the relative value of any kind. Living as "E. J." does



White Star *Primula* (*Primula stellata*). From a photograph by Mr. F. Mason-Good.

quires a little care. It should be sown on some good loamy compost and have a slight covering of sand and Sphagnum rubbed through a fine sieve. I have found the use of Sphagnum of great advantage, as it retains the moisture and does not get sour so soon as any other material. The seed pots should be placed in a shady, cool position, but I do not like covering the pots up. If exposed to daylight the seedlings come up much stronger and are not so liable to damp off as when heavily shaded. A frame under a north wall is the best position for the young plants during the hot weather, and later on, when they are ready for potting into their flowering pots, they may be exposed to more sunlight. All the *Primulas* like a fairly rich

type as rogues, I could not quite fancy growing them in a collection, but I must say they found many admirers, a white variety proving especially attractive on account of the mass of bloom and its purity. The improved strains of *Primula sinensis* have now become well fixed, and it is not difficult to procure seed of the distinct varieties that will come true. In my earlier acquaintance with *Primulas* it was very difficult to get reliable seed, and even with own saved seed a percentage would revert to the normal form. When growing for seed these plants were always thrown away as soon as the first flower opened.—A.

— As grown at Rougham Hall, this is a very beautiful *Primula*, ranking far before the

within easy distance of many large growers, no doubt he has the true kind. I am aware Carnations can be grown in many ways, but I would not recommend growers in a damp situation to adopt syringing as mentioned by Mr. Burrows, as I have paid dearly for it in the past.—DORSET.

Rhododendron Countess of Derby.—Allow me to protest against this name being used for a new hybrid Rhododendron (p. 181), as we have already a variety bearing this title which was raised and distributed by the late Mr. Isaac Davies, of Ormskirk, and is now very popular. It was obtained by the inter-crossing of the pretty free-flowering *R. multiflorum* and the Himalayan *R. Edgeworthii*. The Ormskirk Countess of Derby is characterised by a free-branching habit, foliage partially hairy, and large, deliciously fragrant blossoms. These flowers are white when fully expanded, but in the bud state are sometimes flushed with pink, especially when fully exposed to the sun. It is one of the best of the white-flowered Himalayan hybrids, whereas the variety referred to on p. 181 belongs apparently to the Javanese section. With the long list of garden varieties of Rhododendron that we have now in cultivation, it is a difficult matter to keep touch with the whole of them, and consequently anything tending to confuse the nomenclature thereof is to be deprecated.—H. P.

GREENHOUSE FLOWERING PLANTS AT KEW.

THE No. 4 greenhouse in the Royal Gardens at Kew is set apart, as is well known, for flowering plants of a decorative kind, and in this way its gaiety is maintained throughout the year. From frequent visits this display should be helpful to many amateurs, as showing what may be done in season and the class of plants necessary to effect a really good display. Frequenters, however, will not be long in finding out that grouping, even in the case of flowering plants, is freely indulged in, and with good results. At the present moment this house is exceedingly gay, not with exceptional or rare plants, but with every-day subjects so to speak. The large central bed that runs through the house has no staging; specimen plants with large Ferns at intervals occupy as it were permanent positions, the flowering subjects being grouped in and around. Here at the moment, large Azaleas in variety, Acacias, Richardias, scarlet *Salvia*, Genistas, and other such things find a place. Near the centre, a large bush of *Luculia gratissima* has been recently covered with many trusses of its welcome fragrant flowers, on the right being a permanent group of Camellias, now gay with their blossoms in many shades, the bushes in many instances 15 feet high, the picture of vigour and health. On the left are to be found many interesting things, large bushes of *Eriostemons*, such as *E. cuspidatus*, one such being 6 feet across and crowded with its pretty flowers, other plants in this section being choice Rhododendrons, &c. Just now, however, the side stages are the chief attraction, the following being among the most important: *Eupatoriums*, *Cinerarias*, *Primula obconica*, *Allium neapolitanum*, *Citrus Aurantium*, *Spirea Van Houttei*, a most charming subject for pot work, wonderfully free and light; double *Prunus*, also *P. floribunda*, Lily of the Valley in large numbers, many leading kinds of Trumpet Daffodils in pots, with large handsome flowers, together with *N. Jonquilla*, &c. On one side of the Camellia section a large group of well-grown *Cyclamens* has been gay for weeks past and is still flowering freely. A splendid assortment of *Azalea mollis* in infinite variety is very showy thus early, and arranged with other and more leafy subjects that atone for the lack of flowers, is very effective. *Begonia semperflorens rosea gigantea*, mixed with *Allium neapolitanum*, is pleasing. *Clivia miniata* in many large examples is now in great beauty, the richly-coloured heads have a very telling effect. Tulips and Hyacinths are numerous and of excellent quality, while Crocuses in many shades of colour abound. Not least

among showy subjects is the scarlet Windflower (*Anemone fulgens*), with its dazzling blossoms. Many of these things are in groups of a dozen or twenty, and thus make a very effective display. Forced plants in flower of the Yulan (*Magnolia conspicua*) were also recently noted in the same house. E. J.

NARCISSI IN POTS.

An instance of the extent to which these spring flowers may be grown in pots is now in evidence in one of the greenhouses at Kew, and, to say the least, is most instructive, if only because of the variety embraced. Grown coolly under glass is perhaps one of the best ways of securing the most perfectly formed flowers. No forcing is needed at all, and the bulbs generally are much best when plunged rather deeply in ashes till far into January, or at least that portion of them required for the month of March. All such may then be introduced to a cold house, and even here progress will be rapid when open weather prevails. Any required earlier will of course have to be placed in some warmth. Chief among the points to lead to a successful result is early potting of the bulbs, that a full complement of roots may be formed in due course. Where this is the result there need be little fear for the blooms, if the plants are well supplied with moisture, and are not put into a temperature exceeding 45°. In this the growth is comparatively slow, and an abundance of foliage, always graceful in the extreme, is thereby obtained. It is remarkable that the Tulip and the Hyacinth should so long have been grown for conservatory work when the endless kinds of Narcissi are all so well suited similarly and so replete with grace and beauty. At Kew the following kinds may be seen in excellent condition: Beauty, Figaro, Frank Miles, Autocrat in the *Incomparabilis* group, Bicolor, Portia, Michael Foster, Barri conspicuus, Orpheus, Maurice Vilmorin, Burbidgei, John Bain, and others. The first-named is an approach to Sir Watkin, and a really fine flower on stems 20 inches long. The diversity of the flowers, accompanied by the abundance of pleasing leaves, dispels any idea of monotony. E. J.

NOTES AND QUESTIONS.

Violet Marie Louise in pots.—These Violets are well grown in France for table decoration in small pots, but here the plants have not grown well or thrown much flower. I should be obliged for any information on the subject.—M., Cork.

Camellia C. H. Hovey.—This brilliant crimson Camellia is of exquisite form, but for effectiveness it cannot be compared to the old and well-tried *Mathotiana*. It is less massive, and perhaps on a small plant is more elegant; but I certainly should prefer the older kind as a conservatory specimen.—P.

Camellia Princess Clothilde.—If one can imagine the Rose *Rosa Mundi* or York and Lancaster with Laurel-leaved foliage, we have a fair representation of this showy Camellia. It comes as a welcome change to the rather formal appearance of the majority of varieties. There are others prettily striped and flaked, but none so exquisitely beautiful as this variety.

Camellia Comtesse d'Hainaut.—This grand variety is worthy of more general cultivation. The colour of the flowers, a soft pleasing silvery-pink, shading in the centre to blush-white, is very distinct. There is a certain waxy appearance about the petals that still further compels our admiration. The flowers are of good size, rather high in the centre, and of regular form.

Camellia Duarte d'Oliviera.—A more distinct Camellia could not be found than this. It is perfectly cup-shaped, every petal being fashioned like a shell. Towards the centre of the flower the petals are very numerous, and yet the form of each is seen, giving the blossom a unique and extraordinary appearance. The colour is a lively pink, somewhat the shade of the *Magna Charta* Rose. It is certainly a first-rate variety.

Camellia L'Avenir.—This variety is admirably adapted for walls, and a very fine effect would be produced by a well-established plant in such a position.

The form is as perfect as it is possible to obtain a Camellia flower, and this is no little commendation where the majority of varieties are almost perfect in shape. The colour is grand, soft pink shading to salmon pink. The blossoms are large and exceedingly showy.

Camellia Marchioness of Exeter.—Probably some individuals would consider this one of the finest of all Camellias. It lacks nothing in point of size and colour, and is probably, next to *Mathotiana*, one of the very largest in existence. I measured some flowers the other day and they were each fully 5 inches in diameter. It is nothing unusual for this beautiful variety to attain to this size. The colour is rich rosy pink. It is certainly a Camellia of great individuality.—PHILOMEL.

Freesias with no scent.—Can any reader give me any reason for my *Freesias* being almost entirely devoid of perfume this year? They are from my own bulbs which have always done admirably, and the plants are the picture of health and are covered with blossoms. They were potted as usual, and have had the usual greenhouse treatment with moderate use of liquid cow manure. In former years the fragrance of these *Freesias* has filled the house, and it is now much missed.—LT.-COL. H. J. O. WALKER.

Primula obconica grandiflora.—This, a large-flowered variety of the old *Primula obconica*, is certainly one of the best things that can be grown for cut flowers during winter and spring. Last year about this time I procured a packet of seed, from which I raised about fifty plants. They were grown on in cold frames during summer, and finally potted in August into 5-inch pots. In September they were transferred to a light shelf in a warm house, where they have continued to throw up fine spikes of bloom in quantity ever since, and now look like going on blooming indefinitely. As the blooms are light and borne on long stalks they are very useful for bouquets or filling vases.—J. GROOM, Gosport.

Imantophyllums.—In a recent issue of THE GARDEN Mr. Parker did well to point out the value of these most useful winter-blooming plants. The flowers cut with long stems and arranged with sprays of dark green Ivy, I have found are very effective over a fortnight. All those who want these plants to obtain cut flowers from only should grow them in big pots, say 10-inch to 12-inch, giving them good soil and drainage, and then allowing them to remain till they get well rooted. In this way they bloom most profusely.—DORSET.

Clematises as pot plants.—Some of the varieties of the patens type now flowering are very effective, and either for the conservatory or house decoration they form a nice contrast. Two-year-old plants are perhaps the best, yet I have seen upwards of a dozen flowers on a one-year-old plant. The varieties most suitable for pots are Sir Garnet Wolseley, Mrs. Quilter, Lady Londesborough, and Albert Victor. The flowers, though not so large as those of the lanuginosa type, are produced in greater profusion. Arranged in groups of several plants together, with a nice undergrowth of Ferns, they show off to great advantage.—F.

Panicum variegatum.—For the edging of stages or groups of fine-foliaged plants, there is nothing more effective than this pretty variegated grass. It is not of much value during the winter except in the stove, but during the warm weather it may be used in the conservatory or in the house, and will do good service. Cuttings put in now will soon make useful material. About six cuttings in a 3-inch pot in light, sandy soil will soon root if kept close in the stove propagating-pit, and will be ready in a few weeks for potting into 5-inch pots. With ordinary care they will keep in good condition throughout the season. Used alternately with *Isolepis gracilis*, it makes a fine finish to any group arranged for decoration.—A.

Dracæna congesta.—Few plants can surpass this for usefulness in rooms and very few indeed can equal it. I have had for several months a plant in my sitting-room. The plant is watered once a week on the average, and then it is soaked in a pail of water for fifteen or twenty minutes, well rinsed overhead, allowed to drain, and returned to its place.

It is upwards of 2 feet high, well feathered to the pot, and without a faulty leaf. Too frequently sitting-room plants are saturated with moisture, and in this way quickly get out of condition. Healthfulness is best maintained by allowing such plants to become completely dust-dry occasionally, avoiding, of course, extremes of watering. Then give a soaking to saturate all the soil. In this way such hardy subjects as this will do service for a long period.—E. J.

ORCHIDS.

NOTES ON DENDROBIUMS.

THE culture of Dendrobiums, although fairly well understood by amateurs generally, is not taken up with the spirit it ought to be considering their value as garden Orchids. Almost every tint of colour is represented, some of the evergreen kinds especially giving us of the most beautiful shades of gold and orange. Usually they take up little space compared with the amount of flower they produce, and, taken all round, it would be difficult to name a genus more worthy of attention. To keep Orchids of any kind clean is one of the most important details of culture, and this applies especially to Dendrobiums. There is probably no kind of insect that infests our Orchid houses that does not take up its home on them, and if allowed to remain and work their will upon the plants no amount of care otherwise will give good results. A cold draught coming through the ventilators in early spring is usually followed by an attack of aphids, which often cripples the young growing shoots, while thrips spring up as if by magic directly any press of fire-heat is allowed. Red spider, scale, and all other insects find the leaves of Dendrobiums greatly to their taste, so that one must be always on the watch for them and always ready with remedies. Fumigations should be frequent, and there are at least two of the preparations advertised that seem almost perfect for the purpose. The most delicate of flowers may be open in the houses, or the young growths may be ever so tender, but if used according to the maker's directions no harm will accrue. Sponging with insecticides is sometimes necessary, but as a rule nothing is so effective as light fumigations, followed by washings with clear, soft water. Insecticides are in nearly every case injurious to Orchid roots in one way or another, while to be effective every part of the plant must be washed, the base of the pseudo-bulbs and the rhizomes being oftenest attacked. Some cultivators object to a moist atmosphere in the house when fumigating, and possibly the drier it is the more effective are the fumes, but, on the other hand, a moist film on the glass prevents the fumes getting out so easily.

Cleanliness by these means being effected, the culture is quite easy, and depends more on arranging the plants in their proper temperatures and watering according to their state of growth and rest than on any other details. When in growth, the majority of Dendrobiums like a strong heat and a moist, buoyant atmosphere, the sun to shine on them as long as possible in the day excepting just as young growth commences, when more shading is necessary. This treatment suits all the cylindrical-stemmed deciduous kinds, also the semi-evergreens as *D. nobile*, *D. taurinum*, and the heat-loving nigro-hirsute kinds. The roots of many of them like to be closely confined in small pans or baskets in a rather closer description of compost than is used for Orchids generally. Others that have slightly larger roots may have deeper and wider pots or baskets, but,

excepting the large-growing *D. Calceolus* and a few of this class, Dendrobiums do not show any desire to push their roots very far from the centre of growth. Those with more club-shaped pseudo-bulbs, including the majority of the true evergreen species, like a light position in a temperature not much above that of the Cattleya house. These rest a good deal longer than the deciduous kinds; in fact, some of them only grow for about a couple of months in the summer, but they must not be kept so dry as the kinds above mentioned. A rough, open mixture of peat fibre and Moss, with plenty of rough crocks and charcoal, they delight in, this being made very firm over good drainage. The stronger and more vigorous the roots the more water they take, such kinds as *D. fimbriatum* and *D. Dalhousianum* being very thirsty subjects. Even of the black-haired group there are a few that do not care for much heat, notably the beautiful *D. infundibulum*, which grows strongest and best in quite a cool house, near the door or a ventilator in the Cattleya house, or even in a moist fernery.

The Australian kinds, as a rule, are rather difficult to cultivate. In some places they grow very easily, in others no amount of care will make them really satisfactory. In spite of reports of success under other conditions, I like to see such as *D. Phalenopsis*, *D. bigibbum*, *D. Macfarlanei*, and others of this class make their growths quickly when once they start, and for this reason I prefer a hot, moist house for them while growing. By all means keep them cooler after the flowers are past and at any time when they are not actively growing, but I have always had the best results by encouraging a plant when it is obvious it means growing, whether that time is what we consider the right one or not, and the same in regard to resting. Habit has a lot to do with the treatment of the roots, and there is no doubt that all Dendrobiums of the same class as *D. pulchellum* (Loddigesii), *D. Falconeri*, *D. subclausum*, and probably the newer *D. Victoria* require to have some new material often, so that each little tier of roots can lay hold of it, or a large piece of Tree Fern stem, where they will be sure to find fresh rooting space at every inch, for the roots, though plentiful, are by no means far-reaching. H. R.

Sophronis grandiflora.—Some nice little specimens of this species are flowering very freely at Rougham Hall, where they are grown with the Cattleyas and are thriving well. It is surprising how long these bright and beautiful plants last in flower, the brilliant scarlet of the blossoms always eliciting praise from visitors. A sweet and open root-run and free drainage are essential to its culture. It rests for a month or two each season, but must not, on this account, be dried, or shrivelled bulbs and weak flower-spikes will be the result. It is a native of the Organ Mountains.

Dendrobium atro-violaceum.—This is a very distinct and pretty Dendrobe from New Guinea. The stems bear about three leaves, and from the apex rises an erect many-flowered raceme. The segments are of good substance, whitish, closely spotted with deep purple, the lip violet with a yellow reverse. It appears to be a good grower, and is very free-flowering when strong and healthy. It does best in a hot, moist house while making its growth, and may afterwards be rested at the cool end of the Cattleya house. Equal parts of peat fibre and Sphagnum Moss suit it, and it should be grown in medium-sized pans or baskets.

Galeandra Devoniana.—I noticed a very beautiful variety of this Galeandra in flower this week, the lip of which has a very delicate rosy-purple suffusion in place of the greenish white

often seen, and the purple venations are thicker than usual. It is a useful species that should be more grown by amateurs and others who like variety in their collections. So many present-day growers go in for just the popular kinds, that one feels sure of seeing the same plants in flower in all. *G. Devoniana* does well in the Cattleya house, and should be as strongly grown as possible, cultivated specimens being seldom so vigorous as imported ones. It comes from the Rio Negro, and was introduced in 1840.—H. R.

Cypripedium Exul.—There is no question of the beauty or distinctness of this Cypripedium, but one seldom sees nicely flowered plants. During the present week I have noticed it in several places, but seldom so freely flowered as one might wish. It would be interesting if any readers of THE GARDEN have done this pretty plant really well, if they would record their experience of it. It is a plant that does not so readily establish itself as many other Cypripediums, and, if allowed to flower before it has taken hold of its compost, takes a long time to get over it, but when really healthy and producing strong scapes, it is one of the most beautiful kinds. *C. Exul* is a native of Siam and was introduced about 1892.—H.

CATTLEYA LAWRENCEANA.

THERE are few more showy or beautiful Cattleyas than this, well-flowered plants having a very fine effect. The growths are usually about 18 inches high, of a rather bronzed appearance when old. The spikes issue from the base of the leaf, and bear about half a dozen of the beautiful rosy purple blossoms. These vary considerably in colour, but all are very well worth growing. *C. Lawrenceana* likes a hot, moist house, and should if possible be suspended from the roof where it gets a fair share of sunlight. In the ordinary Cattleya house temperature it may be grown if allowed plenty of light, but the growths are finer in a house kept a few degrees higher. The high temperature is not necessary after the growths are fully made up; indeed, it would be injurious, but flowering rather late in the season, as it does, there is none too much time for a set of growths to be made up and ripened before the sun begins to lose its power in the autumn. During the winter the plants are safe in a house that does not fall below 55° at night, and the leaves and bulbs must, of course, be kept dry. Watering is an important point, and is often overdone, especially during the winter months. As I recently noted when speaking of *C. Trianae*, it is a great mistake to over-dry the roots, for although no signs of movement can be seen, the flower-spikes are forming, and if no water is applied to the roots this is all at the expense of the stored-up nutriment in the pseudo-bulbs. When growth and roots are both active the water supply must, of course, be considerably augmented. The roots of this Cattleya are not so large, as a rule, as those of the labiata section generally. They are more wiry and equally or more persistent, and this must be kept in mind when preparing the compost. Large pots, pans, or baskets are a mistake, as the roots can never find the outside, and are less satisfactory when covered up with several inches of compost than when rambling about over the sides of a pot or about the rods of a basket. It is a mistake, on the other hand, to let them grow away from their pots or baskets, because roots hanging in the atmosphere, no matter how suitable that atmosphere may be, can never have the same power of carrying nutriment that others have when firmly attached to compost, pot, or basket. If a margin of a couple of inches is left around the base of the plant when it is potted, it will go on for several years with no more disturbance than is necessary to give a little top-dressing in spring. The compost for potting this should consist of peat and Moss used rather finer and with smaller lumps of charcoal than for most Cattleyas. Drainage is an important point, and the crocks may with advantage be laid to within

about an inch of the rim for small plants, the base of the pseudo-bulbs being elevated a little when potting. Guard carefully against rapid changes of temperature or draughts during the growing season, these being often followed by an unsightly spot on the foliage. *C. Lawrenceana* is a native of the Roraima, and is found at the base of the mountains often overhanging streams. Sir Robert Schomburgk first discovered it in 1840.

H. R.

Dendrobium ochreatum.—The colour of this Dendrobe is not so bright as that of many other species, but the blossoms are very delicate and pretty. They occur upon the young wood, which seldom ripens up so hard and firm as that of the usual cylindrical-stemmed kinds. This makes the plant rather difficult to grow, for there is nothing substantial about it, but if carefully watered after the flowers are past they keep plump enough to ensure sound eyes for next season. To grow the plant well, it should be suspended from the roof in small, well-drained pots or baskets. The compost may consist of peat Moss and small lumps of crocks and charcoal. Plenty of heat and light and a moisture-laden atmosphere are necessary while the growth is active, but afterwards the plants may be kept cooler. It is a native of the Khasia Hills, and was introduced to Chatsworth in 1837.

Pescatorea Klabochozum.—This is one of the best growers in this section, and a very beautiful species when well done. The leaves grow in tufts and are each upwards of a foot in height, the flowers appearing on single-flowered scapes. The sepals and petals are whitish with a brownish purple tip, the lip white, covered with small, deep purple hairs. The absence of pseudo-bulbs renders the culture of this class of Orchid different from that of *Cattleyas* and other kinds. They must be potted up in equal parts of peat and Moss—a little loam may be added for strong, healthy plants—and grown in a shady, moist position, where they are well under the eye of the cultivator. While growth is most active the plants will take a copious supply of water, and even when at rest a dry state of the roots must be avoided. In many cases it will be wise to syringe the plants, but this must never be done in dull or wet weather. The temperature of the *Cattleya* house is quite high enough for it, as here the leaves are not so apt to be overrun with red spider or thrips. *P. Klabochozum* is a native of Ecuador, where it was discovered by one of the brothers Klabocho, to whom it is dedicated.

Bifrenaria aurantiaca.—This singular species is not often seen. It has roundish pseudo-bulbs and deep green leaves, the flowers occurring on three or four-flowered scapes. The sepals and petals are bright yellow, with spots of a deeper tint, and the lip is three-lobed, similar in colour. Although usually found growing on the stems and branches of trees, this plant requires a fairly substantial compost under cultivation. Equal parts of peat-fibre and Sphagnum Moss, with a little loam fibre for the strongest plant, suits it well. Good drainage is essential, and plenty of charcoal and crocks should be mixed with the compost or put in as potting proceeds. The pots should be large enough to take the plants for at least a couple of years, as the roots are easily damaged by frequent disturbance. The foliage is very liable to attacks of red spider, so the atmosphere should be kept moist, and on bright days light syringings may be allowed. It thrives best in the coolest and most shady part of the *Cattleya* house all the year round, and while growing freely an abundant water supply is necessary. At no time in fact must water be entirely withheld for any length of time, this causing the bulbs to shrivel and the flower-spikes to be small and weak. It is getting late for it to be in flower, but I noted a nice plant last week with several spikes.—H.

Oncidium unguiculatum.—Although this *Oncidium* cannot be compared for showiness to

O. tigrinum or *O. splendidum*, to both of which it is related, there is no question as to its beauty. It varies, of course, like many others, and I have just seen a nice form of it at Rougham Hall, Bury St. Edmunds, where it was labelled *Odontoglossum Reichenheimeri*. To this species it bears a very striking resemblance in habit, but the flowers, of course, are totally different. They occur on rather loose, arching scapes, the individual blossoms being about 2 inches across, measuring from the tip of the upper sepal to that of the lip. The sepals and petals are rich reddish-brown with a few spots and bars of yellow, the claw of the lip being at right angles to the column, and not, as in *Odontoglossums*, parallel or nearly so. The kidney-shaped blade is a clear bright yellow about an inch across. *O. unguiculatum* may be grown in a compost of peat fibre and a little Sphagnum Moss, adding thereto plenty of finely-broken crocks. The pseudo-bulbs should just rest on the top of the compost, and being large require careful fixing. It is very free-rooting when healthy and likes abundance of moisture all the year round, but especially during the most active growing period. It may be grown in quite a cool house, and as roots are freely produced in late autumn this is the most suitable time for repotting. The flowers are slightly scented and very lasting.—H. R.

BOTANISTS AND PLANT NAMES.

THAT the present state of plant nomenclature is intolerable to practical men there can be no question. Who can wonder if the gardener comes to the conclusion that he will ignore the botanist and all his works—at any rate, so far as they apply to plant naming. If we accept his name to-day, what warrant have we that to-morrow we shall not have to cast it aside for another? There is no finality about the matter. Consequently, there are few, I think, who will not admit that the remarks of "One Interested" (p. 174) have every justification. As one who has some little acquaintance with both sides of the question, *i.e.*, the gardener's and the botanist's, I may perhaps be allowed a word or two on the matter.

No reasonable man will dispute that the nomenclature of a genus must occasionally be revised and that of some of its species altered. The double-flowered *Kerria japonica* was originally called *Corchorus* under a misapprehension. That genus, of course, is far removed from *Rosaceae*, to which *Kerria* belongs. It is a pity, therefore, that a name so erroneous should still be perpetuated in so many nursery catalogues. Another instance is that of the earliest introduced of the tropical epiphytal Orchids, which were mostly called *Epidendrum*. If there had only been ten or a dozen of them that name might have sufficed, but seeing there are thousands of them, and that they are being continually added to, a periodical revision becomes necessary, and no one ought to object to it, provided it is conscientiously and competently done. With regard to the particular instance that has excited the ire of your correspondent, that of the *Cypripediums*, I entirely agree with him. There was, perhaps, sufficient reason to have kept the herbaceous species of the *Calceolus* type separate if this had been done at the commencement, but now it has gone on so long it ought to remain, and the rest of the *Cypripediums* are so distinct from all other Orchids and so homogeneous, that the one name ought to suffice.

What we have to protest against is the irresponsible and needless multiplication of names that has ended in the majority of plants becoming invested with a long string of synonyms. Take up the *Kew List of Trees and Shrubs*, for instance; a tail of eight or ten names, besides

the accepted one, is quite common. Nurserymen must to some extent share the blame for this. They have a plant which they do not know, perhaps sent to them by their own collectors or agents, and, without ascertaining from the proper quarters whether it is new or not, they straightway give it a name (preferably after themselves or a good customer), and thus the plant, which may have been named and described long before, gets into cultivation under an alias, between which and the proper name there may long be confusion. Sometimes, of course, there is the excuse that the plant does not flower, and cannot therefore be definitely named, but because of its handsome foliage or some other character is a plant of commercial value. A provisional name then becomes necessary, and if it eventually proves to be wrong, everyone ought to help to suppress it. But after all this only concerns the fringe of the matter; the chief offenders are the botanists themselves. To me there seems to be one factor more than any other that has brought about the muddle into which the naming of cultivated plants has sunk. This is the incompetence and childish vanity of those who are undertaking the business. In these days these so-called scientific men appear to have lost sight of the fact that a name is simply something by which to know a thing. Rather do they look upon it as something which shall endow them with a sort of spurious fame by their posing as the authority. What are we to think, for instance, of a man like the late Sir F. Mueller, of Melbourne, who was in the habit, when in doubt as to the genus of a new plant, of deliberately giving it several generic names, so that whatever the ultimate decision might be he would still figure as the "authority?"

Then there is another group of "botanists" whose vanity shows itself in a form quite as insufferable. These gentlemen have come to the conclusion that if a specific name has once been used for a plant, no matter how long obsolete or how erroneously applied, it must be revived. This conclusion has in their hands led to some interesting developments. The proper name for *Magnolia grandiflora*, we now learn, is *M. foetida*! And why? Well, simply because Linnæus once had a parcel of American *Magnolia* flowers sent him, and he made them all varieties of one species—*M. americana*. Probably *grandiflora* had decayed somewhat on the journey; at any rate, he called it *var. foetida*. He afterwards saw his error and gave it the suitable name it now bears. But, no! Linnæus must not be allowed even to choose the name for his own species. This magnificent fragrant-flowered evergreen must be called *foetida*—the stinking *Magnolia*. Here is another instance. The first name given to *Catalpa bignonioides* was *Bignonia Catalpa*; afterwards it was naturally seen that it could not properly be called *Bignonia*, so the present name was given. That, however, will not do for our new school of "botany"; the original specific name must be retained; so we have arrived at the euphonious appellation *Catalpa Catalpa*. A similar line of reasoning has changed *Rhus Cotinus* to *Cotinus Cotinus*, and so on.

Besides this our new "botanists" have come to the conclusion that if, somewhere in the dim past, a generic name has once been used and afterwards become obsolete (even for 150 years), it must never be used again, and if it has been used it must be forthwith altered. What a glorious opportunity is there here for the pushing young "scientific" man to pose as the authority for a plant name without ever going to the trouble of studying the plant

itself or its relationship to its kind! He has only to rummage in dusty volumes long forgotten, drop on a generic name once used differently to what it is now, and the thing is done. "The present application of the name," says he, "is inadmissible; a new generic term must be invented. I am the man to do it, and I thus arrive at the dignity of a full-blown botanical author all at once." We all know the Snowdrop tree or Silverbell tree—it is called Halesia—a simple and a pleasant name for a beautiful tree. It helps to keep alive the name of Stephen Hales, a learned and venerable doctor, and has been used in its present sense for about 160 years. But it must be changed, says the new "botanist;" the name Halesia had been used previously for something else. So the gentleman who made this precious discovery—I forget his name, and I am sure the readers of THE GARDEN are not anxious to know it—set to work to put matters straight. He renamed the Halesias "Mohria" (after a friend of his), and published the whole thing complete, himself as authority, with full synonymy, &c., &c. Unhappily, being in such a desperate hurry to

FLOWER GARDEN.

PÆONIES IN GRASS.

THE accompanying illustration shows well the suitability of the officinalis section of herbaceous Pæonies for planting in grass, or elsewhere where the plants have to share their quarters with other things. It represents a single plant, which has occupied its present position for several years and which invariably flowers well. The photograph was taken last spring, and there were about a score of flowers and buds on the plant at that time. Groups of the same Pæony might have been chosen for the purpose, as some of these were at the same time in full bloom and quite gorgeous, but it was thought best to show clearly what an individual plant will do under the circumstances. Some years ago it was decided to try and introduce some bits of colour at various points of vantage on a grassy slope, where they could be seen from a distance across the intervening water, and this double form of the old crimson



Pæonia officinalis in the grass at Livermere Park, Bury St. Edmunds. From a photograph sent by Mr. J. C. Tallack.

correct men like Ellis, or Linnaeus, or whoever was responsible for the other name, he omitted to note that "Mohria" was itself a generic term already in current use, and thus fell into the very error he was rectifying. Nevertheless, the distinguished friend did not go unhonoured, nor did the stupidity of those old botanists go uncorrected. Another try was made. Halesias were called Mohrodendron (I think that is the name), and so the whole thing once more appeared—himself as authority, synonymy, &c. For the same reasons Caryas must be called Hicorias, and so on.

There are, of course, many scientific men who protest against all this. The director of Kew recently likened such "botanists" to boys sent on an errand stopping by the way to play, for all the while there is plenty of good and useful work to do. But what is the use of protesting? They have, unhappily, means of publishing all this nonsense, and vanity is the deepest rooted of human foibles. The only thing to do is to ignore the whole thing and use our old names.

H. O'M.

Pæony was chosen, among others, and has well justified the choice. It will be seen that the plant has to fight its way with indigenous vegetation, but it was originally catered for by taking out the natural soil to a depth and diameter of about 2 feet and replacing it with some richer material, which for a year or two had such a stimulating influence on the native vegetation, that it was found necessary to clear away the latter once or twice during the year; now, however, a proper balance has been restored, with the happiest results. The plant here shown is sandwiched between a Willow growing on the pond bank on the right and a bed of Laurels on the left, while only a few yards away is a group of old Scotch Firs, so that all the soil around is fully occupied with roots of various kinds. Many such a spot might be brightened by the introduction of plants of this, the hardiest and most robust of all Pæonies, and of other things which have been proved to do well in such situations; but in the proving there will come many failures, and it is often the unexpected which happens,

for plants which are by no means robust in the cultivated garden will sometimes do well, while others which grow rank and strong when they have the field to themselves will utterly fail.

J. C. TALLACK.

LILIUM AURATUM.

MR. WILSON has had such a long and varied experience as a cultivator of Lilies, that his advice, as given on page 191, is valuable, for frequently in the case of this Lily, a bed that has yielded a fine display of bloom one season will produce but a few stems and a small number of blossoms the following year. Then on examination, even if no grubs are discovered, a great many bulbs will be found in a sorry plight, the base being often decayed, so that the scales separate from each other when touched. Various notes appear from time to time concerning this Lily, but I think by now the general opinion must be that it is, to say the least, very untrustworthy in this country, and, except in occasional cases, is not likely to become permanently established. The mortality among imported bulbs is very great, and a good deal of it is doubtless owing to a kind of fungoid disease, for which various remedies have been suggested. In many cases the flower-stems are well developed before there is any trace of this fell enemy, and frequently the earliest buds are on the point of expansion when a few days will suffice to change a promising bed of this Lily into a comparative wreck. This disease often shows itself by a brown stripe up one side of the stem, from which it was by some thought to be sunstroke, but it is now, I think, pretty generally recognised to be of fungoid origin. If the disease is generated, or the germs of it enter by means of bruised scales, one can understand why this Lily is so much more affected than the varieties of *L. speciosum*, which are also sent here from Japan, for their bulbs are altogether much firmer in texture than those of *L. auratum*. This may be readily seen if a few imported bulbs of each are laid in coconut refuse or planted in the ground, when, if examined a short time afterwards, it will in most cases be found that the bulbs of *L. auratum* are studded with small indentations, showing signs of incipient decay, while those of *L. speciosum* have scarcely a mark, and even if bruised they seem to heal up quite differently from the other. Still, *L. speciosum*, though not often attacked, is by no means proof against this disease, for occasional plants may often be seen affected just in the same way as *L. auratum*. I had a case brought under my notice in which a bed had been planted with *L. auratum*, and though promising at first, nearly the whole of them went off in the manner detailed above before flowering. In the autumn the bulbs were dug up, when most of them were found to be in a sorry plight. After this the bed was planted with imported bulbs of the dark-coloured variety of *L. speciosum* known as Melpomene, but the following season the mortality among them was nearly as great as when the site was occupied with *L. auratum*. The conditions under which this last-named Lily succeeds best have been many times detailed in THE GARDEN, but, despite all that has been said in the matter, the fact remains that failures are quite as frequent as successful establishing. In the earlier days of this Lily our Dutch neighbours made many attempts to cultivate it after the manner that proved so successful with many other Lilies, but we never received *L. auratum* in any quantity from Holland. There are, however, now such facilities for transport between Japan and this country, that we are thoroughly supplied with Japanese Lilies grown in their own native land, and they are disposed of during the winter at a very cheap rate. The majority of these will flower well the first season, but the difference between this and becoming permanently established is very great. *Lilium krameri*, which in texture and general appearance resembles a small bulb of *L. auratum*, is even more fickle than that species. Japan is by no means the only country

that sends us Lilies which seldom establish themselves, instances of which are to be found in the Neilgherry Lily (*L. neilgherrense*), *L. Washingtonianum*, *L. Humboldtii*, and others, while *L. Henryi*, which is of comparatively recent introduction, seems at home almost everywhere.

H. P.

FEBRUARY FLOWERS AT UKIAH, CALIFORNIA.

THE autumn rains in 1897 came a little later than usual, but late in October there was a generous rainfall, followed by favourable weather, and Nature at once sprang into new life. In a few days a tinge of green was perceptible by the wayside, and in a couple of weeks the hillsides, so long brown, began to show their spring colouring. Here we only await an autumn rain to begin ploughing and seeding, and every farm was at once a scene of activity. Until the first week of December the season could not have been more propitious. The showers were unusually light, but sufficient, and the temperature seldom reached the freezing point. Over much of California scarcely any rain had fallen, but it is seldom that grass or crops were more forward here. Then followed a long series of frosts, getting colder and colder until they culminated on January 11 in a snowstorm, followed by the hardest frost since the place was settled. In several places 10° above zero was recorded. Again the series of heavy frosts set in, continuing until February 5. At that date the ground was dry at 18 inches, and streams which are usually mountain torrents from November were still dry, and the heaviest rain of the season which followed barely started them. Grass looked yellow and all flower growth was backward, and evergreen trees and shrubs which had wintered many years were brown and frost-bitten. In February came a series of days too lovely to describe. The frosts ceased; the air was as soft at night as a day in June, while at midday it was uncomfortably hot. In a few days a dozen sorts of plants were in bloom. The only flowers in my garden during the long cold spell were the Hellebores, which had been open since Christmas.

Now (February 18) the Roman Hyacinths are in full flower, as is Elwes' Snowdrop. The Dutch Hyacinths are well towards bloom, and *Narcissus Ard-Righ* has some full flowers. The Roman *Narcissus* preceded them. *Erythronium citrinum* leads the Dog's-tooth Violets, as it is in full leaf with several full-blown flowers. *E. Hartwegi* will be about ten days later. *Dodecatheon Hendersoni* and *D. patulum* are in flower—the one rose-pink, the other creamy. *Fritillaria pluriflora* is late. Last year there were flowers on January 1; this year the first were about February 14. A few *Polyanthuses* have been flowering all winter, and Violets here began to flower in October. In the woods the flowers are coming on rapidly. *Manzanita* (*Arctostaphylos manzanita*) flowers very early. I have seen the lovely little bells in November in warm situations. This season it was

well into January before we had the first, but now every bush is full of them. Warm slopes are pink with the American Cowslip. *Dodecatheon Hendersoni* is our local form. In cool woods the dainty *Dentaria californica* is in full flower, while already a little yellow composite annual yellows many wet places. *Ercidium cicutarium* is one of our most valued forage plants; its pink blossoms are already common. I noticed, too, some early flowers of the red *Calandrinia Menziesi*. I noticed, too, that in the shade many of the beautiful spotted leaves of *Erythronium giganteum*, our local Dog's-tooth Violet, were to be seen, and buds were appearing. On a heavily-wooded mountain-side I was pleased to find one of my favourites, the beautiful *Synthlipsis reniformis*, in flower. The dainty white flowers scarcely rise above the leaves, which are its chief charm. They are from an underground stem, and form a low mat often a foot across. They are reniform and crenate, most delightfully coloured in green and reddish tints. I doubt if our woods hold a prettier little guest.

CARL PURDY.

UKIAH VALLEY.

THE town of Ukiah is situated in a beautiful valley of the same name in the coast range of mountains of Northern California. Twenty miles further north the small streams which near Ukiah join in forming Russian River have their sources, and along their courses and that of Russian River proper a chain of mountain-hemmed valleys lies, opening into each other by narrow vales or short gorges. Of these valleys Ukiah valley is the largest. It trends north and south in the form of an ellipse, nine miles long by a greatest width of three. All about it, sometimes abruptly in single long steep slopes, sometimes with intervening stepping-stones in the shape of table-land or foot-hills, the mountains rise to from 2000 feet to 2300 feet altitude, while, towering above the intervening ranges and from every part of the valley conspicuous, San Hedrin and Snow Mountains rise to between 5000 feet and 6000 feet, north-east and only thirty miles away. Their flanks are covered with Pines, while in winter and far into spring their tops are snow-crowned. Twenty miles further in its southward course Russian River enters a wild canyon, and after tearing and tossing for a rough course of eight miles, enters a rich valley, which, widening to the south, stretches unbroken to San Francisco Bay, a stretch of over fifty miles of some of the most beautiful country in California. The river turns, and, leaving the valley, breaks through a low range densely forested with Redwood, and scarcely a hundred miles from its sources flows into the Pacific Ocean—a range which, lying only a few miles west of Ukiah, is practically the limit of the Redwood forest. On its west side the Redwoods fill the canyons and extend far up their sides, but on our side they are few and scattered, small groves or lines of trees along the course of the mountain streams which flow into the Russian River. The river sharply cuts off the Redwood region, whether from climatic or soil conditions I cannot say, but while Redwoods can be found on its western bank, not a tree is to be found east of it in all of our region.

Ukiah valley and all the adjacent mountains are or were well wooded (most of the valley and easy slopes are now cleared for cultivation),

and the woodland is of the most diversified character. On the valley floor the White Oak (*Quercus lobata*) is frequent. It is a deciduous Oak of great size, with a furrowed, whitish trunk and widely branching habit. Many are weeping trees, and all are heavily draped with long grey Moss. A series of measurements which I undertook a year ago showed that very many of these great Oaks are from 100 feet to 150 feet high, with as great a spread, that 6 feet is an ordinary clean diameter at 5 feet from the ground, while one tree measured 23 feet 9 inches at 5 feet from the ground. These great spreading Oaks are still plentiful in all parts of the valley, and many of the fields have a park-like appearance. Along the river and the larger lateral streams was a broad band of moisture-loving trees, such as Oak, Ash, Californian Laurel, Box Elder, Elder, a variety of Willows, some of them large trees, and the Western Poplar, here called Cottonwood. The table-lands and lower slopes have their characteristic trees. The White Oak, there a small tree, is rarer, but the Black Oak (*Quercus californica*), the Post or Blue Oak (*Q. Douglasiana*), the Black Live Oak (*Q. agrifolia*) form the bulk of the growth, with occasional Madroño (*Arbutus Menziesi*). The Manzanita (*Arctostaphylos manzanita*), here a large shrub or small round-headed tree, is ever present, now scattering, now in extensive patches so thick that one can little more than crawl under. Both it and the Madroño are evergreens, and shed their bark as well as their leaves each summer after the new leaves have fully developed. The Douglas Spruce is not uncommon about the valley's edge, and is found throughout the mountains in small groups, or at times forming the bulk of the timber. About the valley, too, but less frequently, a form of the Yellow Pine (*Pinus ponderosa*) is found in dry, gravelly lands. These, then, are the trees which form the bulk of the forest in and around the edge of the valley. There are many other trees and shrubs less frequently met or more localised in their habitat.

In all of the canyons which open into our valley on the west side Redwoods are common, and with them the Tan-bark Oak (*Q. densiflora*), a beautiful evergreen with entire elliptical leaves, which is the principal—one could almost say the only—Oak which accompanies the Redwood in the main Redwood forest. On the slopes west of our valley it grows in large groves.

Quercus chrysolepis, the true Californian Live Oak, which I distinguish from the Black Live Oak by the name of Canyon Live Oak, is frequent in the deeper and rockier canyons west of our valley as a fine spreading tree, and on the high slopes as a shrub, but it reaches its best development with us in the canyons opening into the east side of the valley, where it develops into one of our grandest trees. *Quercus Wislizeni* is rare. It is a very beautiful tree with large, shining, sinuate leaves and a black trunk. It might readily be mistaken for our Black Oak (*Q. californica*) but for a portion of its leaves persisting, and giving it a thinny evergreen habit. Comparatively little of the higher slopes of our mountains is bare or openly wooded. Over two-thirds are covered either with a dense growth of small trees and large shrubs, which we call chaparral, or by a dense smooth growth, much like a Heath when viewed from a distance, and composed almost altogether of one evergreen shrub of the Rose family, *Adenostoma fasciculatum* (Chamiso). This covers millions on millions of acres of our higher mountains in a dense covering from 4 feet to 12 feet high, and so dense as to be all

but impenetrable. Every year fires sweep unopposed over vast tracts of it, but it quickly grows again, forming a shelter for the deer, and protecting many beautiful little vales and woods.

The coast range here is a broad band of irregular ranges, principally of shale, feldspar, or sandstone, but with many sections of volcanic origin or mineral-bearing. From the ocean to the Sacramento valley it is about seventy miles wide at this point, a perfect jumble of irregular ranges, mostly running north and south, but often at angles with the general trids. Such valleys as our own frequently occur. An understanding of the flora of any region is inseparable from a knowledge of the climate. In California, generalisations as to either climate, rainfall, or productions are valueless. One must study each locality separately. The high range to the westward of Ukiah keeps off to a large measure the winds and fog of the Pacific Ocean, only twenty miles distant in air line. Sufficient fog finds its way over the mountains or follows up the river to materially affect the humidity, and light coast winds through the summer moderate the heat to some degree. Still, this region is much hotter in the summer and colder in the winter than either towards the coast or in the Russian River valley, only a little south, where the influence of the bay and ocean is felt more strongly. Thus with a minimum temperature of 10° or 12° above zero at Ukiah this unusually cold winter, Cloverdale, a little town only thirty miles south of here on the Russian River and not over 300 feet lower, is at this time holding a Citrus fair, where tons of beautiful Oranges grown in the open air are on exhibit, while on the coast west of us Fuchsias clamber to the second-storey windows, Geraniums are used for screens, and Callas flower profusely. On the other hand, some of the adjacent valleys are too cold for the Grape, which flourishes here. These sudden climatic changes are due to the trend of mountains, proximity to ocean, or snowy mountains, or to air currents. California abounds in such paradoxes in climate, and soils are nearly as variable. The flora of one canyon may be very different from that of the next, or a hillside may have plants unknown elsewhere in the region.

The flora of our region is exceedingly varied, as might be expected from such a variety of conditions. In my future letters I hope to introduce the English reader to some of the canyons and vales, valleys, and seaside spots of Northern California. CARL PURDY.

Ukiah, Cal., February 18.

FOLIAGE OF HARDY PLANTS.

PLANTS in beds and borders are now growing rapidly, although the spell of very keen wind with slight frost experienced during the past week checked their progress for a time. The majority are as yet without flower, but there are at once beauty and great variety in the many different types of foliage. This early foliage beauty in hardy plants is not, I think, sufficiently recognised. That it exists in a very marked form is apparent to all who make a careful inspection of the same in early spring. From the silver-grey of Carnations, Pinks, Campions, Veronicas, and things of similar hue, the tints run up through every conceivable shade of green to almost a purple, the latter to be found in some of the Tradescants, Starworts and Aquilegias, whilst Lobelias and Pæonies are respectively deeper or brighter and more striking. It comes, therefore, in many cases that beds planted with hardy things are doubly interesting from the fact that the contrast of foliage in early spring, so soon as it is well on the move, is as pleasing in

its way as the bright and effective flowers of summer and autumn. The suggestion made last autumn as to the fine display likely to be produced by the judicious grouping of Phloxes is a case in point, so far as the spring foliage contrasts are concerned. Clumps respectively of early and late-flowering Phloxes, mainly good white varieties, were planted in a large bed a little over a yard apart, and the intervening spaces filled in with Phlox setacea. The majority of the white varieties both in the decussata and suffruticosa sections have very pale foliage, and this, now some 6 inches high, shows to great advantage against the purple tips of the growth of the alpine form, to be intensified later when the latter is a sheet of pink. I have also clumps of white Phlox on a carpet of Aubrietia, but this is a contrast of flower and foliage rather than between two types and shades of foliage. In this same contrast of flower and foliage nothing is more striking at this season than bold groups of Tenby Daffodils with the bright foliage of Pæonies showing at intervals among them, and such an association is the more to be recommended because the two species have in common a liking for a holding, or at least a deep, fairly moist soil, and are seen to the best advantage under such conditions. Herbaceous Lobelias are not often in the wrong place. They are just now making their appearance through the ground and act as a relief to masses of Pinks or Tufted Pansies, or clumps of Pyrethrum or Spiræa filipendula with their delicate Fern-like foliage. Hemerocallis in variety are very fine at the present time; in fact, from a purely fine-foliage standpoint, hardly anything gives such a pure delicate shade or has attained thus early in the season to such dimensions. A much dwarfer plant, but at this season somewhat similar in shade, is the old Sedum spectabile. This shows to advantage among masses of those varieties of Tufted Pansy whose foliage with cold assumes a bronzy tinge. The list of things with foliage more or less varied in character and more or less beautiful might be continued to considerable length. Enough, however, has been said to show the opportunities in this direction in the hands of a careful planter. It must, however, be added that autumn planting is an essential feature towards securing the healthy, vigorous foliage so effective both in itself and in contrast. I was induced on one occasion to defer a certain amount of planting until after the new year; a spell of frost came on that prevented anything of the kind until the end of February, a very dry summer followed, and the display that season was not of a character to lead to a second trial of spring planting. E. B.

Sanvitalia procumbens is one of the finest continuous-blooming annuals suitable for edging, but one seldom sees it used for that purpose now-a-days. The double form is the best, the neatly-built yellow flowers with a black eye being produced in great profusion from the end of June up to November. I am surprised that the value of this little neat-habited dwarf annual has not been more fully recognised by those who have much bedding-out to do. It might be made to take the place of some tender things, and a stock can easily and inexpensively be raised. I have grown this annual from seeds sown early in April in the open ground, but although in a favourable spring the seeds germinate fairly well, they are apt to fail in a very dry time. It is better to sow in a frame either in pans or broadcast, transplanting when the seedlings have half a dozen leaves. Plenty of room for extension should be allowed, as, although this annual does not run much more than 6 inches high, it grows with much freedom, soon covering the soil if planted from 7 inches to 1 foot apart. This *Sanvitalia* is one of the most weatherproof plants I know. It remains in a fresh, bright condition through periods of inclement weather, the miniature button-like flowers being but little affected by heavy rains, and they continue to open freely in a time of extreme heat and drought. Early autumn frosts do not put a

stop to flower production, and I have had this little annual in good condition in October, when frosts and heavy rains had destroyed the beauty of most things. Plenty of light and air this *Sanvitalia* must have. In the matter of soil it is not in any way fastidious.—J. C. B.

NOTES AND QUESTIONS.

Eryngium alpinum album.—I came across a white form of *Eryngium alpinum* in Bosnia last autumn. Is this in cultivation?—H. C. B.

C. landrinias appear able to bear any amount of dry heat without flinching. They are hardy enough to stand the winter if sown in the autumn, and if sown in the open ground about the middle of March, they will be effective through the summer months.—B.

Primula Boule de Neige.—This is to be met with in some parts of the Continent, and it can be best described as a little later flowering form of *P. nivalis*, but with mealy foliage. It would be interesting to know how this originated. In its time of flowering, though a little later, in the shape and colour of the blossoms and manner of producing them, it is a counterpart of the snowy *Primrose* of the Alps. Has anyone succeeded in obtaining seed from *P. nivalis*?—R. D.

Leucojum æstivum.—I must thank "E. J." and Mr. S. Arnott for their kindly and practical suggestions (p. 164) on the non-flowering of the above in my garden. I have no doubt but that they are right in their contention that the damp, heavy soil is a sufficient reason to account for this *Leucojum* refusing to flower. I notice to-day that one bloom-spike has appeared on one of the bulbs planted in the driest position I can find, but there seem to be no signs of more to follow.—S. W. P.

Iris stylosa.—I notice on page 182 a few lines on the above *Iris*, in which the writer draws attention to the fact that it commenced to bloom in December and continued until the end of February. Here it begins its flowering season earlier. I find in my notebook, under the date of October 18, "first bloom of *Iris stylosa*." From that date until February 18 it bloomed continuously. In my damp garden the only place I can grow it successfully is on a very steep bank, almost wall of earth, well mixed with road-grit. Here, well watered during the summer and supplied with liquid manure occasionally, it does well.—S. W. P.

Cyclamen cilicium.—On p. 211 this name is spelt *cilicium*. There ought to be only two c's in the name, not three. It was wrongly spelt in the Kew Hand-list, but the error is now recognised. It is rightly spelt in "Index Kewensis." The original authority for the name is E. Boissier, who is seldom wrong in the spelling of his classical names. *C. cilicium* will be found on reference to his "Flora Orientalis." The Latin adjective for Cilician is always *cilicius*, never *cilicium*.—C. W. Dob.

Anemone fulgens.—For years I have grown this variety on a south border, never having the least trouble with it. The tubers were allowed to remain in the ground. The soil is a thin gravelly loam with a little chalk, and year after year the plants produce the most brilliantly coloured blossoms.—R. NISBET, Tudor Cottage, Market Drayton.

—The correspondence regarding the flowering of *Anemone fulgens* reminds me of my experience of it. I planted some roots in the sunniest, driest spot in the garden, where the roots were well baked in summer. They flowered one year and afterwards grew beautifully less each year. Quite disgusted, I did not object when a labourer forked over the border and seemingly finished the disaster. Next year at the opposite side of garden walk amongst Gooseberry bushes appeared a strong tuft of *Anemone* leaves. The plant flowered, and since then each year has shown the tuft creeping outwards and more and more flowers. The soil is the same as in the first situation, but the border slopes down hill to the north, but only 20 feet from a sheltering wall. The plants also have the occasional shade from Gooseberry bushes. Warned by my experience, I planted a rich velvety magenta *Anemone*, which has the leaf and shape of *A. fulgens*, and which I got in an old garden, close to the clump of *fulgens*, and it, too, is increasing and flowering. I do not find *Anemones* do well in this garden, so the success of the *fulgens* is the more to be

wondered at. I have tried it since in several situations with the worst results.—S. H., *Cork*.

Erigeron speciosus.—Generally speaking, this beautiful plant will, as indicated by "E. J.," be found absolutely hardy in almost every garden in the United Kingdom. Although one finds this to be the case, it is not unusual to hear some say they have been unable to grow it, and "E. J." has very clearly pointed out some probable causes for these failures. I have found that a good many of these arise from imperfectly established plants, and others have arisen from some neglect in summer watering. I have grown it here for a number of years, and have one plant which has never been removed nor disturbed for five or six years. It is in a dry place, and I find it necessary to give it a good soaking of water in protracted dry weather, when it is apt to show signs of distress if neglected. Were this left undone, I fear it would dwindle away and eventually succumb. One defect it has is its need of support. The high winds which often prevail here would often blow it about and break the somewhat tender stems were it not well supported with stake and raffia or twine. This takes from its beauty, but cannot be avoided.—S. ARNOTT, *Carsehorn, by Dumfries, N.B.*

KITCHEN GARDEN.

BORECOLES FAILING.

I HAVE in previous numbers of THE GARDEN alluded to the disease in Kales, and hoped some readers would have given their ideas as to causes of the same. So far I do not remember to have observed any note on the subject, and as it affects the supply at this season it may be well to vary the culture, and by so doing escape disease. Rich land fosters disease, and I found it was much worse after the plants had gone down into the manure. I do not advise rich or recently manured land for Kales, or indeed any vegetable which is required to stand the winter. I saw a large quarter much attacked that was freely manured, but had not grown Kales or, in fact, any green crop for a quarter of a century. My plants in rich land were the worst. Some plants that followed early Potatoes were badly diseased. It may be that the soil had little to do with the disease. It may have been in the plants previously and only developed when given the better soil. The kinds that are affected are the late kinds, these, of course, at this season being most valuable. I fear it is not altogether a matter of soil, but of seed, as the seed may have been procured from an unhealthy stock. My reason for this assertion is that having seeded a new Kale, some came up and a few were allowed to stand; whereas other plants from the same seed planted close to others badly infested were much diseased. Those plants left alone were free. In my opinion it would not be safe to use such stocks for seed. I have been told that by using various chemicals freely when the disease first appears it is cured. It was not so in my case by any means, and most of the remedies were given a thorough trial as soon as the plants were attacked. My remedy is a simple one, and that is to plant such varieties as far apart as possible and in land that has not been given much food; by having the plants isolated there is less fear of others being attacked. I intend to grow these plants in land just cleared of root crops not manured in any way, planting earlier than usual. Many may think late plants would have a better chance to escape. I will try both. Unfortunately, late plants are so small that they do not give enough cutting material. I am dressing my land freely with wood ashes and burnt refuse, hoping by so doing to escape. I am sure if we could plant in more exposed places, such as open fields, we should often get better results, as the plants are too much coddled. G. W.

Autumn-sown Cauliflowers.—"J. C. T." (p. 122) notes the value of autumn-sown Cauli-

flowers for early crops in the spring. After many years' trial I can bear testimony to his remarks, as much better results are secured by autumn-sown plants than when raised in heat in the early part of the year. "J. C. T." does not name varieties, and this I regret. Has he found Early London bolt badly this season? My plants of this variety have, and I have lost a large portion of my stock. Of course, in a measure the weather is answerable, owing to the mild season. A later sowing is quite free from the evil referred to. These plants have been wintered in the open, the only protection being boards. My best early Cauliflowers to sow to stand the winter for May cutting are Dwarf Early Mammoth and Walcheren. I admit a good stock of Early London is of great value if sown at the right time, but with me it invariably bolts.—S. M.

Very early Potatoes.—As I need very early Potatoes, any variety that is in advance of others is welcomed, and Mr. Nisbet's note (p. 202) advising Sharpe's Victor as the earliest was read by me with much interest, at the same time with a certain amount of surprise, when he stated he had frequently dug it from under south walls the second week in April. There are many who will envy Mr. Nisbet's sheltered locality if he can dig thus early. I am aware the variety in question is very early, but I have never before seen it stated to be fit the second week in April. Of course it may not be done every year. Seasons vary, but it is such an early date that it will make many growers open their eyes as to the possibilities of Sharpe's Victor in future. I find Sharpe's, once it is injured by frost, rarely makes headway. Having a small top, it is soon injured, and the result is a lot of very small tubers. Mr. Nisbet says nothing about shelter for the early lot; doubtless he uses some means of protection other than the wall referred to. I would like to know his mode of culture.—S. M.

NOTES AND QUESTIONS.

Globe Artichokes.—These have had a very favourable winter, and a lot of plants quite unprotected has come through safely. Where they have been protected by litter or Bracken, it is not wise to remove this, as such plants are naturally rather more tender than others that have stood without any. But it may be opened a little, especially if at all wet, a sodden mass of straw or anything else about the plants being very injurious.

Garden Thyme.—In many gardens herbs are not cared for as they ought to be, and Thyme is often not to be had. This ought not to be, seeing how easy it is to have a good supply. I am aware severe winters will destroy this, but this does not happen when a young stock is raised from seed every year. I remember a friend pointing out this to me more than twenty years ago as I was looking over a large garden in Worcestershire. He told me he made it a rule to sow every year, destroying the plants after the second or third year. Since then I have always sown some seed, pricking out the seedlings in May, and now have an abundant supply.—DORSET.

Variogated Kales.—At the meeting of the Royal Horticultural Society on the 8th a group of highly coloured variegated Scotch Kales was staged by Messrs. Veitch, Chelsea. Though such Kales are pretty, they are not the most profitable by any means, as a good type of curled Scotch is superior when cooked. The plants in question were well coloured, there being many forms, but nearly all were well advanced in growth. The true old Scotch form is much hardier. I do not see much value in variegated vegetables of any kind; they usually lack vigour and are the earliest to run.—S. M.

Early dwarf unstaked Peas.—At p. 165 "H. C. P." advises stakes for Peas, both on the score of extra yield and for tidiness. In this locality the majority of growers will agree with Mr. Iggulden, for they are every year growing more of the dwarf kinds, for the simple reason that stakes cost as much as the Peas could be

bought for. I live in the outskirts of a large town where gardens, as a rule, are small, the land very dear, and Pea sticks exceptionally so, at least compared with their value in rural districts. Now, the gardens being small, the owners are anxious to utilise them to the fullest extent, and this they do by growing such kinds of Peas as American and English Wonder, William Hurst, and their gardens are pictures of neatness, and certainly many get a maximum of produce from a minimum of land. I have the extra assurance of the popularity of these dwarf Peas in the fact that every year I sell a larger quantity of them, while the demand for varieties that must have stakes or supports of some kind grows correspondingly less.—JAMES GROOM, *Gosport*.

Manure—fresh or decayed.—Many people would object to fresh horse or cow manure for garden crops, simply because they have always understood that good rotten manure was the correct thing. The question is how far it is desirable to carry this rotting process above ground. I have lately been talking to one of our largest Potato growers as to how far he carries the rotting process out, and his verdict is decidedly against the turning, sweating, and sweetening process. Every week he carts all the manure he can get on to the land and ploughs it in. How often do we find the liquid from manure heaps running to waste or polluting some neighbouring stream, when it would be doing far more good if placed on the land at once. Of course there is a wide difference in the nature of soils, and in very light, naturally drained soil the manurial elements get washed down into the sub-soil and out of reach of the crop if the manure is dug into the land long before the crop is put in. In these cases I find it is much the best plan to put the manure on the land it is intended for in medium-sized heaps, covering it with a good layer of soil, spreading it on the land and digging it in just before sowing or planting the crop.—J. G., *Gosport*.

GARDEN FLORA.

PLATE 1162.

TEA ROSE Mlle. YVONNE GRAVIER.

(WITH A COLOURED PLATE.*)

AMONG the many Tea Roses we have tried in the open air unprotected at all seasons there have been many beautiful kinds distinguished by exquisite flowers, fine in form and colour, but among them all we think there has never been one so delicate in its refined colour as Mlle. Yvonne Gravier, which, in addition to its great beauty, is also, as far as we have tried it, a good grower, flowering abundantly late in the year. We may add, however, that the colour of the flower is not easy to describe, and we hope our readers will get their first ideas of it from the flower itself. It was raised by Mons. Bernaix, of Lyons, who writes to us as follows about it:—

Mlle. Yvonne Gravier was sent out in the month of November, 1894. I cannot say exactly from which variety it had its origin. Its blooming is extraordinary, and does not end until the frost comes. The flower is large, the long bud of beautiful form, and its colour—a rich creamy yellow—is everything one can desire. The back of the petals is a fine rose, a new tint which it is difficult to describe, while the centre of the flower at the base of the petals is shaded with a pretty canary yellow. This Rose was named after the daughter of a former chief secretary of the Prefect of the Rhône.

* Drawn for THE GARDEN by H. G. MOON at Gravetye Manor, Sussex. Lithographed and printed by J. L. Goffart.



THE WEEK'S WORK.

KITCHEN GARDEN.

GENERAL WORK.—The laying of Box edgings, tiles, or other materials should now be finished, and any new gravel or drains required should be made good. A much nicer appearance will result if the walks are neat and clean, and although it may not be possible to give new gravel in all cases, much may be done by turning it over and getting a clean surface. Of late years I have substituted tiles for Box edgings with great gain, as one dressing of weed-killer in the spring keeps the walks bright and clean for months. In gardens where there is much ironwork in the shape of fences, tree supports, or otherwise, it is well to give the iron a coating of black varnish. This is necessary, as it soon rusts with exposure. All stakes for trees should be replaced where needed. The necessary number of Pea sticks should be prepared and placed in bundles for use. All arrears of digging should be completed; quarters that are being cleared of their crops should be dug and food given if necessary, as by early digging the land is sweetened and the soil pulverised for the next crop.

POTATO PLANTING.—This will now claim immediate attention in the open. Of course the weather will determine the proper moment to do this work, and, I may add, soil and position also. My remarks concern the main crop, and in late districts the earliest crop. A warm border in all cases is desirable for the first lot, and for this purpose some of the Ashleaf or well-known early kinds will be selected. A very early variety I grew last year was Ringleader. It proved earlier than Victor and gave fewer small tubers. English Beauty was equally good, though a few days later. This latter is well adapted for heavy soils. It has more top than Ringleader. The various kinds of Ashleaf varieties are so well known that it is unnecessary to describe them. Many advise sprouting the earliest tubers under glass for early supplies. I do not for planting in the open, as there is a great check after planting if the weather is cold. It must not be inferred I am averse to sets having sprouts. I advise them if sturdy and produced in a cool place. In heavy land much may be done to promote early growth by covering the sets at planting with any lighter material such as wood ashes, burnt garden refuse, spent manure, and old soil from borders or frames; in fact, anything which lightens and encourages roots freely. I have found it a good plan in exposed places to make deeper drills for the first lot, as this allows of drawing more earth up to the stem. As regards planting in light soils, one may use a large dibber, as more work may be done, but it is well to use care in placing the sets, the eyes being upward. The seed should rest on the soil, not, as it were, suspended. It is not well to plant as advised in heavy clay land as there is danger of the Potato sets being water-logged. The soil does not close round the sets, and the latter fail to root out freely. In such land I have found it a good plan to dig and plant at the same time, as then one may with advantage give the rows a dressing of light manure or an improved fertiliser. With a medium soil the old system of forking the surface of land prepared in the early autumn is a good one, as when this is done it checks weed growth and the seeds are placed in the best position possible, and at the right depth. Strong growers such as Triumph, Magnum Bonum, and Syon House should have at least a yard between the rows. The last-named makes a strong top growth, but is a very heavy cropper and of good quality, keeping late. For this, 15 inches to 18 inches apart in the row in good land is none too much. The best midseason Potato I have grown is Windsor Castle. This is good in all soils, and may be used in July, at the same time being good at Christmas. This will do well at 2 feet apart between the rows. Of course for first earlies 2 feet apart is ample, the sets 9 inches apart in the row. I prefer whole seed to that

cut. If it is necessary to cut the sets do so some time in advance of planting to dry the cut portion thoroughly. Many make a mistake in planting too small seed, it is best to have fair sized seed as small tubers produce a weak crop. There is no gain in cutting the seed, so far as my experience goes, unless very large, as one may give the sets more space. Avoid rank manures, these causing scabby and rough tubers.

POTATOES IN FRAMES.—This is a critical time with this vegetable in frames, as the plants will fail to produce tubers freely if checked in any way. Moisture will now be needed in greater quantities if there is a good command of heat, and with heat there must be ample ventilation, or a weak top-growth will follow. I do not advise much top-heat, as the best results are obtained by a more natural growth. Many crops of forced Potatoes are poor in comparison to the labour involved, on account of too much top-heat at the start. With biting east winds it will be difficult to give much air. I do not advise moulding up plants at all advanced in growth, as the introduction of fresh soil gives a check, and, with a fair depth at the start, there will be sufficient for early crops. Plants in frames without heat will not require much moisture. At times other plants, such as Radishes, are sown as a first crop. These should not be left to interfere with the growth of the Potatoes. Potatoes in frames will now benefit by supplies of liquid manure, but it is well to give the liquid at the same temperature as the soil, or warmer.

MINT is used largely in most places, and it is not well to allow the roots to remain too long in one place, as much better results follow annual planting. I need a large quantity for forcing, and plants are not left more than two years. Splendid material may be secured in one if the soil is good and not too heavy. When the new growths are 6 inches high in the spring, they are pulled off from the old bed with a small portion of root. These are planted in prepared beds in rows 12 inches apart, 6 inches between the plants, and in light soil trodden well. By autumn the plants are good for forcing or growing on. By growing thus, beds can be kept much cleaner, and the culture is so simple, a great number may be planted in a few hours in prepared land. The old plan of planting portions of root growth in a tangled mass cannot be advised by anyone who grows in quantity, and even where small supplies are needed it is well to have strong shoots. The best kind is the broad-leaved variety. It is shorter and more sturdy.

VARIOUS HERBS.—In places where Basil is needed early, it is well to sow the sweet variety in boxes for an early supply, and another lot also in boxes for planting out. This sown now in a cold frame will give a supply in May, and by sowing six weeks hence in the open it will give material for winter use in a dry state. Bush Basil is hardier, but for an early supply may be treated as advised above. Tarragon is liked for a variety of purposes, and it is well to grow it in quantity. It forces readily; if lifted or given a little dry litter at night much earlier growths will be secured. Now is a good time to divide roots and make new beds. It can be divided readily, but there are losses if force is used or the plants given poor soil. I have treated it as advised for Mint with some success when stock was short, but it needs more attention afterwards in the way of shade and moisture. Sage will increase freely from side shoots if taken off with a heel to each plant and dibbled out in rows, well firming the plants. It is an easier way, to get bushy plants, to sow a box of seed, and when the seedlings are large enough, plant them out. The same remarks are applicable to Lavender; this strikes readily from cuttings at this season. Thyme is often in great demand, and at times it dies off badly after a severe winter if plants are old or have been in the same place a long time. Now is a good time to divide and sow also, if needed. In any case it is well to get young plants occasionally and destroy old beds. In re-planting it is well to plant deeply, as the new

roots push out above the old ones, and also to make the plants firm. When seeds of any kind are sown outside, the position should be an open one and early thinning practised. Parsley may now be sown in quantity for later supplies; this may form an edging to quarters or a finish to fruit-tree borders. Wherever sown, if at all thick it must be thinned early and severely. I sow in beds, as then the land can be prepared to guard against pests, which ruin the plants.

S. M.

FRUIT HOUSES.

PEACHES AND NECTARINES ON OPEN WALLS.—Since penning the previous notes on this subject (see p. 193, March 5) the work of tying with me has been completed. The trees promise well, never better in fact, the wood and blossom-buds both betokening a hardy and sturdy character which one likes to see. Scarcely a blossom is yet open (March 14), and now that the nets are all fixed there will still be a slight check afforded them. By present appearances the trees are not likely to be in full flower before the end of the month. From that time onwards there is not much to fear from frost or cold winds, as the nets will be left on through April and well into May until there is sufficient foliage upon the trees to protect the young embryo fruits.

PLUMS AND OTHER FRUIT TREES.—Where there is any fear of injury to the young blossom-buds from birds at this stage, a keen watch should be kept and means be taken to scare them away. It will pay to give attention to this just for a week or two; it will not be much longer than that before, for the present, any damage in this direction will be past. Sparrows can never be relied upon as to what they will attack next. Last spring, for the first time with me, they completely destroyed all the advancing flower trusses of *Wistaria sinensis*. Sometimes they will attack most mercilessly the Carnations. With such experiences, it behoves one to be on the watch as to their intentions upon Plums and the like. If any Plums on walls are advancing somewhat fast towards the flowering stage, it will be just as well to be in readiness with some protecting material in the manner previously advised should the weather prove to be cold or stormy. Methinks oftentimes the winds of the spring do quite as much harm as spring frosts. It is surprising what an amount of protection is given by one or two thicknesses of netting at comparatively no cost other than the time expended in putting it on.

PEACHES AND NECTARINES UNDER GLASS.—The first early crop, unless under peculiarly favourable conditions, will not have required much thinning of the fruit thus far. At least this is my experience, for the loss of flower-buds is always doing a certain amount of thinning at too early a period. Now, however, it will be quite safe to thin first early kinds, as Cardinal, Early Rivers, and Lord Napier of Nectarines, and such as Alexander, Early Beatrice, and Stirling Castle of Peaches where these were started about December 1. (In case any surprise should be expressed at the mention of Stirling Castle, it is as well to add that it is not a first early, but, nevertheless, it is a most reliable variety, and that is a great boon.) A margin had better be left for later thinning in the case of any failure occurring during the final stages of the stoning period. All things considered, an annual crop, on the average, of one fruit to the square foot is a good time-honoured piece of advice. With judicious feeding in the form of phosphates, it is safe to exceed the above limitation, but only when the trees are in good vigour. Should there be during the next few weeks any indication of shrivelling in a fruit here and there upon a well-established tree, it may be taken as pointing to a deficiency of this essential element in fruit-tree culture, but above all in stone fruits. It should not happen, however, if the advice given in January has been followed out. There may, however, be time now to save a crop from any serious harm by an ap-

plication as previously advised. At this stage I prefer an incentive which will act rather more quickly, such, for instance, as one which contains in it a small quantity of blood manure. Second early houses may also be thinned now of a part of their crop, which, presumably, will be a heavier one, and therefore a greater strain on the trees. See that these are all well watered, also those trees which were lifted during or after the fall of the leaf. These latter will oftentimes show signs of distress when the first few days of sunny weather occur; then see that they have light syringings more frequently, otherwise the fruits, if the trees are in a bearing condition, will receive a check; and should there appear to be any cessation of growth, with some yellow leaves, then give closer attention still, and shade if it be needful for a few days.

SUCCESSORAL HOUSES, &c.—There will be plenty of work in these—routine work, it is true, but none the less imperative. These houses will no doubt contain some of the high-class Nectarines, as Pine apple, Stanwick Elruge and Victoria, and such Peaches as Dymond, Grosse Mignonne and Bellegarde, all of which are usually fine setters and good droppers. These will probably set very heavy crops, so much so as to need thinning at quite an early stage. It is quite safe to do this, the best placed and most promising fruit of course being left. A constant watch is needed against any attack of green-fly, which in a few days will cripple many a shoot, and increase, too, with marvellous rapidity. The greatest boon ever brought out for this enemy in Peaches and Nectarines is the XL All vaporising compound, which may even be used whilst the trees are in flower. Trees now in flower and which may be termed late only need to have the frost barely warded off, say 36° to 40° for the night temperature, being ventilated freely by day. Those who have to deal with houses that are not heated should close early and, if need be, protect with canvas coverings, or in cases of emergency keep the temperature slightly higher at night by burning a few candles (composite). In these late houses there is scarcely any need for artificial fertilisation; a tap here and there or a good shaking of the trellis will be sufficient for the purpose. In all houses look to the removal of surplus shoots which are not setting or carrying any fruits, that is if they can be spared to make room for young wood.

STRAWBERRIES IN POTS.—The date on which this article appears (March 19) is a very good time for having the first fruits ripe and fit for table. It may, as I have said before, be accomplished earlier; in fact, I have picked this year as early as February 19, but it means a great risk and oftentimes a sacrifice of plants too. From now onwards it is tolerably easy with the plants and room at disposal to keep up a good succession of ripe fruits. I am more impressed than ever with the good qualities of Royal Sovereign; it is with me a splendid setter, with a good sturdy spike carried well above the foliage. So far I have not seen any signs of mildew, thanks to the use of sulphur as advised. In order to push forward the earliest plants, they should be selected from the main stock, have the poorest and latest fruits thinned out, so as to leave from eight to a dozen for each plant to ripen, and then be taken to the warmest house at command. Until the colouring has fairly commenced water freely and apply stimulants, but after that gradually withhold the water so as to assist the flavour. When gathering has to be done let it be a first early job in the morning, whether the fruits have to be packed for dispatch or not. The question of maintaining a regular succession of ripe fruit often taxes the best of us, and about now perhaps it may require a degree of ingenuity to find room enough for the latest batches. One way which now is a great assistance is to start them in frames or pits, not necessarily with any artificial heat, for the sun's rays will now assist greatly towards the object in view. All that is needed is to clean them and otherwise do the same work as advised previously, and then

place them in their quarters—near the glass, of course. By closing early and covering at night, they may be brought forward in this way until room can be found for them in the houses. Do not allow any frame to remain unoccupied when there are Strawberries in pots waiting to be started.

HORTUS.

ORCHARD AND FRUIT GARDEN.

RENOVATING OLD VINES.

THE Vine is certainly long-lived, but its vitality, even when grown under what would appear the most adverse conditions, is probably only equalled by that of the common Ivy. It cannot always be said, however, that Vines are equally prolific, and one not unfrequently meets with cases where they are retained long after they have ceased to yield anything like presentable Grapes. This, probably, is the result of mismanagement in the past. On the other hand, there are exceptions—and notable ones—where time has had little influence in reducing either their vigour or fertility, and the fruit they produce would compare favourably with much of that obtained from young canes. An instance of this is furnished both at Hampton Court and Cumberland Lodge. Instead of these Vines showing signs of decay, they were never more healthy or fruited more freely than during the past few years, owing to the skilful treatment and patient care bestowed on the roots, or, I ought to say, by inducing a mass of new ones to form at the base of the main stem. There are other aged Vines to be met with equally as interesting and fruitful, though less famous than the above, and which are likely to continue yielding good crops under the same treatment. Growing in the gardens at Lavant House, Chichester, is a Black Hamburgh, which has been planted over 100 years. I have seen the fruit repeatedly, and, while admiring its good quality, felt anxious to see the Vine which produced it. A curious feature about this Vine is that it was originally planted at the foot of a south wall, the cane afterwards being layered across a border about 15 feet wide, and trained to an open trellis by the side of a path. The fruit failing to ripen properly, a lean-to viney was built over it in a way that the main stem came through the front wall at the east corner. This appears to have answered, as a few years later a much longer house was added for extending growth. The main stem was carried along at the bottom of the roof, with side-rods taken up each rafter. It must have remained in this condition for many years until it became so exhausted that the crop obtained was light and poor in quality. The owner naturally wished to retain such an interesting feature in the garden, so steps were taken to renovate it if possible. The dividing wall was cut away and as much of the main cane as possible was lowered and pegged into a narrow border prepared for it between the front wall and hot-water pipes. Incisions were made in the bark at equal distances, which almost immediately emitted a mass of new roots, which were encouraged by copious watering and mulchings of rich material. The small amount of compost afforded, the border being not more than 3 feet wide and 1 foot deep, was completely filled with roots the first season, which had a marked improvement on the size and texture of the leaves, and was followed the next with finer bunches. This work was undertaken about seven years ago, and the Vine has continued to increase in strength. The bunches last season would average 1 lb. each, and the berries were of the

largest size and jet black. The narrow border has not been extended, but each year a portion near the pipes is cleared, and the space refilled with rich loam and manure. While the fruit is swelling, liquid manure is used in large quantities, and, as the gardener remarked, it was like pouring on to matting, so thick are the roots. On complimenting him on his handiwork, and especially on the fine finish the berries had, he immediately attributed this in a great measure to the shade afforded by the roof when the crop was colouring towards the end of June, which I could quite believe, as the panes of glass used are 3 inches by 2 inches, and as these for the most part overlap half an inch, a grateful shade was afforded against the fierce rays of the sun at that season. Here is a proof of what may be accomplished with old and what would appear worn-out Vines when taken in hand properly, and may serve to convince young gardeners that it is not always wise to condemn them and plant young ones until they are sure such a step would meet with the approval of their employers, and also that they are in a position to maintain the supply during the time of transformation, which at the least must take two years, and then the supply would be limited.

The labour and expense of tracing and lifting old roots, the removal of many cartloads of soil, and the work of forming new borders are not always desirable, neither are they necessary, as shown above, to bring enfeebled Vines into a vigorous and fruitful condition. The removal of a few barrowfuls of soil round their stems so as to expose some of the largest roots is all the labour required the first season, as by making rather deep incisions in these and also at the base of the cane, covering them afterwards with a good depth of cow manure and loam, new roots form immediately—that is, if the manure is kept constantly in a moist condition, which is most necessary, and the foundation is laid for a new lease of the Vines' existence and their renewed productiveness. I might also mention that an exhibitor who gained first prize for Muscat of Alexandria last season at a large show was pardonably elated when he informed me that he had gained like honours thirty years before from the same Vines. Many other cases could be quoted to prove how prolific old Vines can be made when properly managed. It is not the furnishing of new roots alone that secures success. The natural outcome of these, of course, is stronger growth and larger foliage, but plenty of room must be provided for this to develop freely, or root improvement will be of small avail in securing better crops. Long gnarled fruit spurs situated close together are generally a prominent feature on old and neglected Vines, and the removal of probably every other is necessary before full leaf expansion is obtained, without which it is useless to expect plump buds at the base for next season's crop. It may be said that these notes or advice are offered too late to be put into practice this season, but this is not so. Of course, I would not attempt to prune back the rejected spurs after growth has commenced, but they may be disbudded much more freely than formerly, and only one half of them allowed to develop foliage. They may look unsightly for a time, but their bareness is soon covered by the increased size of the leaves on those on either side, while being in a dormant state during the summer and autumn there would probably be less check given to the Vines when they were removed, as they would be partially or wholly minus of sap, and the wounds caused heal the sooner. If it is decided to disbud old Vines as recommended this spring I would further advise that in rub-

bing off the shoots, if the one at the bottom of the first Vine is trained along the first wire, that opposite on the next Vine should be removed, and so on alternately up the trellis, which will allow each lateral to extend the distance the Vines are apart, and so help to build up stronger wood and larger leaves. The extension of growth in this way, even had nothing been done to assist root action, would prove beneficial to the Vines after the restriction they have previously been subjected to in pinching all shoots regularly at the third or fourth leaf. As regards banking the base of the Vines round with cow manure, the best time probably for doing so is just before they are started into growth, but I would not hesitate to do so now, as there would be no more risk in disturbing the soil what is necessary immediately round the stem than there would be round any other aged trees, as few fibrous roots would be located there. The incisions need not be so deep or frequent as when done earlier, but these really are only an aid in producing the emission of roots, as the moisture contained in the manure will have the same effect, only to a greater degree, as a too humid atmosphere has, in producing them further up the cane, especially when the roots proper have extended into a cold subsoil, and therefore less active than they would be nearer the surface or confined to inside borders. The canes generally being in close proximity to the hot-water pipes, the frequent use of the water-can is important, or the manure soon becomes dry and useless for the purpose for which it was intended.

RICHARD PARKER.

Goodwood.

HARDY FRUITS FROM SEEDS.

In his notes on the above "J. C. B." (p. 124) would seem to want to prove that it is almost useless to attempt raising good fruits from seeds. If that is really his object, he defeats it in his instances. The question was mooted not with a desire to deprive ourselves of the benefit of the labour and skill of those who have gone before in this field. What I suggested was only to carry on the same good work in possibly a better or more painstaking manner, confining the experiments to the use of selected seeds from the best known varieties instead of to chance seedlings only, and to enlist a wider body of workers in the same direction. "J. C. B." writes of the labour and skill which have been expended, but reserves all his eulogies for things which have come by chance. What if Cox's Orange Pippin and Cox's Pomona Apples and all the other good things mentioned did appear as chance seedlings? The results only go to prove that there is a field open to workers, and a fair prospect of success in it provided it is entered upon with sufficient knowledge to enable the worker to place a proper estimate on the value of seedlings which he may raise as compared with the best varieties already in commerce. I have no doubt that many good fruits have been raised, and gone under simply because they were raised by chance and fell into the hands of people who had neither sufficient knowledge nor discrimination to place on them their proper value. The same things raised under a different system would probably have been found among our best known varieties to-day if means had been taken to get over the difficulties of distribution which are greater in the case of stone fruits, that do not take kindly to grafting, than in that of Apples or Pears.

"Chance" seedlings, however good, would probably be left to chance, except so far as the needs of the owner were concerned, but this would hardly happen with any variety of merit raised designedly by one interested in the work. "J. C. B." gives an instance of a chance seedling Apricot which turned out to be a very excellent one that only required placing properly to have been

now ranking among the best named varieties. This helps in a small measure to prove my contention that good Apricots do reproduce themselves from seed. The advice that "chance seedlings should be allowed to have a fair trial," given by one who discountenances methodical work of the same nature, appears a little ridiculous. Why grant to "chance" all these favours and do nothing in the way of judicious selection? I should prefer to test the produce of selected seed to testing any chance seedlings, and should have far greater hope of getting something good from the former. What could one do with the hundreds of "chance" seedling Figs which I mentioned in a previous note? Fruits vary considerably when raised from seed, but all kinds are not alike in this; that is to say, they do not all produce a high percentage of poor varieties, and stone fruits do, as I have attempted to shew, give good results. In my original notes on this subject I purposely avoided the Strawberry, a fruit on which "J. C. B." bases most of his remarks, as I well know how few the good Strawberries are in proportion to the bad ones when raised from seed, no matter how carefully saved. The veteran raiser, Mr. G. H. E. Rundle, of Devonport, who has made a hobby of Strawberry raising for very many years, told me many years back that scarcely one plant in 10,000 seedlings was worth distributing, and I have no doubt that other raisers have found their case similar; still, that fact has not prevented a considerable addition of good varieties in recent years, and if this is possible with the Strawberry, how much more possible is it with things that, in spite of what "J. C. B." says to the contrary, do not produce a big percentage of bad varieties.—J. C. TALLACK.

—It is extremely interesting reading the various accounts of fruits from seed, and a few notes of various seedlings raised by me may be of interest. A lot of young Figs came up in a remarkable manner. Having a quantity of shallow Fig boxes from an importer of fruits, I used them for sowing seeds in. A fine crop of Figs came up round the inside edge of the boxes, and, being the best quality Figs, I saved a lot of young plants; they vary very much in the growth and leaf. I hope to fruit some this year; had I means to give them heat they would fruit without doubt. I am growing a quantity of seedling Gooseberries. They come in various types and make strong roots. I have sown seeds from the raisins stoned for the Christmas pudding, and these grew away rapidly. Seedling Grapes coming up promiscuously on the inside Vine borders I have inched on the permanent Vines with good results in both black and white Grapes, especially the latter. I have showing for blossom fine young Apple trees raised from fruits of Royal George. This is an old Apple, distinct in growth and fruit, a fine keeper, and possessing a remarkable good property of fruiting when others fail.—GEORGE BOLAS.

Apple Lane's Prince Albert.—At the meeting of the Royal Horticultural Society on the 8th inst. a very fine lot of the above Apple was staged by the raisers, Messrs. Lane, of Great Berkhamsted. The fruits in question were greatly admired, owing to their splendid colour and freshness. Undoubtedly such exhibits as this show we can grow Apples in this country as good as those imported. As regards quality, Prince Albert at this season is excellent either for dessert or cooking. Many are aware that it does not always colour so well as in its native place. As regards cropping it rarely fails. For small gardens it is specially good, as it does grandly in bush form. Grown thus the best coloured fruits are obtained.

Black aphid on Cherries.—For many years in a light soil I was troubled with this pest. No matter in what position the trees were grown, the result was the same, both Morello and dessert Cherries being infested just before the fruits were ripe and at a time it was impossible to use strong insecticides. Some growers assert that only un-

healthy trees are attacked by the aphid. Such is not the case, as the strong-growing Bigarreau types are equally bad as regards the pest. There must be no delay in dealing with the pest, as the buds are on the move earlier than usual, and doubtless, owing to the mild winter, insect life will be more numerous this season. I use a garden engine to thoroughly moisten all parts of the trees. I use soluble petroleum with tepid rain water, and since using this the trees have been free from the aphid in the summer.—S. H. M.

Derivation of Apricot.—In THE GARDEN, March 5 (p. 193), the following occurs: Note the derivation of the word "Apricot" and French "Abricot," or in English, "Shady side Tree." It may be as well to note that the French Abricot has nothing to do with French "abri" = English "shelter." The curious history of the word is well set forth in Littré's French Dictionary. Shortly, it comes from the Latin "præcoquum," derived from Latin "præcox," owing to the earliness of its flowers and fruit. But the word went over to the Arabs, where it got the Arabic article "al" (= the) tacked on to it, and appears as al birkouk. The Arabs brought it back to Spain, whence it became albaricoque, whence the French Abricot. Abricoté is merely a sugar Plum, which has Apricot as its base, and of course has still less need of a "shady side."—SHERBORNE.

FRUIT PROSPECTS AND PROTECTION.

The earliest Peach to expand is as usual Dr. Hogg, and as nearly all the flowers are showing the colour of the bud, an overhauling of material for protection has already taken place. This always takes the form of a double thickness of half-inch mesh netting a material that proves quite sufficient for the purpose in the south of England; at least, in only one season out of fifteen was it inadequate, and that, if I remember rightly, was in 1884, when we experienced 20° of frost the second week in April. One or two warm sunny days brought out red spider in force, so while they were moving about very busily, Peach, Plum, and dessert Cherry walls and trees had a thorough wetting with an insecticide that from observations made last year is likely to prove fatal to the pest, this early syringing, although it does not ward off later attacks, keeping the trees comparatively free while the foliage is in a young and tender stage. In connection with the first expanded blossom above mentioned, is there any earlier-flowering Peach or Nectarine than Doctor Hogg Peach? I have noticed it both indoors and out, and it is invariably the first, always before such early ripening varieties as Alexander, Waterloo, or Princess Beatrice. The last-named in these days of larger early fruit is perhaps hardly worth growing, only if trees are well established the variety is a sure cropper and comes in well for cooking. The show on outdoor Peaches and Nectarines is remarkably good, the trees being a mass of fruit-buds. Plums after two heavy crops were a failure last year, at least the crop was very light, only two or three varieties coming up to the average. They are this season showing a very fine lot of buds, and protective measures must be adopted, for the Plum is a valuable fruit, lasting as it does, given a good selection of varieties alike for dessert and kitchen, nearly three months. Our Plum wall, which is a little over 160 yards long, is divided by piers into sections of 22 yards, and as these piers stand out a considerable distance, their interposition renders covering with long stretches of net somewhat awkward, and the best plan is to cover each section separately with lengths of net that run between the piers. A length of wall devoted to dessert Cherries is always covered, this fruit being much appreciated and a selection of four or five varieties will give a long succession. Flimsy in appearance as the bloom is, it is yet fairly hardy and will successfully resist several degrees of frost uncovered all the while it is dry, but a little frost following a stormy afternoon is generally fatal. Where the coping stands out far enough from the wall, so that the netting when fastened to this swings clear of the trees, nothing

else will be required. Failing this, however, some pieces of wood must be placed at intervals along the wall to effect the purpose. Strips 3 inches in width cut the necessary length from a piece of inch boarding will do very well indeed.

A writer in a recent issue calls attention to the ravages of bullfinches. Failing the ability to keep a man always on the look-out, the only thing where these birds are very troublesome is to enclose the trees. Let a certain quarter of the garden be devoted to Gooseberries and Currants, with bush Apples, Plums and Cherries if these are required; enclose it on all sides with galvanised netting of sufficient height that at certain seasons stretches of fish netting may be drawn across the top. I like to be able to throw the trees open to birds at certain seasons better than having the place entirely shut in. Some may regard this as an expensive business. I grant the initial outlay is considerable, but, once erected, the side enclosures will last a lifetime; the crop under such conditions is assured, and there is absolutely no other sure remedy, especially if shooting is prohibited.

Claremont.

E. BURRELL.

FEBRUARY IN SOUTH DEVON.

DURING the past month the rainfall has amounted to 2.24 inches with 15 wet days, against 2.98 inches on 15 days in February, 1897, and an average for the month of 2.54 inches. During the first 2 months of the present year the rainfall has amounted to 3.12 inches, against 5.46 inches for the same period of 1897, and an average for the two months of 5.75 inches. February, in spite of the snow that fell on the 21st to the depth of 5 inches, has been a very sunny month, the sunshine record showing a great excess above the average for the month, and nearly double the record of February, 1897. During the past month the sun has shone for 102 hours 45 minutes, against 52 hours in February, 1897, and an average for the month of 75 hours 45 minutes. For the first 2 months of the year the sun has shone for 133 hours 35 minutes, and for 111 hours 55 minutes during the two corresponding months of 1897, while the average for the same period is 142 hours 20 minutes. The mean temperature of the past month has been 44.1°. In February, 1897, it was 46.6°, the average for the month being 43.4°. The highest sun temperature was 101.2° on the 27th, the highest screen temperature 56.1° on the 1st, the lowest in the screen 29.5° on the 24th, and the lowest on the grass 25.5° on the same date. During February, 1897, the lowest screen reading was 35.0°, and the lowest grass reading 28.9°. On 6 days in the screen and on 13 days on the grass during the past month the mercury fell to 32° or below. The total horizontal movement of the wind during February has been 8686 miles, against a total of 6932 miles for the corresponding month last year. The greatest daily run was 662 miles on the 2nd and the highest hourly rate 38 miles, which speed was attained between the hours of 5 and 6 a.m. on the same date. On 24 days out of the 28 the wind blew from the south or west. The total horizontal movement for the first 2 months of the year has been 14,525 miles in 1898, and 13,542 in 1897. The percentage of ozone in the air has been 58.9, against 71.3 in 1897.

In the garden, for the first three weeks of the month, the outlook was more like April than February, and in a sheltered position near the sea I saw a large plant of *Agathæa cælestis*, some 3 feet in diameter, that had evidently spent at least two winters in its present position, covered with its pale blue, yellow-centred flowers. *Anemone fulgens* in places was a brilliant sight, but this Star *Anemone* does not appear to bloom satisfactorily from old tubers in this locality, whatever it may do in others. The Poppy *Anemone* has also produced many handsome flowers, and the Pasque Flower (*A. Pulsatilla*), with its purple blossoms, has been a pleasing sight. Before the snow fell the blue Apennine Windflower (*A. apennina*) had unclosed a few of

its pale blue stars, and on a sunny bank I saw *A. blanda* coming into bloom. *Arabis albida* has been a solid sheet of white, crowded with honey bees on bright mornings, and the *Aubrietias* have come into bloom in rock gardens and on sunny walls. The Cape Pondweed (*Aponogeton distachyon*) produced its earliest blossoms at the commencement of the month in the stone basin of a neighbouring nursery, and the *Glory of the Snow* was in full beauty, *Chionodoxa sardensis* forming a sheet of vivid blue, while *C. Lucilia*, with its larger blossoms of azure and white, was individually equally charming, although not so effective as a breadth of colour. These *Chionodoxas* increase in beauty and strength year by year, and assume proportions, after being undisturbed for some seasons, that would scarcely be credited from their comparatively poor display at their first flowering after being planted. At the commencement of February the *Crocuses*, golden, white and purple, were very attractive, the white proving the favourites of the burly humble bees, who laboriously rifled their snowy chalice during the morning hours of bright sunshine. The yellow Crown Imperials came into bloom early in the month, but their stature fell far short of the accustomed dimensions. The great drawback to these handsome plants is their unpleasant perfume, which is so all-pervading, that the whole border appears impregnated with it. The clear yellow variety is by far the most attractive, and the drops of moisture, which hang suspended and quivering in the recesses of the pendent bells, and were in childhood's parlance called "toads' tears," are better shown up by the yellow hue than by the dark orange-red of the commoner variety. The white blossoms, spotted with vinous red, of *Clematis balearica*, also known as *C. calycina* and *C. cirrhosa*, have been in evidence during the month, and the inconspicuous greenish yellow flowers of *Dondia Epipactis* have carpeted a portion of the rockery with their quaint inflorescence. This *Dondia* is a little-known plant, but possesses a modest charm that renders it acceptable in the rock garden. It is also known by the name of *Haecquetia*. *Doronicum plantagineum excelsum* Harpur-Crewe has given a plenteous supply of golden stars, but less in size and shorter in stalk than those produced under the influences of the warmer and brighter weather of spring. Early in the month I saw a bed of *Epimedium pinnatum* in full bloom. The bronze-coloured, beautifully veined leaves showed off the numerous spires of yellow blossom to perfection, the whole forming a charming colour-scheme of brown and gold. As a rule this *Barrenwort* is an early summer bloomer, but its bronzed foliage is particularly valuable for winter decoration. The double scarlet *Geum* has produced a few of its brightly tinted blossoms through the month, and the blue Grape Hyacinths made a breadth of azure on a sunny bank, forming a picture delightful in colour and possessing the additional charm of fragrance. It is of this flower that Ruskin writes that it is "as if a cluster of Grapes and a hive of honey had been distilled and compressed together into one small box of celled and beaded blue." Their sisters, the Musk Hyacinths, whose unattractive blossoms do not appeal to the eye, but whose delicious fragrance is scarcely to be surpassed by any flower of the open air, still hold unexpanded the flower-spikes which they showed in January. Unfortunately, several of the larger spikes have been broken off by the snow, which bent the Crown Imperials level with the ground and broke many branches of a large Tree Lupine that would otherwise have been a sight of great beauty during the coming summer. The Lenten Roses were nearly over when the change of weather arrived, and the plants were beaten to the earth by the snowfall. The first of the German Irises, the common blue Flag, opened its first blossom on February 14, an anomaly that I have not witnessed in my own garden before, though I have seen the same flowers in bloom during January on the banks of the river Dart. *Iris stylosa* still continued to produce a few scented blossoms up to the second week of the month, and

Iris reticulata remained in bloom, its flowers possessing admirable lasting qualities. The Spring Snowflake (*Leucojum vernum*) has been blooming well, and the bulbs being planted in the midst of a sheet of *Chionodoxa sardensis*, the white bells are shown up well by the brilliant blue of the *Glory of the Snow*. On a dry bank, in a sheltered position in proximity to the sea, *Lithospermum prostratum* and *Mesembryanthemums* were still blooming. During the first week of the month I noticed a colony of *Megasea cordifolia* on a steep rockery that was an attractive sight, the face of the rock wall being covered with the great heart-shaped leaves, from which dozens of large bright pink flower clusters stood out or hung pendent. As a rule the *Megasea* is rather despised as a decorative subject, but seen in blossom in the winter in a mass such as I have described, the effect is singularly striking.

Many of the *Narcissi* have been in bloom. *N. minimus* commenced in mid-January, but continued well into February, followed by the Tenby Daffodil (*N. obvallaris*), *N. pallidus præcox* and *Golden Spur*, which has this year been exceedingly fine. Many of the *Polyanthus* section have been in blossom, the Paper-white just lasting until the end of the first week of February, followed by the Scilly-white and *Gloriosus*. Towards the end of the month, *maximus* and *princeps* appeared, together with the double *Van Sion* and the little *N. minor*. In sheltered positions, the Lent Lilies on the grass have opened a few blossoms. A few bulbs of *N. cyclamineus*, which I brought from Western Spain last spring, have borne some of their quaint, golden-yellow blossoms, but I doubt the soil at my command suiting them. This should, I imagine, be wet, but light and porous; at least, it was in such soil that I discovered the bulbs. I have now in bloom in a pot some other Spanish *Narcissi* that I brought home four years ago. *N. cyclamineus* is quaint, but I do not consider it very beautiful, while this Daffodil (*Narcissus triandrus albus*) is the very epitome of grace. The English name with which it has been christened, "Angels' Tears," has been happily chosen for the drooping white flowers poised so gracefully on their slender stems, and a glance at the blossoms before me brings back the memory of a hillside white with their swaying blossoms, and of a certain steep and rugged Spanish lane where, with constant trickling of water through the gritty peat, they assumed a loftier stature and bore from their tall stems as many as four—and, in one instance, five—white-winged bells instead of the usual two. I have not dared to trust these foundlings in my heavy soil, but have been content to enjoy them year after year in pots, where they give a minimum of trouble, and last well in the house. The Creeping Forget-me-not (*Omphalodes verna*) and its white variety have been in bloom since the commencement of the month, and the lesser *Periwinkles* have studded the tall banks with their light blue stars. The large Paris Daisy bushes, of which I wrote in my January notes, were a good deal damaged by the snow and frost, but appear likely to recover again. Primroses and *Polyanthuses* have been blooming in almost every garden, and wild Primroses have been picked in quantity, basketfuls being hawked about for a penny a bunch. The Tree *Pæonies* seem to have suffered more than anything from the cold snap. Some of the bushes were very forward, having young growth a foot long and buds as large as walnuts. These precocious specimens have been badly cut and will not, in all probability, bloom this year, but those that were more backward do not appear to have been injured in the least. A few Tea Roses have been cut from the walls from time to time, and the plants have already made strong growth. On account of the mildness of the season, some persons pruned in mid-February, but the ensuing frost and snow cannot have been very beneficial to the freshly-cut shoots. *Scilla bifolia* and its varieties, as well as *S. sibirica*, have been in bloom, the first-named, like the Snowdrops, being well-nigh over before the snow fell. The white

star flowers of *Triteleia uniflora* were in evidence early in the month, when the Violets were in profuse bloom, California and Princess of Wales affording many fine gatherings of their large, long-stalked blossoms, whilst The Czar, White Czar, Red Russian, Wellsiana, Amiral Avellan, and doubles, such as Marie Louise, New York, Lady Hume Campbell, Comte de Brazza, and Mme. Millet, yielded a good supply, the doubles, however, being more plentiful under glass than in the open. Wallflowers are, in many cases, coming nicely into bloom, and appear to have been little retarded by the frost and snow. In a remote corner of the wild garden the Water Aven (*Geum rivale*) is still blooming, after having been in flower for the greater part of the past twelve months. The Almond trees came into blossom during the first week of the month, having been preceded, by a few days, by *Prunus Pissardi*. *Berberis Darwini* is daily enlarging its orange mantle, and the great Camellia bushes were pink and white with blossom ere the coming of the snow. *Cornus mas* was noticeable for its numberless, minute flower-clusters, and

Currants (*Ribes*) began their blossoming. The early Rhododendrons were in bloom before the opening of the month, and the shrubby Veronicas were, week by week, becoming brighter.

The unusually mild weather of the past few months has had a wonderful effect in forwarding vegetation, and when the frost and snow of the latter days of the month arrived it appeared as though considerable damage was inevitable. As, however, the lowest screen reading shows but 2.5° of frost, and as the lowest on the grass only shows 6.5°, the harm done is inconsiderable. Peach trees in bloom on the wall when the snow came are apparently uninjured. *Solanum jasminoides*, against the house, does not show a sign of frost-bite, and, though the "Wise Elder's" leaves were well unfolded, they do not appear to have suffered any damage. Everywhere the Hazel wands are thickly strung with catkins, and the Willows are fully a month in advance of their usual blossoming season, for the "Palms" that the children pick in Lent are already downy yellow. Towards the middle of the month I observed, from the train, a large Weeping Willow growing over a pond

of half-ripened wood root very readily in summer, and may be potted singly and grown on in a cool moist house. When growing freely a plentiful supply of water is necessary.

TREES AND SHRUBS.

THE CAMELLIA OUTDOORS.

EVERY now and then there are inquiries in THE GARDEN as to the hardness of the Camellia, a subject that cannot fail to be of interest to those living in favourable situations in the south and south-western counties of England. Although it is quite true that the Camellia will stand with impunity a greater degree of cold than the common Laurel, the Laurustinus, and other shrubs which are generally considered hardy, yet the main stems and the stouter branches are, nevertheless, susceptible to injury from severe frost, this weak point in the plant being worthy of attention by those who would have fine bushes in the open air. To many it may not be generally known that the Camellia and similar hard-wooded plants are liable in very severe winters to have their main stems and stronger branches not only cracked, but split into longitudinal shreds. Even after being thus injured the Camellia will often, if it occupies a north wall well sheltered from the wind, live on for several months before it actually dies. All that is necessary to protect the plant at this weak point is to closely enwrap the stem with straw or hay-bands, laying at the same time a little Fern or other loose material over the roots. The portions of the stems near the ground are always the most liable to suffer, while the leaves and smaller branches will bear any amount of frost with impunity, always of course provided the stems are protected as just advised. In some cases the foliage comes down close to the ground, this protecting the stems from injury. Such is the case in the Royal Horticultural Gardens at Chiswick, where there are several fine plants in a border facing the north. Some may say, "Why bestow all this care and trouble on so uncertain a plant liable to be destroyed by any severe winter?" Surely the trifling annual operation described above would be ample compensation for any amount of care bestowed on the preservation of a plant of such beauty both in foliage and flower.

As regards culture, there is very little to be said. Give the Camellia the shade of a north wall protected from the wind and a well-drained border. Let the soil be firmly rammed round the roots in planting, then watered for a time, and no Camellias in pots, however well managed, will compare with those in the free soil of the open border. June is the best month to plant them out, and care should be taken to well harden off the plants before placing permanently in the open air. No greater mistake can be made than planting them in a shaded "nook." In such a position they are no doubt protected, but that would prove anything but beneficial in the end, free exposure in summer promoting free flowering and ripening up the wood to withstand frost. The two illustrations we give to-day show well the beauty of the Camellia in the open air, one being in Kent and the other in Berks.

Azara microphylla.—This Chilean shrub recently noted as being in flower is an extremely beautiful evergreen, that is where it can be regarded as hardy, but this is only in especially favoured districts, for in most parts of England it is often severely cut with the winter's frost.



Pink Camellia in the open air at Saltwood, near Hythe, Kent, in April, 1897.
From a photograph sent by Mr. Leney.

Cydonia (Pyrus) japonica, with its long shoots, studded with bright crimson blossoms, was decidedly effective whether trained against a wall or growing as a shrub in the open, in which latter form the beauty of its long flowering sprays is more apparent than when they are closely restricted to the surface of a wall. Many plants of *Cytisus racemosus* were in flower at the coming of the cold weather, and the blooming periods of these and of *Olearia stellulata* were summarily put an end to. *Daphne indica* produced its fragrant flower-shoots early in the month, and the hardy Heaths were in bloom. The catkins of *Garrya elliptica*, on large plants, were unusually fine, and *Kerria japonica* produced a goodly crop of orange flowers, while the Laurustinus was everywhere in flower. The first flowers of the Yulan (*Magnolia conspicua*) opened in a sheltered garden, and I saw a bush of the fragrant-flowered *Nuttallia cerasiformis* in fine blossom. *Pittosporum Tobira* was blooming well at the commencement of the month when the flowering

that was emerald-green in every shoot. A case was brought to my notice the other day where a specimen of *Cedrus Deodara* was found to be infested with wingless plant-lice. The shoots and extremities of the branches were simply smothered with these aphides. The species is believed to be *Lachnus piniicola*, which is usually found on Scotch Firs, but rarely on the Deodar. One informant tells me that the least cold is fatal to these lice, so that their visitation was probably a sequel of the mild winter. S. W. F.

Acacias.—These beautiful plants are not grown half so freely as they deserve, for few things are more beautiful at this time of year or more easily grown. At Rougham Hall there are several fine plants now in bloom, among them being the beautiful *A. pubescens*, *A. grandis*, *A. dealbata*, and others. Their graceful flowers last well in good condition, and they may be grown in a house kept just above freezing during winter. Cuttings

When first introduced (in 1873) it was thought likely to be more valuable than it really is, for it was then considered hardy; indeed, the "Dictionary of Gardening" speaks of it as quite hardy, which it certainly is not. It, however, grows quickly after being cut back, so that if unscathed for a season or two it becomes very effective. The other species—*A. dentata*, *A. Gillesi*, and *A. integrifolia*—all seem rather more tender than *A. microphylla*.—T.

Rhododendron præcox.—While not possessing the large, showy blossoms of later blooming kinds, this is still a valuable species on account of its early flowering. Nor is there any reason why this early characteristic should not be imparted to other and more showy kinds, or, what would be equally to the point, forwarding some of the better and more showy hybrid forms under glass for crossing with this early species. A possible result of this may, perhaps, give to our gardens a race of showy shrubs that would come into flower two or three weeks in advance of the mass of *R. ponticum* hybrids, while one or two generations of hybrids would doubtless see great advances both in colour and size.

Spiræa prunifolia flore-pleno.—The illustration of this charming *Spiræa* (page 185) shows well what it is capable of when allowed to develop naturally, for crowded up with other subjects its grace and beauty of outline are altogether lost, but even under such adverse conditions it will hold its own fairly well and yield a good display of bloom. The lesson taught is equally applicable here, where many of our beautiful flowering shrubs are only too often planted in such a way as to suggest that the object of the planter was simply to crowd as many as possible into a given space. Judging by the remarks on the above-mentioned page, the tree and shrub pruner indulges in his vagaries on the western continent, as in this country, where shrubs, however dissimilar in habit, are cut to one pattern, and this, too, is frequently seen in places in which, from their reputation, one would expect the plants to receive far more rational treatment. The *Spiræa* in question is certainly entitled to a place among the most ornamental members of the entire genus, and it is one of the earliest of all to unfold its blossoms, being second only in this respect to the graceful *S. Thunbergi*, whose small white flowers are borne on slender arching shoots, and the narrow leaves, which are unfolded about the same time, are noticeable from their bright green tint. *Spiræa prunifolia flore-pleno* is one of the many beautiful flowering shrubs introduced from China and Japan by Robert Fortune. The individual flowers are very double, and in this respect it stands out as distinct, with one exception, from all the other shrubby *Spiræas*. The remaining one with double flowers is known sometimes as *S. Reevesiana flore-pleno*, and at others as *S. cantoniensis*. This forms a dense-growing, twiggy bush 3 feet or 4 feet high. The individual blooms are double and somewhat larger than those of *S. prunifolia flore-pleno*, but it is not so free flowering as that better-known kind.—T.

EARLY-FLOWERING SHRUBS.

MANY of the cottages in this district have for some time past been gay with *Jasminum nudiflorum*, but it is an unusual thing to see *Daphne indica* in full bloom in the open early in February. Yet this can be seen in a cottage garden in the village here. The other day I was astonished to find a large plant of this shrub in full bloom under a cottage window, and on making inquiries was informed that the only protection that had been afforded it during the present winter was a piece of canvas thrown over it when there were signs of severe frost. The plant was in perfect health and about 3 feet in diameter. Most gardeners are under the impression that this plant should be kept in a heated greenhouse. This, however, is not necessary, as a few degrees of frost do no harm. It is, however, better that the

flower-buds should not get frozen; therefore, keeping it in a structure whence the frost is just excluded will be sufficient. *Daphne Mezereum* has been in flower with me for some time, the different varieties living up to the shrubby borders, while both *Lonicera fragrantissima* and *Chimonanthus fragrans* have been in bloom more or less all winter. *Azara microphylla* growing against a sunny wall is just bursting into bloom and the flowers quite scent the air. *Magnolia* buds are fast swelling, and should the open weather continue, will be open soon. *Spiræa Thunbergi* has for some days past been in full beauty, while the old China Roses are almost as fresh as during the month of June. *Erica carnea* I have never seen look so fresh; the plants are now one mass of flower, and have been for some time past. *Pyrus japonica* and some of its varieties are in full flower, even those bushes where no protection has been afforded, and the Almonds are bursting their buds.

Of the early spring flowers, *Scilla sibirica*, Dog's-tooth Violets, Snowdrops and Crocuses are all looking well, and in some sheltered places the Daffodils are opening their buds.

Uckfield.

H. C. P.

PTEROCARYAS.

At present there are five species of *Pterocarya* known, three of which are in cultivation. One of them (*P. caucasica*, the species best known) is a native of the Caucasian region; the other four are natives of China and Japan. They are nearly allied to the Walnuts and Hickories, and, like them, grow into big timber trees, but they are distinguished by the two conspicuous wings attached to the nuts. The fruit has no edible qualities. The leaves have much the same character as those of the two allies mentioned, being pinnate and consisting of numerous toothed leaflets. Regarded as ornamental trees, the *Pterocaryas* occupy a high place amongst foreign trees hardy in Britain, although *P. caucasica* is the only one that has been long enough in cultivation to have shown its real character. The flowers, male and female ones of which are borne separately on pendulous catkins, are small and green and without beauty. The following is a list of all the species hitherto described:—

1. *P. caucasica* (syns., *P. fraxinifolia*, *P. Spachiana*).
2. *P. rhoifolia* (syn., *P. japonica*).
3. *P. stenoptera* (syns., *P. levigata*, *P. sinensis*).
4. *P. macroptera*. } Chinese species not in cul-
5. *P. paliurus*. } tivation.

Probably all the species, and certainly *P. caucasica*, succeed best where the roots are easily within reach of water; of this ample evidence is afforded by the fine specimens at Syon and at the Cambridge Botanic Gardens. The absence of a pond or stream, however, need not deter anyone from growing these trees provided a good loamy soil that does not readily become parched is available for them.

PTEROCARYA CAUCASICA.—Although the exact date at which this tree was introduced into Britain is not known, it was first brought from the East by Michaux the elder, who on his return from Persia in 1782 brought back seeds to Paris. In this country it is by far the best known as well as the oldest of the *Pterocaryas* in gardens. Many fine specimens are to be found both in Great Britain and Ireland; near London the finest, perhaps, is that at Syon House. There are also fine specimens in the Botanic Gardens at Cambridge. As the name infers, the species is a native of the vast region between the Caspian Sea and the Black Sea that is traversed by the Caucasian Mountains. Under cultivation in Britain it grows into a spreading tree, apt to branch very near the ground unless pruned to a single stem when young. It will ulti-

mately attain a height of 30 feet to 50 feet. The leaves vary considerably in size; ordinarily they are from 10 inches to 18 inches long, but sometimes over 2 feet long and 18 inches wide. They consist generally of six to nine pairs of leaflets, these being stalkless, oblong-lanceolate, bright green above and paler or even glaucous beneath. The female catkins are 10 inches to 12 inches in length, the male ones about half as long. It ripens fruit in France, but not very frequently in England. The nuts, each about the size of a Hazel nut and surrounded on each side by a thin membranous wing, appear numerous on long pendent spikes. The chief economic value of the tree is in the timber it produces. This timber is largely exported from the Caucasus, and is highly valued in Western Europe for veneering and in cabinet making. The large excrescences which very commonly appear on the trunk are especially sought after in fancy turnery. As might be expected from the extensive area it covers, the species shows some amount of variation. To one of its forms Lavallée gave the specific name of *Spachiana*. According to him, it differs in its smaller fruits and in its somewhat sickle-shaped leaflets, the bases of which are auricled. These characters have not been considered sufficient to found a species on, especially as there exist all the intermediate stages between them and those of the type. The name is now dropped.

P. STENOPTERA.—For the first introduction of this tree to their notice, botanists are indebted to a French missionary named Calery, who sent home specimens from the north of China in 1844, upon which M. Casimir de Candolle founded the species. It is a fine tree, with a fissured bark and branches more erect growing than those of *P. caucasica*. The leaves are each 10 inches to 15 inches long and are frequently composed of more than a score leaflets. These leaflets are stalkless or nearly so, and the rachis (or main midrib) on which they are borne is winged in the spaces between the leaflets. This is the most readily recognised character of the species, none of the other species having the same peculiarity. The male flowers are produced on catkins 2½ inches long, the female flowers on separate ones thrice that length. The fruit is nearly globular and has two side wings, each upwards of 1 inch long. The species ripens seed abundantly in France. Owing to its later introduction, there are of course no specimens in this country so large as the finer ones of *P. caucasica*, but the species gives every indication of thriving well. It is about as hardy as the common Walnut. Its distinctive characters are the winged rachis, the long-winged, somewhat Maple-like fruits, and the erect branches.

P. RHIOIFOLIA.—Being the third and last species of *Pterocarya* introduced to Britain, naturally less is known of this plant and its capabilities in this country than of the other two. But, judging by a specimen at Kew now some 8 feet high, it appears likely to succeed, and is, at any rate, hardy. It is a native of Japan, and, according to Sargent, is exceedingly common on the slopes of Mount Hakkoda at 2500 feet to 4000 feet elevation. It is one of the largest deciduous trees in that part of Japan, often measuring 80 feet in height and having a trunk 30 inches through. From *P. stenoptera* it is readily distinguished by the absence of wings on the rachis of the leaf and by the branches being more horizontal than erect. The leaves are each about 10 inches long, the rachis being woolly and the leaflets pubescent and 2 inches to 4 inches long. I do not know that flowers have been produced in Europe, but Siebold, who figures this species in his "Flora of Japan," t. 150, depicts the female catkins as about 10 inches long, with the flowers a quarter of an inch apart; whilst the male catkins are about one-fourth as long with the flowers very closely set together.

The two following species, described about five years ago by M. Batalin, of the St. Petersburg Botanic Garden, have not yet been introduced. Judging by the dried specimens and

information in the Kew herbarium, they are both distinct and handsome trees, and would make desirable additions to our garden flora.

P. MACROPTERA.—This is a native of China, and is, I should say, more nearly related to *P. rhoifolia* than any other, but it is larger both in its fruits and leaves. The spike on which the fruit is borne is, in the dried specimen at Kew, 16 inches long, and the fruits (the large wings of which are referred to in the specific name) are only a little under 2 inches across. The largest leaflets are 6 inches long, oblong-lanceolate, the veins and midrib covered with brown wool beneath, as is also the rachis. The second species described by M. Batalin is

P. PALIFRUS, also a native of China. It was collected in 1888 by Dr. A. Henry in the Hupeh Province, and by the Rev. E. Faber on the Ningpo Mountains. It is a tree 40 feet high with very remarkable fruit, the two wings of which are united and form a continuous disc round the whole fruit, giving it the shape somewhat of a cymbal. The largest fruits are 2½ inches across. The largest leaflets are 4 inches long and covered with a brown pubescence beneath, especially on the midrib and axils of the veins.

Kew.

W. J. BEAN.

Rosemary.—As a dwarf and even attractive shrub for clothing banks in a sunny aspect, the Rosemary is excellent, and in such positions it may be considered as hardy enough to withstand all but the most rigorous winters. It is rarely found in gardens except in the form of isolated bushes, which give no idea of its beauty when seen in big, thickly planted groups. To keep the groups in good condition it is necessary to have a supply of young plants growing on, so that any blanks may be filled up as they occur. Stock can be easily raised from cuttings taken during summer and struck under a hand-light in a shady corner.—J. C. T.

Forsythia suspensa.—Here, on the outskirts of London, this Forsythia has on the last day of February opened its earliest blossoms, and that, too, not protected by a wall, but on a dividing fence. It has thus anticipated the usual season of flowering by a lengthened period—a remark, indeed, that holds good of many spring-flowering shrubs. Given a sunny spot, this Forsythia will grow and bloom well under almost any conditions, and, whether clothing a wall, rambling over an arbour or arch, or as an open bush, it is equally at home. In this latter position—that is, as a shrub in the open ground—it is not planted half enough, as the long, wide-spreading shoots form a very effective specimen, especially when laden with their golden blossoms. It is in this way greatly superior to its ally, the bushy-growing *F. viridissima*.—T.

The Laurustinus.—Only some twelve miles south of where I write I saw on a hill-top recently some old bushes of the Laurustinus in full bloom. Many of these were 10 feet high and as much through, sheets of blossom, and most effective. The position was a breezy one without protection or shelter of any kind, and the bushes must have passed almost scathless through many severe winters to have attained their present size. As showing the value of elevation to such shrubs which cannot claim to be entirely hardy, I may say that all the Laurustinuses here, where the ground lies low and is surrounded by large sheets of inland water, have been killed to the ground three times during the past ten years, so that the shrub is worthless for planting here. The big bushes noted above are much nearer the sea, from which, however, they are about sixteen miles distant, so that they can hardly be said to feel the effects of sea air, and must owe most of their immunity from injury to their elevated position.—J. C. TALLACK, *Livernere Park Gardens, Bury St. Edmunds.*

The Alexandrian Laurel (*Ruscus racemosus*).—Where this succeeds it forms one of the handsomest plants that can be used as under-

growth, especially for planting among waving Bamboos, the successful treatment of which appears to present exactly those conditions under which the *Ruscus*, which is not unlike a dwarf Bamboo in growth and general habit, does best. Certainly it has its limits as to position and environment, and cannot be considered absolutely hardy everywhere throughout the country, but there are few gardens or pleasure grounds with varied elevations in which a spot could not be found to suit it, and as it is not a rampant or hungry plant, it does no harm to other things among which it may be placed. It is not particular as to soil and does very well on chalk, on which many things fail to grow. The narrow, pointed, and very glossy leaves, or cladodes, are borne on slender branchlets, which are themselves produced on slender Bamboo-like stems rising to a height of from 3 feet to 4 feet; these growths are most graceful for providing greenery to go with cut flowers in large vases, and last for a very long while, but it is its bright and cheerful appearance during winter, as growing, that makes it so valuable and unique.—J. C. TALLACK

NOTES AND QUESTIONS.

Pyrus japonica.—Those who do not prune this beautiful shrub any more than they can help are now getting a brilliant display of bloom. I never remember seeing this old garden favourite in better form than at present. Although almost invariably grown as a wall shrub, this does well in the open, where it can be left entirely unpruned, and in the foreground of a shrubbery it makes a striking object when well established.—J. G., *Gosport.*

Lonicera gigantea.—This is a grand new climbing plant, and one that will be much sought after. The growths it will make in one season are truly marvellous, some of them being quite 8 feet in length. These growths are as thick as a penholder and of a pretty purplish hue. The fine panicles of blossom, exceedingly showy, are quite 8 inches to 10 inches in length and of a clear buttercup-yellow colour, changing to cream. Where large spaces on walls or arbours and similar places require to be covered quickly, this Honeysuckle will be just the very kind to plant.

THE MARKET GARDEN.

PEARS FOR HEREFORDSHIRE.

PEAR growing for profit, like that of the Cherry, is not largely pursued in this county, which fact may be attributed more to want of enterprise than to any lack of suitable natural conditions, such as that of soil and climate. Of soil suited to the growth of the Pear there is an abundance, consisting, as it generally does, either of the shallower loams overlying the limestone beds, or the richer and deeper deposits found wherever the old red sandstone formation exists. In some few parts of the county soils of a sandy texture are found, which are not so suited to the Pear, but as a rule soils of the first two named kinds preponderate, both of which are admirably adapted for Pear culture. Numbers of fine old Pears are to be found that are still in a flourishing condition, and which still bear heavy crops of fruit; a convincing proof that the soil is suited to their requirements. Many of these trees have attained dimensions rendering them more like forest than fruit trees in appearance, and they form quite a conspicuous feature in many an orchard attached to farmsteads in the county. These trees, it must be admitted, consist principally of vintage kinds, but that does not signify, as one of the objects for which this note is written is to demonstrate that the Pear does and will succeed in the soil and climate incidental to the county.

When the Pear trees already referred to were planted, the making of perry was a matter of paramount importance in the eyes of the growers; hence the reason why so few old trees of dessert kinds, comparatively speaking, are found at the present day in the orchards. The few that were planted were intended more to supply fruits for their owner's consumption than with any idea of supplying the local market, and this in a measure explains the scarcity of trees. Until within the past few years, relatively few Pears have been disposed of in this way, and even now the quantity sent into the county market each season is meagre for a county so well adapted for fruit growing. In addition to this, it is to be regretted that a great deal of the fruit sent to be sold is of very poor quality, consisting generally of the commoner or very old-fashioned sorts. This should not be, as with the facilities at command as regards soil and climate, quite as good fruit can be produced in this county for market work as in any other in the kingdom. In recent years more trees have been planted it is true, but the numbers so far are insignificant considering the areas of land which could be profitably devoted to this purpose. In saying this, it is not intended to convey the idea that Pear growing should be taken up to the exclusion of Apples, Plums and other fruits, but rather to advise that wherever suitable soil exists a good number of trees of the leading market kinds should be planted. If this were done, I feel convinced that those who would do so would find it a profitable investment. Pears will not of course stand so much rough handling as Apples, and they must also be marketed before the flesh becomes soft, but the prices realised for really good samples more than compensate the grower for the extra trouble involved in gathering, packing and despatching them to market. Regarding the

SORTS

found growing in old orchards at the present time, the list is not a lengthy one, and consists of Autumn and Winter Bergamot, Green Chisel, a few Hessels, Swan's-egg, Brown Beurré, and perhaps a few others. Plantations of more recent formation contain Williams' Bon Chrétien, and Louise Bonne and Marie Louise d'Uccle have also been found to answer very well indeed. The late Thomas Andrew Knight did a great deal towards improving the Pear by raising a number of seedlings which flourished well in the Herefordshire soil. Several of these are grown at the present day, two notable examples being Monarch and Althorpe Crassane. These seedlings would appear to have been planted in a desultory manner throughout the county, as trees of one or other of the many sorts raised are to be met with here and there in orchards. No doubt scions were also obtained for grafting existing trees with, to supplement the few varieties cultivated at that time. There may, perhaps, be instances where these Pears were planted in quantity, but I have never yet come across an orchard filled with them, and as a rule the number seldom exceeds half a dozen. In addition to these two sorts, Eye-wood, Croft Castle, and Lammars are a few more which may be named. Of these seedlings, Monarch, Althorpe Crassane, and Eyewood are still worthy of cultivation, and it was pleasing to note that in a paper read by Mr. Bunyard before the Horticultural Club on January 11 last, that gentleman mentioned these three kinds among others as "being a success last season." All three are heavy croppers, they possess hardy constitutions, and although rather below medium size, the well-known excellent quality of the fruit ensures a ready sale for them.

For market work large fruits are required, and if these were only produced in quantity, and proper attention paid to grading and packing, they would pay well. I have it on the authority of Mr. Meats, the gentleman appointed by the Corporation of Hereford to conduct the fruit sales in the Hereford market, that not the slightest difficulty is found in selling good samples of Pears at very remunerative prices. For this purpose, then, the following sorts would be found useful to grow: Williams' Bon Chrétien, Souvenir du Congrès, Jargonelle, Beurré d'Amanlis, Louise Bonne, Windsor, Fertility, Jersey Gratioli, Bishop's Thumb, Beurré Bosc, Marie Louise d'Uccle, Josephine de Malines, and Catillac, with the addition of the three sorts already mentioned above. The sorts named would give a long succession if the list was adopted in its entirety, and all can be grown as standards or half-standards on the Pear stock. Pitmaston Duchess would also be a useful addition when the latter form of tree finds favour. The last-named sort on the list, Catillac, is, of course, a stewing Pear, but it is an immense cropper grown in standard form, and no doubt there would not be the slightest difficulty in selling the produce.

The Pears now sent to market are, with the exception of Williams', of poor quality, but there are some growers who send their fruit direct either to London or some of the large towns. The practice is to pack them in flats which hold about 50 lbs. each. Some growers also pack in "pots," and it is generally in this kind of package that they are sent to the county market. The prices, as may be guessed, vary considerably, the inferior sorts realising but little, while the better quality fruit such as Williams' fetches nearly 40s. per cwt. This latter information, which has been kindly furnished me by Mr. Meats, the official auctioneer, should, I think, be sufficient to convince cultivators that there is money to be made in Pear growing if attention is only paid to the following important matters: (a) To grow only those sorts which produce medium to large sized fruits, such as those mentioned in the above list; (b) to pay strict attention to gathering, also to grade and pack the fruit carefully and in a tasteful manner; (c) to allow the late sorts to hang as long as possible on the trees before gathering them, and then carefully store them until ready for market; (d) in all cases to send the fruit to market just before it commences to soften, so that it sustains no damage during transit, and may be kept for a time afterwards if required.

A. W.

MARKET VERSUS PRIVATE GARDENING.

Those who imagine private gardening is a good training for market gardening make a great mistake. Marketing surplus produce is a very different matter to growing expressly for the markets, with the usual round of heavy rents, rates, taxes, bills for manures and sundries, and, above all, the heavy labour account. So many have started market gardening of late years that we might reasonably anticipate gluts of nearly everything they can produce; but such is not often the case, though prices rule lower than formerly. The demand has increased on nearly the same scale as the produce has been put upon the markets. First find out what is most in demand, and grow those particular products of the soil extensively and well. It is not an all-round knowledge of gardening that is required so much as a knowledge of what is

wanted and an ability to grow this to perfection. It is not what the amateur market gardener thinks ought to sell, but what customers will buy, that should be grown. For example, an experienced gardener of my acquaintance was very successful with Grapes—Muscats in particular—and by degrees arrived at a belief in his own powers to "make a lot of money" in producing them on a large scale for the markets. A good situation was relinquished, and a rather large sum of money was duly invested in lands, houses and fittings. He was successful in growing good Grapes, but at the end of ten years was obliged to confess that it

roofed houses principally for Tomato culture. It was thought that if so many dozen plants were capable of producing crops worth on an average 6s. per plant, then from each house capable of holding 500 plants, and which would cost less than £100 to construct, fruit to the value of £150 could be marketed every season. Scores of gentlemen and professional gardeners have worked out figures in that pleasing fashion, only to find that they were sadly out in their reckoning. Giving close personal attention to a few dozen plants is a very different matter to doing all the work necessary for as many hundreds, and selling locally at an average, say,



Camellia alba plena in bloom in the open air at Crowsley Park, Henley-on-Thames. The plant has been in its present position for twelve years. From a photograph by Mr. Thomas Taylor. (See p. 241.)

was a poor speculation, and, further, that it would have been much more to his advantage if he had been content to rent suitable land and grow Lettuces only. Lettuces were one of his "bye-products," and were found to be the best paying crop that was tried. That man has bought his learning and paid dearly for it. Perhaps if he had relied on the despised Grape Gros Colman he could have told a different tale.

Yet another instance. A gardener was so remarkably successful with a few dozen Tomato plants each year that at last his employer decided to put up several long ranges of span-

of 6d. per pound much more satisfactory than getting from the open markets an average of about 4d. per pound. Then, again, the greater the number of plants grown on a place the more certain it is that diseases and insect enemies will have to be reckoned with on an equally large scale. Much the same remarks apply to Cucumbers, while the profits on "snap" crops such as Strawberries, Beans, Potatoes, Radishes, and flowering plants are altogether illusionary. More often than not, muddling in the four former, either ahead of or among the plants of Tomatoes, ends in an actual loss to the grower

in the form of lighter crops of fruit, more especially at a time when the best prices are made.

Mushroom culture on a large scale seems to have a fascination for some, and when we read of what can be obtained from the surface of a comparatively small bed it is not altogether surprising that these deceptive appearances are regarded as conclusive. Unfortunately, cultivating Mushrooms on a large scale is very uncertain, or an even greater lottery than Grape and Tomato growing. In market gardening it is all a question of fitness for the work, and one man with the right sort of experience would succeed where another would fail. W. I.

SOCIETIES AND EXHIBITIONS.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

The annual meeting of this, we are glad to say, flourishing institution was held at the Caledonian Hotel, Adelphi, Strand, on Monday evening, 14th inst., Mr. Wythes, of Syon House Gardens, in the chair. Mr. W. Marshall, one of the founders of the society, was also present. There was also a good attendance of members.

Mr. Wythes, in moving the adoption of the report and balance sheet, said: "It has been a very great pleasure to me to listen to the satisfactory accounts of the working—financial and otherwise—of the 'United' for the year ending January 10 last. From inquiries I had made previous to this meeting, I was enabled to glean something of the progress of this excellent society not only during the past year, but for some years back. Compared with the earlier years of the society, the advance during the later years has been astonishing. When the merits of the society, however, are carefully pondered over, as they ought to be by every gardener in the kingdom, it is a matter of surprise to me that it has not increased still more rapidly. This cannot be caused through any doubt as to its sound financial basis, for with an invested capital which, if taken at par value, is £13,000, but which, I am informed by the treasurer, when a valuation was taken after the last audit was actually worth the sum of £14,742 10s., caused through every stock in which the funds are invested being at a considerable average premium. The state of the funds is only taken at par value, but they might well be taken, I think, at their actual value. There are about 720 paying benefit members now on the books of the society, which gives an average of nearly £20 10s. per member—more, of course—close upon £90 in fact—to the oldest members and less, as a matter of course, to the younger ones. If one turns to the management expenses—and here let me pay a well-deserved compliment to the officers and committee for the admirable way in which the affairs of the society are being administered—there is this gratifying fact to be noted, viz., the entire working expenses of the past year are only about 6 per cent. of the income. Members and non-members should note this and contrast it with other societies of a like kind. It may well be asked, 'Can any other society of any standing show such a sound financial basis as the "United"?'

"There must therefore be some other reason why the members do not increase more rapidly. Personally, I am disposed to think it is often caused by negligence and apathy. Some do intend to join perhaps, but put off doing so from year to year. Some think possibly that they can do better for themselves by joining mixed societies. Can they? I think not. It must be very evident to everyone who thinks the matter out that those large societies with many branches all about the country cannot possibly be worked so cheaply as one like the 'United' controlled by a central board of management. There is a fascination perhaps in some few instances for the

regalia of some well-known societies, but this does not benefit the individual members.

"The investments during the past year, as we have heard, amounted to £1200, or £100 per month. For the past two years £1100 each year was the sum invested. Thirteen years back, I have been informed, there was invested the sum of £301 17s. 6d., which for that year (1884) made a total of invested moneys of £3000, so that from 1884 to 1897 the increase at par value even has been more than £10,000. The members should not lose sight of the fact that the executive committee are still enabled to allow each one respectively 3 per cent. per annum on the balances standing to his account in the ledger. This allowance of 3 per cent. cannot go on many more years at the present price of sound trustees' stocks, which realise only something between 2½ and 2¾ per cent. At one time these stocks could be purchased below par, this no doubt being the reason why 3 per cent. has been continued so long. The more one reads over and carefully considers the rules of this society, the more disposed will he be, in my opinion, to give every credit to the originators of the 'United.' I am glad to see here to-night some of these original members, of whom in all honour it should be said that they have never drawn one penny from the funds. Every member should do his best to obtain fresh members, never missing a chance to press home the essential features of the rules. Bear in mind the motto of the society, 'Union is Strength.' I have not the slightest doubt that there are many candidates for the pensions of the Gardeners' Royal Benevolent Institution who would be only too thankful if they were members of the 'United.' I should like to draw attention in a few words to the Voluntary Convalescent Fund. Its name describes its use very well indeed. What an advantage this fund should be to our young gardeners throughout the country—those, for instance, who after an illness would be greatly benefited by a change of air. I and many more now in this room had no such opportunity as this affords. To all young gardeners who are moving from place to place I would say, 'Bear this fund in mind.' In conclusion, I would like to add a note on what to me is a great pleasure, viz., the remarkably low death-rate."

A special general meeting (Mr. Wythes, chairman) followed, to take into consideration the advisability of altering the following rules, viz.:

RULE 8.—Alteration on page 9, line 8 from the top, instead of "£20," read "£30."

RULE 14.—Page 11, line 10 from the bottom, after the words "lower scale," add the words "with the privilege of increasing this to."

RULE 14.—Page 12, line 14 from the top, the word "successive," after "twenty-six," be struck out.

RULE 18A.—"VOLUNTARY CONVALESCENT FUND.—The object of this fund is to give members a change of air during convalescence. The Committee of Management to have power to relieve members of this society from this voluntary fund as they may deem advisable. All cases must be recommended by a duly qualified medical practitioner."

After some discussion for and against the alteration of the above rules, they were finally agreed to.

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, March 22, at the Drill Hall, James Street, Victoria Street, Westminster, 1 to 5 p.m. A lecture on "Soils" will be given by Mr. J. J. Willis at 3 o'clock.

—Since issuing the schedule of arrangements for 1898, the Royal Horticultural Society have received from Messrs Barr and Sons, of King Street, Covent Garden, the offer of a silver cup for Daffodils, to be competed for at the society's meeting at the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, April 12, open to all amateurs. Notice of entry should be addressed to the secretary, Royal Horticultural Society's office, 117, Victoria Street, S.W., and

must be received on or before Thursday, April 7. For the above prizes the Polyanthus section is excluded, each of the three groups—Magni-coronati, Medio-coronati, and Parvi-coronati—being represented, the flowers to be arranged in bottles which will be provided by the Royal Horticultural Society. Not less than forty different varieties and not more than three lots of any one sort to be staged. Correct naming and elegance of arrangement will be taken into account. First prize, a silver cup; second prize (given by the Royal Horticultural Society), £1 10s. and a silver Flora medal.

National Dahlia Society.—We are asked to state that there will be a committee meeting of this society on Tuesday, March 22, by permission of the Horticultural Club, in their rooms at the Hotel Windsor, Victoria Street, S.W., to elect judges, &c. The meeting will commence at 2 p.m. In addition to the prizes offered in the schedule, Mr. A. Dean has offered a special prize of 7s. 6d. for the best bunch of Cactus Dahlias, exhibited in the ordinary classes. The Shrewsbury Horticultural Society this year offer prizes for Dahlias of all sections at the August exhibition.

NOTES OF THE WEEK.

Amaryllis Navala.—This is one of the most recently certificated of the Amaryllises. The shade of colour, however, is both novel and distinct, a sort of salmon-orange, that is quite exceptional among these plants.

A curious Hyacinth.—We send herewith for your inspection what we are sure you will consider a curiosity. It is a bulb of Charles Dickens Hyacinth that has produced two blossoms—the one blue, and the other rose-pink.—JAMES CARTER AND CO.

Azalea mollis W. E. Gumbleton.—This is one of the most beautiful and pleasing of this showy race of plants, the bushes a perfect mass of flowers of a pretty shade of yellow. Another excellent variety is Comte de Germiny, a sort of rose-salmon hue, that is very striking and effective.

Soldanella Clusii.—This frail little alpine is among the first of this small genus to flower, but it is not of the largest size. The drooping fringed blossoms possess a distinct pale purplish hue that is not common among alpines generally. A rather close, moisture-laden atmosphere, where it can be given, suits this plant.

Amaryllis (Hippeastrum) Walker's Crimson.—A fine plant of this variety bearing two spikes and ten handsome flowers of a rich crimson, as shown recently at the Drill Hall, affords some idea of what may be done by growing these plants on into specimen form. In this way they would certainly prove most attractive.

Adonis amurensis.—I planted a small batch of Adonis amurensis late in the autumn. They were planted thickly in a row. On Monday last (March 14) I counted fifty-two fully expanded blooms on these plants. The soil they are planted in is rather sandy, but they seem to thrive admirably. They have had no protection, but have been fully exposed to strong westerly gales.—W. S. S., Ness, Cheshire.

Iris persica.—This, one of the dwarfest of all the tribe, is well worth growing. It is not more than 4 inches high, the blossoms appearing from a tuft of bright green leaves, being whitish, suffused with blue, and heavily blotched with blackish velvet near the tips of the falls. It is not only an early kind, but one of the most fragrant, a really Violet perfume pervading the blossoms when expanded.

Fritillaria pudica.—This lovely plant is among the early gems of this extensive race of bulbous flowers, and one of the few that may be highly recommended for pots. Thus grown and kept in frames it is always in advance of those in the open, even when the latter enjoy a sunny and favoured position. One of its most marked features is the wonderful substance of the flowers; this, coupled with the rich yellow, renders it one of the choicest of the whole race.

Cerasus pseudo-Cerasus (double Cherry).—For immediate effect nothing could possibly be finer than the handsome and well-flowered group

of this staged by Messrs. Veitch at the Drill Hall last week. The plants were not more than 3 feet or 4 feet high, yet abundantly flowered. As a pot plant for the conservatory or similar place, or for grouping amid Palms for some special occasions, it will be found most useful.

Azaleo-dendron Jules Closon.—A couple of plants exhibited at the Drill Hall a week since came in illustration of this bi-generic cross, but the result of mixing up such distinct subjects was abundantly apparent in the poor examples shown. One can see no possible good in such work, and certainly if the examples shown are the outcome of several years' work it is obviously time wasted, to say nothing of trouble involved.

Boronia megastigma.—Those who saw the lovely plants of this from Messrs. Balchin and Sons at the Drill Hall the other day could not fail to admire them. It was quite clear, from the examples in question, that the old-time three-year-old method of growing finds no favour, and the undoubted advantage of a more rapid system of culture was amply illustrated by the manner the plants were laden with branches, and these with blossom. The near proximity to the coastline may also assist to the same end, but the chief secret, if secret there be, is keeping the plants growing from the moment of rooting.

Sisyrinchium grandiflorum album.—Sceldom is this, the daintiest member of its race, seen in well-established clumps. The drooping satiny-white cups depend on the most delicate thread-like peduncle imaginable. The plant, notwithstanding a naturally frail and apparently delicate growth, increases freely at the root, more especially when given that amount of shade and moisture that it requires. A soil of sandy peat, leaves and loam in equal parts, a rather sheltered spot, and a position never dry answer well for it. With such provision the tufts in the course of a few years will reach a foot or more high, with an abundant supply of their pretty flowers. The purple-flowered form of this is equally good.

Dodecatheon Hendersoni.—A pretty American Cowslip received under this name last year came into bloom in the second week of March. I can find no mention of the name in any of my books, so have no opportunity of comparing my plant with any description or even of satisfying myself that the name is a recognised one. The "Index Kewensis" refers the various Dodecatheons it names to D. Meadia, but Hendersoni is not named in the work. So far as one's opinion is worth, I can hardly think it likely to be worthy of specific rank, but as a beautiful dwarf variety it deserves a place in the rock garden. It is a little over 6 inches high here, and is of a bright crimson, with yellow ring. The petals are well reflexed and the whole effect of the plant is very beautiful, the leaves being of a pretty green.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

A new Jerusalem Artichoke.—The old type of Artichoke is so rough that a variety with few eyes and of good eating quality is looked upon with favour. At the meeting of the Royal Horticultural Society on the 8th inst., Mr. Wythes sent roots of a very distinct character, some over 12 inches in length, nearly smooth, and stated to be of superior flavour. The roots in question were devoid of the rough character usually seen, and whiter in colour. This variety should prove a useful introduction, as it may be cooked like Salsafy and is not unlike it in colour when dressed. Other white varieties were shown by the same exhibitor, a very fine one being Vilmorin's White; this is distinct from the first-known white variety, which was also shown. The exhibit from Syon was interesting, as it showed what advance has been made with the Artichoke of late years.

Narcissus Victoria.—In this we have a really handsome bicolor Trumpet Daffodil. So far, however, experience is only very meagre concerning it. It has a fine vigorous constitution,

in this respect being closely related to the Empress group. Indeed, if one may judge of its parentage, it would appear to be intermediate between Empress and Horsfieldi, with greater substance and less purity of segment than the latter, while possessing the well imbricated segments of Empress, without the greenish wave on the reverse of the segments which is so marked in Empress. The several pots of forced bulbs brought to the Royal Horticultural Society's meeting on the 8th were very good, though, of course, one cannot accurately determine the true value of such a kind as this from these out-of-season flowers.

Muscari botryoides album.—Among the starch Hyacinths none are better suited for pot culture under glass than this, with its snowy white spikes rising to nearly 6 inches high. Established in the open ground it is fully this height, but in recently potted bulbs there is usually some diminution of growth the first year. The variety, too, is now very plentiful, and, indeed, has been for several years, so that there need be no difficulty on that account. It is recommended in this instance in preference to the blue forms because these are more plentiful, and from the fact also that, while the blue shades do not improve under cover, the white variety is only seen at its best when subjected to this treatment. This is especially true near London or any large town. For this reason a portion of the stock at least should be in pots, if only that at flowering time it may be given the protection mentioned. There is little need to house such things till growth is well advanced, which at once dispenses with weakly and over-drawn as well as unsightly foliage. A cool, well-ventilated house is best for such things.

Narcissus pallidus præcox varieties.—It is pleasant to see that the variety of the early Pyrenean Daffodil named *asturicus* is still in cultivation and doing so well at Kew. I was afraid it had become lost to cultivation, as Messrs. Barr and Sons have omitted it from their catalogue for a few years. Another variety found by Mr. Peter Barr the same year (1887) was dropped from the list a few years before *asturicus*. This is *Blond d'Or*, a pretty light-coloured variety. The year after its introduction it flowered very early with Messrs. Barr, and in 1889 I procured bulbs. It has not fulfilled its promise of earliness, and is to-day (March 15) not showing colour, although a clump of *pallidus præcox* only 1½ feet away has been in bloom for a month. There is a very late-flowering variety of *N. pallidus præcox* here. So far as I know it has no distinctive name, and was bought at an auction sale. It is valued because of its form and substance and its delicate colouring. I have experienced no difficulty in growing the Pyrenean Daffodil, although many cannot keep it in health for more than a year or two. I prefer to grow it in full sun here.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Solandra grandiflora.—It may be of interest to state the behaviour of this plant here. It is in January a most attractive and grand decorative plant for warm conservatory, corridor, &c. The plant was brought here in June from Madeira, wrapped in a newspaper without any soil. It then looked like a dry, shrivelled stick. I put it into a 9-inch pot, kept it for a time in a late vinery, then put it into strong heat. It broke at every eye and flowered early in the following year. In July I placed it outside on ashes, fully exposed to the sun, letting it shrivel up. I put it into heat in the middle of September, after repotting it into a 12-inch pot in fibrous turf and sand, with a little soot and guano. I placed it on a shelf close to the door. All the short growths produced a mass of flowers from January till March 14. When in flower it was watered twice and three times a day, with a little guano. The length of growths from centre of pot is 3 feet 6 inches. It requires no stakes and has never been stopped in any way. The colour of the flower is white, with pale salmon tint in the trumpet, and sea-green first two days, the whole

of the flower when four or five days old sometimes deepening to the lovely colour of a Wm. Allen Richardson Rose.—GEORGE BOLAS, *Hopton Gardens, Wirksworth, Derby.*

The weather in West Herts.—Since the 12th inst. the days have been warm, but, with two exceptions, the nights have remained cold for the time of year. On the coldest night the exposed thermometer showed 13° of frost. At 1 foot deep the ground is now about 2° warmer than the March average, but at 2 feet deep the temperature is about seasonable. During the present month less than a quarter of an inch of rain has as yet fallen, or only about a quarter of what may be regarded as a seasonable amount for that period. No measurable quantity of rain water has come through the heavy soil percolation gauge for seven days. In the early part of the week there was a poor record of sunshine, but on the 15th the sun shone brightly for 8½ hours. An Early Rivers Peach growing on a south wall in my garden came first into blossom on the 15th, which is eleven days earlier than its mean date of first flowering in the previous twelve years, but three days later than in either 1896 or 1897.—E. M., *Berkhamsted.*

The sparrow as an emigrant.—As that curse, the sparrow, is being discussed in your paper, I send you my observations of its disposition and destructiveness. When I came here in 1850, very few native birds had followed the early settlers, but they soon made their appearance in goodly numbers, until the country was filled with the melody of their vocal music. They continued to increase in beauty and numbers until the advent of the sparrow. It is now about twenty years since the sparrows made their appearance in numbers worth noticing. From that on they have increased a thousandfold, and are privileged to continue to increase another thousandfold. Their homes are in the towns, where they are protected from the shotgun, and are sheltered in the sheds, outbuildings and store awnings. They search out the nests of our native birds, kill their young, throw them on the ground and eat their eggs. They will eat no wild Mustard seed, Quack or Snapdragon, but strip our gardens of such seeds as we would save for spring planting. In all, they were created for destruction and for destruction alone.—E. REYNOLDS, *Wisconsin, in Country Gentleman.*

PUBLIC GARDENS.

Open space at Lee.—One of the recommendations in the report of the Parks Committee is that the Council should take charge of and maintain as a recreation ground seven acres of land in Bromley Road, Lee, which the Earl of Northbrook and Viscount Baring have presented to the public in commemoration of the Diamond Jubilee.

TRADE NOTE.

Messrs. Foster and Pearson, Ltd.—We understand that, owing to the rapid increase in the business of Messrs. Foster and Pearson, Ltd., horticultural builders, Beeston, Notts, Mr. Charles Mason, architect and civil engineer, of Westminster, and late surveyor to the vestry of St. Martin-in-the-Fields, will join the board of directors at Lady Day. We have no doubt that the addition to the board of directors above referred to will be to the material benefit of the firm.

Name of fruit.—W. Crane.—Apple Rymer.
Names of plants.—R. S., *Sevenoaks.*—*Zygotalum Clayi.*—*Junia.*—Please send some particulars as to the soil and position in which your *Chionodoxas* are growing.

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CHRYSANTHEMUMS.

THE CHRYSANTHEMUM LEAF RUST.

THIS new disease, which has apparently become known on the Continent of Europe and in this country within the past twelve months, seems to be a destructive foe unless subdued on its first appearance. I believe I am right when I say that there has not been a case here in the south of England until within the last three or four months, when cuttings and plants have been transported from place to place. At all events, I had not a sign of it until I had cuttings sent me from another part of the country, and those on their arrival did not show a trace or anything unusual; in fact, a better or a healthier-looking set one could scarcely wish for. To my great disappointment, they had not been in the frames many days before they became quite spotted over. The under side of the leaf seems to be then the chief point of attack, but I have since learnt the upper side is not impregnable. Those cuttings were put with the general collection, as I had no anticipation of any evil consequences, and before they were isolated the evil was done, the spores had spread, and the majority of the plants had become infected, which proves very conclusively the enormous reproductive power this rust possesses. There is no doubt, I think, that some varieties fall an easier prey to the pest than others, but there is every probability that when this is allowed a foothold on those varieties the most addicted to it, it will not be long before the whole collection would soon become badly infested. Among the varieties which I have found the most troublesome are Charles Davis, Sunstone, Vivian Morel, Mlle. Lucie Faure, and others. Sunstone I have had literally covered with the small brown specks, which are the spores just commencing to germinate. Their effects upon the leaf are most disastrous. If the spores remain upon the leaf for any time they completely riddle it, or the leaf prematurely falls off.

Many in dealing with this malady have recommended the burning of the leaves, but to this I have never resorted, and yet I am pleased to say that, with the exception of a very few plants (otherwise delicate), the plants are clean and healthy after a bad attack. I quite agree that burning is a sure remedy, but in a bad case to pick off all the leaves affected may mean almost the defoliation of the young plants, and if, by-and-by, when the plants are in their last stages of growth this should again make its appearance, and we should then be without a remedy, the last state will be worse than the first. Various were the remedies I tried. For the benefit of readers I will mention only one, and that I have proved to be effectual. This is prepared as follows: Take half a pound of whale-oil soap and boil this in one gallon of water. When thoroughly dissolved add one gallon of best petroleum oil (while boiling) and 2 oz. of carbonate of ammonia; stir them together until thoroughly mixed. If put over the fire and brought to boiling point after the oil is added, so much the better, as it is far easier to mix petroleum with a hot liquid than with a cold one. When treated in this way it will form a composition of the consistency of gruel and quite white in colour. This is used at the rate of one part of the emulsion to fifteen parts of water, and kept constantly stirred while being used. The plants are taken and laid upon bricks or boards, or any elevated position where the leaves can be kept from the ground, and the solution is well applied with a syringe to the under and upper sides of the leaf. After the plants have been gone over once in this way they are turned over, so that both sides are treated alike. After a short time the plants are syringed with clean tepid water and put back into their places. When treated in this way the spots soon assume a dark colour and commence to dry up. This solution is also a good insecticide, and will clear the plants of anything they may have upon them. I am convinced that wherever this fungus makes its appearance in a collection of plants, it is useless to only treat

the plants affected; the whole batch must be gone over thoroughly, or it will be constantly appearing. Every precaution also should be taken with any varieties which are added to a healthy collection, no matter from what source they may come. They may appear all that is desirable, and yet be carrying with them the germs of disease. Wash them thoroughly or isolate them long enough to prove that they are clean. If every care is exercised there is every possibility of its being stamped out, and now, while it is yet in its infancy, is the time to employ every available means and use every effort to hasten its extinction.—R. W. HODDER, *Ponsonby, Torquay.*

—Some of my plants have been attacked with this fungus, referred to in a recent issue. The plants have been completely isolated, as you suggest, and thoroughly syringed with a solution of paraffin (not too strong), which seems effective, the spots turning black in a few hours. Seen under the microscope, the spots which appear on the under side of the old leaves consist of a number of tiny spores like those of Ferns. It is entirely distinct from what is known as the Chrysanthemum disease, which frequently attacks the variety Golden Wedding. As to the fungus not attacking the younger leaves, it probably does so, only the spots, very tiny at first, are invisible until the young leaves have become old ones. I have never been troubled with this pest before now, and I hope to confine it to the few varieties which conveyed it hither.—F. C. S., *Torquay.*

Chrysanthemum Lord Brooke.—This is one of the best Chrysanthemums for furnishing a supply of cut bloom during December. The flowers have that rich bronzy yellow tint so much admired at the present time, and if the plants are well grown and moderate thinning of the buds practised, a larger bulk of bloom can be taken from the space than is possible with the generality of Chrysanthemums grown for cutting. This is an important item where this flower is grown for profit, for many varieties otherwise admirable for cutting are not free enough as regards bloom-pro-

duction to render their culture profitable. Another point in favour of this variety is the length of time the blooms can be kept in good condition on the plants. Flowers which are fully open in the first days of December will keep in good order up to Christmas, and this is a great advantage when the demand for *Chrysanthemums* is very sluggish in early winter. From late-topped plants I have had very nice blooms of Lord Brooke at the new year, but I do not think it is reliable after that date. It is a good plan to strike two lots of cuttings, one as soon as they can be had in December, the remainder in February or very early in March. The earliest batch can be grown on in the ordinary way, merely stopping once in May to make them bushy, and thinning out the buds for large blooms. The remainder should be stopped about the middle of June, and if kept in the open air until the second week in October they will furnish nice fresh blooms for the new year. Lord Brooke will also succeed planted out and lifted at the end of September, but the flowers come smaller.—J. C. B.

ORCHIDS.

NOTES ON ANGULOAS.

THE present is a good time to look through these, and it is as well to repot any that are not likely to flower if they need this attention. Those that are going to bloom will have the flower-buds prominent in the centre of the new growth, or at all events the swelling characteristic of flowering growths will by now be plainly seen. It is best to leave these until the flowers are past, the roots, as a rule, not making much progress until after this, and even if they have, it is not always necessary to disturb them. The base of the young growth will be a little above that of the older pseudo-bulb, and it is easy to remove a little of the old material from round this and place a little compost in its place, so that what little root is produced will enter this and can be lifted out entire. But this is not often necessary, and it becomes simply a matter of repotting in the usual way, as I am now doing with flowerless specimens. The roots, it may be noted, are not of the strictly annual character of those of many other Orchids; consequently they should be studied when repotted as much as those of a *Cattleya*, instead of being pulled about like those of a *Calanthe* or *Thunia*. If the centre, say, of the compost is run through with roots and is in fair condition, let it alone and place it in the new pot entire. It will save the plant, and, should the soil become a little sour after the first season, it may be removed a little at a time, and its place taken by new. Anguloas like a free and open description of compost, but it must be substantial, and better results with less trouble accrue from using a little loam than all peat and Moss. Equal parts of each, the latter being well chopped, and a liberal addition of crocks and charcoal are suitable, and the pots should be clean and well drained. For small, weak bits allow a narrow margin only, but strong plants may have plenty of room with advantage. The subsequent growth will be stronger, and the need of repotting will be less frequent than when very small pots are used. In only a very few instances is it necessary to elevate the plants above the rim of the pot, this being principally needed for newly-imported or badly-rooted pieces. After potting, if roots are fairly plentiful, give one good soaking of water to settle the compost, and keep them afterwards on the dry side until the roots are again very active. They will then require a very liberal supply, which must be kept up all through the

growing season. By the end of the summer the pseudo-bulbs will be fully developed, and if there is no fear of frost by night, the plants may now be placed out of doors for a couple of weeks with advantage. The best plan is to place them on a stage temporarily arranged under a tree or to suspend them from the branches, this shading them from the hottest sun and sheltering them a little from the rain; or, of course, they may be placed in the open and a shade of some kind rigged up, but where there is a tree handy it serves the purpose admirably. Though in their native state Anguloas are probably strictly deciduous, under cultivation they often carry their foliage during the greater part at least of the winter. When this is the case they may be allowed a little more water than those which lose all their leaves, but it must be noted that the strictly deciduous plants are the most free-flowering. In no case must they be so dried that the pseudo-bulbs shrivel, or probably the roots will be lost as well and the plants badly checked. The temperature that suits them best is one a little above the cool house, yet not so high as that recommended for *Cattleyas*. If no such intermediate house is at command, place them with the *Odontoglots*, as the *Cattleya* house is too high for them, or, at any rate, except just when they are in active growth. There are not many distinct species, and all thrive under similar conditions. All like a moist atmosphere, and unless they get it are subject to the attacks of red spider and scale. Should these insects put in an appearance, lose no time in setting about means for their clearance, as no plant can be healthy with the continual drain upon it that these entail.

In appearance Anguloas are quite distinct from any other Orchids in that the sepals and petals overlap each other, incurving, and forming a cup in which the column and lip are concealed when looked at horizontally. When viewed from above they are plainly seen, and if the plant or the flower-spike is gently moved from one side to the other a plainly perceptible rocking motion is set up. This is caused by the lip being so loosely joined to the base of the column that its own weight is sufficient to give it this momentum, and the fact has led to their being styled "Cradle Orchids." Besides the principal species, *A. Clowesi*, *A. Ruckeri*, and *A. uniflora*, all of which possess well-marked varieties, there is a hybrid form, *A. intermedia*, which has been raised in this country and also imported as a natural hybrid. Others are on record, but are extremely rare. The species are found growing naturally at considerable elevation on the Andes of South America from Colombia nearly to the Equator. They principally affect Moss-covered rocks and shady, damp woods. The genus is dedicated to a Peruvian gentleman, Don d'Angulo.

Dendrobium primulinum.—This species is now in flower in variety, the best forms being extremely showy, the large pseudo-bulbs or stems closely covered with the pretty mauve and yellow blossoms having a fine effect arranged with Maiden-hair Ferns or some other suitable greenery. The flowers, too, are very fragrant and last well. It may be grown as advised for deciduous *Dendrobiums* generally, the resting and growing seasons being kept very distinct. The form known as *D. p. giganteum* is a fine thing, with a large spreading lip, but good forms of the type that are not true are often so called.

Oncidium concolor.—This pretty species is already in flower, and is a universal favourite, the clear soft yellow of its blossoms always exciting admiration. Grown in small pans suspended from the roof of the coolest house, it is easily cultivated

if not allowed to flower itself to death. Enough room to tide the plants over a couple of years must be allowed, and as long as this is the case no harm will come to them. Water them freely at the roots all the year round, but especially when hot, dry weather causes evaporation to be more than usually rapid. Light syringings overhead are also very invigorating to the plants in summer.

Odontoglossum hastilabium fuscatum.—In this variety there is much more colour on the sepals and petals than in the type, while the lip is similar to that of the latter. The outer segments, too, are usually wider, though the plant is not more beautiful. Like the type, it thrives better in a slightly higher temperature than that recommended for *Odontoglossums* generally, and if no intermediate house is at command, it does well in the coolest part of the *Cattleya* house, choosing as shady a position as possible. The roots like plenty of room and a rough open description of compost, peat and Moss with charcoal over good drainage suiting it well. It comes from Venezuela, and was introduced in 1856.

Phalaenopsis Boxalli.—This species is not common, but is a distinct and pretty plant of rather dwarf habit. The flowers occur on spikes 8 inches or 10 inches in length, about a dozen on each. These are small, with yellow sepals and petals blotched with reddish brown, the lip white, of extraordinary form, yellow, and purple. It is best grown in rather small baskets filled nearly to the rim with crocks, and surfaced with living *Sphagnum* Moss. This will prevent any or much disturbance of the roots until the basket decays or the plant gets too large for it. Plenty of heat and moisture and water in accordance with the state of growth are necessary. It is a native of the Philippine Islands, and was introduced by Messrs. Hugh Low and Co. in 1882.

ODONTOGLOSSUM OERSTEDI.

FEW of the smaller *Odontoglots* are more beautiful than this little gem, a well-cultivated specimen freely flowered being only too rarely met with. The habit is dwarf, the pseudo-bulbs roundish, each bearing a single deep green leaf, the spikes springing from the base and bearing few flowers, each about 1½ inches across. These are pure white with the exception of the centre of the lip, which is yellow—a pretty and chaste flower. Many cultivators have failed with this species, yet properly treated it should not prove difficult of cultivation, though its dwarf habit does not fit it for withstanding severe checks by drought or otherwise. Its habitat is high up—9000 feet—on the hills in Costa Rica, where it grows on Moss-covered rocks and trees in a low temperature. In such a position it is naturally exposed to rough winds, and to bring it home and expect it to grow in a stuffy house heated above the temperature of an ordinary greenhouse is to court failure. *O. Oerstedii* should be grown in the coolest house at command. In fact, from the end of the present month until the end of August it is impossible to keep it too cool. There are some gardens where the houses are so high and exposed all day to the sun that it is impossible to grow this class of Orchid in them well. Damp, shade, and ventilate as one will, the temperature when a blazing sun comes directly on the houses cannot be kept down. But in most places it is possible to keep the inside of a closely shaded house much cooler than the external air, and this is all that can be done. The ordinary blinds at such times must be supplemented by thick mats, and these should be kept moist by frequent syringing or hosing down. Damp freely inside the house, keep plenty of air on in the cool of the evening and early morning, and almost close the houses at midday. Thus the temperature will not rise much above 75° in the hottest weather, and plenty of moisture will be about the plants. They should be grown in small-sized pans and hung up close to the roof, where the best of the

air currents reach them. The best time to attend to the compost is in late summer or autumn when the young bulbs are about half-grown and beginning to root. It is the greatest mistake to pull them about in spring. Use equal parts of peat and Moss over good drainage, and put plenty of crocks and charcoal about the roots as potting proceeds. Never allow the compost to get really dry, and if the Sphagnum about them keeps gently growing the whole year round, so much the better. Insects are not usually troublesome if the atmosphere is kept right, but should they put in an appearance the plants should be at once carefully sponged. Disturb the plants as little as possible when repotting, and keep a very moist atmosphere directly afterwards. O. Oerstedt was discovered many years ago by M. Warszewicz, a Polish collector, but he did not succeed in sending home living plants, and it was not cultivated in this country until 1872, when one of Messrs. Veitch's collectors sent it home to the Chelsea nursery.

Epidendrum evectum.—This is a stout-growing species of the long-stemmed section, the growths attaining a yard in height and bearing on the apex long drooping panicles of purple blossoms. It likes a rough rooting medium, and is well suited in equal parts of peat and Moss, with abundance of rough charcoal and crocks. The plants require of course considerable head room, and are in consequence best suited for large houses. On the central stage of the Cattleya house, where only sufficient shade is applied to prevent the foliage scorching, they will be satisfactory as a rule. Plenty of air and a moist atmosphere are also necessary.

Dendrobium thyrsoiflorum.—One of the most beautiful forms of this Orchid I have seen is open with me this week, the blooms of large size, and in place of the clouded white of the usual forms the sepals and petals are of the purest snow-white, very broad and handsome; the lip rich golden-yellow. It is a great pity these superb Dendrobiums last so short a time, for they are amongst the most beautiful of Orchids. As soon as the blossoms are well open the plants should be removed to a cool, fairly dry structure, and shaded from the sun. This will preserve the flowers over as long a time as it is possible to keep them. *D. thyrsoiflorum* is one of the many fine additions made to the genus by Messrs. Low, who introduced it in 1864.—H. R.

Cœlogyne ocellata.—Though not a particularly showy species, this is very distinct and pretty; it is also one of the most variable in the genus. The pseudo-bulbs are each 3 inches or so high, the leaves long and narrow, and the racemes carry about half-a-dozen flowers. In the best forms these are upwards of 2 inches across, the narrow sepals and petals creamy white, the lip lined and spotted with orange-yellow. It is best treated as a basket plant, and given a free, open compost grows freely in a shady position in the Cattleya house. It should be watered more or less freely all the year round. It is a native of Sylhet, and though discovered early in the century does not appear to have been in cultivation until 1838.

Dendrobium Griffithianum.—This is a very fine species, closely related to, if not a variety of, *D. densiflorum*. It produces much longer and looser spikes of flowers, these being similar in colour, viz., bright golden yellow. They are freely produced from the upper joints of the pseudo-bulbs, usually when the latter are two years old, but occasionally the first season. In common with several others of the evergreen section, it may be well grown in a lower temperature than the deciduous species, thriving well in a house devoted to Cattleyas. Give fairly large pots and drain these well, using the compost in a rough and very open condition. From early spring till late autumn the plants must be well watered at the root, but they may then be removed to a cooler house for a few weeks and kept on the dry side with advantage. The

pseudo-bulbs must never be allowed to shrivel, but no more water than is required to prevent this need be given. Thrips are very fond of this section of Dendrobies, especially if grown in a warm house, and they will greatly disfigure the plants if not kept well in check. This fine plant is a native of Burmah, and was there discovered many years ago by the botanist whose name it bears.

Dendrobium Fytchianum.—This pretty species is not so much grown as it deserves, for it is a very beautiful Dendrobe and extremely free. Small bits only a few inches high are almost sure to flower annually as long as they are healthy and well-established, while larger plants with full-sized racemes are among the most beautiful in the genus. The growth is erect and the flower-spikes occur either quite on the apex or nearly so, and bear a number of flowers in accordance with the strength of the plant. These are pure white in the sepals and petals, the side lobes of the lip being streaked with rosy purple, the centre one having a small tuft of very fine greenish yellow hairs at the base. The habit is deciduous, the plant losing its leaves early, and, as a rule, taking a distinct resting season. Growth is most satisfactory in small pans suspended from the roof in a hot, moist house—with the majority of the genus, in fact—and during the resting season enough moisture only to keep the pseudo-bulbs plump should be allowed. It is very subject to the attacks of yellow thrips, which in times past have made it difficult of cultivation, but since the advent of vaporising, this difficulty has to a great extent disappeared. The plants may be kept fairly warm while the flower-spikes are forming, but to preserve the blossoms a cool, dry atmosphere is necessary. *D. Fytchianum* is a native of Burmah, and was introduced by Messrs. Hugh Low and Co. in 1864.

FERNS.

COLOUR IN FERNS.

I HAVE on several occasions referred to the beautiful tints in the young fronds of some varieties and have given lists of the best sorts. It is only under certain conditions that these bright tints are fully developed. It is essential that the plants should be fully exposed to the light, and if from the time they begin to start into new growth shading is not commenced, they will withstand a fair amount of bright sunshine. As the sun gets more powerful, some shading during the middle of the day will be necessary, but the blinds should be drawn up quite early in the afternoon; it will do no harm even if the new fronds do wither a little. It is remarkable that all of those showing the red tints seem to enjoy sunshine, while most of these of more sombre hues delight in shade, though even with shade-loving sorts it is often over-done. Even in raising spores I have found that in the pots most exposed to the light they germinate much better. I have seen pots which have been partly under a stage, where the spores have started much sooner on the side most exposed to the light, and I believe failure with seedlings often occurs through over-shading. Watering is another important matter, while in some instances I have noticed that the colour has been entirely lost through allowing the plants to get too dry (this I once noticed in a batch of *Doodia aspera multifida*). The colour will develop better if the plants are kept on the dry side at the roots, and no surface moisture should be given. Of course this, together with being exposed to the light and sun, necessitates careful attention. I find that those which have well filled the pots with roots usually produce brighter tints than newly potted plants which

are growing vigorously. It is a remarkable fact that in varieties of the same species, under precisely the same conditions, some will develop the bright tints, while others retain the normal green without the slightest colour, though perhaps the green may be of a lighter shade. I have noticed this particularly among the *Adiantums*. Often in a batch of seedlings of *A. tenerum* the two distinct characters may be found. Among some seedlings of *A. curvatum*, which is usually of a deep green shade, I have found a few plants, the young fronds of which have shown a distinct bronzy tint. I believe it is, as with flowering plants, in seedlings the individual plants will vary in depth of colouring, and if the best forms are selected when collecting spores, it may be intensified. Sufficient attention is not given to the fact that among seedling Ferns variations will be found, and that by careful selection of the best for saving spores from, there is the same opportunity of improving Ferns as other classes of plants. A.

ROSE GARDEN.

VARIATIONS IN ROSES.

THE question has more than once been asked if Roses did not deteriorate. I do not think a variety loses in quality if due care and selection be exercised when propagating. If we increase from bad or indifferent wood, it is only reasonable to expect a Rose of poorer quality. Certainly this will be the case until the plant has succeeded in gaining strength and vigour, with more healthy constitution. Another cause of deterioration lies in propagating from a plant showing the variations I will endeavour to point out. That selection has great influence upon stock we have ample proof both in the case of vegetables and flowers. Then why not be more careful as regards the many varieties of Roses? For example, we have that grand new Tea Maman Cochet, which generally gives us a fine shade of flesh-coloured rose, more or less suffused with carmine and salmon yellow, always clear and opening well when coming as described above. But we now and again get what may be called a bad type of this. The flower is of similar size and form, but the fault lies in the petals being much thinner, the colour pale and dull, the flower opening badly. It is not that we get an occasional bad blossom upon the plant, but all flowers upon that plant are equally indifferent. I have found it so in cases where I am positive the buds were taken from Maman Cochet, so that it cannot be put down to mixture of varieties. If we select buds or grafts of this variety indiscriminately, we run great risks of perpetuating the bad type. I am not alone in this contention, for, if my memory does not deceive me, Mr. C. E. Cant, of Colchester, holds the same views as regards bad types of this and other Roses. I hope none of my readers will for one moment imagine I am disparaging such a grand Rose as Maman Cochet. I could not do so when I have its beautiful blossoms under glass at the time of writing, and bear in mind the many ideal blooms seen during the past three summers. But let us be more careful in selecting the propagating material.

If we turn to another grand Tea of older origin (1871), we find a similar variation. I allude to Comtesse de Nadailac. I am acquainted with more than one instance where plants of this Rose have produced such indifferent flowers that they were useless. It is not an occasional blossom, but the whole of those upon that plant

are the same, notwithstanding they were side by side and had the same treatment as others which produced superb examples. It is the same with *Souvenir d'un Ami* and several others. Then we find *Perle des Jardins* varying in form more than colour. A plant will persistently put forth flowers of perfect form, whether they be large or small, while a second plant just as regularly produces blooms with split centres or so globular that they do not open freely.

Until I had given the subject some close attention I was under the impression it was only an occasional or chance flower which had these defects, but am now convinced that some plants produce them so persistently, as to call for extermination if we are to have a stock that can be relied upon to give us blossoms of these varieties in their best form. I have found *Marie Baumann*, *Duke of Wellington*, *Navier Olibo*, *Dr. Andry*, and a few more Hybrid Perpetuals vary in the same way. It is not due to the season or weather, otherwise why do we find the better quality flowers upon neighbouring plants? Nor is it the same kind of variation we find in *Comtesse d'Oxford*, *Mme. Lambert*, *William Allen Richardson*, *Anna Ollivier*, *Marie van Houtte*, *l'Idéal*, *Beauté Inconstanté*, and others, which are naturally changeable without being of indifferent quality. It would be interesting to know if others have observed these variations, and if so, to what extent and upon what varieties. None of us would think of propagating from plants of indifferent character if we knew such to be the case, and I feel sure we could secure a more reliable stock of many varieties if a little more attention were given to this subject.

Uckfield.

A. PIPER.

Rose The Bride as a pot Rose.—I consider this a most useful Tea Rose for growing in a pot to obtain early flowers. I am aware *Niphetos* has many good qualities, but in shape I consider *The Bride* superior. I grow several kinds in pots. My plants this year were put into a warm greenhouse early in November. From *Adam*, *Narcissus* and several others I began cutting about the middle of January. I find *The Bride* does not come on quite so quickly as some. About the middle of February it began blooming, and has since given some grand flowers.—J. CROOK.

Watering recently planted Roses.—One need not fear to plant Roses so late as March and April provided the plants are carefully tended afterwards; but if allowed to take their chance the mortality must be very great, especially in such a dry season as the present. Unless showers come soon, all newly-planted Roses should have some water at their roots about once a week and a syringing overhead each morning. If planting has not yet been carried out, I would recommend that, prior to doing so, the roots of the Roses be immersed in water for a few minutes and then heavily sprinkled with dry soil or old cocoa-nut fibre. In addition to this give each plant a shovelful of good potting bench compost, filtering it in well among the roots. By adopting such simple yet essential methods few if any failures should occur from spring planting, even if it be deferred till Easter.—P.

Striking Rose cuttings.—Where plants for indoor use are required, such as *Maréchal Niel* and other Teas, they may be produced in plenty by dibbling the cuttings in rather thickly into 5-inch pots and plunging in strong bottom-heat. The roots soon form, and top-growth is also quickly made. The cuttings may be about 6 inches in length of dormant wood from indoors, and they should have the bottom eyes pinched out. As soon as the cuttings are rooted, the pots must be lifted out of the plunging material and the plants potted singly a few days

afterwards, shading them until the young roots are getting well into the compost, when they may be very gradually inured to less heat and moisture. While rooting, the cuttings must never be allowed to get dry, and they must be inserted round the edge of the pot only. When established in their pots, they must be cut back rather freely and the resulting shoots taken up singly if required for long rods, or as many as are needed to form the desired shape of plant.

Rose Mrs. Pierpont Morgan.—For two years I grew a small quantity of this Rose. It was not a great favourite, for some unaccountable reason, with the city retail florists. I do not encourage retail trade, catering exclusively for the wholesale trade. Some persons will drop in, however, occasionally wanting flowers, and because the dealers in Philadelphia did not take very kindly to Morgan, this was the Rose offered to retail customers. So well did it please them, that I secured orders for delivery at regular intervals—twice a week. In addition to its other good qualities it is an excellent keeper. These customers frequently remarked that the flowers when three or four days old were still in good condition, and when the fresh ones were delivered the older ones were forwarded and presented with evident great pleasure to some less fortunate person who did not have flowers often. For this reason, if for no other, *Mrs. Pierpont Morgan* ought to be grown to a greater extent than it appears to be, especially in the smaller towns where a florist is a combination of grower and retailer.—L., in *American Florist*.

NOTE ON CLIMBING ROSES.

RECENTLY I saw a very novel idea carried out, and one which I think might be followed to advantage. A large sandstone wall at the bottom of a garden was planted with choice climbing Roses. As the wall faced due south and the north and north-east parts of the garden were sheltered, it can readily be imagined how warm and dry the border would be. So hot was it during the past three summers that the Roses were far from satisfactory, being parched and baked in spite of free root-waterings. I now see that a quantity of Oak cordwood has been laid upon the border, many of the long shoots of Roses being brought down and fastened to this. The border is about 2 feet wide and has been well manured. There is still an ample supply of wood upon the wall, although enough has been removed to clothe the logs as soon as the rods break into growth. That the Roses grew well last autumn will be evident when I say there were shoots of *Crimson Rambler* 10 feet and 12 feet long, while *Climbing Perle des Jardins* had 14 feet of sound wood. I have never before seen a climbing "Perle" in such grand form outdoors. Other varieties are *William Allen Richardson*, *Climbing Niphetos*, *Maréchal Niel*, &c. The idea was that if it turned out too hot for Roses upon the sandstone wall, the shoots upon the logs would take a larger proportion of the sap.

In the same garden are some stumps of old fruit trees, and around these are *Crimson Rambler*—one plant had upwards of a dozen long shoots, some of which had reached the top (10 feet) and still spread out another yard or so—the Hybrid Sweet Briers, and the stronger growers of the Ayrshires. What pretty and natural pillars these will make can readily be imagined by all who know their habit of growth. They are not tied in close to the stumps, but allowed to grow almost at will, and will not be pruned. Roses are a great feature in the garden referred to, but none are grown in formal lines or secured to stakes in the stiff and formal manner we so unfortunately meet with in most cases.

RIDGEWOOD.

NOTES AND QUESTIONS.—ROSES.

Dwarf hedge Briers for Tea-scented Roses.—After a long experience among all stocks I

am convinced that very dwarf hedgerow Briers give the best results both in quality of flower and in vigour of plant. In a two or three-year-old hedge Brier obtained with all its fibrous roots we have a sap producing power unequalled in any other stock. Such Briers may be budded level with the ground, the lower the better, and, provided the soil is good, some fine plants will be the result. Tea Roses upon such Briers planted at the foot of walls in a rich, well drained soil would give blossoms of surprising quality.—P.

Rose Souvenir de Mme. Eugene Verdier.—This Rose has the rather unusual trait of yielding buds and expanded blossoms of totally distinct colours. Its pretty buds are of a clear saffron-yellow, and in the forcing house this colour is very pronounced, but the expanded blossoms are almost pure white and have a great similarity to those of the Hon. Edith Gifford. The exquisite form of this latter variety is almost repeated in the Rose under notice. Like the majority of the Hybrid Teas, its flowers are borne on good stiff stems. I can confidently recommend this Rose, and I believe it will prove to be one of the most useful that its raiser, M. Pernet-Ducher, has given us.—P.

Pegging down Roses.—One rarely hears of this system giving satisfaction. In my opinion it is over-done. Rather than peg down the whole of the branches, a much better result is produced by pegging down, say, two or three of the growths of a good vigorous kind, allowing the remainder to grow in their usual manner. Last summer I saw a bed of *Grace Darling* thus trained, and it was decidedly successful. Many of the grand Hybrid Teas and Perpetuals, such as *La France*, *Viscountess Folkestone*, *Mrs. John Laing*, &c., are amenable to this treatment, and sometimes a growth may be layered during the early summer months which would give a very useful own-root plant to fill up a blank the following spring.—P.

Rose Fiammetta Nabonnand.—If only for its delicious fragrance this Rose should be grown, especially under glass. But, apart from such a valuable peculiarity, this variety is worth growing for its delicately tinted, globular blossoms. The colour is satin-white, beautifully suffused and edged with rose, and its shell-like petals are very handsome. It cannot be called a very double Rose, but the petals fold over the centre so gracefully as to give the flower the appearance of being a very hard one. The growth is not quite so vigorous as one could wish, but perhaps it will improve in this respect. A newer variety named *Baronne M. de Tornaco* is said to be an improvement on *Fiammetta Nabonnand*. Certainly it appears to be rather more heavily marked with rose, and the white petals have a decided tinge of buff.

Long-stemmed Roses.—Many gardeners are doubtless often sorely pressed to meet the requirements of their employers for long-stemmed Roses in the Rose season. The demand for large showy Roses of the type of *Mrs. John Laing* with long stems exhibits no sign of diminishing, and for a gardener to keep up the supply entails a severe strain upon his plants unless he takes precautions to obviate it. To cut several branches, say 2 feet long, from a plant in the growing season must considerably impair its vitality. What I would suggest is that gardeners should set out a portion of the kitchen garden for this purpose and have a double set of plants to cut from, giving each set alternately a year's rest to recoup their vigour. There is no reason why a gardener should not be able to produce flowers as fine in quality as he can purchase from the growers. A well-manured kitchen garden soil is just the one for them. Set out the plants in rows 3 feet or more apart, give liberal dressings of farmyard manure, supplementing those with bone-meal. Keep the soil well cultivated, and fine, vigorous shoots will be the result. As pink and blush Roses of the H.P. and H.T. classes are most in request for table decoration, the following kinds should be grown in large quantities: *Baroness Rothschild*, *Belle Siebrecht*, *Captain Christy*, *Caroline Testout*, *Clio*, *La France*, *Mme. Abel Chatenay*, *Mme. G. Luizet*, *Mrs. John Laing*, and *Spenser*.—GROWER.

TREES AND SHRUBS.

SPIRÆA VAN HOUTTEL.

Among all the Spiræas the palm for beauty is easily borne off by this, so far as American gardens are concerned. It maintains a nice succession, too, following after Thunberg's and the Plum-leaved kinds, and, like every flowering shrub in this sunny land, each shoot of the previous year's growth becomes a veritable flower wreath. The picture shows part of a group of



Spiræa van Houttei. From a photograph sent by Mr. A. Herrington, Madison, New Jersey.

about twenty plants that fill an isolated bed on the lawn, and at the time the photo was taken the whole group was, as the portion shown, a graceful, showy mass, the outer branches drooping down to the turf with their floral burden, the inner ones tossed together in mounds for mutual support. Its effect is better massed in this way, it being of more slender, upright growth than most Spiræas. It might be thought that such profusion would be exhaustive and could not be sustained year after year, but immediately flowering is over I well

thin out the wood that has recently flowered, and the bushes quickly break away again into shoots that will be flower wreaths the following year. *S. Van Houttei* is supposed to be a hybrid between *S. trilobata* and *S. media* and one of the hardiest of the family.—A. HERRINGTON, *Madison, N.J.*

— This is certainly entitled to a place among the most select Spiræas, and when the coloured plate of *Spiræa* Anthony Waterer was issued, Mr. Goldring placed it in the first dozen. *S. Van Houttei* is not of quite such a

choked up in a mixed shrubbery, it is never seen to advantage. An occasional mulching and the removal of any old and exhausted branches, thereby encouraging the clean, vigorous shoots upon which so much of the future display depends, are of great service to many of the Spiræas.—H. P.

CALYCANTHUS.

This is a genus of fragrant deciduous shrubs exclusively native of North America. There are only three (or, in popular estimation, four) species, one of which is found to the west of the Rocky Mountains, the others in the South-eastern United States. Some authorities even reduce the number of species to two, viz., *C. floridus* and *C. occidentalis*, making all the eastern plants varieties of the former. The only other plant well known in gardens that is nearly related to these shrubs is the charming Winter Sweet (*Chimonanthus fragrans*), from China and Japan. The Calycanthuses have large opposite leaves, often rough to the touch. The flowers are borne at the ends of the shoots, and are made up of numerous sepals and petals, between which no real distinction can be drawn. Both are of what is usually described as a "lurid purple," really a purple in which red and brown also appear. When crushed the flowers emit a fruity odour resembling that of Strawberries, and quite distinct from the aromatic, camphor-like fragrance of the wood. The bark of *C. floridus* (commonly known as the Carolina Allspice) is said to be used as a substitute for cinnamon. The fruits, which appear to require a sunnier climate than ours for their development, are of the shape and size of small Figs, but hard, and retaining the seeds for a long period.

All the species are of easy cultivation; they like a sunny position, a good friable soil, and plenty of moisture. In this country they can best be propagated by layers, or sometimes by dividing up old plants.

CALYCANTHUS FLORIDUS (Carolina Allspice).—Mark Catesby, the author of "The Natural History of Carolina," was the first to introduce this species to England, which he did in the year 1726. According to the old records, the original plants were gathered "hack of Charlestown," a noted city in Carolina. It remained a very scarce plant till 1757, when it was sent over in quantity. The one character which distinguishes this from its fellow species is the soft down that covers the whole of the under surface of the oval leaves and young branches. The flowers are of a red-purple, tinged with brown. It is a rounded bush, rarely more than 4 feet to 5 feet high—in this climate at any rate—although Duhamel describes it as 8 feet to 10 feet high. The wood has a very pleasant odour resembling camphor. The species is a native of the South-eastern United States, but does not reach further north than the State of Virginia. Asa Gray observed that in a wild condition it grows chiefly on hillsides in rich soil.

C. GLAUCUS.—This species has been much confused with *C. floridus*, and the year of its introduction to Britain is generally given the same as for that species, namely 1726. According to Lindley, however, it was first brought over by a Mr. Lyon in 1806. It is a bush of much the same general aspect as *C. floridus*, but is readily distinguished from that species by the leaves. These have a longer and more tapering point, and are glaucous and almost without down beneath; the upper surface is glossy green and rough to the touch. The flowers are almost scentless, and each $1\frac{1}{2}$ inches to 2 inches in diameter, the numerous segments being of a chocolate-purple colour.

C. LEVIGATUS.—The plant long known under this name is now considered to be a form of *C. glaucus*. It differs from the latter in having the leaves green on both sides, also in its smaller

loose, open style of growth as some of the Spiræas, but still it forms a well-balanced bush that is particularly effective when from 4 feet to 5 feet high, though under some conditions it grows taller than that. The flowers are pure white and borne in neat, rounded corymbs. So numerous are they, that when at their best the plant is almost a mass of white. This variety is of garden origin and is said to be a cross between *S. media* and *S. trilobata*. Like all the Spiræas, it needs at least fairly liberal treatment, as in dry, sandy spots, or where

flowers, with narrower sepals and petals. It is, however, connected with *C. glaucus* by several intermediate forms, some being neither absolutely green nor glaucous. No true specific distinction between the two exists. It is often grown under varietal names of *C. floridus*, viz., *C. f. nanus*, *C. f. elongatus*, *C. f. longifolius*, and others, all of which are this green-leaved form of *C. glaucus*, generally known as *C. levigatus*.

C. OCCIDENTALIS.—This is the species that represents the genus *Calycanthus* on the western side of North America. It is a native of California, where it commonly grows near the banks of streams, and whence it was originally introduced to this country by David Douglas in 1831. In its native home it grows from 6 feet to 12 feet high, and under cultivation here also it attains to greater size than any of the other species. It has large tapering leaves, varying from 3 inches to 7 inches in length. They are green on both surfaces, and, although paler coloured beneath, are neither blue-white like those of *C. glaucus*, nor downy like those of *C. floridus*. The flowers are each 3 inches or more across, the numerous strap-shaped segments being of a purplish red, becoming tawny red towards the tips. It commences to flower about midsummer and keeps on for two or three months. Both the leaves and wood have when crushed the characteristic fragrance of the genus, although it is not so pleasant, perhaps, as that of *C. floridus*. In gardens it may be distinguished from the other species by its stronger habit and by the larger leaves. It is also known as *C. macrophyllus*.

W. J. BEAN.

The Ash trees of Northern America.—

The five species of the Ash indigenous to the Northern States are all found in this immediate vicinity, and I doubt if this can be said of any other part of the United States. The white, black, and green are the most abundant. The Western Green Ash (*Fraxinus viridis*), commonly called the White Ash, is found with its eastern relative the true White Ash (*F. americana*). The former thrives better on high land than the latter and is a more rapid grower, but does not attain the size of the White Ash. The Black Ash (*F. sambucifolia*) is the largest of all, and is found only in swamps and along streams. The Red Ash (*F. pubescens*) is found at the bottom of ravines only. Although a very slow grower it makes a fairly large tree, but the branches are more brittle than in any of the others. The Blue Ash (*F. quadrangulata*) is a very desirable tree. There are very few examples of this species to be found here, but it appears to be as fast a grower as the White Ash. The Green Ash grows on a greater variety of soils than the others, and is the best tree for the west. In a favourable locality the White Ash makes a better street tree than the green, having a head of greater spread, and the leaves have a much brighter colour in the autumn than those of the green. The Black Ash is suitable for low and wet ground only. The Red Ash will grow on drier ground, but is a rather unsatisfactory tree on account of its very slow growth. The Green Ash grows rapidly when young, makes a fine ornamental or shade tree, and affords excellent timber.—THOS. H. DOUGLAS, *Waukegan, Ill.*, in *American Gardening*.

NOTES & QUESTIONS.—TREES & SHRUBS.

Japanese Maples and Hepaticas.—Can you advise me in what soil and aspect to plant a collection of Japanese Maples? I propose to carpet them with Hepaticas. Would the same soil and aspect suit for both?—A. J. B.

* * * About London they do well in warm sandy loam, and probably would do well in good peaty soil also. Kindly repeat your various questions on separate sheets.—ED.

Forsythias.—The pretty yellow blossoms so freely produced just now by Forsythias are very useful for cutting, as there is so little from out-

side at all suitable. They are borne close to the stems, and these may be cut entire in lengths to suit whatever style of decoration may be necessary. No harm is done to the bushes by taking these points, as the young shoots that push from the base are very quick growing, and on established plants soon make up the deficiency. The various species or varieties should be more freely planted, for the foliage is fresh-looking and green all through the driest summer, the thong-like roots going deep for their moisture supplies. A fairly heavy and moist loam suits them best, and a few bushes should, if possible, be planted in sheltered positions near the house, as here the flowers come early and are handy for cutting. Large specimens do not move particularly well, but the plants about a yard high that are usually sent out from nurseries do well, taking hold of the soil quickly and rapidly making fine bushes. It is also very easily propagated. Cuttings about 9 inches long taken early in autumn and placed in sandy soil under handlights root very freely, and if the bush form is desired, the eyes must be left intact below ground, these in the next season pushing up strong sucker-like shoots that soon make a nice plant, or the young half-ripened shoots may be taken in summer and rooted under glass, keeping in the cutting pots the first winter and repotting in spring.

KITCHEN GARDEN.

THE "DE TOUS LES MOIS" RADISHES.

THE small early kinds of Radishes, known in France by the term "de tous les mois," are probably the most commonly grown and best known of all ordinary vegetables. There is, in fact, no garden, from the tropics to the poles, in which they may not be cultivated, and there is no table in any part of the world at which they are not welcomed as a pleasing change and wholesome relief to a diet of "canned" provisions, or as a salutary stimulant to an appetite enfeebled by the effects of a warm climate. At Paris not a day in the year passes in which bundles of these small Radishes are not to be seen in the markets in such quantities that the aggregate, if put together, would form small mountains of very respectable dimensions. Similarly, in all towns of any size in Europe, America, and the parts of Asia and Africa in which Europeans have settled there is no hotel of high or low degree, no restaurant, railway refreshment-room, country inn, or seaport eating-house in which these small Radishes are not served up nearly all the year round either as a principal or an accessory part of the entertainment. When, in the Soudan, Indo-China, or Madagascar, our colonial troops occupy a fixed post for a few months, one of the first steps taken by experienced officers is to establish a garden, in which Radishes are not forgotten, more especially as these are well known to furnish a speedy supply, and may make their appearance on the dinner-table in three weeks from the time of sowing. In the long winters passed by whalers and arctic explorers, supplies of Cress, Scurvy Grass (*Cochlearia*), and Radishes have been grown in boxes of soil, shipped expressly for this purpose, and utilised as one of the best remedies against the maladies peculiar to arctic climates, especially scurvy.

There is a great variety of forms and colours. It may be asked what is the use of so many distinct races of a vegetable which, after all, is only of secondary importance and of doubtful alimentary value. A sufficient reply to this is the fact that these diverse races do exist, are in demand and find purchasers, so that they are easily accounted for in this way. It may be

added, however, that the peculiar merits of the various races can also be appreciated and explained, and we need not go beyond the considerations of public taste and commercial advantages to justify the existence of very distinct races especially adapted for cultivation at different seasons of the year and under different modes of treatment. First of all, as regards

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or speedy growth, if it is considered that a difference of two or three days in this respect allows of four crops being gathered instead of three from the same hotbeds which were made up for the winter's production, or permits the grower to be some days earlier in receiving the cash for several beds of Radishes the seeds of which germinated in forty-eight hours, the advantage will be obvious. In kitchen garden culture, as in business of a more extensive order, time is money. Combine the various degrees of earliness with differences of form and colour which are most in fashion or demand in certain localities, and you will obtain a very fair number of distinct races of Radishes. But this is not all. Amongst the Radishes, as amongst many other vegetables, a distinction must be made between the kinds which are suitable for the private gardens of amateurs and those which are best adapted for market gardens. The latter should be of rapid growth, uniform size and fine appearance, quickly marketable, leaving the ground free for a successional crop either of the same or some other vegetable. It matters little that the market garden Radish may have a slight tendency to become hollow at the centre if allowed to remain too long in the ground, because it will always be gathered, bunched and sold before it arrives at that stage. In a private garden, on the other hand, the gardener will, like the market gardener, make his sowings daily or every two days, sowing a quarter of a bed at a time, and will reckon upon gathering from this 100 Radishes daily for eight or ten days at least. He, consequently, will prefer a race which does not come to full growth quite so rapidly as that which suits the market gardener, but is of firmer texture and less liable to become flabby and hollow-centred. Gathering every day the best grown plants, he makes room for others, and so for a number of days, without labour or difficulty, he keeps on gathering a gradually maturing and successional supply. As amongst these comparatively hardy and durable Radishes for outdoor culture, in order to satisfy different tastes, there must be a variety of forms, round and long, and also of colours in the roots, if the market garden and amateurs' varieties are added together, there will be found to be more than twenty distinct kinds, which for the most part are known from one another by some purely descriptive appellation.

ORIGIN OF THE RADISH.

The garden Radish forms one of the pretty large number of vegetables the origin of which has not been fully ascertained from a botanical point of view. It seems doubtful whether the hypothesis which has been frequently advanced, and notably by M. E. A. Carrière, viz., that our cultivated Radishes are derived from *Raphanus Raphanistrum* (our native wild Radish), can be successfully maintained, as two very important botanical characteristics are opposed to it. In the first place, the jointed seed-pod of the *Raphanus* differs from the valveless pod of the cultivated Radish, and, secondly, the flowers of the latter are always white or pink, while those of the wild Radish are frequently yellow. To these may be added a physiological feature, viz., the greatly inferior capacity of resisting

cold which is observed in the case of the cultivated Radish as compared with the wild Radish, which would lead us to suppose that the former originated in a warmer or more southern habitat. The analogy which is observable in the leaves, seed-pods, and general appearance of the seeds is rather favourable to the opinion that our cultivated Radishes have sprung, like the oil-producing Radish of Madras and the Mougri or Serpent Radish of Java, from some East Indian species which has now possibly become extinct as a wild plant in its original native home. Whatever may have been the origin of the annual Radish, we can hardly be wrong in supposing that the root must at first have been of a red or violet colour, as these are still the prevailing colours of the roots of cultivated Radishes. The white and yellow forms may have sprung indifferently from either a red-rooted or a violet-rooted parent form.

Up to the commencement of the present century, the round pink (also known as the round salmon-coloured) and the round white were almost the only kinds in common cultivation, together with a few long-rooted kinds, then known by the distinctive name of "Raves," which they still preserve in many localities. These are comparatively leafy kinds, somewhat slow in growth, but, as a set-off to this, also slow in becoming hollow at the centre. In this respect a somewhat later-raised variety may be compared to them, viz., the Radis rond sang de bœuf, which is of a very deep red colour with firm, crisp flesh, and well adapted for cultivation in ordinary soil during the summer months. With this may be classed the Radis rond jaune extra hâtif. The same modes of culture and treatment which are applicable to these round-rooted Radishes may also be employed with the demi-long rose, the demi-long blanc, and the demi-long écarlate varieties. These three kinds come to full growth in less than a month, but continue for a long time in a firm condition and fit for use. The first two are olive-shaped, while the third is longer in form and pointed at the lower extremity, by which features it may be clearly distinguished. All these varieties which I have just named may be comprised in a series to which I shall give the name of "ancient" or "primitive."

The next series, which may be termed a "modern" series, comprises varieties which are more speedy in growth, more improved, and, so to say, choicer, but also more exacting as regards the kind of soil which they prefer and the cultural attentions which they demand. They are very tender and delicate kinds of Radishes, preferring a compost to ordinary soil, and needing frequent watering to obtain their full quality. They should be gathered for use as soon as they have reached a sufficient size, but before they have had time to begin to become flabby or hollow-centred. They are kinds which are equally well adapted for market garden culture and for private gardens which are carefully managed. At the present time they are the most highly esteemed and the most extensively cultivated of the "de tous les mois" Radishes.

Amongst the round forms of this series the following are to be distinguished, viz., the Radis rond rose hâtif, the rond rose à bout blanc, an excellent kind, deserving recommendation for its exceedingly fresh and pretty colour, its rapidity of growth, and its quality of always preserving its flesh in a plump and tender condition even when the bulb is allowed to grow to the size of a small Walnut; the Radis rond blanc petit hâtif, of a pronounced flattened or depressed shape, with very delicate flesh and very small leaves, which are often

tinged with brown at the centre; the Radis rond écarlate hâtif, characterised by its very regular spherical shape and by the very lively and intense colour of the skin of the bulb; the Radis rond violet hâtif and its variety à bout blanc, both of which are as tender and well-flavoured as the pink kinds, and their peculiar colour imparts a pleasing variety to dishes of Radishes.

The demi-long varieties are not quite so numerous as the round kinds, and may be reduced to four or, I might say, five, because one of them has become sub-divided into two races, which are very appreciably distinct from each other. This is the most important form of them all, viz., the Radis demi-long rose à bout blanc. In the horticultural world two races of it are distinguished as being of very different origin and appearance. One of these is of a light pink in its coloured part, like an elongated Olive in shape, and is known as the "du midi" variety. The other, which is more cylindrical in form and of a deeper red colour, is known as the "chevreuse" variety, and is the kind most commonly used and seen in Paris on the tables of the restaurants. Its very elongated form is not a mere peculiarity of the race, but is due to a certain extent to a special manipulation in the culture, of which the Parisian market gardeners hold the secret. The Radis demi-long écarlate à bout blanc shares with the preceding variety the favour of the Parisians, and is distinguished by its very intense scarlet colour. The Radis demi-long écarlate hâtif, which is Olive-shaped and coloured to the lowest extremity, is probably the most pronounced scarlet-coloured of all Radishes. It is of very speedy growth and very pleasing in its appearance. Lastly, the Radis demi-long violet à bout blanc is a very pretty and elegant-looking two-coloured Radish, which only requires to be better known to be more widely appreciated.

The last series, which might be named that of the "fin de siècle" or "up to date" Radishes, should be classed as first in the matter of earliness or speedy growth. It comprises the extraordinary kinds with very small leaves, just sufficient to elaborate the nutriment which swells the roots, and also to allow of the Radishes being bunched, a matter of some importance in the practice of business. In one of these forcing varieties the root will be fit for use before the second leaf after the seed-leaves is fully grown, and under favourable conditions these extraordinary Radishes may be gathered for table use in from fifteen to sixteen days after sowing. In this series, which is especially to be recommended for winter culture in warm frames, but which is also very valuable for growing in the open air in compost during summer, we have the Radis à forcer rond rose, the rond rose à forcer à bout blanc, the rond écarlate à forcer à bout blanc, and the rond écarlate hâtif. The longer-rooted forms are the Radis à forcer demi-long blanc, an Olive-shaped kind, with very small leaves, the demi-long rose à bout blanc, and the demi-long écarlate à forcer à bout blanc. Lastly, we must include in this series a very singular form, which does not exactly correspond with any of the series previously enumerated, viz., the Radis à forcer rouge vif sans feuille. This is rather a botanical curiosity than a kind which is worth recommending for horticultural purposes. The root is slightly elongated, or nearly spherical in shape. The Radis rond écarlate, and especially the demi-long écarlate à forcer, will produce, just as speedily and with more certainty, roots quite as good in appearance and quality.

From this long enumeration it appears that the races of early or quick-growing Radishes

are sufficiently distinct and varied to satisfy the most fastidious and capricious tastes. The shades of differences which distinguish them are somewhat slight, and the conditions of culture and treatment are much the same except in market-gardening districts around large centres like Paris, where competition is active and always on the watch. For most amateurs, all the kinds enumerated are very suitable for cultivation, and if, instead of growing only one kind, a little variety of kinds is aimed at, the advantage will be found in the variety of the produce and the interest of curiosity which will be added to the gastronomic attraction in tasting and estimating comparatively the pretty little roots so diversely coloured. It is certain that a dish of Radishes made up after the pattern of M. Godard's coloured plate would be most tempting to any guest or diner possessed of good digestive powers.—H. DE VILMORIN, in *Revue Horticole*.

SIZE IN VEGETABLES.

It is one of the curiosities of the plea for size in exhibition vegetables that no such plea is made for these products for table use. When it is suggested that the primary object of showing size in these products at exhibitions is to display the capacities of each variety or kind, then it is possible to understand the purpose of showing large products. But, after all, in one important respect, exhibiting picked vegetables in this way is misleading, because no clue is furnished as to the actual nature of the crop the sample represents. It is the power of production, not necessarily the largest individual samples, but the heaviest and best-paying average crop that merits encouragement. Thus, in any discussion that may arise in regard to the exhibiting of size in vegetables, there is to be considered the purely exhibition value of size on the one hand, and the values of good table size and profitable average crops on the other. If we take Onions, for example. In these bulbs there has been for exhibition marvellous development of size during the past ten or twelve years. No one now questions the value of these fine bulbs for many purposes, and the old objection that they are wasteful so far as the cooks' needs are concerned no longer holds good. The newer method of culture enables wonderfully heavy bulbs to be obtained, but still there remains the question, Does, in the matter of average weight-produce per rod, the result justify the expenditure of labour and manure on these giant bulbs, as compared with the weight obtained in bulbs under ordinary culture? The same rule of comparison applies to all other garden products. Generally also the largest of products, no matter what, show the greater proportion of water as compared with those of less size, but produced in greater numbers. I have always held that whatever may be the objects of the grower of exhibition products, the awards should invariably be based on average table excellence, beauty, freshness, and evenness being combined. Big Onions, however, have nothing to fear in that discrimination, because these are, when properly stewed or baked, delicious table luxuries. A. D.

Seakale.—Not far from here, on the edge of Southampton Water, there are several plantations of Seakale that have flourished for years in the shingly beach just above high water mark. Some of the finest Kale I have ever seen was cut from old crowns that looked as if they had seen fifty years' growth. At this time of the year, just as growth is starting, the owners of the portion of shore on which the Kale grows go and heap the shingle up in good sized mounds over the crowns, and in April and May, when it is seen to be pushing through the mounds, the shingle is removed and the Kale cut off with a portion of the old rootstock with it. From seeing it grow in this way, I was led to plant some in poor, stony

ground that was scarcely considered worth cultivating, with the result that the Kale grew away even more strongly than other lots planted on the best soil. No doubt there is in many gardens shingly soil that would prove just the place for Seakale beds.—J. GROOM, *Gosport*.

—The produce of young plants of Seakale is so much superior to that given from stools several years planted, that one wonders why the latter are tolerated in so many gardens. Certainly from old stools a greater number of growths may be had, but these often develop incipient flower-heads, instead of the succulent leaf growth which forms the best kind of produce, this being a fault from which plants raised from thongs, and not more than a year or two old, are generally free. To obtain good results from the latest batches, blanched where grown, I advise that the thongs be planted now in groups of three, each group standing at about 18 or 20 inches apart in the row, and the rows at 4 feet apart, as this will give ample room for good growth and to obtain sufficient soil to ridge over the crowns for blanching. To economise space single lines of thongs for lifting may be planted alternately with the permanent lines of trebles, as the former will be lifted out for forcing before the soil in which they are growing is required for the above-mentioned purpose. Any free-working garden soil will provide the best possible medium for blanching Seakale, though where the garden soil is stiff and holding it will be necessary to import some other substance, such as finely-sifted ashes, leaf-mould, straw or sand, for the purpose. The modern system of lifting Seakale and forcing it in suitable structures has at times, when first tried, been brought into bad odour, simply through making the mistake of using crowns from very old stools for the purpose. These make the worst of material and refuse to push their crowns kindly, through being of too old and woody a nature. There is a very great difference in the nature of the growth made from year-old crowns which have been well grown in good, rich soil, and that from crowns taken from stools which have been some six, seven, or more years planted, and the advantage is all with the younger material.—J. C. TALLACK.

Dwarf versus tall Borecole and Broccoli.—The value of dwarf green vegetables is evident after a heavy fall of snow (2 feet deep) which we in the west have experienced. When the snow had gone most of the leaves on all the tall kinds of greens and Broccoli were broken down or so damaged that they could not get up again. The curled Scotch Kales were so damaged and the young growths so smashed that the heads are comparatively speaking useless. The main leaves are gone, leaving just a tuft of small young leaves. So severely are they damaged that if we get hard frost the heads will be killed. Not so with the dwarf kinds, as the leaves were long enough to touch the ground and prevent them breaking down. No doubt the cause of the Scotch Kale suffering the most was from the leaves being so curled. I noticed the same thing had happened in most of the cottage gardens about here. The same thing occurred with the tall kinds of Broccoli.—J. CROOK, *Charl.*

GAS-LIME IN THE GARDEN AND ORCHARD.

GAS-LIME is not looked on with much favour by many gardeners, but the uses to which it may be put are manifold. As I have been for some years experimenting with it, my experience may be of some use to readers who have it at command, but who may not have utilised it to the fullest advantage. I must first explain that the lime I use is not sufficiently charged with the impurities left behind, after filtering the gas, to become much discoloured, though I have no objection to it in any stage except when tar-soaked and lumpy, and am guided in its use by the colour, using of that which is most discoloured less in proportion to the

ground to be dressed. I prefer for general use that which has become of a light arsenic green shade, and as it is a home product, taken from purifiers in which the lime is changed once a week, I seldom get it more highly charged than this. As to its uses I may say, speaking generally, that it has been of benefit to all portions of the garden, for where it has not acted directly as a fertiliser, it has done good service as a grub destroyer, and it was for this purpose that I first gave it a trial. I had at one time great difficulty in producing good Carrots, but by confining them to the same plots, withholding manure, and giving each autumn a heavy dressing of gas-lime, clean and fine roots are now easily grown, though the same course of withholding manure from the plots has been carried out for eight or nine years in succession. The plot on which I first experimented skirted a portion of a row of pyramid Pear trees, and I soon noticed that the fruits from these trees improved in quality, and I have since with great benefit applied gas-lime to the roots of fruit trees of all kinds, either as a surface-dressing (for orchard trees) or mixed with the soil when planting or root-pruning. Cabbage beds and other plots of Brassicas in general were next experimented on, and here the benefit was most marked, as all leafage soon became many shades darker than usual, while growth was more stimulated, and I now never fail to dress the ground more or less heavily for this class of produce when practicable, and never see any harm result from direct contact with the roots. Seakale, too, has grown splendidly under its influence, when the lime has been applied in autumn to the surface and dug in just before planting the sets. An early border at the foot of a wall was a most convenient spot in which to grow early Potatoes, but the ground had become manure-sick, so that crops were small and of very poor quality, but a heavy dressing of the lime improved matters very much in later years, though I cannot recommend the use of land so dressed for cropping with Potatoes the same year or until some months have elapsed from the time of application. The same thing happens in the case of Peas, which undoubtedly derive great benefit from the dressing during the second and successive years after it has been applied, but object to it while still raw. Tomatoes also showed most marked and beneficial results. Under a portion of the plants grown against an outside wall was put a layer of gas-lime some 3 inches thick and about 15 inches from the surface. This was rammed hard, but the roots found their way into it and the crop was much heavier from these plants than it was from others which were planted in the ordinary way on the same wall, the fruits also ripened some days in advance of the latter, a great advantage when much dependence has to be placed on outdoor Tomatoes.

It is, however, in the orchard and among fruit trees generally that most benefit is derived from its use, and I know of nothing else that will give such manifold benefits so cheaply among fruit trees. I use it mostly as a surface-dressing in combination with burnt earth and wood ashes, and feel sure that it influences the colour of the Apples greatly for the better. In planting stone fruits I invariably incorporate gas-lime largely with the soil, and the way the roots hug it is the best proof of its efficacy.

Lastly, gas-lime when used with an equal portion of slaked lime (using more or less according to strength) is sudden death to Lichens and Mosses on the stems and branches of trees, and does the latter no harm whatever. I believe, too, that its caustic properties help to

clear the trees of insects, for I am not nearly so much troubled with the Apple blossom weevil or grubs in general on the trees so dressed, the mixture being applied by throwing it among the branches in foggy weather as soon as may be after pruning is finished. Of course, it is well known that as regards the Lichens, pure, fresh-slaked lime answers as well, except perhaps that it does not stick so freely, but it is of little use in killing insects or preventing their attacks on trees.

The above experiments have been carried on over a series of years. It must not be thought, however, that I advocate similar applications for all gardens irrespective of the nature of the soil, but for all old gardens where the soil is rich in humus, and where there is a deficiency of lime, I am convinced that gas-lime used judiciously will do all and more than pure lime will do, and there is hardly a garden in existence where it may not be used with excellent results on some large portion of the crops. If further proof be needed, it is easy to carry out experiments on a small scale to begin with, then to carefully note results and act on them. I have used from sixty to seventy bushels a year for some years past, and never have as much as I could wish for. I know that in many private places where gas is home-made gas-lime is looked upon with anything but favour, and is mostly wasted—hence my plea.

J. C. TALLACK.

Licemere Park Gardens, Burg St. Edmunds.

LETTUCE IN SUMMER.

THERE is no difficulty in having an ample supply of Lettuce in May and June, but unless special means are taken to provide the supply in July and August, there are losses from bolting. To prevent this, it is well to sow at least every three weeks in small quantities and in good land. An open border is needed, but the usual bed system is not good. Drills should be drawn 18 inches apart and the seed sown very thinly, or, what is better, a few seeds dropped at intervals of 8 inches to 12 inches, and when the plants are large enough, thinned to the strongest. By growing where sown, running will in a great measure be obviated, as it is the transplanting during hot weather which is so difficult. Plants grown where sown suffer less in hot, dry weather, and I find they run less if the position is open and there is no crowding in a young state. Many sow under trees or on a north border, but if much shaded, the leafage is thin and the plants weak and poor. For summer Lettuces, rich land is needed. Varieties differ much at the season named. We have some which stand drought and heat much better than others. One of the very best of the Cabbage section is Continuity. This Lettuce will remain solid a longer time than any I have grown. It is a deep-coloured variety, producing close, firm heads and of very good quality. Another good Cabbage variety for standing drought is Victoria, and though of the two I prefer the former, Victoria stands well. If Cos Lettuces are liked, Intermediate is a valuable companion to Continuity; this in shape is intermediate between the Cabbage and Cos varieties, in colour resembling the old Bath Cos, and a very fine Lettuce in light soils to grow for summer supplies. The plants grow quite close to the soil, have an erect growth, and do well at 9 inches apart in the row. I have for years sown the well-known Hick's Hardy Cos and the Bath or Brown Sugarloaf for summer use. By sowing often there is no waste, and the produce is much more enjoyable at a time Lettuces are valued. S. M.

NOTES AND QUESTIONS.—KITCHEN.

Autumn-sown Onions.—In transplanting these Onions it is advisable, in those districts

where the Onion mildew is prevalent, to keep them as far removed from the spring-sown Onions as possible. Invariably it is the autumn-sown plants that become affected first, but where the plants of both sections are contiguous, the spread of the mildew is so rapid from one to the other, that both succumb, and as the younger section will probably be only then half-grown, the result in their case is especially disastrous, as it leads to light crops of badly-ripened bulbs that will not keep good half the winter through.—J. C. T.

Beck's Dwarf Green Gem Bean.—It may not be generally known that this dwarf early Bean originated as a sport from the old dwarf

sesses a certain delicacy of constitution, but this can be to a considerable extent overcome by good cultivation.—R. D.

Chou de Burghley.—Those who are fond of a delicately flavoured Cabbage in winter should not omit this from their list of seeds to be sown. Those I have grown this year have had the Cauliflower centre rather more developed than usual, but it never amounts to much at any time. Though not so hardy as most of the Cabbage tribe, the large hearts once formed are well protected and will stand good for a considerable time. The one thing to be feared in the cultivation of Chou de Burghley is sharp frost early in winter before the

parison a few sprigs of the ordinary kind that have grown side by side. Both, of course, are now past their best.—J. R., *Tany-burlech, R.S.O., N. Wales.*

STOVE AND GREENHOUSE.

GREENHOUSE RHODODENDRONS.

The illustration we give of the hybrid white-flowered Rhododendron *Sesterianum* shows how beautiful is the race of greenhouse Rhododendrons. They are very handsome plants for the greenhouse and conservatory during the spring months, and they are so easily grown that anyone might manage to cultivate them. The Himalayan group comprises all those with large flowers, such as *R. Dalhousie*, *Countess of Haddington*, *exoniensis*, *Veitchianum*, &c. They are not expensive plants, and their foliage is at all times very beautiful. They will succeed in any part of the greenhouse, either on the sunny or shady side of it, and they do not require to be placed so close to the glass as some plants. When they have made their growths, if space is then required in the greenhouse, they may be placed out-of-doors. I fancy the buds set quite as well out-of-doors as they do in the greenhouse. Some of the stronger-growing species make excellent conservatory plants if they can be planted out in a good deep border of turfy peat, and if this is not over-plentiful a little yellow loam may be mixed with it. For pot culture drain the pots well, as the plants require plenty of water at the roots. A good plan is to mix with the potting soil a little broken charcoal. Light, fibrous peat torn up by the hands is the best material in which to pot them. A very little loam added is useful, and a small quantity of decayed manure or leaf-mould is beneficial. The same treatment applies to the *R. javanicum* group, except that it requires a rather warmer temperature all the year round, and especially in winter. There are many very handsome varieties of this group now in commerce.

W.

Rivina humilis.—Berried plants grown under glass as a rule have a somewhat heavy and crowded appearance, but this is by no means the case with this *Rivina*. The delicate little racemes of whitish flowers are followed by small scarlet berries, and as the habit of the plant is graceful they are among the prettiest of subjects for decoration. Their culture is not specially difficult; in fact, the plants grow freely almost anywhere, but to obtain the best results they are capable of, care is necessary. In the first place they must not be grown too quickly or too strong. The seedlings from the first should be kept in a good light and very firmly potted. Then the growth

will be quite vigorous enough, yet consolidated as it is made. Another important point is that from the time the blossoms show until the berries are set the roots do not suffer from want of moisture. If they do, the flowers instead of setting drop off by scores, and instead of the pretty pendent spikes being well filled up, there will be a berry here and there with a long, bare stem, not unlike a bunch of Currants after a visit from a blackbird. As few stakes as possible should be used, as nothing so detracts from the beauty of this class of plant as a stiff, unnatural pose of the bunches. A stove temperature is best until the berries are ripening, when they last longer in a cooler, slightly shaded



Rhododendron Sesterianum. From a photograph sent by Miss Willmott, Warley Place, Essex.

Fan or Cluster at Shipton-on-Stour during the fifties, and was sent out by Messrs. Beck, Henderson, and Child, of the Adelphi. It has two excellent qualities—it is very early, especially where sown on a warm, sunny border, and it is remarkably prolific. Then it branches freely, and as a delicate Bean for table it is not to be surpassed. I wonder it is not more employed for forcing in a frame or in pots. If a small-sized Bean of delicate flavour is necessary on a gentleman's table, then it is supplied by this variety. It is probably from its small size that the Mazagan Bean is so much recommended by some for an early crop; but it is not early, it does not crop freely, and it is of inferior quality. Beck's Green Gem pos-

plant has hearted. I would not recommend it for extensive planting in very cold districts, but its merits are so great, that it ought not to be entirely overlooked.—J. C. T.

Laurustinus lucidus.—Why is it we grow so many of the ordinary *Laurustinus* while we have such a superior variety in every respect as the one I send herewith? I believe I originally came by it under the name of the Irish *Laurustinus*, but whatever it is, or whether it has a name or not, it is a grand thing, and provides abundance of acceptable blooms throughout the winter. It also thrives well in poor soil. I send you for com-

house. A good loamy soil without much manure is best.

Pelargonium Venus.—Where Pelargonium flowers are required early in the season this particular variety is especially valuable, as it is one of the first of all to unfold its blossoms. The flowers are white with just a slight feathering of purple at the base of the upper petals. True, it is neither so full a flower nor of so much substance as some of those that open later on, but for early work it is unsurpassed. The habit of the plant is good, as it forms a sturdy, freely branched specimen, while the flower-stems are stout and the blossoms borne well above the foliage. Where cut flowers are required, and white ones especially are nearly always in demand, this variety is very useful, as a succession of bloom is maintained for a lengthened period, especially if the freshly expanded flowers are cut off. A few old plants kept in the warmest end of the greenhouse or in a light part of an intermediate structure will yield a great quantity of cut flowers, that is, if they have been grown with that object in view. For this purpose the wood in the autumn should be thoroughly well ripened. I do not mean devoid of foliage, but growth should be sturdy and the foliage firm and dense, so that, as the days lengthen, with a little additional heat and an occasional stimulus in the shape of liquid manure the buds will quickly develop. In order to ripen the growth the plants may be placed outside in a sunny spot during the latter part of the summer.—H. P.

ARUM LILIES.

WITH reference to what has been written on this subject of late in THE GARDEN, I may state that the finest Arum Lilies I ever saw were grown in pots all the year through, and I am confident that excellent results can be obtained in this way if the plants are properly treated. The plants in question were grown in a Rose house in one of the best managed market gardens near London, and had evidently been subjected to the high feeding practised by growers for profit. I should say that they were considerably over 5 feet high, the leaves and blooms being proportionately large; in fact, I never saw such leaf development on plants that had been set out in the open ground for the summer. In a private garden in this neighbourhood Callas were grown in this way for some years, and I never saw better flowers than those plants produced. They were grown in 10-inch pots, being shaken out in July, repotted in rich soil, and when the pots got filled with roots were top-dressed with rotten manure, which I noticed was heaped up round the stems. This top-dressing was undoubtedly a powerful factor in the matter of flower production, as it not only nourished the roots in the soil, but caused the formation of a mass of surface fibres in the decaying manure. In the case of such robust-habited, quick-growing things as Arum Lilies, the question of feeding when the roots are confined to pots all through the growing time is very important. Plants which enjoy a free root-run in good soil during the summer months have a distinct advantage over those kept in pots, and are naturally likely to produce flowers of greater excellence, unless the latter are constantly and liberally fed from the time the pots are becoming filled with roots.—J. C., *Byfleet*.

— I have read the correspondence on the above with much interest, and I thoroughly agree with "E. J." where quantities of early flowers are needed and the cost of production is considered. In many private gardens cost of production is a consideration. I am of "E. J.'s" opinion that a few very big spathes are of less value than a number of medium-sized ones, and I do not consider the leafage is of much consequence. I grow a goodly number of Arums for decoration, and for the past few years have followed "E. J.'s" system, and should be sorry to revert to the old one of planting out, unless it was for a very few large spathes. I find that plants grown in pots as he advises of much greater value for this work.

They stand a good deal of knocking about, and a shapely plant can be arranged with taste, whereas one with much leafage cannot be employed. Of course for cutting, a single huge spathe may look well, but where many are required "E. J.'s" method will find many admirers. By the method I describe anyone may get his plants to bloom at certain seasons and rely upon plenty of bloom, which is not the case with plants turned out in summer.—G. W.

FORCED SHRUBS.

At the meeting held at the Drill Hall on March 8 the forced shrubs formed a very conspicuous feature, included among them being some of the best that we have for such a purpose. Especially noteworthy were some plants of *Cerasus pseudo-Cerasus* (Waterer's variety), which were profusely laden with bloom, and in this stage well showed their value for the greenhouse or conservatory at the present season. This *Cerasus* is a very fine form of the double blossomed Japanese Cherry, the individual blooms being large and full, the colour white, slightly tinged with pink. It is a rather slow-growing, sturdy plant, whose flowers are freely produced from short spurs all along the younger shoots. It may be kept in pots and flowered year after year, or it will bloom equally well in the open ground. An award of merit was given to this Cherry two years ago. Azaleas of the mollis section were also largely represented, there being now a considerable range in colour among the numerous forms, all of which are very beautiful when gently forced, added to which they are among the readiest of all our hardy shrubs to conform to this treatment, as from their dense-rooting nature they may be removed with but little check; hence not much previous preparation is necessary in the case of the plants required for forcing. They should, however, be potted as early as possible, as a good deal of the lasting properties of the flowers will to a certain extent depend upon the plants being established before forcing commences. This Azalea is now sold in such numbers for forcing purposes that I have of late seen pretty little plants full of bloom hawked about the streets of London. *Prunus japonica*, better known as *P. sinensis*, was also very noteworthy, the neat little bushes being profusely laden with their double white blossoms. *Staphylea colchica* has now become a very popular plant for forcing, there being nothing else in the same way. Though the blossoms are less showy than those of some other subjects, they are very freely borne and agreeably scented. To be seen at its best this needs to be grown in pots one season before forcing. *Spiraea confusa* is now grown in considerable numbers, but though an old plant it is not very many years ago that it was taken in hand as a shrub suitable for this mode of treatment. When grown under glass the flattened corymbs of white blossoms are freely borne, while the peculiar glaucous green of the freshly-expanded foliage forms a very pleasing feature. The plants of this at the Drill Hall were in very good condition. The Chinese *Deutzia parviflora*, which has been grown in our gardens for about ten years, is not often seen, and though pretty and interesting, it is not so showy as the newer *D. Lemoinei*, which is a hybrid between the just-mentioned *D. parviflora* and the ever-popular *D. gracilis*. This hybrid, for which we are indebted to M. Lemoine, of Nancy, partakes largely of the prominent characteristics of both its parents. In *D. Lemoinei* the shoots are straighter and stouter than those of *D. gracilis*, and more regular than those of *D. parviflora*. The inflorescence resembles neither the flattened corymb of *D. parviflora* nor the elongated cluster of *D. gracilis*, but takes the form of an erect branching panicle, usually shaped like a broad-based cone. It promises to become very popular, both as a subject for forcing and as a shrub in the open ground. These *Deutzias* are readily propagated by means of cuttings, and soon attain flowering size.

Corylopsis spicata, which was also shown, received an award of merit at the corresponding meeting last year. It is a near ally of the Witch Hazels, and, like them, flowers before the foliage is developed. The flowers, which are borne in drooping racemes, are small and of a pale yellow colour, but they are very agreeably scented. An additional feature of the inflorescence is furnished by several comparatively large greenish yellow bracts, which almost hide the flowers themselves. A well-flowered plant of this *Corylopsis* forms a very graceful object by reason of the numerous drooping racemes of blossoms. Besides these several forced shrubs above enumerated, the different varieties of *Clematis* in flower attracted a large share of attention, for though we are accustomed to see them later on, that is, about the time of the Temple show, it was a revelation to many to see them in bloom thus early in March. This example will doubtless become very generally followed, as the plants so treated are available for many decorative purposes. That large pots are by no means necessary to obtain good flowering examples of *Clematis* was well shown by the exhibit in question, as the plants were only in 5-inch pots. H. P.

TREE CARNATIONS.

I LATELY saw a fine batch of Winter Cheer, the foliage fresh and healthy. I find that the above variety has deteriorated very much, some growers having altogether failed with it. I had the same experience a few years ago with Miss Joliffe, but after procuring a fresh stock I was able to grow it well again. Yet there are other varieties which have resisted all attempts to get up a good healthy stock. Among these I may mention Andalusia, Laura and Empress of Germany, all of which some years ago I found no difficulty in propagating or in growing on and keeping in health and vigour. Andalusia and Laura, which formerly were inclined to grow too tall, I found gradually decline, until I have had to give them up altogether I have not met with them in any other collection for some years now.

I think more attention should be paid to raising seedlings, for although some varieties may survive for a number of years, there is a general tendency towards deterioration among Carnations, more especially those that are grown under glass. Unfortunately, with seedlings, it necessitates giving new names when intended for commerce. I have often heard it remarked with regard to new varieties that they were no improvement on older ones, and I quite believe in the truth of such assertions. I remember being told by an old grower when Pride of Penshurst was first distributed that it was no improvement on Mrs. G. Hawtreys. I therefore procured some plants of the latter for trial. Although I was able to propagate Pride of Penshurst, and the stock grew freely enough, I could make little progress with Mrs. G. Hawtreys. I have since found the same difficulty with Penshurst, and have had to give it up in favour of Germania, which, though distinctly a border variety, I have found to do well in pots, two-year-old plants giving the best results. I have also found Miss Audrey Campbell flower well under glass, and for the past two seasons have had some fine blooms in May or even earlier. I do not think it would do much good if grown entirely in pots, those which I have grown being from stock obtained from layers in the open ground. Layered early in the season, and potted as soon as well rooted, they make fine plants for the following spring, or a few of the forwardest may throw up bloom in the autumn. F.

Asparagus retrofractus arboreus.—Easily grown and of capital colour, this is one of the best of the greenhouse species. Where plenty of room is afforded, not only head room, but also at the sides, it forms a really beautiful plant, the longish branchlets pushing in all directions, and having a fine effect among other plants. It is a capital plant for grouping with Orchids, the deep green

going much better with the flowers than the paler tints of *A. deflexus*, *A. plumosus nanus*, and other older kinds.

THE MARKET GARDEN.

PALMS FOR MARKET.

CONSIDERING the immense quantities of seeds annually imported into this country, it is surprising that we do not get our markets overstocked with Palms. I have often heard it suggested that *Kentias* would soon come down to a level with *Geraniums* in price, but this has not yet occurred—at least, not for good stock. The demand seems to have increased equally with the quantities grown. It is only a limited number of sorts which can be disposed of in any great quantities.

KENTIAS take first place, *K. Belmoreana* and *K. Fosteriana* being the two principal sorts grown. The former is the greater favourite, as it makes a better furnished plant, especially in a small state. *K. Fosteriana* makes a much taller plant. It requires some experience and judgment in buying *Kentia* seeds, for among the large importations some very inferior samples come to hand, and I have seen large quantities evidently perfectly good when collected and packed destroyed in transit through having been kept too dry. I have also seen samples, which though very moist when unpacked, prove unsatisfactory. Those packed in moist sawdust and charcoal generally turn out the best. The seeds should be sown as soon as received. Some growers take off the outer husk, but this is not necessary. I have heard the opinion expressed that it is better left on, but I think it makes little difference either way. If the seeds are dry, it is as well to soak them for a day or so before sowing, or they may remain in wet cocoanut fibre refuse for a week. It is important that all Palm seeds should have attention as soon as received. *Kentia* seeds may be sown in pans, boxes or beds, but I prefer to have them where there is a little warmth underneath. The seeds do not all start together, some remaining dormant for a considerable time. As soon as the first leaf begins to develop, the seedlings should be potted singly. If a good proportion start away together the whole bed may be turned over and all dormant seeds re-sown. A good fibrous loam should be used for potting, and for young seedlings plenty of sand added. For larger plants some manure may be added, and in potting, the soil should be pressed down as firmly as possible. Although a high temperature is not necessary for *Kentias*, they will make more rapid progress in heat.

LATANIA BORBONICA is another popular Palm, and is grown under various conditions. It is often grown in a high temperature, and crowded up, the leaves then have long stalks, and for decoration such are sometimes preferred to those grown under more natural conditions. Given plenty of room and a moderate temperature the leaves spread out, and the plants will be quite equal in width to their height. I may mention that where it is intended to grow them on into larger specimens, those with the long leaf-stalks should be avoided, for, when given more room, the new leaves will not run out to correspond with those that have been drawn out by overcrowding. *Latania* seeds usually germinate freely. It is certainly one of the least difficult to manage. The same compost as recommended for *Kentias* may be used, and if supplied with either liquid manure or an artificial fertiliser regularly, quite large plants may

be grown in comparatively small pots. It is one of the best Palms for windows or room decoration where single plants are required, but it does not work in with groups so well as many other Palms.

COCOS WEDDELIANA.—This graceful Palm is a universal favourite. Though not quite so hardy as some, it will last for a considerable time if it has been carefully hardened off before being exposed to unnatural conditions. The supply of seed of this is very uncertain. In some seasons we get very scanty importations, and then the seed is of doubtful quality; then probably the following season immense quantities will come to hand in good condition. In a young state this requires some care. The seeds may be kept in moist fibre until they begin to start, but the seedlings should be potted singly before they have made much progress. If the fleshy tap-root gets damaged, it will be difficult to establish a good plant afterwards. If the loam is not of good quality some peat may be added to the compost for potting. It is essentially a stove Palm, and to grow it successfully a regular temperature must be maintained. It loves a moist atmosphere, but over-watering at the root should be avoided. Confined to rather small pots, and supplied regularly with a little stimulant, better results will be produced than by giving too much pot-room. This Palm is used by the London florists in all sizes, from tiny plants with about three leaves up to large specimens, and as I have before mentioned, it lasts well when gradually inured to the altered conditions.

GEONOMA GRACILIS.—When well grown this makes a more graceful plant than the preceding, especially for table decoration, yet it can hardly be regarded as a popular market Palm. Few growers do it well, and it is too tender and expensive for general trade. The seed, too, is generally scarce and very uncertain, sometimes remaining dormant for a considerable time. It is a Brazilian species, and requires stove treatment, and to succeed, a very even temperature and an atmosphere not too moist but never quite dry. Another species which has sometimes been imported under the above name is *intermedia*, being of more robust habit, with broader leaves; though very pretty it is certainly inferior to *gracilis*.

ARECA LUTESCENS.—Previous to the advent of the *Kentias* this was one of the most popular Palms, and even now it finds many admirers and is grown in considerable quantities. It is often grown three in a pot together, and when they attain to about 3 feet high and upwards they are more effective than when grown singly. When seeds have been properly packed they come to hand in good condition and germinate quickly. Plants of a useful size may be obtained in one season; provided they are kept clean and grown in a stove temperature they will give little trouble. For summer use it will last well, but it is very unsatisfactory in winter.

PHOENIX RECLINATA.—This is a South African species, and makes a most useful Palm for market. Fairly characteristic plants may be grown in 5-inch pots, yet it is as a larger plant that it is most effective. The seeds which come to hand in the spring germinate freely, and although it will thrive well in a cool greenhouse, when required for market it may be grown on in heat and will make more rapid progress; it also makes a lighter and more graceful plant. When *Phoenix rupicola* was introduced it was thought it would entirely supersede the above. It is certainly very pretty, but too tender and also difficult to keep in good condition.

SEAFORTHIA ELEGANS.—This is a Palm which has gone out of favour since the *Kentias* have

come to the front, yet it is still grown to some extent. It makes a tall stem more quickly than the *Kentias*, and where large specimens are required it cannot be dispensed with. It is also used to some extent in smaller sizes, as it can be produced at less cost than the *Kentias*. The seed is inexpensive and germinates freely, and, being of rapid growth, useful-sized plants may be established in a comparatively short time. Its greatest drawback is that the leaves are easily damaged, but where it can be grown for the conservatory and is not required to be moved about for decoration, it makes a fine specimen.

CORYPHA AUSTRALIS.—Although this does not require much attention and seed may be had at little cost, it is not a profitable Palm to grow, being very slow, and it never commands a high price. Its greatest recommendation is its hardiness. When grown in a cool house it makes a short, dumpy plant, but grown in heat and shaded it will make a more graceful plant. Although it will live under almost any conditions, a little care and attention will not be wasted on it. I have seen this Palm grown three together in a pot, but I should not recommend this method, as it is quite dense enough when grown singly.

Perhaps a few more might be added to the list, but those enumerated above are the principal sorts grown for market. I have given the names by which they are generally known. I think the time is far distant when *Kentias* will become known as *Howeas*, or *Areca lutescens* as *Hyophorbe indica*, except by botanists. F.

THE RATING OF MARKET GARDENS.

In the Court of Appeal, last week, before the Master of the Rolls, Lord Justice Rigby, and Lord Justice Vaughan Williams, the important case of Smith and others (Overseers of Worthing) v. Richmond (Surveyor of Taxes) came on for hearing. This was an appeal by the Surveyor of Taxes from a decision of the Divisional Court dated August 2 last. The matter came before the Divisional Court on a special case stated by the quarter sessions for West Sussex on an appeal by the overseers of the parish of Worthing from a decision of the assessment committee of the union of East Preston under the Agricultural Rates Act, 1896 (59 and 60 Vict., c. 16). The case raised a question as to the rating of glasshouses over market gardens. By section 1 of the Agricultural Rates Act, 1896, "the occupier of agricultural land" in England is made liable, in the case of every rate to which the Act applies, to pay one-half only of the rate in the pound payable in respect of buildings or other hereditaments. The facts were as follows: Robert Piper was a grower of fruit, vegetables, and flowers at Worthing, and described himself and was commonly known as a market gardener and nurseryman. He was the owner and occupier of land rather more than four acres in extent, on which fifty-seven glasshouses or greenhouses of various sizes were erected. The houses were used by the appellant for the purpose of growing Tomatoes, Cucumbers, and Grapes, and, to a smaller extent, other vegetables, for the purpose of sale. The area actually occupied by the fifty-seven houses was rather more than two acres. The rest (rather more than two acres) consisted merely of Vine borders, paths, and the stakeholes. The whole of the houses were built upon dwarf brick walls like an ordinary greenhouse. It is provided by section 9 of the Act that, "unless the context otherwise requires, the expression 'agricultural land' means any land used as arable, meadow, or pasture ground only, cottage gardens exceeding one quarter of an acre, market gardens, nursery grounds, orchards, or allotments, but does not include land occupied together with a house as a park, gardens other than as aforesaid, pleasure grounds, or any land kept or preserved mainly or

exclusively for purposes of sport or recreation, or land used as a racecourse." In pursuance of the requirements of subsections 1 and 2 of section 6, of certain regulations made by the Local Government Board under subsection 3 of that section, the overseers made the prescribed statements, and sent them to the assessment committee and the surveyor of taxes, and in such statements they returned Mr. Piper's property and other property of a similar nature as agricultural land. The assessment committee, however, on the objection of the surveyor of taxes, decided that the statement, to the extent to which it includes land partly covered with glasshouses, was incorrect, and corrected it by striking out that entry. Upon the hearing of the appeal before the quarter sessions it was contended for the appellants, the overseers, that the particulars of the gross estimated rental and the rateable value of the hereditaments in question were correctly entered by them in their statement under the heading of "agricultural land," and that the decision of the assessment committee to correct the statement by striking out the entry was wrong, and in support of their contention they cited the case of "Purser v. Local Board for Worthing" (18 Q.B.D., 818). For the respondent it was contended that the case relied on by the appellants did not decide that the glasshouses were not buildings, but merely that the land was not the less used as a market garden because the glasshouses had been placed upon it, and that, moreover, the definition of agricultural land in the Agricultural Rates Act, 1896, was to be read subject to the context, and that the context in the Act required that any buildings should be excluded from the term agricultural land, that the glasshouses were buildings within the meaning of the Act, and that it followed that either the whole of the hereditament in question should be excluded from the overseers' statement, or, alternatively, that so much thereof as consisted of buildings should be inserted under the heading of "buildings not being agricultural land." The quarter sessions were of opinion that the contention of the appellants was right, and allowed the appeal and ordered the statement of the overseers to be altered by restoring all the items which formed the subject of the appeal to the condition in which they were before they were altered by the assessment committee, subject to the statement of a case for the opinion of the court. Upon the appeal to the divisional court the judges differed, Lord Justice Collins being of opinion that the buildings in question were to be treated as part of the market garden, while Mr. Justice Ridley thought that no buildings were entitled to the partial relief granted to agricultural land. Mr. Justice Ridley, however, as the junior judge, withdrew his judgment, and consequently the appeal was dismissed. The surveyor of taxes appealed to the Appeal Court. The appeal was heard on February 8. The Attorney-General (Sir Richard Webster, Q.C.), Mr. Day, and Mr. Trevor appeared in support of the appeal; Mr. Joseph Walton, Q.C., and Mr. Clavell Salter were for the overseers. The court allowed the appeal (Lord Justice Vaughan Williams dissenting).

The Master of the Rolls said:—The question in this case is whether glasshouses in or on a market garden are to be rated as buildings or as agricultural land under the Agricultural Rates Act, 1896. The Court of Quarter Sessions held that the glasshouses ought to be rated as agricultural land. On appeal to the Queen's Bench Division the members of the court were equally divided, and the appeal was dismissed, but leave was given to appeal to this court. The glasshouses in question are clearly buildings in the ordinary legal meaning of the word. The case stated leaves no doubt on this point. The question turns entirely on the true construction of the Act of Parliament, 59 and 60 Vict., c. 16. The ninth section contains a definition of agricultural land, but no definition of buildings nor of market gardens or nursery grounds. The Interpretation Act, 1889, contains, in section 3, a definition of land; and this word, when used in

subsequent statutes, is to include buildings, unless a contrary intention appears. The Interpretation Act, 1889, contains no definition of buildings, market gardens, or nurseries. The ninth section of the Act of 1896 clearly shows that land there cannot possibly mean or include buildings in the early part of the section, for the definition is that agricultural land means any land used as arable, meadow, or pasture ground only. Market gardens and nursery grounds are, however, also declared to be agricultural land, and this is the enactment which gives rise to the difficulty with which we have to deal. The definition in section 9, however, must not be used to contradict other parts of the Act, or to introduce anomalies which the language of the enacting part of the statute does not justify. Market gardens and nursery grounds may or may not have buildings upon them. If they have not, no difficulty arises; but if they have, then comes the question, How are those buildings to be rated? To answer this question, we must look to the enacting clause, which is section 1. (His Lordship read the section and continued.) Here we have "agricultural land" used in connection with, and, as I think, plainly contrasted with, "buildings and other hereditaments." Similar language is used in sections 5 and 6. This express mention of buildings makes the whole statute perfectly clear to my mind, and removes the doubt caused by the use of the words "market gardens and nursery grounds" in section 9. The only conclusion at which I can arrive is that buildings are not to be treated as agricultural land for rating purposes under this Act of Parliament. The case of "Purser v. Worthing" (18 Q.B.D., 818) does not, in my opinion, assist the court in construing this Act of Parliament. That case merely shows that a market garden *prima facie* includes the buildings upon it used for market garden purposes. To urge that market gardens and nursery ground do not cease to be so because they are more or less covered with glasshouses is to urge what is quite true, but is beside the mark. The question is, How are such houses to be rated under this Act of Parliament? My answer is, if they are buildings, they must be rated as such, and not as agricultural land. Mr. Salter, in his very able argument, suggested that buildings used only for covering land which was cultivated under their protection ought to be distinguished from other buildings, and ought to be held to be agricultural land. I can find nothing to justify a distinction between one class of buildings and another for any such purpose as this argument requires. Section 5 speaks, no doubt, of buildings used only for the cultivation of land, but this clause in no way shows that such buildings or any others are to be rated as agricultural land. The case of "The London and North-Western Railway v. Llandudno Commissioners" (1897, 1 Q.B., 287) turned on the construction of a provision in another Act of Parliament, and does not really assist me to arrive at the true interpretation of the statute with which we have to deal. In my opinion, the appeal must be allowed and the order of the Queen's Bench Division and of the quarter sessions must be reversed, with costs here and below.—Lord Justice Rigby delivered a written judgment to the like effect.

Lord Justice Vaughan Williams differed. His Lordship agreed with Lord Justice Collins that the cases of "Purser v. Worthing Local Board" and "The London and North-Western Railway Company v. Llandudno Commissioners" showed that *prima facie* this land covered with these glasshouses was part and parcel of the market garden, and therefore agricultural land, the occupier of which was entitled to the benefit of this exemption. The form and collocation of words used in this Act were not new as defining partial exemptions in rating cases. It was to be found as early as the Public Health Act, 1848, and in the Public Health Act, 1875, and had uniformly received such a construction that the hereditaments catalogued in the definition had been held to include the buildings thereon, whenever the buildings in question were part and

parcel of the specified hereditament. The buildings in such cases were treated as being practically incapable of beneficial occupation independently of the defined hereditament. He could find nothing in the tenor or details of this Act to lead to the conclusion that the words "market gardens" and the other collocated words should receive a different construction, so as to exclude from agricultural land the buildings on each hereditament, whatever their character. After discussing sections 1, 5, 6, and 9, his Lordship arrived at the conclusion that the land covered with glasshouses fell within the exemption, because the buildings were part and parcel of the market garden, which by the terms of the definition was agricultural land, and were used exclusively for the purpose of cultivating the land.—*Times*.

GARDEN FLORA.

PLATE 1163.

CALLISTEPHUS HORTENSIS.

(THE CHINA ASTER.)

(WITH A COLOURED PLATE.*)

ALTHOUGH named *Aster sinensis* by the earlier botanists and still popularly known as the China Aster, this plant was elevated to the rank of a distinct genus 70 years ago. It had then been in cultivation in Europe nearly a century, seeds of it having been sent to France by a Jesuit missionary in China. Miller says he received seeds in 1731, from which he raised plants, some of which bore red and some white flowers. Five years later he obtained seeds of the blue-flowered form, probably that represented in the plate herewith. They were then called *La Reine Marguerite* by the French. In 1752 Miller had double-flowered red, blue, and white varieties. For the re-introduction of the type here figured we are indebted to M. Vilmorin, who obtained seeds from China, some of which were sent to Kew, where the plants grew and flowered freely in a border last year. They were far more elegant in habit and beautiful in flower than any of the garden forms now in cultivation, forming an irregular group from 12 inches to 18 inches high, branched freely, clothed with healthy dark green foliage, and bearing numerous more or less nodding flowers. These were from 3 inches to 5 inches in diameter, with a broad yellow disc surrounded by a single row of broad strap-shaped ray florets, coloured pale mauve. Their charm was in their elegant pose, their singleness, and pleasing colours.

From this monotypic genus we have now a race or series of garden varieties which are as remarkable in the range of variation they show as the *Chrysanthemum*. In a report on China Asters grown at Chiswick in 1888, prepared by Mr. Barron and published in the *Journal of the Royal Horticultural Society*, no less than seventeen classes or sections are enumerated, the character of each class being indicated by its name, *i.e.*, *Chrysanthemum*, *Paony*, *Pyramidal*, *Quilled*, *Liliput-flowered*, &c.

The name German Aster indicates that among the earliest breeders of China Asters were the Germans, and it is from them that the bulk of the seeds of these plants is obtained to-day. The Dutch and French nurserymen also grow them largely, M. Vilmorin being one of the principal. In the size, form and colour of the flowers we have a wide range of variation, and there is also considerable range in the height

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by J. L. Goffart.



and vigour of the plant. Every shade of colour is represented, except yellow, consequently a yellow-flowered Aster is as great a desideratum with growers of these plants as a blue-flowered Chrysanthemum is with breeders of the Japanese flower.

The China Aster is a good example of what is termed cultural evolution, showing the great amount of change which can be effected in a single species by continuous selection under cultivation. It is probable that practically all the races and variations we now possess have been raised in Europe during the present century. As in the case of the Chinese Primula, Cineraria and Cyclamen persicum, the varieties reproduce themselves from seeds. It is scarcely necessary to say anything in recommendation of the China Aster as a garden annual, which is unsurpassed for freedom of growth and bloom, and the continuous display it makes from August onwards under ordinary treatment. A word may be said as to the colours, some of which are harsh and ugly and are often rendered more so by indiscriminate mixing.

W. W.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

VINES IN POTS AND FIRST EARLY HOUSES OF PERMANENT VINES.—The earliest Grapes will now be showing colour where started the second or third week in November. Mine are a few days later than last season, although started under rather more favourable conditions. These little variations are not always to be accounted for correctly, but I surmise it was caused by the extremely mild weather and the consequent lack of sunshine. Last year I cut the earliest bunches on April 12, but ten days later will be about the time this season. The crop, however, is a much more satisfactory one in all respects, and this fact alone will make amends for the slight deficiency in time of ripening. As soon as the first indications of showing colour are apparent it is useless to think of hurrying on the ripening, more especially if the crop be a full one. By almost imperceptible changes see that rather more ventilation is given, and do not let the night temperature rule any higher, although the weather will be getting milder. It will be safer, in fact, to slightly lower the night temperature than otherwise. Continue the application of manurial stimulants to pot Vines about twice every week. On no account water them day after day with manure water, or the soil will become sour and the fibrous roots possibly perish. Any check in this direction will tend to lessen the chances of colouring in a satisfactory manner. The inside borders of permanent Vines with the fruit now on the point of colouring should receive a thorough soaking with water of the average night temperature of the house at least. Then, if not already done, a mulching of short litter or old Mushroom bed manure will make a good covering and tend to prevent undue evaporation.

RED SPIDER ON VINES.—If there be any indications of red spider it will be perfectly safe to syringe any Vines up to the period when colouring has begun. Some, the writer included in the past, have and still continue to hesitate to do this, but it is the most effectual remedy there is for keeping in check this insect pest upon Vines. The only conditions that have to be imperatively observed are to secure either absolutely pure rain water or to use water which has been boiled, in order to precipitate the lime which has hitherto been held in solution. Given these conditions, there is no fear of injury in the remotest degree. With rain-water tanks into which no other water can enter the remedy is always at hand for red spider on Vines, one far preferable to any application of sulphur or of any chemical combination whatever. The best time to syringe Vines is

immediately after closing the house, and it should be done effectually from all directions so as to thoroughly drown the insects. A second application a few days later will be advisable, or even a third if the spider has gained any foothold. As in many other instances, the old adage still holds good, viz., "Prevention is better than cure;" therefore, whether there be any spider or no, do not omit to syringe as a preventive.

SECOND EARLY AND MID-SEASON VINES.—These will now be advancing rapidly, the earliest towards the flowering stage and the later gaining on them apace. Now that the mere critical period is past it will be quite safe, unless one has to deal with aged or otherwise sickly Vines, to thin down the bunches to one to a shoot, leaving them thus, save in the case of shoots too weakly to bear a bunch at all, until it is seen after the bunches are set how they promise as regards development. Stop the lateral growths in good time, so that all possible vigour at this stage is concentrated into the bunches. Do not stop, however, during the flowering stage if it can be avoided, more especially in dealing with shy setting Grapes. Perchance some of the rods have weakly or ugly spurs. By letting the shoots from such have a free run, it is possible to improve them. If not, however, it will be as well to leave two shoots upon the next spur if it be a strong one. Muscats are at times liable to this failing, but by duplicating the shoots contiguous any blank space may be made up. Muscats will now in most cases be developing the bunches, and it will be possible to see at an early date what the future crop bids fair to be. Be cautious with Muscats as regards atmospheric moisture; an excess is liable to cause the bunches to run out. So also will a wet and consequently colder border.

LATEST VINES.—These will soon be fit for dis-budding, as they grow rapidly. Do not delay this work after it can be seen what the shows are like, bearing in mind also, where possible, the respective position of each young shoot. Vines breaking naturally often make back breaks on the spurs, and it is possible in this way to shorten them with advantage. Do not in late vineries maintain an exciting temperature, but let them come away quietly. Even then they will grow quite fast enough for those of us who have to crowd the vineries with various plants.

NEXT SEASON'S POT VINES.—These should now be in their fruiting pots, but all depends upon when they were started and also upon the convenience as regards room. Let them by all means have as much light as possible, training them near to the glass. After potting be careful with the watering until well established, giving them a gentle bottom-heat by plunging if necessary. With me it is not so, as I have pipes under them; therefore they will not be plunged. Vines from eyes this spring should soon be fit to pot into $4\frac{1}{2}$ -inch pots. These need not be pushed on rapidly if only wanted as the groundwork of next year's Vines to grow into fruiting canes.

STRAWBERRIES.—If by any chance there happen to be a few lights at disposal now—none the worse if the frames are movable ones, too—it will be found a good plan to arrange them in a sunny position and fill with good soil, should it be needed, or in any case to break it to pieces, so as to secure a satisfactory planting condition, and then fill them with Strawberry runners of last season's growth, in order to keep up the succession of ripe fruits prior to the first early ones outside being fit to pick. Compact, sturdy runners of such as La Grosse Sucrée or Royal Sovereign will be suitable for this purpose; these may be lifted with good balls of soil, not feeling any perceptible check if well watered and duly cared for, first by keeping the frames close for a few days, and then by airing carefully and shutting early in the afternoon. In this way it will be quite possible to gain ten days to a fortnight in the ripening, thereby to a great extent relieving the houses of the latest stock in pots all the sooner and to a decided advantage at a season when red spider is frequently a source of trouble. In my case I have

a reserve of runners in small pots as well as a fairly good stock of runners still on some old beds, all of which can be turned to a good account. I shall bed them into the frames in lines at about 6 inches apart and at the rate of three plants to each foot run. Those who may be contemplating the cultivation of the alpine Strawberry cannot do better than raise their stock from seed. Seedlings are incomparably better than runners. For what reason the antiquated plan of putting out runners can have so long obtained is inexplicable. The seed should be sown thinly in shallow boxes in gentle heat about this time. The best sorts are Rouge Améliori, Berger Improved, Sutton's Large Red, Belle de Meaux and Improved White.

HORTUS.

KITCHEN GARDEN.

EARLY DWARF BEANS.—Few vegetables are so valuable as the French Bean, and in our changeable climate it is useless to sow too early in the open, as the seeds decay. There will be a great saving of time if the plants are forwarded under glass, and few vegetables give a better return for the trouble entailed. I am not in favour of sowing the seeds in strong heat, as, should unfavourable weather follow, unless the plants are thoroughly hardened off there will be losses. Much better results follow cold-frame culture. I have raised these plants in other ways, but if boards, boxes, or other shelter are employed the plants draw badly if kept covered in cold weather. I sow six to nine seeds in a $4\frac{1}{2}$ -inch pot filled with good soil made fairly firm, using the rough part of the material as drainage. The pots are placed in the frames, and should heat be employed it should only be for a few days till the seedlings are showing freely. Up to this time, if the soil is fairly moist no water will have been necessary at the roots. Even when growth is active it is necessary to water sparingly in cold frames till the pots are nearly full of roots. If no heat is given the frame should be kept close, and the glass covered at night till the plants are showing the third leaf. At this stage the seedlings should be reduced to the four strongest, and more air given as growth increases. I advise sowing as soon as possible to get strong plants, and to plant when they are 4 inches to 6 inches high. Planting out may be done in four weeks or a little more from time of sowing the seed if the plants are grown from the start in a close frame. A warm south sloping border or the foot of a wall should be selected for the plants, a deep drill drawn and soil left high on each side for shelter. Plant firmly but with care to prevent bruising the stems. After planting, protection at night must be given for a few weeks. Hand-glasses are best. I use spare sashes or boards on inverted flower pots. Whatever is used should be removed during the day, as the sun strengthens the plants. After planting, if the soil is dry it is well to water with tepid water, not wetting the tops. In fine weather a gentle dewing overhead will promote growth. An early kind should be sown for this purpose, and there will be pods weeks in advance of those from seeds sown in the open.

PEAS.—There will now be no fear of evil results in any soil, and the choicest kinds may now be sown. The seed at this date will germinate freely. We have a great wealth of varieties for present sowing, there having been some excellent additions of late years. It is well to sow such kinds as suit the soil. In a few cases some varieties fail; those with a thin, weak haulm are usually the worst. I sow every three weeks from this date, but even then it happens two lots come in together, as, owing to the increased warmth in the soil, the seeds germinate more freely, and it often happens drought or heat pushes on later sowings. In dry seasons, give more space to the seeds; crowded plants are the first to feel the drought. I am averse to the old method of sowing so that the seeds touch. Much better drop the seeds, say, 2 inches apart, and by so doing save seed and get a much heavier crop. As regards the space between the rows, much de-

pends upon the variety. At least 4 feet to 6 feet should be given Peas of that height and taller varieties, as, even when land is scarce, one may crop between—a single row of Cauliflowers, Cabbage, or similar plants will do well—giving the Peas more space and also sheltering the plants. Many sow a row of Spinach between main-crop Peas. I am not in favour of so doing, as the Spinach runs up so quickly it ruins the lower portion of the Pea-haulm, and also robs the soil of too much light and moisture. Whatever is planted at the distance named should be of a dwarf nature. Preparations must now be made for later supplies. It can be now ascertained what amount of space the crop will need. In light soils more than ordinary care is required to ensure a full crop. In such soil ample food is important. This can be given at this season. For late Peas it is well to be even more liberal with space between the rows than with earlier kinds. The trench should have at least 4 inches of thoroughly decayed manure under the soil. My plan is to dig it out a spade-deep, place manure in the bottom, dig it in as for Celery, and then cover over with a portion of the top soil. At sowing this leaves a fair trench, and moisture is readily conveyed to the roots during seasons of drought. In heavy land less depth is required, but there should be no lack of food. In poor land, when trenches are not used, there must be no lack of food to build up the plants.

SPINACH.—This grows so freely from March to June that very few cultural details are needed to provide an ample supply. For supplies during May the autumn-sown is available till the middle of the month, and then the earlier March sowings come in. Different treatment is needed for later crops—an open quarter and rich land, as the plants to produce large succulent leaves should be well manured. Much better plants are obtained by thin sowing. Many sow like Mustard and Cress, each plant robbing its neighbours, with the result the crop soon runs to seed and is of poor quality. Every plant should have at least 4 inches to 6 inches space at the start, and as growth increases every other plant may be cut out for use. For early summer supplies Victoria is an excellent variety, and for later use, say from July and well into September, the Carter Spinach is very good. This has a very large dark leaf, very thick, and appears to resist heat and drought better than any variety I have grown. From the end of April and through May, and later, a north border should be prepared for summer Spinach, and then there will be no break in the supply if seed be sown every three weeks and attention paid to thinning in the earlier stages. For August or earlier use the Perpetual or Spinach Beet is well worth a trial.

TURNIPS.—This is an important summer crop, and it is well to sow in land where growth is rapid, as fresh, sweet, small Turnips are always in demand. An open border is necessary, and, where birds are troublesome, it will be necessary to cover the seeds with red lead. Sow in drills 15 inches apart and in light soil. I find it advisable to roll the surface after sowing. This helps the plants to get a better foothold. For present sowing few varieties equal Snowball. This is of quick growth and of the best quality. As a succession Red Globe and Purple Strap-leaf are excellent kinds. These do not bolt, and in dry seasons remain solid longer than earlier kinds. Last year I found Cardinal a very fine Turnip during dry weather. It has a thick skin, and is of very fine quality. For supplies through July and August, a piece of land under a north wall or lightly covered with trees will be found a good place. Though those sown next month will keep if the varieties advised are grown, it is well to have small, tender roots. For that purpose I sow monthly till the end of August. Plants raised early will now need thinning, and growth will be encouraged by frequently hoeing between the rows and keeping an open surface.

BEET, TURNIP-ROOTED.—The old roots will now be growing out badly if not given a very cool store. For early supplies the Turnip-rooted

varieties are most useful, as they soon turn in. I always sow a box of seed in heat for May. It is well to sow at this date in the open to give the early June supply. So far my best early Globe Beet has been Crimson Ball, a very shapely root with a small top, of a bright, rich colour, and in quality equal to the long roots. This is a great advance on the older Egyptian or Eclipse. For sowing early a good soil and a friable condition if the land is heavy are essential. It will well repay the cultivator to add some light material from other sources. These roots suffer from heat and drought more than the long-rooted kinds, and a richer soil is needed. For keeping they are not recommended. Where liked it is advisable to make several sowings during the season, and later on a cool border is more suitable to preserve their bright colour.

SALADS—LETTUCE AND RADISHES.—There is always a brisk demand for salads from May to September, and to keep up a regular supply it is well to sow every three weeks. With longer days one must vary the culture, as often plants run badly in crowded seed beds. For present sowing such kinds as All the Year Round and Perfect Gem are excellent Cabbage varieties, whilst for the salad bowl in a cut state there is none superior to Harbinger. Excellent Cos Lettuces will be found in Superb White and Intermediate. For summer supplies the latter is really one of the best hot-weather Cos types I have grown. For later supplies the plants will stand better if sown very thinly. The thinnings may be planted in a cool border. Plants grown where sown in open borders will not run like transplanted ones. For this purpose Continuity is an excellent variety of the Cabbage section. Radishes will now need sowing much in the same way as advised for Lettuce as regards position. Cooler sites must now be selected, as the roots soon get hollow in a warm border. They need rich soil, ample moisture, and to be grown quickly. If sown on a north border from April to May they will keep sweet and firm longer. I prefer the long-rooted varieties for the season named. S. M.

FLOWER GARDEN.

GERMAN CARNATIONS.

TO THE EDITOR OF THE GARDEN.

SIR,—If you will permit me to make a somewhat belated reference to Mr. Weguelin's article on "Fancy Carnations" in your issue of February 5, I would like to protest against the depreciatory tone in which he speaks of German Carnations. Of course he has a right to his own opinion, but I think it was, to say the least, quite unnecessary for him to advise your readers not to try the German sorts, for that is what his remarks practically amount to. His statement that German sorts are weak growers is not borne out by the testimony of my customers in other parts of the United Kingdom, from many of whom I have for years past received declarations to the contrary. Then as regards their quality from an exhibitor's point of view. Taking the six varieties which Mr. Weguelin admits as being in the first flight, I find that in two of the leading English Carnation lists thirteen other sorts of mine are quoted. This makes a total of nineteen varieties of my raising, and I think that anyone will admit that this is a very fair proportion to the whole number of fancy Carnations now offered. I may add that my variety Monarch was classed two years ago at the Birmingham show as the best fancy Carnation in the show, and a year later it shared that honour with the English variety Voltaire. I am, in fact, surprised that my sorts have held their own so well, considering the strenuous and systematic efforts now made by English raisers to improve the section of yellow-ground fancies. I might introduce many more varieties of great excellence as show flowers, but as I grow my Carnations chiefly for seed, I have to refrain from propagating a large number of promising seedlings.

I must also say that I am quite unable to imagine why Mr. Weguelin should go out of his way to find fault with the descriptions in my list. He must refer to mine, since I am, as far as I know, the only German raiser publishing one in English. I may state that in compiling it my idea has been to describe as accurately as possible the colour of every variety I offer. I have purposely refrained from employing words of general and vague significance, like "light" and "dark," when more exact terms could be found. When in describing yellows, for instance, I make use of such words as "straw-yellow," "sulphur-yellow," "canary yellow," &c., I think I am conveying a much more definite impression to the mind. Such terms as "chamois-yellow," "Isabel-yellow," "cinnabar-scarlet," and "steel grey" may not be every-day expressions, but I contend that every one of them is English and will be found in any good English dictionary—I have "Webster" before me, which contains them all. Having recently asked the opinion on this point of a gentleman second to none in the English Carnation world, he fully agrees with the foregoing statement, adding that with one exception he would be sorry to see my descriptions altered.

Erfurt.

ERNST BENARY.

DIVIDING HARDY PLANTS.

My experience does not at all coincide with that of "S. W. F." (page 209), where he favours the use of the "sharp knife" for dividing clumps of hardy plants. It is fully fifteen years since I gave up the knife for the purpose indicated, and in its stead took to the small handfork for separating the larger clumps of perennials. Previously I had had many years' experience with the knife in some of the largest trade collections that twenty years ago were in this country, and it was due to many failures and losses occasioned by the knife that, generally speaking, I put it on one side. There are numbers of perennials I could name that are most difficult to successfully separate, without much loss of root, by the knife. This is so even supposing as much soil as possible has either been shaken or washed from the plants. My earliest experiences on a large scale of dividing with the knife began about 1870, when several thousands of such things as Pyrethrums, Potentillas, and Delphiniums had to pass through my hands each year. In many instances, to ensure a good insight into the trunk portion of the root all soil was washed away, but even then it was no uncommon event for a small stone to turn the point of the knife in an unintentional direction, and, in the case of a Pyrethrum, sacrificing a batch of shoots by a single stroke. Such experiences caused me to try a less sharpened blade, but still I was not satisfied that I had found the best tool for the purpose even then. Potentillas are most troublesome in this way, and as the cuttings do not root too readily, it was necessary to secure the best possible divisions with roots. In this plant there are much crossing and recrossing of the roots, and cutting these carefully with a sharp knife means that you are severing the very portions you would retain. By the use of a prong, or in larger plants two prongs, of the handfork there is no cutting to waste; the point is pierced into the firm portion of the rootstock, and if intelligently used the rootstock is the portion which is rent asunder; and this is rent even with the grain, as in rending Oak, Ash, &c. It is merely the point of the prong, or to about 2 inches deep, which is inserted, though of course in large clumps the whole fork is used with perfect impunity. I have found the handfork of really great assistance with such things as Hellebores, Peonies and other plants for which in a large state the knife is practically useless. In the case of the two groups named, when separating large clumps it has been necessary to use a pair of handforks placed back to back, and to drive them into the wood-like trunk of the stool of these plants.

In such instances the clump must lie on its side, and by placing the forks a safe distance below

the crown-buds, plants of the largest size may be separated with perfect ease, and, what is of greater consequence, safety. Hepaticas when divided with a knife are sure to lose a great many roots, and though a few may be spared from the great wig these plants form, the work, on the other hand, may be done with a fork with scarcely a lost root; this I say unhesitatingly, after having divided many thousands of big clumps. *Rudbeckia Newmani* and *R. purpurea* are two plants, again, that the knife is certainly not suited to. Indeed, the former may be freely pulled to pieces by the hand, but the latter, with its woody cross-grained rootstock, is another matter, and a straight cut with a knife through such as this could only end disastrously. E. J.

Violet Victoria (double).—Judging from the comments of Mr. Squibbs and others, I fear the above Violet has nowhere realised our expectations of it when sent out with such credentials. I have endeavoured to grow it ever since its introduction, and tried many ways, but have met with but scant success. Certainly it has the merit of being very hardy and hard to kill. What blooms it produces are splendid in size, colour, and fragrance, but with me the stalks are too short and the blooms always incline to bury themselves in the soil. I cannot say that it blooms freely here at any time; an occasional flower appears through the winter with more in the spring. It is naturally a late bloomer. I now give it similar summer treatment to *Marie Louise*, and have for several years left it out where grown over the winter unprotected, and I thus get a few fine blooms in March. I found it did not pay for space occupied in the pits under glass.—J. R.

Narcissus cyclamineus.—One is pleased to see, from the more frequent mention of this quaint little Daffodil, that it is now less rare in gardens than it was a few years ago. Mr. E. Burrell's note on page 192 is evidence of the pleasure *N. cyclamineus major* gives to those who succeed in growing it from year to year. It is not everywhere that it can be induced to become a permanent occupant of the garden, and one of the greatest authorities on the flower in England a year or two ago told me that he found it best to raise it from seed, as his plants died off after flowering. Mr. Burrell is fortunate if he has been successful in establishing the Cyclamen-flowered Daffodil at the first attempt. I lost bulbs for several years in succession after flowering, and it is only within the last three or four years that I have succeeded in establishing it at the base of the rock garden, where it is at present in bloom. It is unique in its way, and very beautiful in its bright yellow colouring.—S. ARNOTT, *Corsethoru*, by *Dumfries*, N.B.

Violet Marie Louise.—I thought the closing sentence in my note on the above (p. 140) in reply to "H." implied my object in penning it. I certainly had no idea of endeavouring to "convince" him of the error of his ways nor dictate to him on the subject, merely giving a statement of treatment that obtains here as one of the many different ways adopted by growers in the cultivation of *Violet Marie Louise*, thus, in a measure, justifying my suggestion that "climatic influences as well as situation, soil, and treatment evidently affect this lovely Violet." I am sorry "H." cannot agree with me as to the "comparative inactivity" of the roots in the winter season. I would really like to "convince" him on this point, and as a means to that end I would suggest that he lifts one or a dozen, or as many as he chooses, of those clumps "possessing hundreds of young feeding points at planting (pitching) time . . . so obviously searching for food," &c., say at Christmas-time, and observe what progress and ramifications they have made into the fresh soil in search of the available food by that time, and note the result. Although the Strawberries "H." cites is foreign to the subject, he may still safely apply the same doctrine to them, for once the crown is fully grown and

thoroughly ripened, he may comfortably save further feeding until the roots become more active and growth again commences. Probably if "H." had a more kindly winter climate to deal with, he would know the value of retarding the blooms in supplying a constant and prolonged demand, and that forced blooms in the dark days are not usually of high-class quality as regards colour or fragrance.—J. R.

FEBRUARY FLOWERS IN KENT.

I AM sending you a list of the plants that have been in bloom here out of doors at North Cray in February. Those with an asterisk were not in flower in this garden, but in a garden in North Cray village. I had hoped to send a better list, but many of my usual spring plants have suffered by having been moved last autumn.

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|--|----------------------------------|
| <i>Aubrieta Leichtlini</i> | <i>Galanthus plicatus</i> |
| <i>Winter Aconite</i> | <i>Hepatica angulosa</i> |
| <i>Anemone blanda</i> | <i>acut lobata</i> |
| <i>coronaria</i> | <i>triloba</i> |
| <i>Andromeda floribunda</i> | <i>rubra plena</i> |
| <i>Arabis</i> | <i>Hamamelis arborea</i> |
| <i>Auricula</i> | <i>Zuccariniana</i> |
| <i>Cyclamen coum</i> | <i>Helleborus colchicus</i> |
| <i>ibericum Atkinsi</i> | <i>abchasicus</i> |
| <i>Berberis Mahonia</i> | <i>roseus punctatus</i> |
| <i>Chionodoxa Luciliae</i> | <i>antiquorum</i> |
| <i>gigantea</i> | <i>niger</i> |
| <i>sardensis</i> | <i>maximus</i> |
| <i>Celandine (Ficaria grandiflora)</i> | <i>fortidus</i> |
| * <i>Crocus vernus</i> | <i>Iris reticulata</i> |
| <i>ochroleucus</i> | <i>*persica</i> |
| <i>Imperati</i> | <i>Jasminum nudiflorum</i> |
| * <i>suaveolens</i> | * <i>Lencocjum vernum</i> |
| <i>biflorus argenteus</i> | <i>Megasea cordifolia</i> |
| * <i>sulphureus</i> | <i>Myosotis dissitiflora</i> |
| * <i>chrysanthus</i> | * <i>Muscari</i> |
| * <i>Aucherii</i> | <i>Omphalodes verna</i> |
| * <i>Sieberi</i> | <i>Polyanthus</i> , yellow |
| <i>Tommasini</i> | <i>various</i> |
| <i>etruscans</i> | <i>Primroses in variety</i> |
| <i>Cloth of Gold</i> | * <i>Primula cashmeriana</i> |
| <i>Olivieri</i> | <i>Pyrus japonica</i> |
| <i>Daphne Mezereum album</i> | <i>Rhododendron dahuricum</i> |
| <i>roseum</i> | <i>album</i> |
| * <i>Doronicum montanum</i> | <i>Scilla bifolia</i> |
| <i>Dondia Epipactis</i> | <i>amona</i> |
| <i>Daffodil Figaro</i> | <i>Sisyrinchium grandiflorum</i> |
| <i>obvallaris</i> | <i>album purpureum</i> |
| <i>Telamonius plenus</i> | * <i>Saxifraga Burseri</i> |
| <i>Saragossa</i> | <i>*luteo-purpurea</i> |
| <i>minimus</i> | <i>*coriophylla</i> |
| <i>Erica carnea</i> | <i>Vinca minor alba</i> |
| <i>alba</i> | <i>caerulea</i> |
| <i>Galanthus nivalis</i> | <i>plena</i> |
| * <i>latifolius</i> | <i>Viola odorata</i> |
| <i>Elwesi</i> | |

A. J. B.

HARDY CYCLAMENS.

VERY interesting notes on these appear on p. 211 of THE GARDEN. The writer, however, calls in question my advice to plant them 3 inches or 4 inches deep, and thinks that if he follows the advice he may lose all his stock; yet he has a few lines before advised planting the bulbs level with the surface, and applying immediately a thick layer of sand, cocoa-nut fibre, or leaf-mould. He also advises to apply yearly plenty of decomposed leaf-mould and a thick layer of dry leaves. The advice is excellent, but, provided the soil is well drained, I do not see the difference between planting on the surface and adding at once and every year afterwards a thick dressing of leaf-mould or planting at once 3 inches or 4 inches deep in leaf-mould as I advised. I am well aware of the tendency of *Cyclamen* bulbs to work to the surface if allowed to follow their natural habit, but, as I have often pointed out, it is not always wise to imitate Nature in cultivation, and change of climate and surroundings often requires an entire change from natural conditions. I have now thousands of healthy *Cyclamens* about my garden, chiefly *C. neapolitanum* (Tenore), and the different varieties or sub-species of *C. coum* (Lin.). When first I began to cultivate them I used to

be told that they ought to be planted on or near the surface. The consequence was that at the end of every severe winter a large proportion of them lay frozen to death on the surface. I then tried burying them amongst stones in leaf-mould with excellent results. I must own, however, that in spite of several attempts I have always failed with *C. europæum* (Lin.). I may be allowed to remark that the *Cyclamen* which is naturalised in several places in England is not *C. europæum* (Lin.), but *C. neapolitanum* (Tenore). No doubt the synonyms are very confusing, but I have carefully followed the nomenclature of "Index Kewensis." In Sowerby's "English Botany" the quasi-native species is called *C. europæum* (Lin.), but the description and coloured plate of both the forms figured belong to *C. neapolitanum*. Bentham in his "British Flora" makes the same mistake, the excellent engraving given being certainly a portrait of *C. neapolitanum* (Tenore).

Edge Hall, Malpas. C. WOLLEY-DOD.

PLANTS FOR BOLD BEDS.

In his notes on pleasure-ground work, "E. B." at page 140 refers to filling some large beds with bold subjects, and remarks, "It is not an easy matter to come to a decision." I believe I have a knowledge of the spot to which "E. B." refers, as we conferred together some months back on the subject. If sufficiently near the water, so that the roots may receive some moisture in the growing season, a bed devoted to some of the swamp Lilies, such as *L. pardalinum*, would prove very effective, and with a carpet of *Primula Sieboldi grandiflora*, also a moisture-loving plant, would be effective. *Iris gigantea* or *ochroleuca* would also prove telling, and when established will attain 5 feet high, besides being good and of distinct leafage. *Iris sibirica* in all its forms is very effective, either on grass or in bold beds with plenty of room, or quite near the moisture these things revel: the grassy blades in their fine tufts are also a pleasing item, while the various coloured flowers are distinctly pretty. In the border this is rarely more than 3½ feet, but if the roots can reach moisture it will attain nearly 5 feet. It is also a cheap though good plant for such a purpose. Some of the Meadow Sweets should also prove helpful—*Spiraea venusta* (also called *S. lobata*), *S. digitata*, and *S. kamtschatica*, *S. Aruncus*, *S. astilboides*, or the lovely shrubby *S. arifolia*. Any of these are delightful, and, while rejoicing in moist ground, grow to a fine size in good border soil. *Lupinus arboreus* (Tree Lupine) is pleasing in foliage and flower, and in many instances free in growth and an abundant bloomer.

"E. B." may in all probability find room for a few other Lilies in variety in conjunction with other plants in the same bed. A few of the more showy kinds are *L. tigrinum* in variety, *L. speciosum* in variety (preferably in a rather sheltered place for these latter), *L. candidum*, *L. monadelphum*, and *L. Martagon* in variety. Then, if not too gaudy, the Oriental Poppies, and *Lobelia syphilitica* in moister places, should such exist. A fine feature could be made likewise of the Himalayan Poppy (*Meconopsis*), but this would need annual sowing almost to maintain a yearly display, and I take it this is not desired in the present arrangement. A fine effect is procurable from *Bocconia cordata* or the *Polygonums*, as *P. cuspidatum* or *P. sachalinense*, the latter frequently reaching 10 feet to 12 feet high. The *Acanthuses* are very bold and picturesque, and well suited to isolation; equally so *Helianthus ergyalis*, 8 feet to 10 feet. Of good size also is *Pyrethrum uliginosum*, and, if not staked in any way, not in the least formal. It is likewise a good autumn plant. *Anchusa italica* is good in colour and free, while other bold and showy things include *Sunflowers* (*Helianthus multiflorus grandiflorus*), *Telekia*, the boldest of the Meadow Rues, as *Thalictrum flavum*, *T. rugosum*, &c. Globe Flowers are also fine subjects where space is abundant, also the bolder forms of *Verbascum*. Some of the Bamboos may possibly be introduced

in small plants in company with other things, the former to take permanent place eventually. The foregoing are merely offered suggestively in the hope that some at least will meet "E. B.'s" requirements.

E. J.

CLIMBING PLANTS.

By close training upon wall or fence we lose more than half the grace of climbing plants, as they are never so beautiful as when permitted to grow and flower with unrestricted freedom. It is desirable that all bare walls should be perpetually clothed with foliage, but hitherto when this has been done we have ceased to use climbers further, and have missed the true idea, or the prettiest way of using them. By the roadside I often see hedges wreathed in Honeysuckle, Convolvulus or Hops, and our wild Clematis climbs to the tops of the highest trees and veils their branches in beauty. Similarly in gardens we might garland hedge, bush, or tree if only we take a little trouble to establish the climbers by giving them a good start, and there would be no need for restriction. There are about most gardens common trees and shrubs upon which this idea could be easily carried out, and the gain in interest and beauty would be great. Any isolated tree or shrub is the best adapted for the purpose, for it would be useless to plant creepers in the average shrubbery where things are already choking one another to death. By selecting a suitable tree a hole can be dug as near the stem as possible, the climber planted and encouraged to grow by the addition of a little fresh soil. A little early training is necessary till its growth reaches the branches, when it can be left to take care of itself, which it will do. Tall trees might have their naked stems clothed, as I have seen them occasionally, with Honeysuckle, Jasmine, and Clematis. Moreover, the extension of the idea would permit of the use of many other things that are far too rampant, according to our present ideas of climbers and our ways of using them. I was once rambling around a large garden late in autumn when I came upon a great Hawthorn enshrouded with a Vine whose foliage was crimson and yellow, whilst the amber leaves and crimson haws upon the Hawthorn made up a colour combination beautiful beyond description. Again, how pretty must this be in spring when the Vine has its fresh green leaves, and the Hawthorn its clusters of sweet white flowers. This example suggests a good use for many of the wild Vines so handsome in foliage, but rarely seen in gardens.

The Clematis family is quite a host in itself for this purpose, especially such kinds as *C. montana* and *flammula*. The latter I once saw upon a large Holly, and from a height of 40 feet down to the ground it hung like a white sheet, so profusely was it blooming, whilst its delightful fragrance pervaded the air for a long distance around. *C. montana* upon a Yew tree makes a charming picture quite early in the year, and *C. graveolens* in late autumn is equally as pretty: in fact, many of the species of Clematis that have not come into general cultivation would be sought after and grown when such a happy way of using them had been discovered and carried out. As shown in the cut is also a pleasing way to grow the Clematis. The Honeysuckles, again, are quite a large family, and if we would enjoy their fullest beauty we must permit them to grow unrestricted. Many of our vigorous climbing Roses that resent restriction would be quite at home rambling over a tree. Even the good old Gloire de Dijon will take care of itself, as I once saw it monopolising an old Apple tree, and growing and flowering to such an extent

that the Apple tree had very little chance of doing much good. The cluster Roses, so rampant and so free, must disport themselves upon tree or shrub to develop all their grace and beauty. Such kinds as *Mme. d'Arblay*, *Adelaide d'Orleans*, or *Ruga* will cover a low tree or shrub, and in their season make it a perfect mound of blossom. Some of the fine Rose species of climbing habit, such as *R. Brunoniana* and others, could be put to good use in this way, although they are rarely seen in gardens.

These random suggestions show that there is an abundance of vigorous climbers that can be used in a free way, and it is to be hoped that planters will pay greater attention to the beautifying of gardens in this way, as the less formality and the more natural beauty we have

through the soil. Take a sharp knife and run down so as to sever them about 2 inches below the ground-level. Insert these cuttings round the edges of pots or pans and treat like any other soft-wooded cuttings at this time of the year. A very large percentage of them will soon root, and may be potted off singly and hardened off preparatory to planting out.—JAMES GROOM, *Gosport*.

NOTES ON HARDY PLANTS.

Conandron ramondioides.—A few plants left out look infinitely better than some stood in a cool greenhouse, and, curiously enough, more forward in leaf growth. On January 2, 1897, when this plant was figured in *THE GARDEN*, hopes were expressed that it might prove hardy. I think present results are favourable, for just within the last week my plants have been sub-



Clematis Jackmani over walk. From a photograph by Mr. C. Metcalf, Mill House, Halifax.

in and about them the more interesting and tasteful they will be.

A.

Everlasting Peas.—All the varieties of Everlasting Pea are useful, but the pure white variety is especially so for supplying cut flowers during the hottest summer months. I planted a dozen young plants about six years ago at the foot of a wall, making a good deep border of rich soil for them, and now they cover it from base to summit, 8 feet high, every year, without any trouble whatever. I had the wall wired, as if for training fruit trees. The wires were kept 6 inches from the face of the wall by stout iron supports, and the Pea haulm runs up the face of the wall and clings to the wires as it progresses. The quantity of bloom I cut is enormous, and the only thing that is really necessary to ensure a long season of bloom is to keep all the fully expanded flowers gathered as soon as they are fit. Everlasting Peas may be readily increased at this time of the year by taking off the young growths as soon as they have pushed about 6 inches

jected to 14° of frost without any sign of injury to the young foliage. It will be a great gain to our rock gardens if it can stand severe winters, and even should it need a little protection it is worthy of the care. This plant with its rhizomatous root-stocks, I find, thrives wonderfully on hard gravel with a thin cover of peat and sand, but the position should be somewhat shaded and damp, and the stratum of gravel solid.

Alpine Primulas.—It will pay to look closely to these at the present season, and besides the present is the best time to find the root pests to which I particularly refer. Very near the surface and at the collar of the plants the daddy-longlegs grub may be found and easily removed. The fat white grub of the Vine weevil, well known to have a great partiality for primulaceous species, is, when present, to be found near the surface too. If the plants are in pots, this grub will during the winter have given unmistakable evidence of its presence by the cut roots, especially the stronger roots, and they will be mostly found in cavities of soil close to the sides of the pots. If

these pests are left at the roots of the plants they are sure to kill them, whilst not only are they easily found now, but almost any *Primula* will make a fresh start after an attack if relieved in early spring. Beyond a doubt, burnt clay or loam, pulverised, and mixed with the soil, either in the open or for pots, is both favourable to the vigour of *Primulas* and tends to ward off these kinds of grubs.

Saxifraga oppositifolia alba.—How very beautiful are healthy patches of this! It is seldom seen, however, in a dense and verdant condition of foliage with a profuse mass of its white flowers. I find it likes annual culture, either in the form of replanting or liberal mulching. I am quite convinced that the best soil is one totally without humus, a free but not sandy loam having answered best here. Just now the plant is at its best for flowers, and if I wanted to get healthy tufts for next season, I should pull the present flowering pieces asunder as soon as the blooms were done and replant in a generous loam.

Corydalis solida.—Surely this common yet quaintly pretty winter plant is worth notice. Among hundreds of hardy things, this at present stands out as one of the most welcome, and it is one of those things that can take care of itself, only needing a place. Of course, if we want rarer forms of its group, the variety *alba*, with white flowers and leather-brown bracts interspersed with its spikes, is capable of coming up to the highest standard of delicate beauty. This, however, I always grow under glass, as, unless its flowers can be kept pure in April, you do not see it at its best, though in clean districts I have seen it most beautiful in the open.

Shortia galacifolia.—This beautiful plant is not only perfectly hardy, but one of the most vigorous creepers, spreading by a set of stolon-like stems. It is growing here between stones raised from the common surface level; in almost pure sand with the *Arenarias*, in peat, in peat and loam, and in every case is thriving and carrying numbers of big pearly buds. I am quite aware of the great numbers of failures, but, all the same, after five years' experience with the plant in anything but favourable surroundings, I am sure it is no fault of the constitution of the plant. I can think of nothing so conducive to the almost general want of success as the imperfect or damaged material we had to work with for several years after the re-discovery of the species. Given good plants and a soil without lime, I think it will be as hard to fail with it as in the past it has been to succeed. I have big pieces in dense leaf and flower. J. Wood.

Woodville, Kirkstall.

VIOLETS.

THE notes on Violets that have appeared lately in THE GARDEN will no doubt be of interest to many. The various ways and methods of growing them seem to make some difference in the results. I have grown Violets for some years in large quantities with much success. I usually plant in frames from 3000 to 4000, the varieties being Marie Louise, Belle de Chatenay, and California for a single. I am perfectly satisfied with these sorts. The California for a single is the best I know; it blooms freely, is sweet-scented and of good colour, and the foliage is very useful for bunching. I am not troubled with any of the failures of damping, &c., plenty of fine blooms being gathered for six months, except in very severe weather. The situation where I have to grow them is not one of the best, being very low and damp, only a few feet above sea-level, and very much enclosed on east to south—some high buildings completely shadow them—the other sides being enclosed by trees, so I have not the free circulation of air some consider so necessary to grow them. My success I attribute to growing good plants for early lifting, and, most of all, good attention when under glass; that is, I never let frost get to the plants at all, giving plenty of air on suitable occasions and water when required. About

the middle of April, when the flowering begins to lessen, I split up the plants and pick out the best pieces, with some roots attached, and plant about a foot apart on some prepared ground, usually borders facing west or north, which can be spared best. These are watered and shaded until the plants get well hold of the soil. After that, attention is paid to watering, hoeing, and removal of runners. Then, early in September I put them into frames prepared as a very slight hotbed, with about a foot in depth of soil, a mixture of spent Cucumber or Melon soil—anything with leaf soil and burnt earth—and plant close to the glass, about thirty to forty in a 6 feet by 4-feet light, water and shade for a few days if required. I usually pot up a few scores to grow in heated pits, to give a few blooms when the weather is too severe to allow of those in frames being gathered; these are thrown away as soon as the worst of winter is over. If I had the use of heated pits I should plant just a few for that purpose, and only for that. As regards the climate mentioned by Mr. Mayne, I fail to see how that can be the cause of his failing, as he says those outside are the best and do not damp. Here Marie Louise left outside is of no use whatever, generally dying outright.

Braham, Cambridge.

J. HILL.

NOTES AND QUESTIONS.—FLOWER.

Incarvillea Delavayi.—I have a plant of *Incarvillea Delavayi* and shall be glad of any information as to its treatment; the books do not say much about it—H. S.

Violet Lady Hume Campbell. In the recent notes in your paper having reference to the cultivation of winter Violets I have found no reference to the variety which has done better with me than any other—viz., Lady Hume Campbell. The flowers are lighter in colour than those of Marie Louise, but in my case more numerous; the leaves are a shining green above, while the flowers stand out boldly, the plants being very compact. I have also found it do well in pots in a cool greenhouse.—ARTHUR T. SIMPSON, *Shipston-on-Stour*.

ORCHARD AND FRUIT GARDEN.

THE PLUM.*

THE Plum is one of the most valuable of our hardy fruits, and, if well managed, one of the most profitable to grow; it will thrive in almost any soil, and one finds Plum orchards producing fine crops of fruit upon strong clay, and also upon light gravel, chalk, and even sand; so that the range of soils upon which Plums may be planted is an extremely wide one. Time will not allow me to speak of the best aspect and conditions for planting Plums; suffice it to say that although they bloom early and are benefited by shelter from cold east winds, and enjoy a good aspect as well as any other fruit tree, they are not so very particular in this respect, and even so far north as Clydesdale we find that the orchards planted on a northern slope are said to succeed better than those with a southern exposure. Plums rejoice in a moist soil, but will not thrive in a wet, undrained situation; indeed, all fruit trees are impatient of stagnant water in the soil. The demand for Plums is very great, and when this fruit is in the market most others are at a discount. Much has been written and said about over-production and glutted markets; so far as my experience extends, there is always a market for good fruit, and this remark applies to Plums quite as strongly as to Apples and other fruits. Of course the Plum is a perishable fruit and cannot be stored, but I hope to show that by careful management such losses

* Paper read by Mr. A. H. Pearson before the Royal Horticultural Society, Aug. 24, 1897.

as we sometimes hear of may be avoided. Certainly so long as our continental neighbours are kind enough to make us an annual present (by bounties) of some £2,000,000 to take their production of sugar, we ought to be able to make jams at such a cheap rate as to secure us a monopoly in the markets of the world.

PROPAGATION.

The natural method of propagation is by seed, and this is, of course, the only way in which new varieties can be obtained. We have not a very complete record of the raisers of the varieties of Plums which are at present in cultivation; some of them were raised generations ago, when but comparatively little interest was taken in these matters, and many more have been introduced from abroad. The home of most of the new varieties raised in this country is Sawbridgeworth, and Mr. Rivers has raised and distributed more than perhaps any other person. No list of good Plums could be made without including such varieties as The Czar, Monarch, Early Transparent, and Early Prolific, all of which, with many others, were raised at Sawbridgeworth. America has furnished us with several valuable varieties, of which I need only mention Jefferson (Judge Bush) and Deniston's Superb (Isaac Deniston) to show our indebtedness to that country. Coe's Golden Drop (Jervaise Coe) was raised at Bury St. Edmunds, Kirke's Plum (Jos. Kirke) at Brompton, and Diamond (Hooker) in Kent; the bulk of the Gages seem to have originated in France. Most varieties were doubtless chance seedlings. In the days of our grandfathers planters seemed to think it was cheaper to raise seedlings than to buy trees, and many of our old orchards in this country abound in seedlings both of Plums and Apples (especially the latter), and from out of this chaos there would doubtless emerge from time to time some novelty worthy of propagation. To-day one does not think of raising seedlings except with the view of obtaining new varieties, for although some sorts, such as Green Gage, reproduce themselves fairly true from seed, the bulk of seedlings would be greatly inferior to existing varieties, and as they are more vigorous in their growth than grafted trees, they would be longer in coming into bearing. A second method of raising young trees is by planting suckers. The Plum, being a surface-rooting tree, is naturally inclined to throw up suckers, and this habit is taken advantage of by market growers in various parts of the country; for instance, in the Vale of Evesham the Pershore Plum is almost always raised from suckers, as is the Johnny Roe in Nottinghamshire, and the Damson in Cheshire. Trees grown in this way are greatly inferior to worked trees, they are difficult to form into shapely specimens, and the tendency to throw up suckers is increased by this method of propagation; they are also longer in coming into bearing. Mr. Rivers says that Rivers' Early Prolific when raised from suckers does not bloom for several years; whereas worked trees bloom the second year. In the market gardens of Nottinghamshire one often finds huge trees of Mussel and Brussels Plums, which have been taken as suckers from trees worked upon these stocks, and which are really only cumber-grounds, as the fruit is of little value. The best method of propagation is by budding or grafting; the former is preferable, as the union of the stock and bud is closer and more natural than that of a graft, and in the case of Plums not so liable to cause gumming. With respect to the stocks used for working, one finds that in many nurseries, both in this country and on the Continent, two or at most three stocks do duty for all the varie-

ties of Plums grown; whereas in other nurseries six kinds of stocks are used, viz., the common Plum, the Brussels, the Mussel, the Brompton, the Damas Noir or St. Julien, and the Myrobalan. The origin of some of these stocks is unknown, but that they are of different races would seem apparent from the fact that some cultivated varieties prefer one, some another, whilst a few are acceptable to nearly all, and it seems to me that the secret of success is to work the stock with a variety which is of common parentage, or which at least has the same blood in it. Let me explain my meaning by an illustration. Nearly all Plums will grow upon the common Plum stock, although some of them thrive much better upon other stocks. Prince Engelbert and Black Diamond, both large, dark Plums, succeed well upon the Mussel stock; whereas upon the Brompton they grow for a while and then part company at the graft; the union never seems complete. Dove Bank, on the other hand, flourishes upon both Brompton and Brussels, but will not grow upon the Mussel. Belgian Purple will not grow upon either Brussels or common Plum, but flourishes upon Damas Noir, Mussel, or Myrobalan. This brings me back to the idea previously thrown out, that our cultivated Plums cannot be all of common descent, or they would probably all thrive upon the same stock. To many people this subject of stocks may seem a matter of small moment, but it is one which frequently carries results that are far from pleasing. For example, an acquaintance of mine bought 250 Damsons for planting in the north of England; they proved to be worked upon a stock which is not hardy in the north, and although they were fine trees, they were killed by a severe winter two years after planting. My father once purchased a number of Damsons worked upon the Mussel stock, and, although they appeared to be good trees, they all dwindled away year by year and had to be replanted. I will not go further into detail, but it must be obvious that this is a matter of importance, and it is one which in some quarters has been much neglected by propagators. Before leaving this subject I may just say that the one stock needed by all cultivators is a real dwarfing stock, which for the Plum would correspond with the Quince for Pears and the Paradise for Apples. Such a stock is yet undiscovered and is much to be desired. Of course some of the stocks I have named will carry trees of much more vigorous habit than others, and the intelligent nurseryman does not dream of using the same stock for his trained wall and espalier trees as that which he uses for standard trees; at the same time the difference is not so great as we could wish, and a really dwarfing stock would be a great boon. Budding is done about July, when the bark will run readily from the stock and the buds are sufficiently ripe. I need not go into the detail of the operation, as everyone is conversant with it, but I may say in passing that no matter how well the buds are put in, unless they are properly tied afterwards and a wrap of the tying material passed just above the bud, so as to properly hold together the lips of the incision on the stock, the result will be failure. If the buds are inserted too early they will in all probability make growth the same season (which is undesirable), and if inserted too late there is great difficulty in getting them in properly, and very few will grow; what is needed is just a sufficient movement of sap to permit of the bark running freely and to nourish the newly-inserted bud without exciting it into growth. In a showery season, when the stocks are swelling after budding, care must be taken to loosen

the ties before they cut into the stock, but they should not be removed altogether, or the buds, being dormant, will be thrust out. This is often a cause of serious loss; the ties should be taken off and replaced, wrapping and tying lightly. Grafting is done in the spring, and, as a rule with propagators, is only made use of to make good the failure amongst stocks which were budded the preceding summer. Of course, where it is desirable to re-work trees of some age, grafting is the means to employ, but the Plum does not lend itself to this operation like the Pear and Apple, and the results are seldom satisfactory. I may just say, whilst upon the subject of grafting, that I have searched a good many authorities upon this question, and they almost all recommend that the cuttings to be used as grafts should be in as dormant a state as possible; most of them say that they should be cut off in December or January and taken care of until required. With one exception, which I will give, the whole of the authorities, both new and old, that I have consulted are agreed upon this point—dormant they must be. But does this well-received statement rest upon any solid foundation? For fifty years we have discarded it at Chilwell, and my foreman (who has been with us forty-two years) tells me that his predecessor always took his cuttings as he was ready for them, excepting, of course, in seasons when the weather was very mild and buds began to develop too much, in which case he cut them off and buried them in a cool place for a few days, but never for more than a week, or at the outside a fortnight, before grafting. Again, one reads that when it is necessary to re-work old trees, the stocks should be headed back early in the winter to prevent the movement of the sap; this is manifestly absurd, as the end of the branches so cut back would dry up, and it would be impossible to insert grafts unless they were again cut back some 12 inches to get fresh wood. I was so much impressed with the constantly reiterated advice to have one's grafts in a dormant state, that I made the experiment one year of having them cut off a month before they were required and laid in damp sand until the time for grafting. Unfortunately, like some other experimentalists, I started on a large scale, and the result was most disastrous; we had the worst failure that we have ever known with the prepared grafts; whereas those taken in the usual way were as good as need be. I have already said I found one exception to the advocates for early cutting and retarding grafts; in M. Edouard Pynaert's book, "L'Amateur du Fruit," he quotes from the writings of M. Carrière, a Belgian amateur, to the effect that contrary to the usual practice he never cuts his grafts until the moment when he wishes to use them, and the only case in which he would use grafts, other than freshly cut, is when one receives them at a time when it is not possible to use them immediately, or when the work has unavoidably to be done very late. It is needless to state that this question of dormant grafts applies to all kinds of fruit trees which are usually propagated by grafting. Passing from the subject of propagation to that of

PLANTING AND SUBSEQUENT MANAGEMENT, we find that as a rule Plums succeed best when grown in an unrestricted form; they are impatient of close pruning, under which treatment they frequently gum; consequently most market growers plant them as bushes or half-standards, and after cutting back the shoots for a couple of years, so as to form well-balanced trees, they leave them, so far as pruning is concerned, severely alone. In our gardens we frequently see closely-pruned pyramids, but

rarely do these carry fruit, for the Plum, being somewhat rampant in its growth, when closely pruned makes strong shoots at the expense of fruit buds; the only remedy is to lift trees which are required for pyramids several times whilst young, and thus check the root action and throw them into bearing, and under this treatment and with a favourable climate the finest quality of fruit can be grown. From the Trent to the Lowlands of Scotland all the best varieties of Plums require and deserve a wall to bring them to perfection; many of our old gardens are provided with fine walls, and a few are covered with fine trees, but in the majority of old gardens which it has been my lot to see the wall trees (more especially in the case of Plums) can only by courtesy be called trained trees. It is true that the stems are fastened in some way to the wall, but the spurs are so far away as to be almost outside any beneficial effect of the radiated heat therefrom, and, as a rule, if the wall be of moderate height the lower half of the tree upon it is devoid of spurs, and the larger part of the whole tree is above the wall altogether. I have seen wires placed above the wall and the shoots trained thereon carrying an excellent crop of fruit, but one could scarcely call this wall fruit. The reason of this state of things is, first, the naturally strong growth of the Plum; and secondly, the method of training. This is usually the fan system, in which the shoots are trained at a natural angle to the stem of the tree, and which, consequently, permits the sap to follow its natural course of rushing up into the leading shoots; this can easily be obviated by adopting the horizontal method of training, which, by laying the shoots at right angles to the stem of the tree, checks the flow of the sap and causes them to make fruit-spurs. This system has also the great advantage of covering the wall from base to summit, instead of wasting the lower portion, and of disposing the branches at equal distances from each other over their whole length, instead of being overcrowded at their base, as in the case of fan-trained trees. Being the first propagator to recommend and distribute horizontally-trained Plum trees, I would say that they are in every way as well adapted for this form of culture as the Pear or Apple, and just as it is now quite the exception to find these latter trained for walls or espaliers in any other way than horizontally, so I believe in the near future will it be quite the exception to find a fan-trained Plum. It will occur to everyone that these remarks upon training apply with special force to those walls which are of a medium height, say 7 feet to 10 feet, but they also apply to higher walls, inasmuch as a large proportion of the space is wasted when it has nothing upon it but naked stems; it will also be apparent that the so-called horizontally-trained trees which are grown in France, and which some cultivators have adopted in this country, which have their branches trained at an angle of some 45° from the stem, do not check the flow of sap, and thus cause fertility, in the way that training at right angles to the stem does, and that beyond the fact of their branches being equidistant at all parts, they have no advantages over fan-trained trees. I may say in passing that the pruning of the side shoots upon trained trees is better done with the finger and thumb, in the way of pinching young growths, than by the subsequent use of the knife. It is not possible in a paper like the present to go fully into the details of

PRUNING, TRAINING, AND MANAGEMENT

of the Plum, but I have selected a few points which I conceived to be of interest, mainly from

the fact that they differ in some measure from the usually accepted methods. I will therefore break off here and say a few words about the habits of certain varieties and on general management. Plums are, as a rule, very prolific, and the heaviest cropping varieties have the habit of carrying enormous crops every alternate year, thus causing an over-abundant supply one season and a dearth the next. Fortunately this does not always occur over the whole country at the same time, or the result would be serious; still, this habit has to a certain extent deterred market growers from planting this fruit as extensively as they otherwise would have done. It is generally said that spring frost is the cause of these frequent failures, but it is undoubtedly often the result of over-exhaustion from the excessive crop carried the previous year; and when by any natural cause the crop is reduced by one half, the trees will carry fruit the succeeding year without taking a season's rest. Many people are fully aware of this fact, and yet but few, comparatively, make any use of their knowledge. A market grower in my neighbourhood told me some time ago that for many years he had thinned all the fruit on his Plum trees, and that he never did anything which paid him so well. He commenced one season when the trees were so laden that the branches resembled ropes of Onions, and removed more than half the fruit just before the stones began to harden. This green fruit he took to market, and it was eagerly bought up for cooking and preserving; the money he realised well repaid his labour. Then when the fruit was ripe and the market was glutted with undersized, ill-coloured fruit, the hucksters actually quarrelled to obtain his fine well-coloured fruit, and pulled his baskets out of the carts before he could unload. This bears out my statement that there is always a market for good fruit. Furthermore, he said that the following year his neighbours just over the hedge had their ill-developed and half-starved bloom destroyed by frost, whilst his came through the ordeal in safety, and he had quite enough left to give an excellent crop. I quote this to show what may be done on a large scale, and of course such practice is even still more applicable to private gardens. No doubt very many gardeners regularly thin their fruit in the manner indicated, but, alas! one's observation compels one to say that many more never attempt it. Before leaving the subject of market growers and that nightmare called glutted markets, I would just point out that one cause of glutted markets is to be found in the fact that planters have confined themselves too much to one or two varieties of Plums. In the midlands and south of Scotland I should say that ninety Victorias are planted as against ten of any other variety, with the result that the fruit often makes a poor price, whilst a week or so before and after Victorias are in the market Plums sell well. Again, much may be done to improve the quality of the fruit grown, both by thinning, as already mentioned, and also by feeding the trees, when they have a full crop, with mulchings of manure. I would suggest also the feasibility of establishing, close to the fruit grounds, jam-making factories (either by individual or co-operative enterprise), where, favoured with our cheap sugar, the surplus fruit could be utilised and subsequently sold at a profit, instead of being rushed off to London and sold at such a price as will not cover cost of transport and agents' commission. These factories have been successfully established in many districts, and will doubtless extend in course of time. Fruit pulp is also made and sold by auction. In March last, at Lenham,

near Maidstone, amongst other prices realised Damson pulp made 40s. a ton, Victoria Plum up to 87s. 6d., Green Gage 50s., Raspberry £19, and Black Currant £45. In giving a few descriptions of Plums and their habits, it must of course be understood that I speak of them as they demean themselves in the midlands, for some varieties which fail with us are most valuable in the more favoured southern counties. It would be out of place to attempt a catalogue, and I shall only mention briefly our

LEADING VARIETIES.

The heaviest croppers and those most usually selected for market planting are Rivers' Early Prolific, The Czar, Victoria, Diamond, Prince Englebert, and Monarch. Rivers' Early is perhaps the most profitable of any Plum (where it will succeed), from the fact of its early season, and also that there are so many soils and situations where it is quite useless to plant it. The other varieties named are all heavy bearers, and will flourish in almost any soil. In addition to these, Caledonian or Goliath, Gisborne's, Pond's Seedling, and Sultan are all reliable cooking varieties, succeeding well as standards. Orleans and Cox's Emperor are heavy bearers, but liable to crack in wet seasons; they do best on warm soils. Prince of Wales, which belongs to the same family, I have long discarded from its being so tender; in severe winters both old and young trees are often killed. White Magnum Bonum is a fine fruit, and in some localities a good orchard Plum, but with me it does not produce a crop oftener than every third year upon an average. Johnny Roe, previously mentioned, is a large, coarse, reddish purple Plum of poor quality; but, being a great cropper, is largely grown in Nottinghamshire; the fruit is sent off to the "Black Country," where possibly they have nothing better. Our best dessert Plums in the open are Jefferson, Early Transparent, and Dove Bank. Jefferson is one of the best all-round Plums we possess, and many growers would name Dove Bank as a suitable companion. Some authorities say that this variety is synonymous with Caledonian—as they say Sharpe's Emperor is synonymous with Victoria; the reason of this is that they have not seen the true variety, and even to-day many cultivators supply Caledonian for Dove Bank. The true variety was grown and distributed by Spencer, of Ilkeston, the raiser of Spencer's Favourite Apple, and is said to have been found growing on the banks of the Derbyshire Dove. It differs from Caledonian in growth, and whereas the leaf-glands of that variety are well developed and red in colour, Dove Bank has small ill-developed glands of a pale colour; with regard to the fruit there is no comparison between the two. Caledonian is a somewhat coarse cooking Plum, Dove Bank is a splendid cooking Plum, and good enough for dessert. Sharpe's Emperor, just referred to, is a second-rate Plum, resembling Victoria in appearance, but very inferior in point of cropping and quality, a decided clingstone, often gumming at the stone, and ripening a fortnight later than its supposed synonym; not worthy of cultivation. Early Transparent is a most abundant cropper, and does well in all forms. Green Gage succeeds best where some chalk is present in the soil; in most parts of the midlands it carries a good crop in the open once in six years. I see in a recent work upon fruits the name of Washington Plum amongst the cooking varieties, and the same thing occurs in the report of the Plum Congress, Edinburgh, 1889. This must surely be a mistake, for when this variety favours us with a crop it is most de-

licious. I am quite unable to say how often it crops in the open, but I have known a very large tree in one of our orchards for thirty years, and only once has it been my pleasure to taste the fruit from it. One year in the seventies it was full, and I spent most of an afternoon in its shade. My foreman says it also bore a crop about the time I was in short clothes, but with these two exceptions it has been resting, so that one may expect it to attain a vigorous old age. In the craze which has prevailed of late years for everything large in the way of fruit, some of the smaller varieties have been somewhat overlooked. I think of this class, St. Etienne, Queen of Mirabelles, and Winesour are well worthy of notice. The two former are pretty little yellow Plums, ripening in July and early August, very acceptable for dessert, and most delicious as bottled fruit. Winesour, as all connoisseurs know, is without a rival for preserving. The Plums I have hitherto named all succeed as standards in the open, although many of them are well worthy of a position on a wall, but those usually selected for walls are as follows: Coe's Golden Drop, which is, perhaps, our best Plum for this mode of culture, closely followed in point of merit by Deniston's Superb, Kirke's, and Jefferson, all of which are of the highest quality and heavy bearers; Early Transparent Gage is also most fertile and of good flavour; Green Gage, Bryanston, Reine Claude de Bavay, and Reine Claude Violette are all excellent, but not quite such sure croppers. The foregoing are all worthy of a south or south-west wall. I would say here that it seems to me incomprehensible that planters should persist in planting such Plums as Victoria on a south wall, where they are quite out of place and the fruit they produce is so "mealy" as to be almost uneatable, and yet one sees hundreds of them in this position; on a north or east wall they do well. Space forbids my giving lists for each aspect, nor can I mention more varieties. I might easily extend the list, but have confined my remarks to the cream of those kinds grown in the midlands. I must, however, say a word about a Plum which has, at a somewhat recent date, been honoured by an award from this society. I refer to Early Favourite. This variety has been before the public for nearly forty years, and has been discarded by nearly every cultivator on account of its extreme shyness. I think, therefore, a note of caution is not out of place. I have reserved the

DAMSONS

for a word to themselves. From a profitable point of view I should certainly not have placed them last, for I know no fruit that, taking the average of seasons, pays the same amount of money as the Damson. By far the most popular variety in the midlands is the Damascene, Cheshire, Shropshire, or Prune, and many a cottager pays his rent year by year from some half-dozen trees in his garden. The demand for the fruit is very great; in seasons of great plenty the dyers purchase them by the ton and—may we whisper it?—"port wine" is said to be manufactured therefrom; but apart from this there is always a very large sale in our northern towns for cooking, preserving, and bottling. The fruit ripens at a time when nearly all other Plums are over, and when, fortunately, our home-grown fruit meets with no competition from abroad. Damsons are grown in America, but they seem to be confined to the English-speaking race, and I never heard of their being grown on the Continent. Bradley's King of Damsons is an excellent variety, an early and heavy bearer, of good

quality, ripening a little earlier than the Damascene, and will doubtless become a popular kind. The famous Crittenden or Farleigh Prolific the dwellers in the midlands will have none of, and although the nurseryman may propagate, the planters will not purchase. I have spoken of the Damascene as the Prune. It is sometimes called by this name, but it is, of course, quite distinct from the true Herefordshire Prune, of the merits of which I cannot as yet say much. Mr. Smith, of Mentmore, kindly sent me some trees about twelve years ago, but although they have grown freely and made fine trees, they have up to now failed to produce fruit. At Mentmore I hear this variety crops well and is much esteemed. Damsons are useful for planting on the outsides of Plum orchards, as they form a good shelter from the wind for the other trees. It is generally conceded that all fruit trees do better on cultivated land than upon land which is grass, but the Plum is, perhaps, of all others essentially a fruit for cultivated orchards or gardens. Where cattle have access to the trees they often damage them to a serious extent. Plums should be gathered with the aid of a step-ladder, or two ladders fastened together at the top, for as the wood is brittle, a heavy ladder placed against the trees will frequently break them, especially in a young plantation. The fruit, when required for market, should be gathered before it is fully ripe; great loss is frequently entailed by neglect of this precaution, not only to the grower himself, but also to other consigners, as fruit placed upon the market in inferior condition has always a tendency to lower the general prices. Where fruit can be carefully gathered and conveyed by one's own vehicle to market, so as to preserve the bloom, it will always command an extra price, and it is surprising that more pains are not taken by the average grower upon these little points. It is scarcely necessary to add that these remarks apply with still stronger force to fruit grown for private use. If the trees are looked over several times, instead of gathering all the fruit at once, the season of each variety is considerably prolonged. In gathering Plums for dessert, they should be pulled in the early morning whilst cool, and handled with the utmost care. When placed upon the table they should be in dishes, with only one layer of fruit resting upon a few leaves. Presented in this way, with all their bloom upon them, they are tempting to the most epicurean; but when one sees them rubbed, shiny, and piled up into a pyramid, one is apt to be reminded of the polished fruit one sees in the markets, and to pass them by untasted.

With regard to the

NEWER VARIETIES

distributed in this country, we have a fair number on trial, but I take it the consideration of their merits or shortcomings falls rather within the scope of a paper upon "New Fruits" than in the present article. With regard to the Japanese Plums, I cannot say much from personal observation. I purchased several varieties, but they succumbed to the severity of our winters in less than two years. The majority died the first season, and the remainder dragged on an enfeebled existence, until the next winter promptly ended their sufferings. Our American friends speak very highly of Burbank (a Japanese variety imported by Mr. Luther Burbank), which they describe as "entirely hardy." The fruit, as coloured in "U.S.A. Department of Agriculture's Report upon Pomology," much resembles Orleans, but is

very cause it arises that one so frequently sees the trees at this season of the year smothered up with aphids. The sluggard says they will do no harm, but the careful cultivator knows full well that they will weaken the shoots, prevent their ripening, and so destroy the chance of either fruit or good growth in the coming season.

APPLE TREES IN BLOOM.

THE accompanying illustration shows a charming spring picture that tells its own story and needs no detailed description. The beautiful and the useful are here blended in the happiest way, and the picture is full of suggestiveness, especially for those who have small gardens from which they wish to realise the fullest measure of use and beauty. The espalier form of Apple tree is admirably adapted to gardens of limited space, whilst if the trees are planted about a yard from the edge of the walk the



An old espalier Apple tree in bloom.

redder in colour. It remains to be seen whether it is hardy in this country. Mr. Burbank, whose experimental grounds are at Santa Rosa, California, has raised a considerable number of hybrids between the American and Japanese races of Plums, and also some cross-bred Prunes, which he describes as of great merit. I cannot speak of any of them from personal observation. In conclusion, may I say a word about the value of the Plum for filling up gaps in old orchards. Most practical orchardists know how useless it is to replant Apple trees on the site where Apples have been grown previously (though, alas, there are hundreds, perhaps thousands, of trees condemned to a lingering death each year from lack of this knowledge); whereas Plums will grow very well in such places if the land be fairly fertile. I have omitted to say anything about the enemies of the Plum; they are not many, and most of them easily destroyed. Perhaps from this

intervening space makes a convenient flower border. In the instance here shown, the association of Narcissi and Apple blossom must have given a delightful and harmonious feature of refined colour, and many such spring pictures could be created with the variety of spring-flowering things upon which we can draw. The season when Apples bloom is one of the most charming times in the garden year, and whether we garden for pleasure or profit, the beauty of Apple blossom appeals irresistibly to us.

The Nectarine Peach.—No one can go far wrong in adding this excellent variety to his collection, as from a long experience with late Peaches on open walls it has proved itself one of the best. In a case or late Peach house it is a splendid fruit; indeed, I consider it the best flavoured late September Peach we have, either under glass or on a suitable wall. I have this variety on two aspects in the open, one on

the south-west and another due south, and last summer the fruits on both were over by the end of September owing to the heat. In most years the trees on the west wall carry the supply into the early part of October. The fruits are very large when grown under glass, with a smooth, Nectarine-like skin. At the season named it is richly flavoured. To get fine fruit in the open the tree should be given ample space, as it crops freely. I find it rarely fails to set even in adverse seasons—W.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 22.

ANOTHER full meeting was held on the above date, the Drill Hall being filled almost to overflowing, both the tables and ground space being made the best possible use of. The attendance of Fellows was most gratifying. It was, however, very unfortunate that a thick and typical London fog prevailed for the best part of the meeting. This, during the time the committees were sitting, was such as to defy any proper estimate being taken of the comparative merits or otherwise of the respective colours in many of the exhibits. It was worse than semi-darkness, whilst the choking sensation peculiar to these fogs helped to intensify the unpleasantness. If ever the great need of the practical application of the electric light was demonstrated, it was at this meeting. Perhaps the most popular exhibits on this occasion were the two splendid displays of cut Roses from Canterbury and Waltham Cross. These were specially good, the former being the most varied, with many of the blooms cut with long stems. Thus they displayed their peculiar beauties to much better advantage. A grand lot of the finest forms of *Amaryllis* was sent up from Westonbirt, the flowers bearing no evidence of the long journey. Of *Clivias* there was a splendid bank of plants of the finest varieties from Chelsea. The exhibit of *Clematises* was repeated from Edmorton, producing a beautiful effect as arranged upon the floor. The display of bulbous plants, as *Hyacinths* from Waltham Cross, *Tulips* from Southgate, and *Daffodils* from Tottenham and elsewhere, was most profuse. It was gratifying to see Messrs. Paul and Son again staging their *Hyacinths*. Roses in pots came also from this source. Of florists' flowers there were groups of *Cyclamens* and *Cinerarias*, a specially good one of the latter coming from Farnham Royal, the plants, singularly dwarf and compact, bearing large, well-formed blossoms. Some grand spathes of the yellow *Calla* were to be seen from Highgate, from whence also came the old-fashioned, but beautiful, *Thyracanthus rutilans*, now very rarely seen. A fine group of typical decorative Ferns came from the same source as on the last occasion.

Orchids were not, strange to say, so numerous as on the last occasion; possibly it may be attributed to the keen frosty air of the mornings just recently. The only group of any moment was one from Enfield, set up in good style. The individual exhibits, too, were not at all numerous, one of the most distinct being an absolutely pure white (so far as could be discerned) form of *Dendrobium nobile*. Neither fruits nor vegetables claim much notice. The flavour classes still continue, but the winning kinds are chiefly old sorts. The best exhibit in the way of fruit was a boxful of punnets of Royal Sovereign Strawberry from Syon Gardens.

The lecture on this occasion was upon "Soils, their Composition and Treatment," the attendance at which was good.

Orchid Committee.

First-class certificates were adjudged to the following:—

DENDROBIUM NOBILE ASHWORTHIANUM.—This is a distinctly shaped flower, having very few of the characteristics of the typical *D. nobile*. The

sepals and petals are pure white, with the twisted appearance of those of *D. tortile*. The petals have the characteristics of that species. The lip differs from that of the typical *D. nobile* in its open characters at the base. It is wholly white and one of the broadest we have seen. A small plant with six flowers was sent from Mr. E. Ashworth, Harefield Hall, Wilmslow.

ODONTOGLOSSUM CRISPUM PRINCESS CHRISTIAN.—This is one of the most beautiful of the spotted section. The ground colour of the sepals is white, slightly suffused with rose and heavily blotched with chocolate-brown. The finely shaped petals are white, much fringed at the edges. It has numerous dark brown spots in the centre, the lip white, shading to yellow at the base, with a brown blotch in the centre. The lip had some of the characteristics of *O. Wilckeanum* and certainly was not that of a true *O. crispum*. The plant carried a raceme of twelve flowers. From Baron Schröder.

Awards of merit were adjudged to the following:—

ODONTOGLOSSUM HYBRIDUM ASHWORTHIANUM.—A distinct and beautiful natural hybrid of the *O. aspersum* section. The sepals are deep brown, marbled with greenish yellow, the petals rose, lighter at the base, where it has numerous spots of dark brown; the lip is bright rose, shading to clear yellow on the disc, the side lobes yellow, lined with brown. The small plant carried a spike of two flowers. It very much resembles *O. aspersum violaceum*. From Mr. E. Ashworth.

ODONTOGLOSSUM ROCHFORDIANUM.—This is a very distinct and beautiful variety of the *O. Hunnewellianum* section. The sepals are buff-yellow, with a slight suffusion of purple, heavily barred and blotched with dark brown; the petals buff-yellow, with a slight purple suffusion and thickly covered with small purple spots; the lip yellow, much fringed at the margin, and having bright purple spots. The plant carried a raceme of fifteen flowers. From Mr. T. Rochford, Turnford Hall, Broxbourne.

ONCIDIUM CUCULLATUM PHALENOPSIS (Brandt's var.).—This resembles the typical form of this species, but with richer spottings. From Frau Ida Brandt, Switzerland.

Messrs. Hugh Low and Co. sent an interesting group, consisting principally of fine forms of *Cattleya Trianae* in large specimens and remarkably well flowered. A grand form of *C. Mendeli*, and a distinct form of *C. Schroderae* with nearly white flowers were also shown. Among the *Dendrobiums* was a finely-flowered *D. Boxalli*, a natural hybrid between *D. Devonianum* and *D. crystallinum*. In this the sepals and petals are white, tipped and heavily suffused with rose, the broad open lip having a deep pink tip, behind which is a broad white band in front of the bright yellow disc. It has several small bars of purple at the base. Finely-flowered plants of *D. Devonianum*, *Ada aurantiaca*, good forms of *Odontoglossum crispum*, a dark form of *O. triumphans*, *O. Rossi majus*, *O. aspersum* (with three flowers), a finely-flowered plant of *O. Edwardi*, and some good plants of *Coelogyne cristata alba* were also included. Among *Phalenopsis* were fine forms of *P. Stuartiana* and a dark variety of *P. intermedia Portei*. Several distinct and beautiful *Cypripediums* were also included. A silver Banksian medal was awarded. Messrs. B. S. Williams and Son sent a small group consisting of several plants of *Coelogyne cristata alba*, a plant with seven flowers on the spike of Phaius Norman, some fine plants of *Calanthe Williamsi*, and a distinct form of *Zygopetalum Perrenoudi*, the sepals and petals brown, marbled with greenish yellow; the lip rich purple with a blue suffusion, margined with white at the apex. Several fine hybrid *Cypripediums* were also included.

Mr. H. T. Pitt sent *Odontoglossum excellens* (Rosslyn var.). This is no doubt the finest of the section, the sepals and petals beautifully round, bright yellow spotted with dark brown; the large lip also is yellow, spotted with brown. The plant carried a raceme of ten flowers. Mr. J. T.

Gabriel sent a distinct form of *Cattleya Trianae*; the sepals and petals of fine form and substance, very delicate rose in colour. The lip has a distinct blotch of purple in the centre, and was also fine in substance. Mrs. Joad, Patching, Worthing, sent *Cymbidium eburneo-Lowianum* and a three-flowered raceme of *C. eburneum*. Dr. F. Hills, Campbell Road, Croydon, sent *Odontoglossum miniatum* with a raceme of ten brown and yellow flowers. Mr. J. Drew, Bromsgrove, sent *Odontoglossum crispum roseum* with nine flowers on the spike. Sir T. Lawrence sent *Masdevallia Pourbaixi* (*M. Veitchi* × *M. Shuttleworthi*) with seven flowers, having the intermediate characteristics of the parents; a fine form of *M. Veitchi*, three finely flowered plants of *Epidendrum Endresi*, *Sarcochilus Hartmani*, and *Epidendrum varicosum*.

Floral Committee.

The following were given an award of merit:—

AMARYLLIS BEACON.—This is a magnificent variety with splendidly formed flowers of an intense glowing crimson, the same hue pervading the flower to the very base of the trumpet. From Captain Holford, Westonbirt (Mr. Chapman, gardener).

AMARYLLIS CLONIA.—A delicate white, veined in a remarkable manner with bright vermilion. From Messrs. Veitch and Sons.

AMARYLLIS TACOLA.—Of the richest shade of vermilion-scarlet, with white central band and fainter stripes and reticulations. From Messrs. Veitch and Sons.

AMARYLLIS IDEALA.—White, with scarlet blotch and similarly veined. From Messrs. Veitch and Sons.

CLIVIA FAVOURITE.—This is remarkable for the exceptional shade of colour—a sort of salmon-buff, with a shading of yellowish buff that is distinct and pleasing. From Messrs. Veitch and Sons.

CLIVIA OPTIMA.—A head of bloom of immense size and flowers of the finest form, deep orange in colour, with yellow base. From Messrs. Veitch and Sons.

DRACENA EXQUISITE.—This is one of the finest we have seen for some time, the plants being vigorous, yet compact, and of a gracefully recurring habit of growth. The predominant colour is pale green with broad vivid scarlet margin when mature, but creamy white in the more youthful stages. From Messrs. Veitch and Sons.

AZALEA JAPONICA RUBRA.—This is of the small-flowered group with a leaning to *A. amoena* type both in leaf and flower, except that the latter is much larger and of a reddish scarlet hue. From Mr. Nicholson, Basing Park (gardener, Mr. W. Smythe).

HYACINTH CITY OF HAARLEM.—This is the most pronounced of the yellow kinds we have seen, the truss well developed and fine, as also are the blossoms individually. From Messrs. Wm. Paul and Son, Waltham Cross.

One of the features of the exhibits on this occasion was the really magnificent group of *Hippeastrums* (*Amaryllis*) from Captain Holford, of Westonbirt (Mr. A. Chapman, gardener). It is well known these plants have been a leading feature at Westonbirt for many years, while the unequalled success that has been achieved by Mr. Chapman in hybridising the flower in question is shown in the noble examples brought to the Drill Hall this week. The fine bold spikes, and, not least, the great massive blooms in their indescribable colours, are not elsewhere to be seen. The variety *Beacon* is one of the most conspicuous of the glowing crimson shades, but it is closely followed by several others equally fine. For instance, *J. O'Brien* is of the same hue of colour. In this variety Mr. Chapman considers he has attained the very acme of perfection, and that he will not be able to surpass it either in form, colour or substance. Other very fine kinds are *Sybil*, vermilion, margined with purest white; *Vesuvius*, deepest crimson; *Virginie*, white and scarlet; and *Coquette*, scarlet, banded and reticulated with white.

Considerable interest was also created by Mr. Chapman bringing an example of the variety that imparted this deep intense crimson glow to many of the finest forms. Side by side with much of its progeny it is small and comparatively of little value; still, the colour is there. A silver-gilt Flora medal was awarded this fine group. From Waltham Cross Messrs. Wm. Paul and Son brought pot Roses, chiefly Hybrid Teas, and a splendid bank of well-flowered Hyacinths. The Roses were arranged near the entrance in nearly half circular groups, a background of *Aralia Sieboldi* assisting to reflect the many charming tints of the Roses shown. On one side Enchantress was in strong force, a splendidly flowered group of well-grown plants representing this variety alone. This is a most welcome winter Rose, and with age the plants develop greater freedom while increasing in size of bloom, quite small plants carrying a score of well-finished flowers. Other kinds noted were Sylph, blush, very full; Mme. Jules Grotz, rosy peach; Souvenir de Mme. Eugène Verdier, Souvenir de President Carnot, very fine; and Charlotte Guillemot, white. Then immediately to the left were some 200 pots of Hyacinths, well grown and equally well flowered—indeed, particularly so for the middle of March. One noticeable feature was the increased number of yellow kinds, of which Adeline Ristori, City of Haarlem and Stirling Beauty were the best. Of course, the leading kinds in every shade were well represented throughout, such fine whites as La Grandesse, Anna, and British Queen ever attracting attention, a similar remark applying to the blue, lilac, and pink shades. A silver-gilt Flora medal was awarded the combined groups herein named. The display of Roses from Mr. G. Mount, of Canterbury, appeared to surpass itself on this occasion, and in truth it is very doubtful whether the box of Mrs. John Laing at any season of the year could be equalled. A finer lot it would be difficult to imagine, so uniform in colour and size, the clear pink shade lovely. Equally good were those on long stems, only much more imposing, these being associated with such as Capt. Hayward, La France, &c. Other boxes contained a mixed assortment of kinds, Catherine Mermet, Mrs. W. J. Grant, Ethel Brownlow, and Comtesse de Nadaillac being among the best blooms (silver-gilt Flora medal). Cyclamens, though by no means in such strong force as on the last occasion, were shown in perfect condition by the St. George's Nursery Company, Hanwell, who brought a group of about 100 splendid plants. The masses of bloom and the size of blossom were remarkable not in one or two, but throughout. The pure whites, crowded as they were with blossoms, were grand, so also the pink and rose shades as well as the ruby and crimson forms. A silver-gilt Flora medal was here awarded. A group of *Cinerarias* from Messrs. J. James and Son, Farnham Royal, Slough, quite sustained the excellence of past years. The dwarf, compact habit of the strain is a notable feature throughout, many of the plants being not more than 9 inches high, pot and all, while none exceeded 12 inches high. Size of flower as well as decisive colouring cannot fail to attract, many blossoms by actual measurement exceeding 3½ inches across, some of the very finest being pure white kinds with violet-coloured disc. Some of the shades are exceptionally rich, while that perfect formation and definition of colouring so much sought after by florists were represented in a high degree. This fine group contained nearly 200 plants. A silver-gilt Flora medal was deservedly awarded. Messrs. Veitch and Sons brought a magnificent group of *Clivias*, in all some sixty large specimens, that made a really bold and telling display. The trusses in many instances were enormous. Near by were a few shrubs, such as *Pyrus floribunda atro-sanguinea*, *Corylopsis pauciflora*, with yellow drooping flowers; *Lindera sericea*, *Clematis Nellie Moser*, and C. Marcel Moser, the former pinkish white, with deep pink band; the latter, with broader petals, being more strongly flushed throughout with a

deeper pink shade. Both kinds are acquisitions to this race, and will be eagerly sought after. A basket of *Shortia galacifolia* in flower was also shown (silver Flora medal).

Messrs. Hill and Sons, Edmonton, brought another of their characteristic groups of Ferns, mostly small and medium-sized plants. Among these a large basket, some 4 feet across, filled with *Adiantum scutum* was very conspicuous, the bronzy-red hue of the young fronds being very striking. *Davallia tenuifolia stricta* is a beautiful and compact kind that in some degree represents *Davallia Mooreana* in miniature. Very telling also was *Lastrea erythrosora*, a kind requiring not much heat, the young fronds of a dark bronzy hue; while *Pteris nemoralis* is a marked form after the pattern of *P. tricolor*. On this occasion a silver Banksian medal was awarded. Messrs. Laing and Sons, Forest Hill, brought an interesting group of stove and greenhouse plants, that included *Pandanus*, *Caladiums*, *Crotons* in variety, several *Dracaenas*, such as *Sanderiana*, *Goldiana*, &c., *Dieffenbachias*, *Azalea mollis*, *Calla Elliottiana*, *Streptocarpus*, &c.; also *Latania aurea*, in which the fan shaped leaves are of a pale yellow hue. In this group a fine plant of *Leea amabilis* was very conspicuous. The same firm also exhibited examples of wreaths and other floral designs in variety, these, together with various bouquets, displaying considerable taste in arrangement as well as in the material employed (silver Banksian medal). A large group of named Tulips from Messrs. R. and G. Cuthbert, Southgate, occupied a considerable amount of tabling, but by reason of the absence of sun they remained closed during the day. The plants were well grown in pots and contained many of the leading kinds in commerce. A capital group of *Cinerarias* came from Mr. John R. Box, Croydon, the strain good and the plants well grown, varied and free flowering. This is undoubtedly a strain of considerable merit, the flower-heads nicely raised above the foliage without any suggestion of being drawn.

Messrs. Cutbush and Sons, Highgate, had a large and varied group of greenhouse plants, conspicuous among these being *Calla Elliottiana*, *Acacia Drummondii*, *Thyracanthus rutilans*, with its drooping scarlet racemes; many beautiful Palms, and a capital lot of Malmaison Carnation Princess of Wales and the old blush kind. Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, had a beautiful display of cut Roses mostly in boxes. Among these, *Niphetos*, *Maréchal Niel*, and *Souv. d'un Ami* were superb. The new H.P. Mrs. Rumsey is a fine pink kind, rather globular in some flowers, as in La France, but in others expanded and cupped like Mrs. J. Laing. The colour is very fine and the flowers large and of good substance. Some fine blooms of The Queen, Victor Verdier, General Jacqueminot, and Mons E. Y. Teas were included in this fine lot of something like 200 blooms (silver Flora medal). Mr. H. B. May, Dyson's Lane, Edmonton, again brought a fine group of *Clematises* in flower in many fine varieties (silver Flora medal). Messrs. B. S. Williams and Son, Upper Holloway, staged a well-flowered group of *Azalea mollis* in variety, together with a capital lot of *Amaryllis* of their well-known strain, *Clivias*, *Staphylea colchica* and others. A very fine pure white *Rhododendron* called Mme. Cuvelier also came from Holloway, the flowers very pure and sweet scented. The Messrs. Low and Co., Clapton, had a group of their well-known Carnation Winter Scarlet in small pots.

Hardy plants were not in strong force at this meeting, though Messrs. Paul and Son, Cheshunt, brought some good things. Of these, several varieties of *Saxifraga oppositifolia* were noticeable. The same group also included double purple Primroses, *Hepatica triloba*, *Draba Haynaldi*, a yellow-flowered species; *Anemone Pulsatilla* and *Androsace carnea*. Another group from Messrs. Barr and Sons was largely composed of cut Daffodils, with some few of the rarer kinds growing in pots. These latter included such as *Glory of Leyden*, *Weardale Perfection*, and the

new *Victoria*, *Gloria Mundi*, C. J. Backhouse, Mme. Plemp, Mrs. Thompson, and the pretty frilled Scotch Daffodil, *Narcissus scoticus*, were noticed among many others. *Anemone fulgens* in plenty, as also *Chionodoxas*, *Cyclamen Atkinsi*, C. A. album, &c., *Fritillaria aurea* and *F. nobilis* were also shown. From Tottenham Mr. Ware sent a large collection of hardy plants, mostly Narcissi, in pots as well as cut, in all the leading kinds. Miscellaneous plants were represented by *Daphne Blagayana*, *Primula obconica rosea*, *P. floribunda*, *P. verticillata*, *Androsace carnea eximia* (very charming), *Fritillaria Meleagris* and *alba*, *Iris persica*, *Orchis pallens* and such-like.

Fruit Committee.

This was one of the smallest meetings as regards exhibits that we have seen for some time past, Strawberries from Syon being the only fruit with the exception of that for the Veitch flavour prizes, for which there was a fair competition in the Apple classes, but Pears were of poor quality in most cases.

From Syon House, Brentford, Mr. Wythes sent half a dozen baskets of Royal Sovereign Strawberry. The fruits were fine for the season, large and brightly coloured, well meriting the cultural commendation given. Mr. Shailer, Brentford, sent a new garden cultivator, an excellent invention. This was desired to be sent to Chiswick for trial.

The prizes for flavour brought forth nine dishes of Apples and five of Pears. In the Apple classes Mr. J. C. Tallack, Livermere Park, Bury St. Edmunds, was an easy first with one of the best dishes of Lamb Abbey Pearmain we have seen, perfect fruits in the best possible condition. Mr. Herrin, Dropmore, was second with excellent Sturmer Pippin. The other varieties staged were Mannington Pearmain, White and Scarlet Nonpareil, For Pears, Mr. Ross, Welford Park Gardens, Newbury, was second with nice fruits of Ne Plus Meuris. The others shown were Chaudmontel, Beurré Rance, and Bergamote d'Espereu.

NATIONAL CHRYSANTHEMUM SOCIETY.

The committee met at Anderton's Hotel on Monday last, 21st inst., at 5.30 to transact some business which was necessary before the adjourned annual general meeting, Mr. P. Waterer in the chair. After the minutes had been read and confirmed, the accounts asked for on the last occasion, together with the pass books showing the state of the accounts opened by the society at the London and County Bank, Ealing Branch, were laid upon the table. The report of the schedule revision sub-committee was read, in which it was noticed that substantial reductions had been made in the prize list referred back to them, a total of between £70 and £80 having been taken out of the previous schedule submitted. In these amounts were included a contribution of £10 to Dahlias and Gladioli at the September show, and £6 for hire of plants which it was thought might well be saved. After a somewhat protracted discussion, Mr. D. B. Crane moved and Mr. R. Ballantine seconded, "That the report of the schedule revision sub-committee be accepted for presentation to the adjourned annual general meeting," and upon being put to the meeting this was carried unanimously.

The adjourned annual general meeting was held at 6 o'clock, under the chairmanship of Mr. T. W. Sanders, chairman of committee. The notice convening the meeting and the minutes were read by Mr. R. Dean, the secretary. After the latter had been confirmed, Mr. Brian Wynne called attention to the remarks of a member of the committee with reference to the medal account, and which he thought cast a slur upon the recipients of the medals at the conclusion of the jubilee year of the society. Mr. Geo. Gordon explained that in criticising the accounts on the previous occasion there were two sets of accounts, and that he in no sense referred to the medal offered to Mr. Wynne charged in the 1896

account. He referred specially to the medal account of 1897, and, considering the position of the society, he thought it was hardly prudent to make presents of gold medals and illuminated addresses. The meeting distinctly supported this view. Mr. R. Dean read the amended financial statement. This showed that £50 had been taken from the reserve fund and all outstanding accounts, representing £47 15s. 4d., met and paid. The difference between these accounts (£2 4s. 8d.) had been again returned to the reserve fund, which now stood at £56 13s. 1d. Assets representing £69 1s. 4d. were detailed, and this included an item of £20 18s. 6d. for arrears of members' subscriptions. The chairman formally moved the adoption of the financial statement, this being seconded by Mr. Beckett. A lengthy discussion followed, many questions being asked. Mr. Cholmeley asked whether the income of the society was exceeded by £58, and why no auditors' certificate was appended to the revised financial statement. A letter was read from the auditors, who explained that they did not feel they were called upon to audit any accounts after February 24, the date upon which they had previously gone into the accounts. The secretary explained the proportionate show expenses extending over several years. Mr. J. W. Moorman referred to the big item for expenses of annual dinner, and hoped it would not figure there again. Mr. Spicer asked whether the financial statement was sent out with the treasurer's consent, as it was not now satisfactory. Messrs. McKerchar, Mills, Rundle, Tagg, Gordon and the treasurer also spoke. Upon being put to the meeting the financial statement was carried unanimously.

The chairman moved and Mr. Beckett seconded the formal adoption of the report. To this an amendment was proposed by Mr. Moorman and seconded by Mr. C. E. Wilkins, that the consideration of the report be deferred until after the estimates for the present year were read. Upon a show of hands, fifty-four were shown in favour of the amendment and forty-six against; the amendment was therefore carried. The amended estimates which had been arrived at after the deduction of some £70 to £80 from the original schedule, showed a balance in favour of the society of some £23. A very lengthy discussion then followed upon the report of the committee for the past year, and, with the deletion of one paragraph, this was ultimately carried. Votes of thanks were accorded the president, Mr. Starling (treasurer), and the auditors. Mr. Beckett proposed and Mr. Ballantine seconded that the honorary degree of Fellow, a small gold medal, and an address engrossed on vellum be presented to Mr. J. R. Starling for his twenty years' services to the society. This was carried unanimously. To fill the vacancy caused by the retirement of Mr. Starling, Mr. R. Ballantine was nominated to fill the position of treasurer. Mr. Geo. Gordon was also nominated for this important post. In accordance with the rules, it was agreed to vote by ballot upon all contested elections. Mr. T. W. Sanders expressed a wish to retire from the chairmanship of committee, but upon pressure of the meeting he agreed to continue in that position for another year, and was unanimously re-elected. Mr. Percy Waterer also was appointed to the vice-chair. Testimony was borne to the good work accomplished by Mr. C. Harman-Payne as honorary foreign corresponding secretary in bringing the objects and aims of the society before the Chrysanthemum-loving public throughout the universe, and he was unanimously re-elected. Mr. Moorman proposed and Mr. Rundle seconded that the secretary in future be paid, and that he be termed the general secretary; his remuneration and duties to be fixed by the committee. This resolution was carried unanimously. It was proposed by Mr. H. Cannell that Mr. Richard Dean be appointed secretary, Mr. Moorman proposing Mr. Cummins for the post.

The election of treasurer, secretary, and committee was then submitted to ballot, Messrs. Crane, Willis, Swales, Berridge, and another being appointed scrutineers. For treasurer, Mr.

R. Ballantine received 70 votes, and Mr. Geo. Gordon 34 votes. For general secretary, Mr. R. Dean received 63 votes, and Mr. Cummins 43 votes, the first named in each instance being declared elected. For the thirteen vacancies on the committee, the following gentlemen were elected: Messrs. Bevan, Langdon, Taylor, Howe, Wells, Kendall, Higgs, Turk, Simpson, Gilks, Fife, Daniels, and Outram. The last-named tied with Messrs. Daniels and Rowbottom, but upon the vote of the meeting afterwards Mr. Outram was given the preference.

The recommendation of the committee that M. Ernst Calvat, Grenoble, be elected an honorary Fellow of the society for his work in connection with the Chrysanthemum was carried unanimously.

NOTES OF THE WEEK.

Pulmonaria mollis.—The freshly formed tufts of this plant are now freely covered with the violet-purple blossoms, with a deep violet-blue shade in the early stages, thus giving to it an aspect of distinctness among early flowers.

Primula Palinuri.—When not in flower this handsome alpine species may be taken for a good vigorous tuft of an alpine Anemone, so free and vigorous is it in growth. It is equally attractive when its clear yellow flowers are well expanded. At such a time a large plant is quite showy. It is one of the best doers among the hardy Primulas.

Morisa hypogæa is a brilliant little crucifer for the rock garden thus early with its golden yellow blossoms and neat prostrate habit. It is essentially a plant for carpeting bare spots, and where sufficiently plentiful this may be done with advantage. It is surprising the remarkable profusion of flowers a single plant can produce, and when growing in deep, gritty soil is quite content.

Anemone blanda is still very finely in flower, more particularly where the plants were sheltered from the recent cold spell. Some blossoms half expanded at the time of the frost appear as though scorched, while others scarce ly above ground are now in the heyday of their beauty. This year many flowers were open in January, but these were not generally of good quality.

Brownea coccinea.—A very fine tree—so far as examples under cultivation are concerned—of this species is now bearing a rich profusion of brilliant blossoms in the large Palm house at Kew, and will continue gay for some time. Indeed, so very profuse is this kind in its flowering, that it has scarcely been without some blooms for many weeks during the winter—a fact that renders it all the more valuable.

Acer palmatum is so well known for its beauty and grace of foliage, that it is mentioned merely as a reminder of the pleasing manner such things in a small state associate with flowering plants in the conservatory. It is at this time, when so many plants are in bloom, that flowering subjects need a little more modification than even their own foliage is capable of. If only for mere restfulness to the eye, a few plants of these beautiful Acers come as a welcome change at such times.

Clavija macrophylla.—This very distinct plant, so rarely seen outside the botanic garden, is flowering freely at Kew in the large Palm house. It is very interesting in this species to note the remarkable succession of axillary sprays of deep orange-coloured flowers issuing from a tree-like stem for several feet in length, which apparently also has long been devoid of leafage. In the tuft or rosette of leaves that crowns the stem it is not unlike some of the Palms, from which, however, it is quite distinct.

Bowenia spectabilis.—This is one of the best of the Cycads for decoration, and at the same time it is one of the most interesting botanically. It has a Turnip-like rootstock, bipinnate, dark green elegant fronds like a gigantic Adiantum, and floral characters like those of a Pine! It is a native of Anstralia, where it was discovered in Queensland in 1818 by A. Cunningham, but it was not introduced until nearly half a century afterwards. I lately saw some fine plants which had been raised from imported seed. This does not look an unlikely plant for the market grower.—W.

Daffodils in pots.—Time after time we see hosts of Daffodils in more or less formal bunches

at the Drill Hall meetings that give but very little pleasure, yet this week, by merely growing a few bold and distinct kinds in pots, quite a new feature was set up, simply because these few good kinds were accompanied by their graceful and beautiful foliage. The effect was obvious at a glance, and attracted immediate attention. At the same time, it was but a mere handful so grown; still, sufficient to demonstrate what may be done on certain lines.

Crinum podophyllum magnificum.—In this handsome and well-marked form the greenish colouring which is characteristic of the typical species is wanting, the tube, as also the segments, being of the purest white. Dwarf and compact in its habit of growth, it becomes free-flowering when the bulbs have reached a good size. Prior to expansion the large buds are nearly oval, and even in this stage impress one with the beauty of the expanded flowers. A good-sized plant of this bearing two scapes, each with six or eight flowers, is now flowering at Kew.

Claytonia virginica is one of the most profuse, as also one of the earliest, flowers of the year, producing from a sort of procumbent habit and semi-succulent stems and leaves quite a profusion of pretty pinkish white blooms. It is a true perennial with somewhat tuberous roots, and succeeds well in a damp peaty soil. Being very dwarf and of a spreading nature, it is scarcely suited for any position, and does better in company with such things as Soldanellas, Sisyrinchium grandiflorum, and Campanula hederacea. It is a pretty plant when grown freely in large pans in sandy peat, flowering many weeks in succession.

Daphne Blagayana.—This handsome species is now beautifully in flower in the Kew rock garden, where a nice spreading bush is freely covered with its distinct creamy yellow flowers. The above species is by no means common, in large examples at any rate, which is the greater reason for recording instances not merely of flowering, but where the species concerned appears to enjoy full health and vigour. At such times we cannot go far wrong by noting exactly the environment of any such plant, for this, I take it, has far more to do with success in many instances than has the soil in which the roots are accommodated.

Iris assyriaca.—One of your correspondents lately asked about the hardness of this. This is even more vigorous than the other Juno Irises, and I think none of this section are at all tender. *I. assyriaca* makes very large bulbs, nearly 3 inches in diameter, and is coming along very strongly again this year, after two years in the border without protection. It scarcely compares in beauty of flower with *I. sindjarensis*, which is the prettiest of the blue-tinted forms, and none of the section is so attractive a border plant as *I. orchioides*, for yellow flowers are precious at this dull season when there is little green to enhance the dull blues of the Scillas and the purples of the Irises.—J. N. GERRARD, *Elizabeth, New Jersey.*

Muscari Heldreichi.—This has now been in bloom for a week or two, its pretty blue flowers margined with white making a pleasing picture in the rock garden. It is often difficult to obtain some of the Grape Hyacinths true to name, as if grown near each other they soon become intermingled by means of the seeds finding their way into the quarters of others. There appear to be two varieties of *M. Heldreichi*. One I got from Italy several years ago has a smaller raceme than a form since received from Holland. The latter I was told of by a friend, and it is certainly finer than that which came by way of Italy. There is no difference in the colour of the two, the length of raceme being all that one can distinguish them by. This Grape Hyacinth is a native of Greece.—S. ARNOTT, *Car-ethorn, by Dumfries, N.B.*

Snowdrops in New Jersey.—Owing to genial weather flowers are more plentiful outside than usual at this season, which is often very rigorous here. The Snowdrops have been especially good

his year, but I find that none of the recent introductions are as reliable or increase so rapidly as *G. nivalis*. This appears rather surprising, as so many of the other species are apparently much more vigorous and larger in all their parts—bulbs as well as leaves. But there seems to be a less among established bulbs of most kinds from year to year, even after they should be well established. Their permanence in the garden must evidently depend on increase from seedlings—not a difficult matter, as they seed freely, being visited and fertilised by a large fly, evidently the one which we know as the Chrysanthemum fly, from its visiting the Chrysanthemums in the autumn.—J. N. GERARD, *Elizabeth, New Jersey*.

Fritillaria plurifolia.—This handsome species promises to be among the most worthy members of this varied and beautiful race of plants. It is quite distinct from all else both in growth and flowering, as also in the colour of the blossoms. In this species the usual globular or bell-shaped blossoms are replaced by those of a delicate soft lilac-rose, deepening at the base to a darker purple shade. Externally, a sort of rosy-purple hue pervades the blossoms, which occur at intervals on the stem, the latter reaching about 18 inches high in the stronger examples. The blossoms are each about 2 inches across, widely expanded, as in *Camassia*, and as many flowers are contained in the spike, a lengthened profusion of flower is the result. This species has been likened to *F. recurva*, but it is widely distinct from this well-marked kind. An excellent group of this is now flowering at Kew.

Rose Pauline Labonte.—This is a grand climbing Rose for the greenhouse or conservatory, and practically unknown to most of our growers, unless they have it under another name. I have hunted up several trade lists, but cannot find it catalogued. Given a light position near the glass it is scarcely ever out of flower and of robust constitution. Lady Gertrude Rolle brought it from France just thirty-two years ago, and the original plant is still thriving at Stevenstone, North Devon, the seat of the Hon. Mark Rolle. We have a fine bush of it here under glass which has been loaded with flowers for the past six weeks. It roots easily from cuttings, and is worthy of extended cultivation. It is good in the bud, and holds on well when fully expanded. The colour is deep flesh and very pleasing, and the flower has a true Tea scent. I am sending a few blooms with these notes for you to see.—J. MAYNE, *Bicton*.

Dentaria polyphylla.—This very distinct species, introduced in 1817 from Hungary, is by no means a common plant to-day. Judging by small flowering examples, the species in question is as free in growth and as vigorous as some of the best known kinds, and if given the same treatment would speedily develop to a good size. The treatment these *Dentarias* seem to enjoy is a position uniformly cool and shaded, with that kind of moisture so well suited to *Trilliums* and such things. This and a good depth of peat, leaves and sand, and an occasional mulching of manure in winter, suit them well, and strong plants quickly ensue. Even supposing it to be rare in its native habitat, attention should be given to seeding the above species with a view to increasing the stock. The pendent, almost cylindrical blossoms are of a creamy yellow. In many respects it is a very variable plant, well deserving of general cultivation.

Cypripedium Schofieldianum.—This lovely hybrid, the result of a cross between *C. bellatulum* and *C. hirsutissimum*, has been sent from the collection of Mr. G. W. Law-Schofield, Newhall Hey, Rawtenstall, near Manchester. It is one of the most distinct and beautiful of the *C. bellatulum* section of hybrids. The dorsal sepal is white, shading to yellowish green in the centre and towards the base, the whole being covered with numerous rich purple-spotted lines. The petals in ground colour are white, thickly covered from the base to apex with large rich purple spots, the lip rich brown in front, shading to

creamy white. There is no doubt this hybrid has considerably improved since it was exhibited at the Royal Horticultural Society's meeting on April 21, 1896, when the Orchid committee adjudged it worthy of an award of merit. It is a beautiful hybrid and worthy of every consideration.

Pulmonaria saccharata picta.—Although not one of the most select of our garden plants, the Lungwort which bears this name in gardens is not without its uses. Grown in the border in strong soil it becomes a little coarse, but it might be useful in wild gardening or for planting on grass. I grow it on the top of a rock garden, and it is so much admired and praised by garden visitors that it may be worth while to mention it now that it is in bloom. In the rock garden this *Pulmonaria* is somewhat dwarfed, and is at present about 10 inches high. It blooms freely and the purple-blue flowers look very pretty beside the green and white spotted or blotched leaves. After the flowers are over, the stems are removed and the lower leaves, which are much larger than the upper ones, look very pretty until far into the autumn. It is not a plant for association with the smaller rock plants, but for large rockwork it is very desirable.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Asparagus scandens deflexus.—Of the now numerous species of *Asparagus* which have been introduced as garden plants from South Africa, this is one of the most ornamental. It has long thin flexuose stems, copiously branched and bearing bright green leaves a quarter of an inch long, in the axils of which are borne solitary white star-shaped flowers on hair-like pedicels an inch long. These are succeeded by bright scarlet fruits as large as Peas, which are ripe in November and remain fresh upon the plant until March or later. Grown in baskets suspended from the roof of a greenhouse, the stems form an elegant cloud-like mass of bright green foliage a yard or so long, thickly studded with bright red berries. Nothing could be more suitable for the conservatory or more appropriate for winter decoration. It is easily increased by division of the rootstock or from seeds. There are sometimes two or three seeds in each fruit. The plant is often called *A. deflexus* simply.

Saxifraga apiculata.—Very few *Saxifragas* are better suited to pot culture than this. At the same time the culture must be liberal to get the best results. In every respect it is a free-growing kind, flowering abundantly each year, and this in a more reliable manner than many sorts. To get an abundant flowering each year, the plants, whether in pots or planted out, must have good room for development. This necessitates periodical pulling to pieces and replanting, for although such as this and *S. sancta* will spread out to 2 feet wide or more, it does not follow their flowering will be increased in proportion when the plants are left to themselves. Indeed, it is the reverse, simply because the rosettes forming such a patch have not the necessary room to develop, and, like the common *Gentianella* and other tightly-packed plants with this close tufted character, become more or less flowerless. The greatest need for division and replanting with the above comes after a good flowering season.

Draba Mawi.—This is a very distinct and early-flowering species with a dense, low-growing tufted habit covered with pure white blossoms. It is a singularly neat and dainty-looking plant quite distinct from such as *D. aizoides*, and in the leaf tuft more closely resembling *Petrocallis pyrenaica*; indeed, it may not inaptly be described as this, somewhat enlarged and studded with pure white flowers, each half an inch across. It is a really charming alpine. The whole plant is not more than a couple of inches high, yet it is singularly neat and attractive notwithstanding. It is of quite easy culture in sandy or gritty loam fairly enriched, and, like other dwarf kinds, may be well grown in pots with good drainage. In such cases firm potting is most desirable, gathering

the tufts quite closely together. Many kinds may readily be increased by seeds, and this among them is certainly worth a trial; indeed, there is no reason why such things may not be greatly improved by seeding, to say nothing of the increase of stock.

Synthyris reniformis.—This pretty plant appears to be represented at Ukiah, California, by a white form, as Mr. Carl Purdy in his interesting notes on February flowers in that locality says: "The dainty white flowers scarcely rise above the leaves, which are its chief charm." So far as I am aware this white variety of *Synthyris reniformis* is not in cultivation in this country; if it is, I should be glad to know of its whereabouts. The plant grown here has blue flowers and corresponds with the description given in the supplement to the "Dictionary of Gardening," where the flowers are said to be "pale violet." Those of the various species in the genus are given as "bluish or reddish." The white form which occurs at Ukiah will be a valuable plant if as easily grown as the blue one with which we are acquainted. It grows more satisfactorily in a somewhat moist and partially shaded position than in a dry and sunny situation; at least this is my experience and that of others who have had *Synthyris reniformis* for some years. Perhaps Mr. Purdy can kindly tell us its local name?—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

The Cactus Journal.—There is a little journal started called *The Cactus Journal*, to which we wish all prosperity: but it is very difficult to get readers enough interested in such subjects. There is no doubt that some of the most interesting and curious things in the vegetable kingdom belong to this great family and others allied to it; and not only curious, but in many cases the flowers are as beautiful as the plants are curious. Their beauty, however, is much more visible in countries a little warmer than ours, which admit very well of the development of graceful blooms, such as those of the *Aloe*, in the open air. In our country, out of doors, it is very difficult to succeed, although the Germans, with a brighter sun, manage to grow some of the North American kinds very well—kinds that in their own country live under the snow in winter. As regards the greenhouse, however, in which so many kinds can be well grown, there is a monotony about the plants after some time which works against their culture very much. We trust that the new journal will do much to popularise them.

The weather in West Herts.—The day temperatures during the last ten days have been high and remarkably uniform, but the night readings have been very changeable during the same period. For instance, on the night preceding the 18th the exposed thermometer never fell lower than 43°, which is unusually warm for the month, whereas three nights afterwards the same instrument showed 13° of frost. At 1 foot deep the ground is now about 2°, and at 2 feet deep about 3° warmer than is seasonal. At 1 foot deep there was on two days a difference of 2° between the lowest night and highest day temperatures. During the present month only about a quarter of an inch of rain has as yet fallen. No measurable quantity of rain-water has come through either percolation gauges for a week. On the 20th the sun shone brightly for ten hours, which during the past thirteen years for any day as early as the third week in March.—E. M., *Berkhamsted*.

Names of plants.—*Springhill*.—1, *Brassavola glauca*; 2, *Coclogyne cristata* *Lemoniana*; 3, *Oncidium sarcodes*; 4, looks like *Areca lutescens*.—*T. Scott*.—*Tinnea aethiopia*.—*Arthur J. Nix*.—An interesting variety of *Ilex dipyrrena* without the usual spines on the leaves. Native of Himalaya.—*G. Hutton*.—We cannot undertake to name *Crotons*. There are now so many forms that it is impossible to be sure of the names unless one has a collection for comparison.—*A. C. Bartholomew*.—*Rosa laevigata*.

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THE MARKET GARDEN.

GROWING APPLES FOR PROFIT.

ALTHOUGH a good deal has been done during the past twenty years towards supplying home-grown Apples, there is still ample room for more, and those who are about to embark in the undertaking should look well into the causes that have ended in failure. The most frequent mistake has been the planting of too many trees of the early and mid-season varieties of soft light Apples of the Codlin type, and not enough of those good old hard, heavy Apples that will, with a minimum amount of care, keep sound until the spring. I am well aware that Lord Suffield, Ecklinville and many other kinds do bear crops that one cannot get on Wellington, but when they are sent to market the Wellington, even with a moderate crop, will quite outweigh the former in the matter of returns to the grower. Last year could hardly be taken as a fair average one to go by, as the crops were poor both at home and abroad, and the supplies have been very short and prices have ruled high; but if we take any ordinary season with good supplies all round we find that the very earliest that are put on the market realise good prices, and this tempts growers to rush their crops in and the prices drop rapidly. I have often made a high price of Lord Suffield, Keswick Codlin and the earliest kinds of cooking Apples by going over the trees and picking off all the largest fruit directly they were of marketable size, but by the time the remainder had grown to full size the price had dropped so much, that they did not pay for gathering and market expenses. A grower with a splendid crop of non-keeping soft Apples on hand is bound to face the fact that he had far better have had half the crop of varieties that would hang on the trees until the glut was over and then keep in any cool store until prices had regained something like a profitable rate. I may remark that early dessert Apples, if of

good colour like the old Quarrenden or Red Astrachan, the beautifully marked Lady Sudeley, or Golden Pippin, are not a glut in the market like the cooking sorts, for they travel better and there is a great and growing demand for fresh dessert fruits of all kinds.

Another thing that lowers the price more than the quantity of fruit on hand would warrant is the fact that many of the small growers are unable to hold their crop back, even for a short time, so as to get better prices, but are compelled to rush early, mid-season, and late varieties into market directly they are large enough to gather. I am frequently asked to purchase Hambleton Deux Ans, a good old keeping Hampshire Apple, largely grown in the New Forest gardens, weeks before it ought to be gathered, and for less than half what it would realise if stored until Christmas. The fact of their being gathered too soon rendered them useless for storing. Only last autumn, with the light crop and certainty of good prices for stored fruit, I bought several bushels of Cox's Orange Pippin that were gathered too soon, with the result that they shrivelled, and were not worth even the low price asked for them. Too early gathering is a very common mistake, for varieties that are expected to keep some weeks into the new year should be left on the tree until October is half through if possible.

If I were starting a new fruit plantation I should look out for soil that was deep enough to be safe from drought, for poor shallow soils are useless for Apple culture. What is called a clayey loam, or where the gravel does not come too near the surface, is the best, and if this has been cultivated as arable land and free from Couch Grass and roots of Bindweed, I would set the rows out 12 feet apart and plant the trees the same distance apart in the row, so that they would be 12 feet apart each way. The holes should be large and broken up well at the bottom, but I think it is needless to trench the land all over, for in some soils it does more harm than good. The kind of tree I like best

of all is naturally grown pyramids. The trees are the cheapest for their size of any form of tree and come the soonest into bearing. I have a good many, planted just as they were received early last autumn, with fruit buds right to the tips of last year's wood, and have on many occasions gathered a really good crop the first year. With trees at this comparatively short distance apart there is not much room for cropping, but if liberally treated, the soil kept clean and frequently stirred, no harm will be done by growing salads or any such shallow-rooting crop. Have nothing to do with bush fruits or any of the Brassica tribe if you want good Apples, and do not prune much. Once get the trees into a fruitful condition, and a minimum of attention will keep them so for years.

JAMES GROOM.

Gosport.

APPLE WORCESTER PEARMAIN FOR THE MARKET.

THIS handsome and highly productive Apple should be grown by all engaged in commercial fruit culture, as it is one which always commands a ready sale and realises high prices. There is never the slightest difficulty in disposing of well-grown samples of Worcester Pearmain, and dealers complain that they cannot obtain sufficient quantities of it to supply their customers with. Local growers greatly value this Apple on account of its market value. The colour of the skin, when the fruits are freely exposed to the sun, is of a deep crimson, and it extends over nearly the whole surface, thus rendering them remarkably handsome and extremely attractive from a market point of view. I am such a firm believer in Worcester Pearmain, when viewing the matter from a monetary standpoint, that I have had a good number of it planted during the past winter. I have also heard market growers speak most highly of it—and one in particular, who said that he is never in a position to satisfy his salesman, so great is the demand. Further than this, if I were consulted by anyone who contemplated embarking upon Apple growing for profit, my advice would be, if soil and locality are

suitable, to plant Worcester Pearmain, and in such numbers that the produce could eventually be marketed in ton lots. It being an early Apple the fruits can be gathered direct from the trees when mature, packed on the spot, and despatched without further delay to the market. It is an Apple that will not pay to store for any length of time, as it loses weight, and in addition to this the fruits when fully ripe, unless carefully packed, become damaged during transit. By gathering and packing them at once all this is obviated, and the fruit then goes into the market in a fresh and bright condition, when it soon finds a purchaser. To secure the highest prices, grading is imperative, and two samples should accordingly be made. The one should consist of all the finest or first-sized fruits, and the other the medium-sized ones. The very smallest should be kept back, as to include these means spoiling the sample.

So far I have said nothing about flavour. When compared with many other early varieties, Worcester Pearmain is, of course, only second-rate, but this is a matter of secondary importance only in the eyes of dealers so long as the appearance is taking and colour good. Nevertheless, the flavour is very pleasant when eaten direct from the tree, or soon afterwards, and the flesh is then crisp eating. Regarding its size, when compared with the larger-growing varieties of Apples it cannot be said to be more than medium, although fruits on young trees will attain to a large size for a few seasons.

As a tree, Worcester Pearmain thrives in any of the approved forms, but yields the greatest bulk of fruit when grown as a standard. As a standard or half-standard on the Crab stock the trees soon form well-shaped heads and come into bearing early. The largest trees of this sort that I know of were purchased and planted in a farm orchard when it was first introduced. These are now very fine trees, and the quality of the fruit they produce is good. There are also other trees known to the writer that produce magnificent fruits, but which have not been so long planted as the foregoing. Bushes and pyramids also succeed well and are very prolific. The high standards are the best for grass orchards if grazed by cattle, but if by sheep only the half-standards suffice. For a market garden, orchard bushes or pyramids—preferably the former—would be the best form of tree to employ, and these could stand from 9 feet to 12 feet apart all ways, if the whole of the ground be given up to them. These latter should be on the English Paradise stock. Once established, the trees require but little pruning if pinched in during the summer. This, and the fact of their bearing heavy crops of fruit, will keep them in good bearing order and prevent them from making gross growth. Standards make compact, round-headed trees, and such being the case they can safely be planted 20 feet apart each way without any danger of their eventually becoming crowded.

For private gardens two or three trees generally suffice, as there are so many other kinds ripe or ripening at the same period. It can generally be depended on for producing a crop. It is therefore valuable on this account, especially in seasons when many others fail to bear. It is a variety admirably adapted for ornamental planting in pleasure gardens and shrubberies. Its large blossoms are handsome, and a tree in full bloom is a most striking object and always commands admiration.

A. W.

PLANT NAMES.

I was much interested in "H. O'M.'s" notes on the above subject. Undoubtedly botanists have a right to their own method of nomenclature, yet for all practical purposes I think the names which have become familiar should be retained. There may be, as "H. O'M." suggests, a few exceptions, and I think most practical men would accept necessary alterations, but the wholesale re-naming of plants is not only misleading, but is liable to cause grievous disappointment.

Anyone possessing a certain plant on seeing the same thing catalogued with a glowing description under another name, may purchase it, only to find it is an old acquaintance under a new name. When I first commenced to contribute to the press, being anxious to be quite correct with regard to names, I consulted various authorities, but finding the further I went the more puzzled I became, I gave the matter up, and have confined myself to the old familiar names.

Of course there are many plants which are popularly known under two or more names, and in such cases it is as well to refer to these. I find that even among practical men there is in some instances a disposition to dabble in the revision of plant naming. Some time ago "E. J." referred to an old acquaintance, viz., *Bouvardia Humboldtii* corymbiflora. He stated that he had seen the specific and the varietal names reversed in a botanic garden, and consequently considered that corymbiflora was the proper specific name. Now I believe that *Bouvardia Humboldtii* is an original species from Mexico, and was discovered by Reezl in the year 1854, and named by him in compliment to Humboldt. The variety corymbiflora is of garden origin, and I believe Messrs. E. G. Henderson and Son put it into commerce about the year 1874.

The question of plant naming will always afford a fertile subject for controversy, but I think the nearer we can keep to the names by which plants have become generally known, the better. It will be a long time before the general public will accept such alterations as *Codiaeum* for *Creton* and *Howea* for *Kentia*. A.

LUTHER BURBANK'S EXPERIMENTAL GROUNDS.

LUTHER BURBANK, the raiser of the Burbank Potato, the Burbank and many other famous Plums, the Burbank Canna, the California strain of *Gladiolus*, and a multitude of other plants and fruits, hardly needs an introduction to the readers of THE GARDEN. Since he has made the breeding and improvement of plants his life work, it is safe to say that no one has added more or more valuable plants or fruits to our orchards or gardens. Mr. Burbank was born in New England, and while still a lad tried the experiment of crossing Potatoes, from which the Burbank originated. Ill-health drove him to California, and at Santa Rosa, a pretty town of about 6000 population, he began a fruit-tree nursery, which eventually grew into a large business. At a time when his business had reached a very profitable point ill-health again interfered, and he was forced to retire. Through his years of nursery business he had found time to pursue his studies in plant variation and his experiments in hybridisation with some such notable successes, that on disposing of his nursery business he put his entire energies to the improvement of plants by selection, cross-breeding, and hybridisation. His establishment is unique, for he retails nothing, and the little wholesale business is only an incident. His profits depend almost entirely on the outright sale of a novelty with all rights, and he has not so much as a single specimen of many of his most valuable productions. He is a highly educated plant breeder, thoroughly conversant with the doings of those who have gone before or are now working in the same line. His knowledge of plant variation is so excellent and his actual experience so wide, that the production of a novelty, instead of a chance in thousands obtained by haphazard methods, is a matter of a definite aim, approached with a wide knowledge of the constituent elements and with a very encouraging probability of success. The range of his experiments is wide and exceedingly varied. At one time he may be found trying to secure a new vegetable by selection from the Sow Lettuce (*Sonchus*) and cross-breeding the Plums widely, producing a hundred thousand hybrid Lilies, and crossing the Raspberry and Blackberry, hybridis-

ing *Canna* *Mme. Crocy* and *flaccida* to produce *Burbankii*, and crossing some Siberian *Rubus* with the garden varieties to add some quality or flavour; selecting Shirley Poppies to secure a silver lining, and producing a handsome Walnut hybrid only valuable for a shade tree. A mere list of the crosses of a season would fill many pages of this magazine, and his grounds contain a great variety of plants from all parts of the temperate zone.

Santa Rosa is about fifty miles from San Francisco, in a broad and rich valley. Its climate is tempered by the nearness of San Francisco Bay and the ocean. Here Mr. Burbank has his home, his greenhouse, and his seed and flower beds. Such things bear concentration, and the Santa Rosa grounds cover little over an acre, and scarcely impress the uninitiated with the actual importance of the work. In such a climate extensive greenhouses are entirely unnecessary. Glass shades are all that need be used in bringing on most of the seeds. A small, but very substantial greenhouse does for the rest. Mr. Burbank is very systematic in everything and a close student of agricultural science. All soil for seed beds is carefully mixed and sterilised by heat. At Sebastopol there are ten acres on a sloping hillside given to the growth of the seedling bulbs, vines, and trees, and an adjoining tract of four acres is also used. Here the seedlings are put out and grown until the test is completed, and here, too, most of the hybridising is done. A varied orchard is used for propagating the fruits worked on and for grafting. The climate at Sebastopol is very mild. There are frequent fogs and irrigation is unnecessary; at the same time, the heat is ample for perfectly maturing fruit or seeds. The whole region thereabout is given to fruit, vines, berries, and truck farming. For such a work as Burbank's the climate is certainly favourable, not only in favouring a fertile cross, but in bringing the seedlings to a speedy maturity and giving a proper test of the merit of the fruit or flower.

The busiest season for Mr. Burbank is from March, when the deciduous fruits begin to flower, till July. Every day during this period finds him in the field with his assistants, selecting the pollen from the male parent, applying it to the female, isolating it and affixing a record of the parentage, written on a tag, a duplicate of which is kept. In such work, care, judgment, and extreme diligence and watchfulness are needed. The pollenised flower is watched and the fruit or capsule preserved if the pollen has taken. A little later another equally interesting work has to be done, which can be entrusted to no one. Seedlings of former years are coming to maturity and their fruits or flowers are to be examined and judged. Very few indeed meet the critical judgment of the breeder, and thousands, even hundreds of thousands, are condemned to the fire. Those selected are grown on for a fuller test; if fruits, grafted upon mature trees. Others are selected as showing a break towards some desired result, and serve as parents for another succession. The hybridiser must be a man of endless patience. It may be necessary to cross for several generations before the longed-for break occurs, but when it comes the hybridiser knows that his plants can be moulded into any desired form. Every stage of the growth, from the tiny seedlings which, with only a few leaves each, show a wonderful variation, to the mature plants, where one seedling from a capsule may be a mere weed, another an improvement upon any known form of the sort. The successes are wonderful, the failures equally wonderful, although practically valueless.

Again, it at times happens that there is an embarrassment of riches. I remember, in the case of a cross in *Rubus*, Mr. Burbank's choice fell on a now famous berry. Had I had the choice it would have been sacrificed and another perpetuated. In more than one case his judgment has condemned and sacrificed what another has worked unsuccessfully for years to secure.

Ukiah, California.

CHARLES PURDY.

ROSE GARDEN.

BOLD EFFECTS WITH CLIMBING
ROSES.

THE visiting of many gardens, great and small, in nearly all parts of the country leads to the conviction that a very great many people deny themselves an immense amount of pleasure by ignoring the existence of climbing Roses. Roses of the conventional, or what, for want of a better term, one may perhaps call the exhibition type are often well grown as dwarf plants or standards, especially in the smaller gardens; and here, of course, there is not room for the magnificent plants that the real climbing Roses make. But in the large gardens, where space is for all practical purposes infinite, any effective use of climbing Roses seems far too seldom made. It is not easy to account for the disappearance of the beautiful Rose pillars and arches that graced our grandfathers' gar-

of the past) at Rose shows, of exhibiting nothing but solitary blooms of large flowered Roses, undoubtedly conduced to the banishment of Rose pillars and arches from the garden, for many visitors to a Rose show, knowing little about Roses, but with vague ideas about Rose bowers, would order varieties whose blooms they admired, and plant them to cover arcades without any consideration of their adaptability to the purpose, and the ensuing natural and obvious failure would only result in the condemnation of Rose arches as impossible and ineffective.

The making of effective Rose pillars and arches, however, is simply a question of the selection of suitable varieties, and perhaps the best of all Roses for the purpose is the sempervirens *Félicité-Perpétue*. This magnificent plant, which is capable of covering a large house in a few years, is absolutely hardy, grows with a vigour and freedom unparalleled, is practically evergreen, its handsome dark foliage making a fine back-

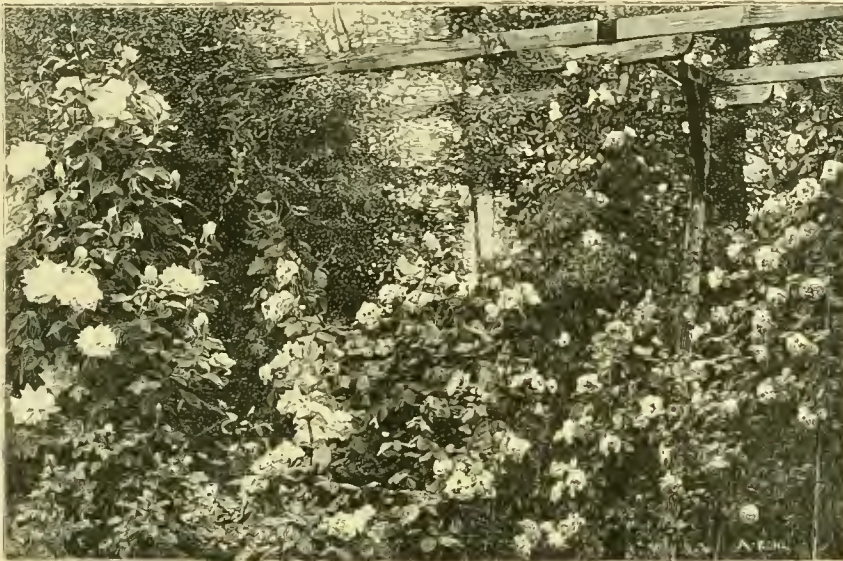
cross pieces 1 foot or 18 inches long, making a small triangle at the summit. The height of the pillar must of course be regulated by circumstances and surroundings, but poles of from 10 feet to 12 feet out of the ground make an effective height.

Another Rose that makes a fine pillar is the beautiful Japanese species, *Rosa multiflora* (syn., *R. polyantha*). The flowers, though single and individually small, are nevertheless produced so abundantly and in such immense trusses, that the plant when in bloom appears a mass of white, and the flowers, moreover, are deliciously fragrant. The garden variety *grandiflora* is even more vigorous than the species, but is not so effective when in blossom, as although the individual flowers are larger, they are not produced so freely nor in such large trusses.

The most valuable of the multifloras, however, for the making of Rose pillars or arches is the more recently imported *Crimson Rambler* (Turner), a variety that is likely to compel a revival of this mode of Rose growing, since everyone must needs grow it, and the plant, magnificent in the open, will not flourish against a wall. I have only seen one fine plant of it on a wall, and even in that case the plant was quite bare at the base and was only in good condition at the top, where it had got above the wall. In the open, however, the effect than can be produced by a single plant of this Rose must be seen to be believed. The variety grows with all the vigour of the species and produces similarly immense trusses, but of double crimson flowers, which last an unusually long time when fully expanded, so that the display, in addition to being most profuse, is also exceptionally prolonged. There is no other red Rose at all approaching *Crimson Rambler* in its qualities of vigour and freedom of flowering, and it is therefore the more valuable; for otherwise white and pink are the prevailing colours of the very vigorous and free Roses, amongst which, to obtain anything like a red, it was necessary formerly to go to the Boursaults—uninteresting plants with dreary flowers, which everyone may be strongly urged to avoid planting.

Most of the Ayrshires are fine climbing Roses, but some have insignificant-looking foliage, and some a not too pleasant fragrance. *Alice Gray*, however, which has white flowers, and *Ruga*, flesh-tinted, are both beautiful and valuable Roses, while the hybrid *Musk*, *The Garland*, with its nankeen buds expanding into pure white blossoms, is well worth growing if only to show how immense a Rose truss may be, for every truss of bloom is a posy in itself.

All the Roses so far mentioned are somewhat early flowering, being generally at their best in June, but there are some varieties of a species indigenous to the Western States of America, namely, *Rosa setigera* (formerly called *Rosa rubifolia*, a descriptive name, as the foliage strongly resembles that of the Blackberry, but now, happily, discarded, for it used to lead to confusion with *Rosa rubrifolia*, a very different species), which, in addition to



Roses at Tresserve. Engraved for THE GARDEN from a photograph by Miss Willmott.

dens, but it is not improbable that the introduction of the modern race of Roses, with their ponderous and misleading title of Hybrid Perpetual, had a good deal to do with it. Doubtless, many fine plants, because, forsooth, they bloomed but once a year and their individual flowers were small, found themselves displaced by the new-comers, which their owners fondly imagined would produce the same fine effect in the garden as their predecessors, but with the added glory of being perpetually covered with large and handsome flowers. By the time the fact was realised that in aiming only at an increase in the size of the flower the size of the plant had been disregarded, and that "perpetual" meant in the majority of cases merely the producing of an occasional blossom in autumn, many of the old favourites would have been lost or forgotten. Then, again, the custom that too long prevailed (though, happily, now a thing

ground for its immense trusses of pure white flowers, each one of which is a perfect rosette, and it will grow and flower profusely in practically any soil or situation. A great arch covered with *Félicité-Perpétue* is a beautiful sight in June, and indeed looks well at any time by reason of its abundant and persistent foliage which clothes the plant to its very base, and no Rose is better adapted for covering the pillars of a verandah—a task it will accomplish in a single season—soon running along the edge, too, from pillar to pillar, and framing the whole structure in a wreath of foliage and snow-white blossom. If this or any other really vigorous Rose be planted to make an isolated Rose pillar, it is a good plan, instead of the usual single pole, to put in three poles triangularly 4 feet apart and to plant the Rose in the middle; the tops of the poles should be inclined towards each other, but not allowed to meet, being held apart by

being perfectly hardy and vigorous, are well worth growing on account of the lateness of their flowering—quite at the end of July. Perhaps the best of these Prairie Roses, as they are called in America, are Queen of the Prairies (pink) and Baltimore Belle (white), both having quite double flowers of good size. Rosa Brunonis, though, of course, single, is a species that should be grown where it can have plenty of room (it is immensely vigorous), for its great bunches of pure white flowers with their rich gold stamens are very beautiful and deliciously fragrant; and Rosa macrantha, with its large flesh-pink blossoms, should not be forgotten.

There are two new climbing Roses which seem likely to prove valuable additions: Aglaia, with large bunches of canary yellow flowers, and the Dawson Rose, with big bunches of bright pink flowers which show up finely against the dark green shining foliage; but it is as yet rather early to speak quite definitely about these.

In addition to the Polyantha Roses already enumerated there is a variety that was raised in France in the days before the species was re-named polyantha, namely, Laure Davoust, which is a splendid climbing Rose, producing the characteristic great trusses of perfectly double soft pink flowers, which are also amongst the most sweetly scented Roses that we have. There are, of course, some valuable climbers among the Hybrid Teas and Noisettes, though not many that can be confidently recommended for hardiness as well as for vigour and freedom. Of the Dijon race I should only recommend Bouquet d'Or, which is beautiful in foliage as well as in flower. Gloire de Dijon itself gets too bare and leafless at the base ever to be an attractive plant. Aimée Vibert, with its great bunches of pure white flowers, and Ophirie, with its unique coppery coloured clusters, are both charming and valuable for the lateness of their blooming, and William Allen Richardson may be considered indispensable.

It is to the Hybrid Teas that we must turn for reds, and though some of the older varieties are sadly murky in shade, there are a few bright ones, namely, Reine Marie Henriette, perhaps still the best; Reine Olga de Wurtemberg, richer in colour, but only semi-double, though with glorious foliage; Longworth Rambler, crimson, and very vigorous; and Marie Lavallée, only semi-double, but of the most delicious shade of bright rose-pink.

T. W. GIRDLESTONE.

Gold medal Roses.—If a Rose receives the gold medal of the National Rose Society, does it imply that this particular Rose is superior to the scores of varieties already in commerce? If it does not mean this, I cannot but think that awarding these gold medals is deceiving to the general public. What I should like to see the N.R.S. do is to award their certificate to any variety considered worthy of the honour, reserving the gold medal for any really good Rose either new or old. One can understand a gold medal being awarded to Her Majesty and Mrs. J. Laing, but to give the same award to such Roses as Margaret Dickson and Marchioness of Duf-

ferin, thus putting them on the same equality as the two first-named varieties, is, to say the least, misleading. Does it not appear incongruous to award a gold medal to Muriel Grahame, passing over The Bride, a sport from the same variety and equally as good?—P.

Roses and the weather.—Precocious Roses are being cruelly served by the sharp frosts we have had recently, as the previous mildness of the winter had started them into growth, and many of those on south walls were showing bud freely several weeks ago, but 20° of frost put an end to their efforts to produce early flowers. With Hybrid Perpetuals and the true Teas the injury is hardly material, as they may be cut back to dormant buds, and in some cases to the ground level, without destroying the prospect of a crop of blossoms. The climbing Teas and Noisettes, that cannot be cut in hard without cutting away their flowers, had broken into growth from almost every bud, and these growths are spoiled. I find this the most difficult class among all the Roses to manage successfully here, where the spring frosts are more than usually severe owing to a low-lying position and proximity to a large area of water. Protection of the upper portions of these climbing Roses only aggravates the evil during mild winters, as growth is sure to be made, and is rendered more tender by the protection which has to be removed before the frosts leave us.—J. C. TALLACK.

Rose W. A. Richardson.—The interesting note by "U. S." on the above Rose (p. 207) draws attention to the peculiarly erratic growth shown in different plants of this variety. During the past few years instances of this have come under my own observation. I have seen many plants in neighbouring gardens that grow as rampantly as Rêve d'Or when in its most vigorous state. In my garden one plant has made good growth, but another, although in an almost similar position and seemingly in good health, has not extended appreciably during the past six years, notwithstanding it has been liberally manured and copiously watered whenever the weather was exceptionally dry. The failure of this Rose in many cases to produce truly coloured blooms is a more serious disadvantage than its inequality of growth, the blossoms of many plants being, as "U. S." truly writes, of a by no means clear or pleasing white. During the whole of the past year I did not see one single plant that produced self-coloured fawn flowers, the deepest tinted blooms having light-coloured outer petals. The majority of the several score that came under my observation, though flowering profusely, produced blossoms of a dingy white, which were absolutely useless for indoor decoration when so many Roses of perfect beauty yielded their blossoms in quantity. When in bloom there is, I think, no climbing Rose to compare with Rêve d'Or, its chief drawback being that after its summer blossoming is past it produces but few autumnal blooms, but when in the zenith of its beauty it forms a delightful picture and its blooms are charming when arranged in bowls and flower-vases.—S. W. F.

DARK ROSES.

ONE is often asked to give the names of the best dark Roses that are free-flowering and of vigorous growth. Unfortunately, the defects of dark Roses almost outweigh their good points, so addicted are they to fading or burning. Whether this burning is really caused by the sun is a moot point. It is, nevertheless, a fact that the extremely dark Roses are very popular. Even at the present day it would be difficult to beat Prince Camille de Rohan as a good all-round dark Rose. It is one of the best velvety-shaded kinds grown, and yields quite the largest proportion of good shaped buds and blossoms. As it is a very strong grower it must be sparsely pruned if quantity rather than quality of flower is desired. As is well known, La Rosière and Prince C. de Rohan are bracketed together as synonymous Roses. Their flowers may be identical, but there is a decided difference in growth, La Rosière

being less vigorous than the old favourite. A good variety is Monsieur Boncenne. This is synonymous with Baron de Bonstetten. Very rich and dark are its blossoms in summer, but it is a very shy autumnal Rose. Abel Carrière is also good, and is perhaps obtained best from standards, and in this form I have found it a very fair autumnal variety. The colour of the flowers is very rich and velvety, and the blooms are sweetly scented. Emperor is a charming dark button-hole flower with a smooth petal covered with a bloom almost resembling a black Grape, and quite distinct from other kinds. Gloire des Bruxelles is good, albeit the purplish tinge is not approved by everyone. But it certainly has an intensely dark flower, perhaps the deepest yet obtained. I must not omit to mention Xavier Olibo, for although not so dark as the preceding varieties, it is a very profuse bloomer. It lacks vigour, and is best on maiden plants, from which some superb blooms are now and then obtained. A good, very dark climbing Rose would be most welcome. Many of the so-called climbing varieties are really only suited to be grown on pillars. I do not despair of seeing a Rose with the true clambering nature of Lamarque, Rêve d'Or or Félicité-Perpétue, and with rich velvety flowers as dark as those of Prince Camille de Rohan. We already have pink and yellow hybrids of the climbing Polyantha Rose, obtained by the agency of cross-fertilisation. Our American friends have also been successful in the same way with Rosa Wichuriana; we may, therefore, reasonably expect a good rich maroon-coloured climber in the near future. P.

NOTES AND QUESTIONS.—ROSES.

Rose Mlle. Germaine Raud (Tea).—In this fine new Tea Rose we appear to have gained a more vigorous form of that very old favourite, Narcisse. There are the same spreading habit, the same miniature bouquets of blossoms crowning each shoot, and the same soft creamy colour. The flowers are perhaps a little more globular than those of Narcisse and they are of most perfect shape. That it will become a popular Rose I have not the least doubt. It is certainly deserving of more general cultivation than it receives at present.—P.

Rose Etoile d'Or (Polyantha).—We cannot well have too many varieties with yellow flowers of these charming Liliputian Roses. The tiny buds of the above are of a very beautiful chrome-yellow and the prettily reflexed petals of the expanded flowers change almost to pure white. The habit of the plant is very dwarf, certainly not nearly so vigorous as in Perle d'Or, which is perhaps an additional point in its favour. Raisers would do well to strive for dwarfness in these Roses. Several existing kinds, although bearing very tiny flowers, have a strong, sturdy habit, which seriously detracts from their usefulness for edging and for small pot culture.

BOOKS.

THE FLORA OF BERKSHIRE.*

MR. DRUCE is well known as the author of the "Flora of Oxfordshire." In the present work he has endeavoured, and very successfully and thoroughly, we think, to bring together in a handy book form the salient botanical features of Berkshire. In his preface he tells us that

The scanty leisure which a business life allows me has, for the last ten years, been to a great extent occupied in visiting every parish of the beautiful and varied district comprised in the Royal county and investigating its botany.

The book consists of two parts, the first being an "introduction," and the second an alphabetical description of the plants, their habits,

* "The Flora of Berkshire." By George Claridge Druce, Hon. M.A., Oxon. The Clarendon Press.

distribution, &c. In giving the distribution, the plan adopted by the author has been to save space by calling a plant "generally distributed" when it was found in several places in each of a hundred parishes, and "widely distributed" when its occurrence was noted in from sixty to seventy parishes. The first part of the book contains copious articles on the topography, geology, and botanical districts, with short biographical notices of the botanists who have contributed to Berkshire botany during the last three centuries. Berkshire is rich in clays, including Oxford clay, Kimmeridge clay, London clay, and gault, and where clay abounds the botanical features are generally uninteresting. It contains also chalky and sandy districts, in which the flora is much more varied, especially in the grass-covered chalk areas. Alluvium, or river deposits, also frequently occur. The author in dividing the county into botanical districts selects the river drainage as his basis, and his divisions are five in number, namely: (1) the Isis, or upper Thames, (2) the Ock, (3) the Pang, or mid-Thames, (4) the Kennet and Lambourn, and (5) the Loddon and Blackwater, or lower Thames. At page 64 of the introductory part he affords us a glimpse of the county in its picturesque aspect, which we reproduce here.

The summit of Boar's Hill affords one of those views which are to be seen only in England, a view which extends over a broad expanse of country that is at once well wooded and highly cultivated, and which has a special feature in the spires and towers of a classic city set like a gem in its centre; such a view when seen on an evening in late summer, before the corn is gathered in, astonishes the beholder with the revelation of beauty which it presents to the gaze. From the heights the whole of the Ock valley can be seen, the eye ranging southwards as far as the abrupt escarpment of the White Horse Hill, and the ridgeway marked by the British camps of Uffington, Letcombe and Cuckhamsley, and with Blewbury and Lowbury Castles, eastwards to Sinodun, guarding Durceaster, the foot of the water, and south-east to the slopes of the Oxfordshire chalk range, on which are the Chiltern Hundreds, looking almost black where the turf is replaced by woodland, as at Ruffield and Shirburn. Westward the prospect reaches to Faringdon clumps, standing up dark against the sky, and Cherbury Castle, hidden in the trees, the traditional home of Canute, on the flat tract of the vale, through which many branches of the river slowly wind unseen, till the eye is carried on to the spire of Abingdon almost immediately below. The view to the north and east over Oxford, which Turner painted and Matthew Arnold has sung, is scarcely less extensive, and is, perhaps, of still greater beauty.

And at page 68—

The view from the chalk downs of Lowbury, Streatley, and Basildon . . . offers a singularly varied foliage, from that of the dark-coloured Yew to the lightest green leaves of the young Beech and the almost yellow leaves of the Oak, which grows on such a shallow soil that it puts on autumn tints before the summer has begun. These, again, are relieved by the beautiful foliage of the Beam tree (*Pyrus Aria*), which a breeze of wind turns to silver. Beneath the wood comes a strip of living emerald pasture, gilded in spring with Marsh Marigold or frosted with Lady's Smock, and adorned in summer with rich riparian growths of Sedge, Willow-weed, purple Loosetrife and Water Dock, or the exotic-looking leaves of the Butter Bur. The river itself in some of its back waters or in its shallower channels will be seen thickly covered with the brilliant white flowers of the water Buttercup, with its masses of dark green foliage waving with the currents of the stream; its margins show the turquoise coloured flowers of the Forget-me-not,

the holtts exhibiting the purplish blue blossoms of the meadow Geranium, and the satin shining catkins of the Sallow, or the feathery flowers of the Meadow-sweet. Then, if we shift our point of view, we obtain a prospect over softly swelling downs, which are studded with Juniper bushes and redolent of Thyme and brilliant with the orange flowers of Hippocrepis, the Horseshoe Vetch, and the blue of the chalk Milkwort. . . . The red Poppies are sometimes so abundant as actually to distress the eyes when gazing upon them at midday under a bright June sun. . . . The red of the Poppies, the crimson of the Clover, the yellow of the Mustard and the white of the Corn Chamomile in these fields form continuous masses of colour, which are so pure in tone that it would be difficult to find any effect of the kind more beautiful in any country.

REPORT OF OBSERVATIONS OF INJURIOUS INSECTS DURING THE YEAR 1897.*

The twenty-first Report of Injurious Insects by Miss Ormerod has just been published. It is of exactly the same number of pages as that for the previous year, but four more insects are reported, the total number being thirty-six; of these six have not been, to the best of my recollection, mentioned in these reports before, namely, the bark-felt-scale (*Cryptococcus fagi*), the Angoumois moth (*Sitotroga cerealella*), the American cockroach (*Periplaneta americana*), the lesser earwig (*Labia minor*), the eyed ladybird (*Coccinella*, or more correctly *Halyzia ocellata*), and the black ladybird (*Scymnus minimus*). These reports, as usual, deal more with insects that are of interest to the farmer than to the gardener, but the latter will find much that will be of use to him in them. Miss Ormerod mentions that besides the insects, mites, and earwoms reported on, she has had inquiries sent to her about twenty different kinds of insects, making a total of sixty, and that "from various causes the correspondence during the past year, which amounted to about 3000 letters received, has been larger than in any preceding season." This is no light amount of work to dispose of when, as was probably the case, many contained specimens that had to be examined carefully. The authoress says in her preface that "during the year 1897, as in the recent years preceding, we had not presence of any one special crop attack spreading widely over the country, but the ordinary infestations were mostly present, and in the case of orchard or fruit crops some of the infestations were unusually troublesome." The Beech bark-felt-scale (*Cryptococcus fagi*), a well-known and common insect, has not before been mentioned in these reports. It was found last year to be doing considerable damage to Beech trees at Burton-on-Trent. This insect lives on the bark of the stems of Beech trees, covering themselves with a white cottony covering, which, when there are many of the insects close together, forms a somewhat felt-like covering to the tree. The insects when full-grown are rather more than one-eighth of an inch in length and are somewhat egg-shaped and of an orange colour. Not only do they injure the trees by drawing off the juices by means of their suckers, but also by keeping the light and air from the bark. Some of the trees were so much injured that they were said to be dying. Syringing or washing with a soft-soap wash, to which a little sulphur or mineral oil has been added, is recommended as the best way of destroying this pest, but I should suggest that the stem should, while still wet, be well swept down with a stiff broom, and that the wash should then be again applied, and that as soon as there is any appearance of the insect on a tree, steps should at once be taken to destroy it. The Angoumois moth (*Sitotroga cerealella*), or the fly weevil as our cousins across the Atlantic call the insect, is unfortunately named, as the insect is neither a fly nor a weevil.

* By Miss A. E. Ormerod. Simpkin, Marshall and Co.

These common names given by illiterate persons are a great nuisance, and it is a great pity that Miss Ormerod should have helped to give currency to it. It does not appear that this insect has been found to have injured any corn in this country except that in which it was imported, and therefore it cannot be said to be a pest in this country. This insect has long been known to injure corn in France and other warmer climates. The specimens from which the present observations were made were from a cargo of barley imported from the north of Africa, "which proved to be infested to such a degree as to attract attention of intending purchasers." "The moths much resemble what are commonly known as 'clothes moths,' and the mischief is caused by the maggots, which hatch from the eggs laid by the moths on matured corn, penetrating into the grains and clearing out the contents, so as to reduce them to mere husks, emptied of everything excepting the dirt resulting from the feeding of the maggots, and some remains of chrysalis cases, web cocoons, or moulted skins." The moths lay their eggs on ripe corn while standing in the fields. In conclusion, Miss Ormerod says "there does not appear to be any reason for fear of the attack of the Angoumois moth establishing itself as a field pest in this country."

In some observations on ladybirds two correspondents were of opinion that their grubs were injuring their crops. One farmer wrote, saying that they were in thousands on his Turnips, and that they were cutting them to pieces. Another said that they had done considerable mischief to his Mangolds. In both cases the crop was being injured by aphides, on which the ladybird grubs were feeding. It is very important that everyone should realise that these grubs never injure plants, and are, on the contrary, of the greatest use. Another insect (that is not the least likely to ever become a pest in this country) which is reported on is the migratory locust of South America, which is at times imported in trusses of hay from Buenos Ayres. In one consignment they averaged about one to every pound of hay. Few, if any, are alive when they reach our ports, but the point of interest is whether their presence in the hay is injurious to the animals that are fed with it, or not. This does not seem to be by any means proved. A correspondent that used the hay found two of his horses suffering apparently from colic and inflammation. He changed their food and "the illness vanished," but his cows that were eating the same hay were not in the least affected. The caterpillars of the Gamma, or silver Y moth, were found this year to be doing much injury to crops of Mangolds. In Ireland the damage was estimated at from 15 to 20 per cent., and it was only the rains in August that saved the crop. This is a very common insect, but it is not often that it is the cause of much injury to crops. The timberman beetle (*Astynomus ædilis*) is another insect that is never likely to become a pest with us. It is a handsome insect, nearly three-quarters of an inch in length, and with feelers or antennæ four times the length of its body. It is sometimes found in coal mines where it has been imported in the timber used as props from abroad. It is, however, hardly worth while to mention this insect in these reports. Last season "tulip-root" in oats was unusually common. This disease is caused by earwoms (*Tylenchus devastatrix*) feeding in the roots and the base of the stems. The vitality of these creatures is astonishing. One observer states that he "placed some on a slip of glass with a drop of water and put the slide away for quite six weeks, at the end of which period, although the water must have evaporated in twenty-four hours, on again applying water the worms were as lively as ever. This or very nearly allied species are the cause of the diseases known as Clover-stem sickness and Onion sickness. As a remedy for this disease the following mixture is recommended: Sulphate of ammonia four parts, sulphate of potash one part, and steamed bones two parts. This should be used at the rate of 1½ cwt. per acre, and followed

up with a dressing of sulphate of ammonia at the rate of 2 cwt. per acre. The ground beetles again appear to have done much mischief to Strawberries. It is curious that these beetles, which are undoubtedly carnivorous, should have acquired a taste for Strawberries, but it is so, and it is mentioned that several lived for seventeen days on nothing else, without, as far as could be seen, suffering in any way, but they would not even taste any other kind of fruit that was placed in the jar with them. They attack both the ripe and unripe fruit, cracking open the seeds and eating great holes in the fruit. There does not seem to be any satisfactory way of destroying them; the only way is to trap them by laying pieces of meat about and covering them with sacking, or sinking vessels of water in the ground so that their brims are on a level with the ground. These beetles feed at night, hiding in cracks of the ground, under stones, &c. It would probably be worth while to water well with soapy water, which would bring them out of their hiding-places. The Black Currant mite is honoured with an appendix to itself, why it is not easy to say. Miss Ormerod writes: "For many years the Currant gall mite infestation to Black Currants has been a trouble to Black Currant growers, but its steadily increasing prevalence, and the failure of the remedial measures which have been hitherto tried to do more than lessen the evil, are making the matter a very serious one for consideration." One correspondent, among other useful remarks, says: "The Black Currant is so easily grown from clean cuttings in the course of three or four years to good sized bushes and bearing freely, that the cleaning of old bushes at a considerable cost is not, I think, judicious. Much better clear off the bushes root and branch, and burn every morsel of them on the spot. Grow other crops on the land until all Black Currant mites are starved out, and the remedy is complete." This is to my mind most sage advice, and if acted upon in many other cases of pests it would be much to the advantage of the cultivator. It appears that a series of experiments are now being carried out at the Woburn experimental fruit farm, with the hope of finding some better method of dealing with this pest than is known at present.

As I have often pointed out before, the value of these reports would be much increased if the information they contain were given in a more intelligible form, by omitting what is irrelevant.

G. S. S.

TREES AND SHRUBS.

THE LILACS.

(SYRINGA.)

THE confusion in the nomenclature of the Syringas is perhaps as pronounced as in any genus of hardy shrubs, especially considering its small extent and the easily marked differences between most of the species. The origin or natural distribution, too, of several of them (always a matter of interest) has been, until a comparatively recent date, either uncertain or unknown, and errors in this matter and others as to identity have so frequently been printed, that possibly the following notes may be of some help towards clearing up the confusion, as well as in showing the extent and variety of the genus. There are now nine species in cultivation, and two others, although not in cultivation, are known to botanists. The genus is not represented in the New World or in Africa, but exists in widely separate localities in Eastern Europe and Northern Asia. It belongs to the natural order Oleaceæ, and among well-known garden plants has as its nearest allies the Jessamines, the Ashes, and the Privets. Its leaves throughout are opposite, and, with the exception of a species not in cultivation, deciduous; they are also entire, except in the case of a variety of the Persian Lilac. The flowers are

borne in terminal thyrsoid racemes. As now constituted, the genus consists of two groups: First, the true Lilacs, represented by *S. vulgaris*; and second, the Privet-like Lilacs, of which some authorities have made a separate genus under the name *Ligustrina*. The species in this latter group are distinguished from the true Lilacs by flowering later in the summer and by having large panicles of smaller Privet-like flowers, the corolla of which is white and much shorter than in the other group. There are three of them in cultivation—*S. amurensis*, *S. japonica*, *S. pekinensis*—which, however, some botanists have considered to be merely geographical forms of one species existing in Manchuria, Japan, and China. The following is a complete list of the species in gardens, with some of the commoner synonyms:—

1. *S. Emodi*.
 2. " var. *rosea* (*S. Bretschneideri*).
 3. *S. Josikæa*.
 4. *S. oblata* (*S. chinensis*).
 5. " var. *laciniata* (*S. filicifolia*, *S. pimata*).
 6. *S. villosa* (*S. pubescens*).
 7. *S. vulgaris*.
 8. *S. chinensis* (*S. dubia*, *S. rothomagensis*) hybrid.
- LIGUSTRINA GROUP.
9. *S. amurensis* (*Ligustrina amurensis*).
 10. *S. japonica* (*Ligustrina amurensis* var. *japonica*).
 11. *S. pekinensis* (*Ligustrina pekinensis*).

S. AMURENSIS (Ruprecht).—As a cultivated shrub this species is the oldest in the *Ligustrina* group, and was discovered in Manchuria as long ago as 1857 by a Russian botanist named Raffe. It was introduced to cultivation a few years afterwards by way of the St. Petersburg Botanic Garden. At Kew it is a sturdy bush about 5 feet high, with stout, erect branches; it does not appear to become a tree like *S. japonica*. The small creamy white flowers are borne on large branching racemes. Sargent distinguishes the flowers of this species from those of its close ally, *S. japonica*, by the corolla having obtuse lobes. It is a native of the valleys of the Ussuri and Amur Rivers. At Kew last year every shoot produced a young raceme, but these were all blasted by the late frosts in April before they had fairly burst from the buds. It is one of the earliest of hardy shrubs to break into leaf; this year early in February the tender green of its young foliage had already made it quite conspicuous while every other Lilac was still at rest.

S. CHINENSIS (Willd.).—Originally given this name by Willdenow under the impression that it was a native of China, this plant is now generally considered to be a hybrid (of garden origin) between the common and the Persian Lilacs. According to Duhamel it was raised in the Botanic Garden at Rouen over 100 years ago by the then director, M. Varrin, from seed borne by *S. persica*. No undoubtedly wild specimen has been found, and the statements that have been made as to its Chinese origin refer to *S. oblata*, with which (being the *S. chinensis* of Blume) it has been confounded. The *S. chinensis* under notice, which is known also as *S. dubia* and *S. rothomagensis*, is intermediate between its parents, although in general aspect it resembles the common Lilac the more closely. Its leaves are pointed, 1 inch to 3 inches long, and perfectly glabrous. It blossoms in May, and its flowers are borne on panicles intermediate in size between those of its parents and are of the same colour. It is a very free-flowering and pretty Lilac, and might be recommended as a substitute for the common Lilac in positions where the latter would be too large. To add to the confusion respecting its origin, this plant still figures in some nurserymen's catalogues as the Siberian Lilac; why, it would be difficult to say.

S. EMODI (Wallich).—The credit of first raising and cultivating this Lilac in Britain belongs to the (then) Horticultural Society, to whose garden seeds collected on the Himalayas were sent by Dr. Royle, the Indian botanist. It is a sturdy shrub, with erect stout branches that are thickly set with conspicuous wart-like verticils. The leaves vary in length from 2 inches to 5 inches; they are glaucous, or occasionally almost white beneath, and are among the stoutest and largest in this genus. Dr. Aitchison, who found it on the Afghan Mountains in 1879 at elevations of 9000 feet to 10,000 feet, says it is there a handsome shrub of large size, and that it never occurs at low enough altitudes to become associated with *S. persica* (whose true native habitat was then made known to science for the first time). The panicle is 3 inches to 5 inches long, and the flowers are white, tinged with rose on some plants. On the Afghan Mountains, Dr. Aitchison notes that they are pure or greenish white, never purple.

S. E. VAR. ROSEA is a handsome form raised in Paris from seeds sent from North China by Dr. Bretschneider. It is described as a more vigorous grower, the leaves, panicles and flowers all being larger than in the ordinary *S. Emodi*, and the flowers are of a rosy colour. It is figured in the *Revue Horticole*, 1888, p. 492. There is also a handsome variety with leaves more or less golden (*foliis aureis*). When grown in rich soil I have seen leaves fully 6 inches long and 4 inches wide.

S. JAPONICA (Decaisne).—This, the finest of the *Ligustrina* group, has flowered annually at Kew for some years past. The large branching panicles appear in June and July, and have been over 1 foot in length. In the United States (where so many Japanese deciduous trees succeed better than in Britain) they are described as occasionally 2 feet long by 16 inches to 18 inches broad. As in all this group, the flowers are small (quarter of an inch across), white, and slightly fragrant. The leaves are larger than those of the common Lilac, broadly ovate, and of a deep shining green on the upper surface. In Northern Japan this Lilac becomes a tree sometimes 30 feet high with a trunk 1 foot in diameter. Here it seems inclined to remain shrubby if unpruned, but can be made into a tree by removing the lower branches and keeping it to a lead. Besides its greater stature, it is distinguished from *S. amurensis* by the lobes of the corolla being more pointed.

S. JOSIKÆA (Jacq. f.).—The first record we have of this Lilac occurs in 1830, in the September of which year dried specimens were shown by Jacquin the younger at a meeting of naturalists in Hamburg. It was named by that botanist in honour of the Baroness von Josika, to whom its first discovery was due. Like several other Lilacs, its origin has been the subject of many conflicting statements. It has been described as an escape from gardens and as a mere form of the North Asiatic *S. Emodi*, but it has been found abundantly on the mountains of North-eastern Hungary under conditions that admit of no doubt of its being truly indigenous there. It first appeared under cultivation in Britain at Edinburgh about 1835. It is a shrub 6 feet to 10 feet high, with branches slightly warted, and young twigs of a purplish colour. The leaves, pale or even whitish beneath, shining dark green and wrinkled above, have a cuneate base, and vary in length from 1½ inches to 3 inches or 4 inches. The panicles are terminal, erect, and small compared with those of the more showy Lilacs, being usually about 4 inches long, rarely as much as 6 inches or 9 inches. The flower is of the true Lilac shape and colour, but the corolla is smaller and less expanded than that of the common Lilac, the segments being almost erect. It blossoms in May. From *S. Emodi* it is to be roughly distinguished by its smaller leaves and more slender racemes less densely packed with flowers.

S. OBLATA (Lindl.).—Lindley first described this species in 1859, in which year he says the type was in the nursery of Messrs. Glendinning at Chiswick, and a white-flowered variety in that of Messrs.

Henderson, of the Pine-apple Nursery, St. John's Wood. According to Fortune, it was first discovered in a garden near Shanghai. Although Lindley was in doubt as to whether it was specifically distinct from the common Lilac, it is really more nearly related to *S. villosa*, another Chinese species. Its most distinctive character is the shape of its leaves, which are pointed, often considerably broader than long, and varying in width from 1½ inches to 3 inches. The flowers are borne in loose, rather wide panicles, each 3 inches long, and are purple; they are about half the size of those of our common Lilac. The white variety mentioned by Lindley (*Gardeners' Chronicle*, October 29, 1859) I have not seen. *S. villosa* is distinguished from this species by its leaves being

The leaves, which have long, slender petioles, are dark green and ovate. The flowers are white and borne on dense panicles.

S. PERSICA (the Persian Lilac).—Of smaller stature than any of the Lilacs, this species is, nevertheless, one of the prettiest; its dwarf habit, indeed, makes it useful in positions where any other Lilac would be too tall. It forms a low, rounded bush from 4 feet to 7 feet high, with slender, graceful branches and small lanceolate pointed leaves three-quarters of an inch to 1½ inches long and from a quarter of an inch to half an inch wide. The panicles bear numerous flowers of a blue-purple colour in the type, but there is also a white-flowered variety known as *alba*. The variety *laciniata* has its leaves pin-

that year it was found by Dr. Aitchison on the mountains of Afghanistan, at 7000 feet to 8000 feet elevation. It flowers about the middle of May.

S. VILLOSA (Vahl.) (syn., *S. pubescens*).—It is only in comparatively recent years that this Lilac has been seen in English gardens, having been sent to Kew from the Chihli province of China in 1880. It flowered first in 1888, and was subsequently figured in the *Botanical Magazine*, t. 7064. Yet there are specimens in the Museum of the Jardin des Plantes at Paris sent to Jussieu by the Jesuit missionary d'Incarville, who had discovered it near Peking about the year 1740. It is a shrub, at present about 5 feet high at Kew, with leaves 1½ inches to 2½ inches in length and sometimes nearly as broad as long, being very broadly ovate or almost round; the upper surface is dark green, the lower one whitish or semi-glaucous. The specific name of *villosa* is an unfortunate one, for sometimes the leaves are nearly glabrous, and are never hairy except at the base of the midrib and on the main veins. The panicle is 3 inches to 4 inches long, and the flowers are pale rosy lilac, sweetly scented, and produced in May.

S. VULGARIS (common Lilac).—Although not a true native of Britain, the common Lilac has been in cultivation here at least 300 years, and no flowering shrub, either native or foreign, except the Rose, has become more closely identified with English gardens and English country scenes. Of the latter none is more characteristic of our flowery May-time than the cottage garden with its fragrant, blossom-laden Lilacs. The common Lilac is a native of Eastern Europe, and although it appears to have been originally introduced from Persia about, or previous to the year 1597, it was found to be a native of Southern Hungary, in the region of the Danube, especially on the chalky precipices of the Cverna Valley and on Mount Domoglet. It is not found truly indigenous further west than these localities, and it is not, as has been stated, a native of Italy, although no doubt it has become naturalised there and elsewhere. Besides the ordinary Lilac and its white variety there are many beautiful forms that have been raised in gardens with flowers double or single and of colours ranging from purest white to a very rich red-purple. The following may be mentioned as some of the most desirable of these: *Souvenir de L. Spath* (the darkest coloured of all the Lilacs), *alba grandiflora* (a fine white), *Marie Legraye* (perhaps the finest of the whites), *Charles X.*, *La Ville de Troyes*. Of the double-flowered ones may be mentioned *Lemoinei fl.-pl.*, *Mme. Lemoine*, and *La Tour d'Auvergne*. There are dozens more.

W. J. BEAN.

EFFECTS OF FOG.

DURING the past winter fogs have been more prevalent than in any season I remember during the twenty years I have lived in the neighbourhood of London, thus affording a good opportunity of judging of the effects it has on plant life. My observations are chiefly confined to plants grown under glass. In the north of London the effects have not proved so disastrous as might have been anticipated. Speaking generally, I think plants under glass have suffered more from want of daylight than the actual effects of fogs, black as they have been. Taking Ferns, I find some of the varieties with a bright, smooth surface to their fronds have in a few instances the appearance of having been scalded, and some of the *Adiantums* have their fronds much discoloured, while the *Gymnogrammas*, and others with a rough or pilose nature, show no other sign of damage except weak growth. Palms do not appear to have suffered in the least, though no doubt they would have made more growth with more daylight. Although a few young leaves of *Crotons* have dropped off, it is difficult to say if this was caused by fog, as others in the same house have not suffered in the least. Carnations, which should be flowering now, have suffered considerably, chiefly through the length of time that



In the time of Roses. From a photograph by Mr. F. Mason-Good in Mr. Spencer Charrington's garden at Guildford. (See p. 273.)

sometimes slightly hairy, by their being glaucous underneath (*S. oblata* is green), and by never having the cordate base common to *S. oblata*.

S. PEKINENSIS.—This is one of the three Privet-like Syringas and one of the last introduced. It is the Chinese representative of the *Ligustrina* group, and was originally discovered on the mountains of North China by the Abbé David, although seeds appear to have first been sent to Europe and America by Dr. Bretschneider. At Kew it is at present about 8 feet high—a shrub, but with a little artificial aid would form a small tree. From its two allies (*S. amurensis* and *S. japonica*) it is to be distinguished by its long and much more slender branches, which in one form are distinctly pendulous (var. *pendula*).

nately divided into usually seven or nine narrow oblong lobes. This character, however, will often show itself in the ordinary Persian Lilac in a greater or less degree. Some plants have foliage showing every intermediate stage between deeply cut and entire, and some may at first be pinnatifid, but afterwards gradually revert to the typical form. The two flower with equal profusion and grace. The exact length of time the Persian Lilac has been in cultivation here is not certainly known, but it was in English gardens as early as 1658. It had long been cultivated in the country to which it owes its name—since the year 1200, say some authorities—but it has never been found truly wild in Persia. It was not until 1879 that its real native habitat was revealed. In

the buds have been developing. It seems much easier to have good Carnation blooms during the dark weather than it is for some weeks after the fogs have left us. Although the fog does not affect the foliage of double Primulas, the flowers, or a large proportion of them, go blind, and do not open. I refer to the old Double White. *Begonia Gloire de Lorraine* held its bloom well throughout the whole winter, though in the worst of the fogs the flowers were small and pale in colour. A very dry atmosphere will cause the bloom to drop sooner than any other cause. I have found that *Begonia insignis* will drop almost every bloom after a heavy fog, also the *Abutilons* and *Salvias*. I can never flower the *Bouvardias* after the first spell of dark, foggy weather, and I have seen the leaves quite scorched, but not so bad in the north of London as in the S.W. district. Forced Roses will drop almost every leaf after a heavy fog.

Although the bad effects of London fogs cannot be entirely counteracted, they may be much reduced. The first thing to avoid is a dry atmosphere. Of course, in many instances it is dangerous to use too much water in dark weather, but as soon as the foliage becomes dry it much more readily absorbs the poisonous gases contained in the fog. It is also advisable to keep the temperature as low as is consistent with the safety of the various plants. Any growth made will be unsatisfactory, and the plants will not so readily make a good start when we do get bright weather.

A.

STOVE AND GREENHOUSE.

CLERODENDRON BALFOURI.

Few stove climbers are more beautiful or showy than this when growing at all naturally, but nothing so spoils its effect as tying it in closely to balloon-shaped trellises, as is often done. This plan, of course, is usually followed for exhibition, and perhaps there is no better way of showing the plants, or at all events no more convenient one of taking them to the show; but at home they look far better growing loosely about the roof or on tie rods trained as little as possible. The blossoms are too well known to need describing, and they are very freely produced when the plants are healthy and strongly grown. Various modes of propagation have been tried. Taking cuttings of young shoots 6 inches long or less with a heel and placing in strong bottom-heat is a favourite plan with some growers. Others rely on cuttings of older wood taken at pruning time, while, again, the stoutest and hardest of the roots will often form growth buds if taken off with a few fibres attached and planted in a brisk heat in cocoa-nut fibre. Where bottom-heat is not at command, stem cuttings about a foot long may be made and placed in bottles, as practised with *Dracenas*. The first season the plants should be grown as rapidly as possible by giving them a light, rich soil and plenty of heat. Towards the end of the summer the plants may be tied around stakes placed in the pots, this causing them to break more freely from the lower eyes the ensuing season. All through the growing season the roots must be kept very moist, and as one pot is filled with roots, the plant should be shifted to a larger one, as this *Clerodendron* is one of the most rapid-growing plants in existence when placed under suitable conditions.

Most of the foliage falls off in autumn, and just then the water supply must be considerably reduced. In winter hardly any is needed. If the plants are to be kept in pots they must be of good size, and the proper time to repot is after a few inches of growth have been made in spring. Many fine plants have been lost by

inattention to this simple matter, for shifting them when at rest is almost fatal to them. When growing freely above, the roots will naturally be very active and will at once take to the new material. The amount of flower produced is strictly in accordance with that of the growth, so if plenty of heat can be secured, let the plants have a good shift and use a very rich compost. Equal parts of good yellow loam and dried cow manure, with plenty of sharp silver sand and lumps of charcoal sound a very rich mixture, but if the pots are well drained and the roots in quite an active state it is none too strong, while the resulting growth will be remarkably free. Untie the young plant from the stakes after potting and place it in its position, leaving plenty of room for side growths if it is to be trained under the roof. When the roots have filled the new pots and are taking water freely, a little clarified soot-water helps to keep the colour in the foliage.

Moisture in the atmosphere is important, as in a dry heat *Clerodendrons* are sure to be attacked with red spider and other insects, healthy growth being then out of the question. Syringing with tepid soft water twice daily until the flowers begin to open is advisable, but on account of plants growing underneath it cannot always be practised. After the flowers are past the plants may be pruned, cutting back lightly or heavily according to space. It is best to do this fairly early, for if left until winter comes round the stems often die back and start badly in spring. Fine specimens may be had for exhibition by keeping them on the roof until the young shoots are showing the flower-buds, then taking them off and tying on the frames so that most of the new wood stands a little out from the rest. If too tightly trained the effect is spoilt.

GROWER.

Daphne Genkwa.—This Japanese species of *Daphne* is particularly noticeable just now in the greenhouse, where it is flowering freely. An especial item of interest in connection with it is the great resemblance it bears to a *Lilac*; indeed, unless closely examined its relationship thereto would not be questioned. The flowers, which are borne thickly on the leafless branches, are of a pale violet tint and agreeably scented. There appear, however, to be more than one form, as some individuals are deeper in colour than others. The flowers remain fresh longer than those of most hardy shrubs that are brought on in the greenhouse. Though so dissimilar in appearance from the other *Daphnes*, it needs much the same treatment—that is to say, a fairly cool, moist soil that is not subjected to any great extremes. In the open ground, where uninjured by frost, it does not as a rule flower till April is well advanced—that is, just before the leaves expand. In planting, a sheltered spot should, if possible, be chosen for it. This *Daphne* has been long known, but it is only within the last few years that it has been generally grown.—H. P.

Tropeolum Ball of Fire.—At one time the climbing varieties of *Tropeolum* were grown for the production of cut flowers during the winter far more frequently than they are now-a-days, their place being to a great extent taken by the zonal *Pelargoniums*, which are universally cultivated where brightly coloured flowers are needed throughout the dull season. Still, for all this the merits of a good variety of *Tropeolum*, such as *Ball of Fire*, must not be altogether passed over, as, apart from the supply of cut flowers, it is a capital climber, and one that will yield a profusion of bloom for months together. As a rafter plant in a warm greenhouse this is very effective, especially if the long flexible shoots are allowed to dispose themselves in a natural manner, as their loose, informal arrangement, combined with a profusion of richly coloured blossoms, form a very pleasing feature. These *Tropeolums* strike root

readily from cuttings, and the best results are obtained when good sturdy shoots are chosen for the purpose. If the cuttings are struck in the spring they should be encouraged to grow away freely during the summer, as if they are allowed to fall into a stunted habit at that season they become a prey to insect pests and are seldom satisfactory. At one time *Tropeolums* of this class were largely grown for Covent Garden Market to supply cut flowers during the winter. They are a good deal affected by the fogs, which in the London district are the bane of plant growers, but the same may be said of the *Pelargonium*.—T.

MALMAISON CARNATIONS.

I SHOULD be very grateful if any of your correspondents could give me some information as to the best way of growing Malmaison Carnations in the greenhouse. Is it true that they will bear very little forcing and must be grown in a cool house? What is the name of a very fine variety in a deep rose-pink shade?—P. H.

* * This section is probably the most difficult of all the Carnations to manage. I have found the best stock to start with to be from those layered in the open ground. These may be taken up and potted early in the autumn, and if the original stock plants were vigorous and healthy, the layers will make good plants for the following spring. They should be potted in good fibrous loam, with a little leaf-mould and sand added, or if the loam is not fibrous, a little peat may be used. Three-inch pots should be used, and the soil pressed moderately firm. They should be placed in a cool pit, or, better still, in a house where they can stand on a moist bottom. They may be kept close and shaded for a few days until they take hold of the new soil, after which plenty of air and all the light possible should be given; the closer up to the glass they can be kept the better. As soon as the pots are well filled with roots they may be potted on into 5-inch pots. Grown on in a cool greenhouse these should be in flower about May. Air and light are essential, and sufficient fire-heat to keep out frost and to dry the air in wet, damp weather. They may be brought into flower a little earlier by giving them extra warmth after the buds begin to show. Bright, sunny weather will do more towards bringing on the bloom than artificial heat, and under no consideration should the house be kept close. The same plants may be grown on for several years. Where it is intended to grow them on, the flower-stems should be carefully cut away close to the first side-shoot, the plants carefully cleaned, and each of the strongest shoots should have a separate stick. If not carefully handled they are liable to split off at the stem. They should be potted on as early as possible. It will depend a little on the size and condition of the plants in regard to the size of the pots to be used. Overpotting should be avoided, and they may have another shift in the autumn. During the summer they will do better in the open, but it is safer to have them in a frame where the lights can be put on in case of heavy rains. Over-watering is very injurious to all Carnations grown in pots, and often proves fatal.

The plants which have flowered early in the spring will often throw up blooms again in the autumn from the side-shoots, but these do not come so fine as in the spring, the true Malmaisons being essentially spring-flowering. I may add that manure may be used after the buds are well advanced, that made from cow manure and soot being the best. It should be allowed to stand long enough to become quite clear before using. Clear soot water may also be used for syringing and will keep the plants free from insects.

Of the true Malmaisons there are three distinct shades, viz., the old form, of a delicate flesh colour; the pink, which is several shades deeper; and the rose, probably the variety referred to by "P. H." I do not know of any other distinctive names for the above. Lady Middleton may also

be considered a true Malmaison; this has striped flowers. There are now several others included in this section which are evidently of hybrid origin. The Churchwarden is the finest crimson, but I find it is inclined to sport. Mme. Arthur Warocque, deep scarlet, is sweet-scented and free, but the flowers are much smaller than in the type. Another, which I believe I first had under the name of Turner's Crimson Malmaison, is very dwarf in habit and of sturdy growth. The flowers are of moderate size and have a pleasant perfume. There are several other newer varieties which I have not yet had much experience with; but from what I have seen of it I am very favourably impressed with Princess May, which is of a deep rose colour. A. H.

IVY-LEAVED PELARGONIUMS.

In many of the newer varieties of these charming plants we are getting beautiful colours and shades, but I think we are also losing the grace and elegance that made the old König Albert so popular at one time. In this section we hardly want stiff, erect-growing plants, nor are stout flower-stems and close, rosette-shaped, very double flowers any improvement. An Ivy-leaved Pelargonium to be pretty must have a loose habit of growth, and the blossoms must be graceful rather than very double. The old Mme. Crousse and the somewhat more recent Souvenir de Chas. Turner are two excellent varieties in my estimation, and far before such kinds as La Rosière, Masterpiece, and others of a similar habit. The present is a good time to strike cuttings for autumn and winter-blooming plants. They root freely now with the advancing light, and will keep sturdy, hard little plants that, if kept potted on as required, will not flower much until winter. Three or four cuttings rooted in a 4-inch pot make nice little plants for furnishing baskets. These should be lined with a little Moss, and a suitable compost will be loam and leaf-mould, with a little of a good fertiliser and plenty of rough silver sand. This will be suitable for pot culture as well, single plants flowering well if finished in the 8-inch size, and these they will easily fill if well grown during the summer. Light pits are best for them, and the plants should be frequently pinched to induce a well furnished plant, the flower-buds picked out as soon as they can be seen until within a month of the time they are wanted to bloom. This they will do for six months on end if judiciously fed and kept in a temperature that will cause them to grow gently, or say about 50° at night, with a good rise by day from sun-heat. They must be so arranged that the light reaches every part of the plant, and should green fly put in an appearance the house must at once be fumigated. Ventilation is as important as light, for without it the growth will be spindly and weak, the flowers of poor colour and texture, and but a few will be produced. If large specimens are wanted the plants may be lightly cut back in spring, and when breaking freely shaken out and repotted into the same size pots as before, shortening the roots a little if it seems to be necessary. Shift on into larger sizes as required, and tie or train them according to convenience. They make excellent pillar plants, and also do well on a back wall provided the position is not much shaded by other plants. H. R.

Lilium auratum diseased.—I should be greatly obliged if the Editor of THE GARDEN would tell me whether enclosed bulb of *Lilium auratum* is diseased. I have had them placed in dry soil, and all diseased parts scraped out and dressed with sulphur and charcoal, but on examination each time I find them still worse. The small spots to-day are large ones in a fortnight's time.—J. RAINBOW.

* * The bulb you send, though not of the finest quality, is certainly not diseased, as this term is usually accepted. It is merely an instance of bruised scales, for which there is small wonder if we take into account the varying processes of preparation and of packing to ensure the safe

arrival of the bulbs in this country, to say nothing of a journey of many thousands of miles. You will observe the heart of the bulb, which is the germ of flowering, is comparatively free of the bruises that appear on the outer scales, and as the latter are of quite secondary importance so far as flowering is concerned, little fear need be entertained concerning them or the continued decomposition of the parts badly bruised. These, however, may be removed so far as the bruise extends and the bulbs potted without any further delay. The chief point in an imported Lily bulb is a good sound base, *i.e.*, the point from which roots are emitted, and a sound heart or centre. The application of charcoal is right, but sulphur is quite wrong, as nothing more quickly and surely paralyses vegetable growth than this, and in your case it would be well to rinse it free of the base, otherwise the young roots may be injured thereby. You should pot the bulbs at once in a soil only moderately moist. Then, if placed in a position uniformly cool and covered with ashes 3 inches deep over all, no water should be needed till growth is apparent above the ashes. Remove the worst portions of bruised scales prior to potting and cover the bulb with a handful of moist silver sand. Peat and loam in equal parts are a good mixture for potting.—E. J.

MESSRS. JOHN LAING AND SONS' NURSERIES.

ALTHOUGH the winter is not exactly the best time for seeing many plants in bloom in nurseries, still even during that dull season there is much to be seen that is of considerable interest. I was fortunate in finding the founder of the house at home, and although Mr. John Laing is in his 78th year he is still strong and well. He came to Forest Hill more than thirty-seven years ago, but long before this he was known in Scotland as a good cultivator and botanist. Indeed, in 1847 he received the silver medal of the Royal Caledonian Society for a "Fasciculus of British Mosses" which he prepared from specimens collected in the neighbourhood of Edinburgh. In the same year he was elected an Associate of the Royal Botanic Society of Edinburgh.

Orchids, stove and greenhouse plants, Ferns, Palms, Cycads, Begonias, Gloxinias, Cannas, &c., are largely grown at Forest Hill. The tuberous Begonias are of course famous all over the world; from January to March little is to be seen of them except the tubers, but by May and June they will be all in full bloom. One can hardly realise when looking at the modern Begonia in its single and double forms that it has been developed in about twenty-five years from species with comparatively small blossoms. Indeed, it was not until 1864 that one of the first varieties—*B. boliviensis*—was introduced to this country, and its blood was in the first hybrid Begonia, *B. Sedeni*, which was sent out in 1870. *B. Pearcei*, which was the chief factor in the production of the yellow, buff, salmon, and orange varieties, appeared in 1865, and was followed by *B. Veitchi*, *B. roseiflora*, and *B. Clarkei* in 1867. *B. Davisi* did not arrive until 1876, and at first was much used by hybridists with a view to in-breeding its neat dwarf habit and warm scarlet flowers. These half-dozen species have been left behind long ago, and some of them are in great danger of disappearing altogether from cultivation. Mr. Laing began hybridising Begonias in 1875, chiefly using *B. boliviensis*, *B. Veitchi*, and *B. Pearcei*, together with some of the best varieties then known in England and the Continent, and the success he attained is evident to all who see his Begonias, either at Forest Hill or the various exhibitions throughout the country. So highly, indeed, were his hybrids thought of in 1878, that he was awarded a gold medal for them by the Royal Horticultural Society. The uses of Begonias from a garden point of view are many. As pot plants they make graceful ornaments for the greenhouse, and a continuous display of bloom may be kept up from April to November by starting the tubers in

batches at various periods. For the flower garden they have become very popular of late years, and when massed, either according to colour or mixed, they are effective, although occasionally they get somewhat spoiled by heavy rains. They flower throughout the whole summer from May to October. They possess another great advantage, especially to those with a greenhouse having a warm corner. Seeds may be sown in January or February, and as likely as not the plants obtained will produce as good, if not superior, blooms as their progenitors, and in this way—especially if care be taken to save seeds only from the choicest flowers—improvement goes steadily on. The fibrous rooted section is also largely grown, and at the time of my visit thousands of tiny seedlings had been pricked off in readiness for planting outdoors in May. *Clivias* are well grown at Forest Hill, and each year new varieties are being raised from seed.

Cannas and Carnations are grown in huge quantities. Although the Cannas were just started in a little heat, by June they will be vigorous and well-hardened plants for the outdoor garden. It is astonishing that although Cannas have been known in British gardens since the time of John Gerard, 300 years ago, it is only of late years that attention has been given to them as decorative plants, either for the conservatory or the flower garden. Botanically there are many so-called species, but only a few have been used by the hybridist to produce the popular kinds of to-day, and the comparative ease with which they are obtained is a favourable sign of their very soon finding their way into almost every garden. Like the Begonia, the modern *Canna* is fast outstripping its parents in the great size, beauty, and exquisite colour of the flowers, which are a source of admiration when seen in our public parks and gardens.

Herbaceous and alpine plants are also largely grown, while from thirty to forty acres are devoted to fruit trees, Roses, and hardy shrubs and trees, all of which are in the best condition.

J. W.

NOTES AND QUESTIONS.—STOVE.

Cytisus Andreanus under glass.—Being so distinct from any other member of the Broom family, this *Cytisus* rapidly became popular, and it is now very generally met with, particularly as a shrub in the open ground, while for flowering under glass it is also of considerable value. It is not seen at its best when forced to any great extent, but rather when just assisted with a little heat, so that it commences to flower towards the end of March. Most of the plants sent out from nurseries are grafted on the Laburnum, and as a rule they make rapid progress thereon, but they have a most unsatisfactory knack of dying off at times quite suddenly. Plants struck from cuttings are much preferable to grafted ones, while a good percentage of seedlings comes true. Cuttings do not as a rule strike root very readily, but they are well worth a little extra trouble.—T.

Solandra grandiflora.—The blossoms of this being somewhat variable in colour, the question is suggested whether there are not other points of difference. Mr. Bolas flowers it well in a comparatively small state, and though treating it in the same way I have never succeeded in inducing it to bloom satisfactorily, while, on the other hand, when allowed to cover considerable roof space, as at Kew, it flowered freely. My plant was grown in a tub, hence the water supply could be readily diminished and the wood thoroughly ripened. The shoots covered the sunny portion of the roof of a large greenhouse. After flowering the plants were cut back hard, but soon made vigorous growth. It is a subject for which there is so little demand that it is kept in stock by few dealers, though if required a quantity could soon be obtained, as it strikes freely from cuttings.—H. P.

Arum Lilies.—"M. T." is scarcely fair in quoting my remarks, or, at least, partly quoted them. I wrote one to three were grown in each

8-inch pot "according to size," and surely no gardener needs reminding that a pot containing three plants would only contain the smallest plants of the batch, many barely of flowering size, but yet retained, and grown in threes to economise space, and because of their worth another year. So far as flowering is concerned, these plants always yield the greatest number of blooms when accorded the utmost liberality of treatment. Indeed, so long as fresh growth can be maintained without check, so long they continue to flower. As pointed out by "J. C.," *Byfleet*, page 256, it is scarcely possible to err in point of liberality of culture when the plants are grown in pots continuously. It is quite clear, however, from the abundant testimony given by gardeners of the highest standing in all parts of the country, that the permanent pot system is not only much in vogue, but thoroughly appreciated, and where special care is taken to treat the plants liberally, no one need fear the result. Under the pot system there is no fear of the plants being overtaken by early frosts which I have known to ensue when planted out and not lifted in time. growth, the result of planting out, created the This little delay, combined with an over-exuberant necessity of several weeks' hard forcing to get the plants into flower for the Christmas decoration, by which time quite the best half of the crop may be gathered where the plants are grown in pots.—E. J.

KITCHEN GARDEN.

AUTUMN-SOWN CAULIFLOWERS.

REPLYING to "S. M.'s" query (p. 236) as to my experience with Early London Cauliflower this year, I may say that I still find it a necessary and most useful variety for filling the short gap between Dwarf Erfurt Mammoth and Walcheren, and I continue to plant it for that purpose. As regards bolting, I have not been troubled with this for several years, and the explanation I have to give of my immunity is that I have of late years adopted the plan of sowing late, generally the first week in September, and planting out early in March. Up to the present time I have only seen one buttoned plant out of several hundreds, and that was one of the Dwarf Erfurt Mammoth. All my stock has been planted out for about a fortnight, and during that period we have had many cold nights; 12° of frost have been the minimum, but this has been approached very nearly on several occasions. This, however, has affected the plants but slightly, and the younger leaves not at all. I believe it to be a fact that Cauliflower plants are generally too much coddled and kept in the frames too long, or until they get so big that they must bolt. The few degrees of frost that it takes to spoil the curd when it has formed have given rise to the fallacy that the plant itself is very tender, so that the young plants are generally put under glass a month too soon and kept there a month too late. Though very little top growth is made during the first few weeks after planting, except when the spring is very mild, the roots are active and preparing themselves for the work they will have to do later on in the way of building up the plant, so that when the weather becomes mild, growth is very rapid. To ensure the roots being down out of reach of what frost we get, I plant deeply. Last autumn I raised a goodly number of Eclipse. The plants promise well, though it is too early to say what they will ultimately produce, and it is my first trial of the variety for autumn sowing. It should follow those above mentioned, and my aim is to get rid of the necessity for spring sowing under glass, the accommodation of this sort being so much congested during the spring months that any relief of the kind will be welcome. I hope to report results later in the year.—J. C. T.

—"S. M." has had to bewail the loss of many of his Early London Cauliflowers from bolting, a common fault with this early kind when raised

in the autumn. It was this bolting which led me to abandon the sowing of Early London at that time and to substitute Walcheren in its stead. The latter is almost, if not quite, as early, and it is but seldom that any of the plants bolt. I sow at the latter end of August, and the young plants when ready are pricked out and wintered in a cold frame. The plants are rather forwarder than usual for the time of year, and have been planted under the shelter of handlights in advance of the usual date. In my opinion spring-sown plants are not to be compared with those raised in the autumn for earliness, neither do they give such fine heads—at least such is my experience. I always sow a good sized box with seed of Walcheren the latter end of January. This is raised in a cold house; consequently the plants come dwarf and sturdy. The latter are pricked out when ready in a frame, and when planted out form a good succession to the autumn-raised plants. The batch to succeed them will be from seed sown out-doors early in March.—A. W.

DISEASE IN BORECOLES.

THE allusion to the failure of Borecoles from the attack of disease mentioned by "G. W." (p. 236) furnishes information that is not very desirable. Is not this disease brought about by some local influence? I cannot help thinking there must be some condition in the soil to account for disease in so hardy a subject. Like "G. W.," I find late plants too small to be profitable, and it is not advisable to be very early, because in moderately rich land they grow large and succulent by the winter, and are then liable to injury from severe weather. Borecoles may be grown on the same ground two or three seasons in succession if there is a little manure dug in at the clearance of one and previous to planting another. Salt I have found a good dressing for these Brassicas—not put on in quantity, but lightly sprinkled over the ground at planting time and again later on when they are established. I have had even stronger plants the third year than the first by such treatment. This, I am aware, would be accepted by many gardeners as bad practice, but in the case mentioned there was no choice in the matter, and the results certainly were such as I had not expected. It proves that in the growth of some vegetables, at any rate, there is not the need for the keen desire for a change of site so often advocated and practised by most good gardeners. I am a great advocate for the employment of burnt refuse and wood ashes in the vegetable and fruit garden, and never miss an opportunity of burning up accumulated refuse, of which there is always a considerable quantity in all large gardens. I usually make an effort to apply the ashes to the ground while it is yet dry, either before or after it has been roughly turned up. The soil and crop that follows then get the full benefit of the application. It would be interesting to know if other readers have had disease in their Borecoles.—W. S., *Wills*.

—It is unfortunate that the endeavour to solve the mystery in connection with the disease affecting certain types of Kale has not been successful. Personally it is a question of the curled *versus* smooth types, the former always coming through successfully, the latter succumbing in a sudden and mysterious manner just when the quarter was looking its best. I refer to the smooth types in a past tense because, having tried them for several years always with the same result, they have not been grown lately, the most reliable sorts that have not as yet taken the disease being a good form of Dwarf Curled, Reid's Hearting, and Cottager's. The failure of Asparagus Kale and its various forms is to be regretted, because where it does well it is at once about the latest and the most delicately flavoured of Borecoles. That all forms of the comparatively smooth types are not affected is noticeable in the case of the Thousand-headed Kale, of which magnificent breadths many acres in extent are to be found in adjoining fields. I have never

grown this in the garden or tried it as a vegetable. Failing garden forms, it should be worth a trial. Personally, at this season I would waive anything in the shape of Kales in favour of a dish of Turnip-tops, of which Red Globe and Chirk Castle are just now furnishing abundant pickings.—E. B. C.

NOTES AND QUESTIONS.—KITCHEN.

Variegated Kales.—I notice in a recent issue "S. M.'s" letter on variegated Kales. No one would use them for food in preference to the old Scotch form, but I consider every gardener ought to grow them, and in a sheltered place for winter table garnishing they are the most attractive form of ornament for dishes I know of, and make the table very bright at the dullest season of the year, the small sprouts after the head has been removed being very effective. I am surprised how few gardeners grow them for this purpose.—H. D. KELMER, *Colchester*.

Cucumbers.—It seems a pity that more care is not taken with Cucumber seed to send out something that one has a chance to get up, and this year's experience is worse than usual. I purchased a couple of half-crown packets this year of a variety—this has now been some years before the public—and received a dozen seeds in each, twenty-four in all. A careful inspection led to the inference that a good return was not to be expected, and this was emphatically the case, four seeds germinating from the one packet and eight from the other. Twelve plants for 5s. of a comparatively old variety seem rather expensive. The Cucumber harvest in 1897 from a seed-saving standpoint was, I take it, hardly a success.—E. B. C.

GARDEN FLORA.

PLATE 1164.

HIBISCUS CAMERONI.

(WITH A COLOURED PLATE.*)

SEVERAL large bushes of this handsome subtropical shrub were attractive last summer and autumn in the Mexican house at Kew, where, planted in a border, they grew to a height of about 6 feet and fully as wide, and flowered freely. The species is not unlike *H. Rosasinensis*. It was introduced from Madagascar by a missionary, who sent seeds in 1837 to Mr. Cameron, the curator of the Birmingham Botanic Garden, after whom it was named. There are several varieties of it, having yellowish, rose, or red flowers. The Kew plants came from the Botanic Garden, Edinburgh, a few years ago.

There is some doubt as to the plant here figured being the true *H. Cameroni*. I am inclined to believe that it is rather the hybrid between that species and *H. Rosa-sinensis* (*fulgens*), a figure of which was published by Dr. Lindley in his "Botanical Register," xxx., t. 28 (1844), under the name of *H. Cameroni fulgens*. He describes it as a fine plant, of which he received a specimen in August, 1843, from Messrs. Rollisson, of Tooting, who stated that it was a hybrid between these two species. The flowers are of the same colour as that here shown, whereas *H. Cameroni*, type, has buff-coloured flowers with fine deep crimson spots in the eye. The Kew plant is a first-rate shrub for an intermediate house or stove, growing from a cutting into a big bush in a few months, and flowering profusely. It is most elegant when the branches bearing several flowers are cut and placed in a vase. Good seeds have

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by J. L. Goffart.



HIBISCUS

been obtained at Kew by crossing this with *H. Manihot*, the large yellow-flowered species recently figured in *THE GARDEN*. W. W.

THE WEEK'S WORK.

KITCHEN GARDEN.

CUCUMBERS.—For supplies during the early summer it is well to sow at this date, as with a liberal amount of sun-heat there is less need of fire-heat. Many years ago excellent produce was grown in frames heated with manure only. Of course, such culture needs more attention. At this season it is well to sow in pots, two seeds in a pot, thinning to the stronger when a couple of inches high. Many sow several seeds in a pot or pan and then pot up, but this checks the plants. For present sowing a good strain of *Telegraph* is difficult to beat for private use—that is, cutting from the plants and using quickly, but for quantity, *Rochford's Market Favourite* is specially good. This is most prolific and remains good after cutting longer than other varieties. Previous to planting out, if in pots, the soil should be got into position some time previous to get thoroughly warmed, as it is important that the plants do not get chilled at the start. Few vegetables are more sensitive to cold in the earlier stages than Cucumbers. A light compost is needed. Many advise a liberal addition of leaf-soil, but I do not, as it is too poor when the plants attain size and does not promote a sturdy growth. I find spent Mushroom manure valuable for mixing with the soil. It lightens it, but feeds also, and is cooler for the roots than leaf-mould, unless the latter is thoroughly decayed. Many people plant too closely. It would not matter so much if every other plant was taken out as growth increases, but this is not done, with the result that there is a tangled mass of foliage. For regular supplies not less than 3 feet should be given if the plants are to fruit for some time. For a quick crop this would not apply; many give even more space than 3 feet. It is not necessary to give all the soil at the start, much better give say half a bushel to each plant, and by regular top-dressings fortnightly keep up a vigorous root action. If the soil is heavy or poor, bone-meal is a splendid addition, and to lighten the soil, such aids as wood ashes or fine mortar rubble cannot be surpassed. When manure is used as the heating agency, it should be placed in position some two or three weeks in advance of planting, making it solid to retain warmth and to allow rank steam to escape before planting. The soil, when in position, should be within 1 foot of the glass. With frame culture less moisture is needed at the roots. Shade from bright sun and cover the glass at night to retain warmth, airing sparingly for a short time only at mid-day.

FRUITING PLANTS.—In the case of these, top-dressing should be done at least fortnightly, the success depending upon the regular dressings rather than giving large quantities at one time. The material advised for plants earlier will hold good now, but with plants given ample space a little heavier soil may with advantage be used. Do not omit such aids as bone-meal, and I have used fish manure to advantage. In giving moisture, liquid manure can be given to plants in full bearing twice a week, and to keep up regular supplies crop the plants evenly, not allowing too great a quantity of fruit at one time. Regulate the growths, as unless this is done once a week at the least they get too advanced. Stopping will be needed oftener, and pay particular attention to wood that has fruited, cutting it out whenever possible and laying in young growths. A liberal temperature should be maintained. I give little air, relying on copious supplies of atmospheric moisture. Grown thus there is no scorching and no trouble with insect pests.

EARLY TOMATOES.—The early fruiting plants are now nicely set with fruits and promise well. On the whole we have had a difficult season and the

fruits are later than usual. Many, I am aware, object to sowing in the early autumn for spring fruits, but so far after many trials I find it the best way to secure early fruits. These plants may now be given plentiful supplies of food; being in pots (10-inch) and a mass of roots, they have now sufficient fruit, and may be given liquid manure or other fertilisers. For succession crops I am running up a new shoot from the base, and these growths take the place of the older ones when the early fruits are cleared. Plants raised at the end of the year will now be strong enough to be placed in their fruiting pots. For early crops, pots will be found preferable to planting out, as though the latter will give a heavier weight of fruit, earliness is essential. I have found it a good plan to set out a number of plants if space can be afforded, as these give a succession to the pot plants. Avoid rich soil at the start. It is far better to feed when in fruit than get gross plants and few fruits. In potting, make the soil as firm as possible and grow the plants near the glass.

MAIN-CROP TOMATOES.—Now is a good time to sow for what is termed the main crop. I am not in favour of early sowing, as if the plants are left too long in the pots they become starved and bare at the base. For main-crop supplies growers will have their own special kinds. Last summer from July to October I found *Duke of York* the heaviest cropper. A few fruits came rather large, but these were only the early ones. *Ham Green* is still a favourite with me for crop, quality, and colour, and, though it may now be classed as old, it is one of the most reliable. Conference as a medium-sized fruit is difficult to beat, and few are so prolific. Yellow Tomatoes do not find much favour, but for home use they are worth growing, as they have a distinct flavour, and for salads are specially good. *Golden Queen* and *Blenheim Orange* are good types of the yellow-fruited kinds. For open-air culture, seedlings raised now and potted on as required into 6-inch pots will by the end of May be of a nice size for planting out. Before placing in the open harden off well; cold frames are best, with free exposure on all favourable occasions. Grown thus, the plants will be studded with fruits at the base, and these will furnish an early supply.

CELERY.—The early plants sown in heat will now be ready to prick off into boxes or frames. I prefer the latter, as more air can be given. In the case of seedling Celery plants a rich light soil is beneficial. Now is a good time to sow the main crop, and much the same routine is needed as advised for pricking off. A little warmth at the start will assist the seed to germinate more freely. There are some really fine Celeries to select from. *Solid White*, *White Gem*, and *Superb White* are good main-crop white varieties, whilst *Early Rose*, *Major Clark's Red*, and *Standard-bearer* are good red kinds. *Standard-bearer* is the best keeping Celery I have grown. By sowing in a cold frame, covering the glass at night to retain warmth, and keeping the frame close, the seeds will soon come through, and growth will be strong and sturdy. For early Celery the trenches may now be prepared. My early Celery usually follows a winter green crop, such as *Brussels Sprouts*.

PLANTING AND SOWING ASPARAGUS.—I am an advocate for early sowing, as by so doing a longer season of growth is secured. Asparagus is often sown too thickly, as it rarely happens the seeds are poor if obtained from a good source. The land is in splendid condition for the work, as it breaks up finely. There should be no delay in planting or sowing, as though planting is advised later—in fact, up to the end of June—I am not in favour of the work being done then. Avoid crowding the rows; a space of 18 inches between is none too much in the seed bed. By dropping the seeds at intervals the seedlings can be more readily thinned than when the seeds are sown all along the row. Planting should be done quickly. Make the space large enough for each root, and avoid deep planting if the roots are mulched after planting. Two inches of soil over the crowns will suffice, or 3 inches when no mulch is given.

In dry weather newly-planted roots suffer if not mulched or watered. One good watering, afterwards mulching with short litter or spent manure, will keep the roots in a growing state and promote new root growth, after which there is no fear of loss.

MUSHROOMS.—I find there is always a demand for Mushrooms in the early part of the summer. Now is a good time to provide for the supply during the early summer months. Another bed may be made in the house if there is no artificial heat. The bed should occupy the floor or coolest part of the house, and to be a success should be spawned at an early date, the house kept as moist as possible, and, if the roof is much exposed, covered with mats or tarpaulin to exclude the bright sunshine. A bed may with advantage be made in a shady corner, or, what is better, a cool shed. For years I used a rather deep disused stoke-hole, and it never failed me with a supply at the season named. Beds made in the open in ridge form and covered with a good depth of litter will do much better than those in a warm house. In some gardens there are cool cellars or underground places where this crop may be grown. From May to October it is next to impossible to grow Mushrooms in a heated, dry house. In spawning open-air beds it is well not to let the heat decline too much. S. M.

FRUITS UNDER GLASS.

PINES.—The plants of the earliest stock for fruiting should now be pushing up their fruits with some variation no doubt, and if so, all the better. As the flowers commence to unfold, guard against wetting them in the use of the syringe, and also be careful not to water the plants too freely at the roots. The practice of syringing between the plants is to be commended, but in doing it and in watering see that every care is taken not to allow any more water than possible to run down to the axils of the leaves, as this oftentimes encourages the suckers to push away too strongly. When the suckers get too much in advance of the fruit it is exhausting to the plant, and the swelling of the fruit is impeded thereby. If more than one, or at most two suckers are seen to be pushing up they should be removed, *i.e.*, the crowns should be, as to pull these small suckers out completely means the breaking down of the leaf-growth. If crickets, beetles, or cockroaches are troublesome, use every possible means to keep these pests in check by the use of beetle poison, and by placing jam-pots about and between the plants plunged to the rim and with a covering of treacle at the bottom to induce them to enter. Look to the bottom-heat now, keeping it at from 80° to 85°. The temperature of the house or pit may now be maintained at from 70° to 72° at night, and at from 80° to 90° by day, or even 95° at closing time when it is bright and sunny. Do not for the present encourage the next fruiting plants of such as the *Cayennes* or other autumn or winter-fruiting kinds too much, otherwise they may show too soon. With the younger stock it is of course different. These may be encouraged without any apprehension of their fruiting before their time. If the variegated Pine-apple be grown, it will of course be for its fine-foliage effect; nevertheless, it thrives best with the others, the better plan being to suspend the plants whilst still small, so as to colour them well and to preserve their leaves intact.

MELONS.—The first early crop with me is just showing the first fruits. I shall hesitate, however, to allow these to remain, although the plants for this season of the year are thriving remarkably well. There is not a corresponding gain in leaving these fruits; those which show a few joints further on will be productive of better results, as the plants must of necessity increase in vigour during the interval. The plants in inverted Seakale pots are making excellent progress, the bottom-heat around them being 80° to 85° on the average. In keeping to the single cordon system at this season I prefer to pinch out any laterals below the first wire. The plants in the second

house are now growing away kindly, this lot being planted out on a ridge. These, I imagine, will give ripe fruits about the end of May. Another lot of seed may now be sown, and this time I would advise a trial to be given of any new variety which may have commended itself. It is just as well to let any novelty have as fair a trial as possible, and seedlings now raised will yield a fair crop at a time when all is in their favour for perfect development. Do not, however, expect any very marked advance, as the best of well-proven kinds are now hard to beat. There is, however, the possible chance of improved constitution, or shall I rather say a constitution congenial to the surroundings, for it is not every kind that will thrive well in every place. As the plants now raised will come on quickly, a forecast should be made as to securing the spot for planting out as soon as the plants are well rooted (not pot-bound) in at the most 6-inch pots. Some may be disposed to give a trial to Queen Anne's Pocket Melon if they can get it true, which I should like to do myself. It is a novelty, looking extremely pretty on the dessert table. Note, however, that it is a weakly grower and does not need much space. With all Melon crops now keep a sharp look-out for red spider and whilst the pipes are still hot.

FIGS IN POTS.—The first crop (an extra early one) has in my case been all cleared off, and the second is now ripening fast. With the pipes still on the hot side, a sharp watch has to be kept for red spider, and the syringe is used on every possible occasion where there are no fruits ripening. As a succession to such as St. John's and Pingo de Mel, the well-proven Brown Turkey will now be coming on towards the ripening stage. This Fig on the whole is more satisfactory in a limited border than under pot culture; it is, on the other hand, the reverse with the two first kinds named. These, if planted out, would, I fear, grow far too vigorously to be fruitful. I shall pot the earliest lot in a few weeks' time, so as to let them have plenty of time to re-establish themselves before the autumn sets in. Those now ripening are kept at 70° at night, rising to 85° and 90° during the day. Warmth most assuredly imparts flavour to the Fig. In treating those planted out, guard against too much over-crowding of the wood. It seems hard to cut out shoots, but in the end it will pay. Some of the shoots may possibly be dispensed with after the first crop has been taken, such shoots having already been stopped short with that object in view. Later plants need not be pushed on too fast unless any lack of fruit is anticipated. In any case do not attempt to force the growth too much at an early stage. The latest varieties should soon be on the move, where such, for instance, as Negro Largo is the chief variety, than which there is not a better late Fig, all things considered. The last crop of all can be managed better if in pots when the autumn nights grow cool; these need not be started yet for a few weeks, and then only in cold frames. Those who do not always succeed with early eyes will do well to put in some more now, growing them on without any great amount of heat, not attempting to force the growth too much the first season. Eyes now growing must not receive a check.

COOL ORCHARD HOUSE TREES IN POTS.—The weather during the week just ended (March 26) has been most unpropitious as regards the more advanced of the fruit trees outside. I have already stated my method for the protection of the bloom on wall trees, and even now do not fear the results. It may not be so in every case, however, as localities vary in the influence on the fruit crops. Such springs as the present, with keen wintry weather late in March, will make many fruit growers long for a well-appointed cool orchard house. Having had some experience of the advantages to be gained by such, I have no hesitation in supporting orchard house culture. Not only is the practical gain apparent now, but it is equally so in the autumn, when the fruit is ripening. When we experience a wet period in September the outside fruit is often injured, more particularly if wasps are troublesome. Not so

with that under glass, for there it is perfectly safe against both of these evils. Plums in particular with me have amply repaid for the protection of a cool house. Let the connoisseur of a first-class highly-flavoured Plum but try such as the Golden Transparent Gage, Late Transparent Gage, Coe's Golden Drop, Kirke's, Reine Claude de Bavay and Ickworth Impératrice when taken from either pot or planted-out trees under glass, and he will be convinced of their superiority. It might be noted here that the Transparent Gages, through being such vigorous growers, are well adapted for pot culture, as this method checks the growth and makes them more fertile. The latest of the Peaches also, which oftentimes do not ripen well outside, are well worth a place in the cool orchard house—such, for instance, as Sea Eagle, Golden Eagle and Exquisite of Peaches, and Albert Victor, Humboldt and Victoria among Nectarines. Pears, too, produce good crops, the fruits on the whole being brighter and clearer in the skin. The secret of the whole matter often lies in watering, but anyone who really knows how to water a plant can soon master this point. HORTUS.

ORCHARD AND FRUIT GARDEN.

THE APPLE SUPPLY OF THE FUTURE.

It is well to ask whether there is being made in England that provision for meeting the future demand for fruit—and Apples in particular—that is certain to come. How little evidence do we see displayed in any direction of a desire to make ample provision. What is done in private gardens is of no avail in the great requirement, whilst in market gardens where planting on a huge scale might be looked for, there seems to be no more than enough to replace old or exhausted orchards or fruit breadths with new, so that in the matter of enhancing the range of supply very little is being done. Of course, I refer to those popular hardy fruits grown in the open on which the mass of the consumers has to rely. Fruit grown under glass, although that has during the past twenty years developed enormously, still is inore a product for the well-to-do than for the million. But this form of culture, whilst so greatly expanding, yet hardly suffices to meet ordinary requirements, and yet it has gone ahead marvellously as compared with what is seen outside. Far too much the aim of hardy fruit growers has been to grow varieties naturally productive, the fruit of which can be marketed from the trees, thus giving least trouble. Generally when early Apples, for instance, are plentiful the market is glutted with fruit. There is little room to complain of the supply then, with the exception that when it is so there is too much crowding of the supplies on to a few chief markets, and not with them satisfactory distribution. But it is when the winter really sets in that the need for a better supply and of superior quality, even in abundant seasons, is felt. Apples then are too dear for the mass of the people to purchase, and the quality is not always tempting. Even in the case of Plums we still crowd into the market one or two varieties that have popular appellations, leading again to great gluts.

If we seek for suitable sites for fruit tree planting, they can be found by the million of acres. At present our Apple supply is far too largely dependent on standard trees that require or get little cultivation. The produce of these bears no comparison to the very fine fruits obtained from bushes. Indeed, these latter fruits indicate what is needed to satisfy market demands, but do not in any way represent existing market supplies. We want something

of that remarkable skill seen in the production of Grapes and stone fruits under glass carried into Apple production outdoors. In this case we see quantity and quality of the highest produced in enormous abundance from limited areas on a sort of high pressure system, that all the same pays over and over, and has made Grapes at least comparatively accessible to all persons of moderate means. Apple tree planting to furnish absolutely satisfactory results demands a liberal outlay on spade labour in breaking up the ground far more deeply than is usually the case for standard trees; on a huge stock of bush trees of the best keeping and cropping varieties, not necessarily many, planted in all directions from 8 feet to 10 feet apart, thus compelling early fruiting, and at the same time furnishing to each other some useful shelter. There must be, too, no lack of annual manure mulchings, or of the use during heavy cropping seasons of artificial manures. It is in this way only that the finest of fruit in exceeding quantity can be obtained. Cool roomy stores and packing sheds are needful also, for the great aim of the growers should be to put on to the market the finest samples after the ordinary early and midseason stocks are exhausted.

A. D.

APPLE YORKSHIRE BEAUTY.

This Apple, like Worcester Pearmain, owes its high position as a leading market variety more to outward appearances than to any special merit as regards flavour. Although not nearly so deeply coloured as the variety just quoted, Yorkshire Beauty is withal a very handsome Apple. The colouring varies, much depending on the position of the garden or orchard in which the trees are grown, and also on the form of tree. A well-grown fruit should be of a clear lemon-yellow on the shady side, and a rich deep crimson on the side next the sun. The richest and most highly-coloured fruits are invariably produced by standards, those gathered from bush trees generally being paler, the lemon-yellow then predominating. They are, however, none the less handsome on that account, well-grown specimens being quite wax-like in appearance. Last year, owing to the unusual amount of sunshine experienced, the colour of this Apple was intensified to a degree I have never before witnessed, the crimson flush reaching quite to the stalk basin. In an ordinary season the exposed portion of the fruit invariably takes on a good colour. This fact, combined with size, weight, and good cropping qualities, constitutes it a first-class market Apple, and one which anyone may plant with confidence for profit.

Grown as a standard, it is not what may be termed a vigorous grower, but it may be relied on to crop regularly. A few dozen trees well laden with fruit are a sight not easily forgotten if viewed just at the time the fruits are approaching maturity. If grown as a bush on the Paradise stock the tree makes stronger growth, but is equally as prolific. Grown in this way the branches should be kept thin, so that sunlight may freely reach all parts of the tree. Care must also be exercised when pruning bush trees, as Yorkshire Beauty is one of those varieties of Apples which form fruit-buds on the tips of the young wood. These should therefore be left, to be shortened back after the fruiting season is past. As a market fruit it is in best condition for disposal from the beginning until the middle or end of October, according as the season is early or late. The flesh is then in a fresh, firm condition, and is not liable to become damaged if it has to be sent a long distance. If kept until thoroughly ripe the skin becomes tender, and will then show every mark unless the packing is exceedingly well done.

Yorkshire Beauty is known and grown under several different names, among which are Greenup's Pippin and Red Hawthornden, but the one given

at the heading of this note is the most popular one. For private gardens it is an excellent kind for cooking during October and November. If kept later than this the flavour deteriorates and becomes flat and insipid. One or more trees, according to the consumption of this fruit, should therefore be included by those wishing either to form a collection of Apples or to supplement the existing one next autumn.

A. W.

Apple Crofton Scarlet.—This richly flavoured Apple appears to be but little grown in gardens and orchards generally. It should find more favour, as the fruit is of the right size for dessert, and no matter how long it is kept it always has the same brisk flavour, is full of juice, and never mealy. There are few better kinds for keeping up to February or even March in a cool store, and it is probable that if good fruits carefully gathered were placed in barrels or boxes and these kept open for a few days and afterwards closed down, they would keep as long as any of the late dessert kinds. In the Somersetshire and Gloucestershire districts there are scores of old trees of it in orchards and cottage gardens, but I have seldom seen it well grown. The fruit is of a bright russet yellow, the side next the sun being bright red. The tree is of medium growth only, the habit being inclined to be drooping rather than erect when growing naturally. It makes a very nice standard, while it should be as suitable as any for espaliers. Anyone fond of a rich, sweet, yet pleasantly acid Apple late in the season would find this old Irish kind quite to his taste.—H. R.

Hardy fruits from seeds.—It is strange that Mr. Tallack should infer from my previous remarks that I wish to discourage the attempt to raise improved varieties of hardy fruits from seed. I emphatically expressed the opinion that everyone has the chance of raising something good, but that the percentage of good things obtained is so small that this method of increase cannot be relied on to supplant the usual way of furnishing gardens and orchards with profitable varieties. The variability of hardy fruits from seeds, to which I endeavoured to direct the attention of would-be raisers, is well illustrated by Mr. Tallack himself, who mentions the case of an experienced raiser of Strawberries who did not obtain more than one good variety from 10,000 seedlings. Mr. Tallack says stone fruits give much better results. Probably they do; but what is the percentage of good kinds that one may rely on? My opinion is that whilst trying to raise improved fruits we must realise the difficulties that stand in the way of doing so. Mr. Tallack says that I reserve my praise for those good fruits that have come by chance, but, as a fact, I did not praise, but simply mentioned them as instances of what may come even when seedling raising is not conducted on scientific lines. Those who go to work in a systematic manner will naturally have the best chance of success.—J. C. B.

Fruit prospects and protection.—I quite agree with Mr. Burrell's note under the above heading as to the early blossoming of Dr. Hogg Peach. With me there is a difference of six days between it and Alexander, and of three days in its favour when compared with Crimson Galande and Magdala. That fine Nectarine, Spenser, is quite as early in its blossoming as Alexander, which is rather remarkable, it being a late-ripening kind. Raymaeker on the same wall is almost as early in flower as the last-mentioned, and so is Alexandra Noblesse. Royal George is just coming into bloom, and though the fruit ripens much earlier than either Crimson Galande and Magdala, there is a week's difference in the blossoming. I have noted the same dissimilarity in the time of dowering of these varieties in former years, and Dr. Hogg is invariably the first to unfold its blossoms outdoors. Should fine weather prevail for the next few days, the majority of sorts will be in flower, when protection will have to be afforded nightly, and by day also, for the matter

of that, should occasion arise, as the weather early in April is often uncertain. Everything is in readiness for this to be done, the coping boards and poles for preventing the blinds from chafing against the trees having been placed in position some few weeks ago, so that nothing remains to be done but to hoist the frigi-domo blinds. This will no doubt have to be done before these lines appear, as, with a rising barometer and a cold north-east wind blowing, there appears to be a likelihood of frosty weather occurring. The trees look most promising, the fruit-buds and flowers being strong, well developed, and exceedingly plentiful. The same may be said of Pears, Plums, and Cherries, while Apricots have made a grand display during the past fortnight and have set a heavy crop of fruit. Since penning the above, frosty weather has set in, as much as 12° being registered on the morning of the 21st.—A. W.

ESPALIER APPLES AND PEARS.

The time-honoured plan of training these fruits on espaliers of greater or less height has obtained such a firm hold and is so popular, that one feels a little diffidence in saying anything against it, and yet there is not the least doubt that espalier-trained trees have in the past been largely overdone. There are many of our best Apples especially that show plainly that the constant pinching and pruning are not at all to their liking even when the trees are well managed. To be successful with espalier trees, a thorough knowledge of varieties and their characteristics is necessary, and not every gardener has the opportunity to attain this. The consequence is that trees are ordered promiscuously, or if good varieties are obtained their suitability for this form of training is not questioned, with the result that some few thrive, but many others do not. To judge of trees growing in nursery quarters is misleading, for many kinds—indeed, most—do well enough for a few years under this method that afterwards are a complete failure unless well looked after, and even then only a partial success. There are positions, of course, in small gardens where there is room for an espalier tree, but where a more free method of training would be out of the question; but in larger places their too lavish use is greatly to be deprecated from an economical and also an ornamental point of view. Long, straight lines of trees so tightly tied down and kept in check are certainly not particularly beautiful at any time, while in winter they are positively ugly. On the other hand, fine spreading pyramids or even large open bushes have a very beautiful effect when in flower or fruit, and are not unsightly in winter. An argument that will appeal to fruit growers much more strongly is that a great deal more and finer fruit can be obtained by this method with a minimum of trouble, and consequently expense. Indeed, when once the trees get into a free-bearing habit, their fruitfulness and free growth set up a proper balance or sympathy between root and branches that is always being broken by the unnatural pruning and pinching necessary with the other method. To cut trees of any kind hard back year after year, and thus cause strong, fruitless growth, and then fall back on root-pruning to remedy the evil, seems about as absurd a system as is well imaginable, yet it is what is being done year after year in scores of gardens. To a certain extent the same thing happens in the treatment of espalier trees, and though as long as they have room to extend the leaders fruit freely enough, the centre of the tree in far too many instances becomes a mass of growths, which, for all the likelihood there is of getting fruit from them, may as well be pruned with the garden shears as the knife. It may be said

that bush or pyramid, or even standard trees will get into just as bad a state if neglected. So they will, but the remedy in this case is far easier. Anyone with the least idea as to what is necessary may form a well-balanced tree of either kind of free training, but it is far more difficult to keep an espalier, say of Bramley's Seedling or some similar Apple, in order. So convinced am I of the futility of growing espalier trees where there is room for a more rational and natural mode of treatment, that I am doing away by degrees with all the espalier trees here. Where espaliers are necessary they will be planted with Currants, Gooseberries, and other small fruits easily replaced, but where there is room, Apples, Pears, and Plums will be given their liberty by planting trees and pruning only as much as is necessary to admit light and air to every part of the tree.

Besides the simple espalier there are other forms of training practised, such as standards with closely pruned, round heads, pyramids as regular in outline and as close as a specimen Fuchsia trained for exhibition; all these are equally bad and should be done away with. It does not follow that the trees need be taken out, for a few years of sensible training, or even a season or two of no training at all, will work wonders with them. In this garden, when I took charge of it three years ago, there were several standard Pears that every year were snipped back close. These have merely been left alone; no pruning beyond a little thinning of the branches the first year has been done, and although for many years they had produced nothing but a few cracked, undersized fruits, last season there was a nice sprinkling of good fruit on them all, and this year there is every appearance of their carrying a heavy crop. Where the varieties are really useless the trees may be cut back and grafts of better kinds put on, this soon resulting in a good head. Pears especially will often throw fruits so out of character on this class of tree as to be quite unrecognised even by those who know them well.

H. R.

Coldham Hall, Suffolk.

PEACH BUDS DROPPING.

BUD-DROPPING in Peaches and Nectarines has been frequently referred to this season, various reasons being assigned, though the solution of the failing does not seem to be easily determined, nor do I think it is likely to be. There must be more than one reason for bud-dropping, or why should trees in one garden give trouble, and in another, probably adjoining, be quite free from it? Dryness at the root is rightly accepted as a cause, and this not necessarily at the time when the buds are swelling, but weeks and, it may be, months previous. The importance of watering with the same regularity after the crop is cleared as during the earlier part of the season does not appear to be universally accepted as the correct course to follow, but those who neglect this, lose sight of the fact that after one crop is cleared the trees have to prepare and develop buds for the next year, and the better they are treated the greater are the chances of obtaining strong, healthy bearing wood and buds. Unless the buds are fully developed by the autumn, or at the fall of the leaf, they will undoubtedly fail at starting time. It is when the trees are being gently excited into growth, either naturally or by forcing, that the buds drop, and it is my belief that in many instances this bud-dropping comes from neglect at either root or branch during some period of the present or previous

year. Shortness of water at the root has a fatal influence on the future crop; so has an attack of red spider, particularly if this is allowed to remain even for a short time unchecked. The same may be said of scale, to which Peaches are very liable. Shade from overhead trees, too, has a similar effect on Peach buds. In this case proper ripening is at stake, and unripe bearing wood denotes undeveloped buds. I had unmistakable proof of the truth of this a few years since, the cause of which was some overhead Roses, which, left to grow unchecked, shaded the back wall, which was furnished with Peaches. The following spring, buds dropped so freely from these shaded branches, that a very poor crop resulted. A resolution was at once made that whatever prospects were held out by the Roses, they should not be allowed the freedom to which they had been accustomed. The results speak plainly, as no trouble as regards bud-dropping has occurred since. Vigorous root growth invariably results in the loss of buds in spring, and is only checked by careful root-pruning. The vigorous state of the trees causes badly ripened branches of the current or fruit-bearing wood. There is one other condition that is credited with the failure of buds to swell in early winter or spring, and that is the dull weather experienced in the autumn. This, again, resolves itself into the same explanation, namely, badly ripened wood. There are other causes, undoubtedly local and general, to which the dropping of the buds may be attributed, but there are three which certainly account for a great deal of the trouble complained of. These are badly ripened wood, starvation from inattention to watering and syringing, or it may be occasioned by over-luxuriance through injudicious feeding with stimulants, or by allowing the roots to go deeply into the border, causing rank growth.

In the case of very early-forced trees, there is a danger of the buds becoming over-matured through being developed so early, and so long before the trees are started into growth again. Much may be done in such instances by giving a light shade to the house—at any rate, during the hottest part of the day—and keeping the ventilators fully open, both roof and front, so that a coolness is maintained about the trees in the day and throughout the night. The shade given must not be heavy, or more harm than good may result. Usually it is the early American varieties that give the most trouble in regard to bud-dropping; the older sorts do not often cause much anxiety. The early sorts with me retain plenty of buds when started cool. I have trees of Waterloo and Alexander that were total failures in the early house, that now retain abundance of buds in cooler houses. Outdoor trees sometimes suffer from dryness at the root and absence of sunshine more than indoor trees. With a favourable season as regards sunshine, and the roots well attended to with water more or less frequently, there is generally not much cause for complaint on that score. W. S.

Wills.

NOTES AND QUESTIONS.—FRUIT.

Apple Lane's Prince Albert.—For years I have been trying different kinds of Apples in a cooked state to ascertain their value from a flavour point of view. After close observation I have come to the conclusion this Apple is over-praised very considerably as far as flavour is concerned. I admit it cooks well, but for flavour it is not equal to such kinds as Alfriston, Hanwell Souring, Blenheim and others. I have observed

those kinds that have very white flesh when cooked are not of the best flavour.—DORSET.

A good October Peach.—Peaches in October are not plentiful, and at that season one does not look for first-rate quality. The variety I find useful for late supplies is Golden Eagle. Though a yellow-fleshed Peach it is excellent for the latest supply. I am aware there are much later Peaches, but they are not very good. Golden Eagle is a free bearer. This is, I consider, one of the best of the yellow-fleshed Peaches, the fruit large, the skin a deep orange with a reddish tinge on the sunny side, flesh firm and briskly flavoured. It may be had good late in October. My trees are on a west wall and give a heavy return. It does grandly in a case or cool house where outdoor fruits cannot be grown.—S. H. B.

A good pot Fig.—After giving a good number of varieties a trial for pots, one of the best both as regards cropping and good flavour is Bourjassotte Grise or Grizzly Bourjassotte. It is not a large fruit compared to Negro Largo, but it makes up for size in the quantity produced. It has a peculiar chocolate colour when ripe and the flesh is bright red, the fruits being very juicy and richly flavoured. It is not an early variety. I prefer it in pots. Trees with me planted out are none too free. In pots it does grandly, the points of the last year's wood bristling with the embryo fruits. I noted this was one of the best fruits in the Royal Horticultural Society's Gardens at Chiswick a few years ago. Few Figs have the rich syrupy juice of this variety, and though late, it is a most excellent variety for general cultivation.—B. M.

Apple Gloria Mundi.—I think if my note on this variety (p. 197) is read again by Mr. Groom, he will find I did not advise anyone to plant it for market, as I stated many growers objected to this variety on account of its being a shy bearer. The note was written from my own experience, and here it crops fairly well. I was not writing from a market point of view, and may have, as Mr. Groom asserts, much to learn as to what varieties pay in the market. I mentioned that as a standard Lord Derby was much better, and said that Gloria Mundi was not unlike Lord Derby in shape and size. If Mr. Groom will read the last three lines of my note he will see I stated that for market culture doubtless Lord Derby is more profitable, and I do not think anyone will be misled by the illustration in question if he knows anything about Apples.—G. WYTHES.

Fig Nebian.—I have grown the above variety for late supplies and find it one of the best. I am aware it is difficult to beat Negro Largo for general cultivation, but Nebian differs from the one referred to, as it crops more freely and in my opinion is equal in quality, which is saying a great deal. I cannot advise anyone to grow it for early forcing. By early forcing, I mean to fruit in February, March, or April. For summer fruiting it is a delicious Fig. The fruits are above medium size—in fact, they may be termed large—and of delicious flavour, the flesh dark red. I first saw this Fig at the Royal Horticultural Society's Gardens, Chiswick, a few years ago, and was much impressed with its good qualities as a pot variety. It is a free grower and is a splendid variety to give autumn supplies if grown in pots for that purpose. It is an excellent plan to keep the trees in the open during the winter and spring and grow in a cool house. Grown thus, this gives fruit when Figs are scarce.—S. H. B.

Apple Gravenstein.—I fear M. L. Spath (p. 197) did not read the notes on this Apple which appeared previous to mine, as there a correspondent stated he hoped it would be staged for the flavour prizes in February or later. My note was sent to show that the variety in question was not in season at the time named. At any rate, I am unable to keep good fruits after November comes in. I had no wish to depreciate this variety in its proper season; in fact, I like it. My contention is that it is at its best as an early Apple. I have no knowledge of its keeping on the Con-

tinental, and I certainly would not place it equal to Cox's Orange or Ribston Pippin. Herr L. Spath will see that some of our leading fruit growers class it as a cooking variety. I did not say it was such, and possibly it may be greatly superior in its native soil. Mr. Groom writes in its favour (p. 206), but so far as I have seen no one has done otherwise. "D." at page 54, only takes exception to the season. "H. R. H." advises it to be shown in November, and states it is at its best then, but I would say earlier. The fruits with me colour grandly, and I find it a valuable dessert Apple from September to November.—B. M.

Green-fly on Peach trees.—I have a Peach house with two trees in it, one a Nectarine (Violette Hâtive), the other a Peach (Noblesse). The Nectarine has just set its fruit, the Peach not quite. On looking at the trees I find an odd green fly on them. When the fruits are thoroughly set, would it be safe to fumigate the trees?—DURIAM.

* * * You may fumigate when the fruits are the size of small nuts. We have seen fruits drop badly by fumigating just as the flowers set, and in the case of Vines it is equally injurious. Of course much depends upon fumigating as to the size of house and strength of materials used. XL All cannot be beaten. It is a grand invention. Why not use the syringe freely, and then fumigate when the fruits are growing freely. You see so much depends upon the way the work is done with fruits at such a tender stage. You must avoid strong measures; far better fumigate several nights in succession. We find a free use of the syringe with young, tender fruits usually effective. Failing this, with trees in bloom you may dust the affected portion with tobacco powder. Keep your trees moist and the fly will not make much progress.—Ed.

ORCHIDS.

ORCHID POTTING.

A GREAT many Orchids require repotting just now, and although it is impossible to touch on all these without a good deal of repetition, a few lines on the general procedure may prove of interest to beginners. It is necessary in potting Orchids to get away entirely from the method followed in potting ordinary greenhouse plants. The reason is that in the majority of instances the compost is more in the nature of a mechanical support than a manurial one. Not but that Orchids doubtless derive some little sustenance from the various materials used, but this is principally in the way of moisture, and could this element be continuously provided there is no doubt that many of our best-known species would thrive for an indefinite time on bare blocks of wood, provided also that the roots had a good hold. A medium, then, that the roots can enter freely, and which at the same time holds sufficient moisture in suspension, is wanted. The nature of the roots prevents their entering a close mass of earth, so it is necessary to use something to keep the more earthy particles of the compost apart. Thus we see the advantage of using the oft-recommended broken crocks or charcoal in the compost for all epiphytal kinds. This point understood, the varying types of root have to be considered, for all Orchids have not the same class of root, though there is doubtless a kind of family likeness running through them all. To take a popular class, say Cattleyas. The roots of the majority of these are very easily damaged; in any case they are short-lived, but unless a good medium is presented to them the tips are lost at the outset and further progress is impossible. The rough surface left by using the peat in lumps and dibbling points of Sphagnum Moss about

the rim of the pot seem more to their liking than the trimly finished style of potting often practised and admirably suited for the smaller roots of *Odontoglossa*, many *Oncidium*s and the deciduous section of *Dendrobium*s. They ramble freely over and about the rough lumps of charcoal, ramifying in all directions, while in the case of the trim convex mound they too often run over the top to the rim of the pot and there meet with some accident. This is not always the case, of course, but it often happens. By the above method the plants are not quite so firmly fixed and stakes will be necessary. It is sometimes found difficult to get these firm, but if the drainage crocks are put in on their edges instead of flat they may usually be driven down between these and firmly held. Though very similar in appearance to those of *Cattleya*s, the roots of *Cymbidium*s are much stronger and longer lived. It is difficult, in fact, to say how long these roots do live under cultivation, for to pull them about as we do those of *Cattleya*s would mean the ruin of the plants. In their case, then, we must provide a very lasting compost, which at

roots do with a somewhat closer compost. By the same token the large roots generally like a large receptacle, and *vice versa*.

In all matters pertaining to Orchid potting cleanliness is very important, and with plants that come out of the old pots with a lot of sour old compost about them it is often advisable to wash every part thoroughly. It is only necessary in extreme cases, of course, but then it is productive of much good. Plants that have been several times top-dressed will often be found when turned out to have the upper tiers of roots in fairly good condition, while those below and the compost too are decayed. The more healthy parts may usually be replaced in the new pots, and the plants will not be so much checked as would be the case were they shaken out entirely. But in no case must any decayed part, either of root or compost, be allowed to remain, everything returned being sweet and clean. The drainage in all should be according to the habit of the species and well protected by a film of the rougher *Sphagnum*. A little extra care after potting is neces-

this direction. *P. grandiflora* may be grown in pots or baskets in clean *Sphagnum* and charcoal, thriving under the conditions advised for *P. amabilis*.

Lælia superbiens.—It is difficult to account for the vagaries of some Orchids, and the behaviour of a large plant of this species is a case in point. For five years it has flowered freely every season, and although this year the pseudo-bulbs were as strong and vigorous as usual, they have not produced a single spike, though other plants in the same house have bloomed well. The species will probably never be really popular owing to the amount of room required to grow it well, yet when seen in good condition it is a noble Orchid. The flowers occur in loose heads at the top of a long spike and are rosy red, all the segments rather narrow. It likes plenty of light and a temperature similar to that for *Cattleya*s. Being a very vigorous grower with stout roots, the pots must be large and the compost free and open. Give plenty of water while growing freely, but only enough to keep the pseudo-bulbs plump in winter. It is a native of Guatemala, and was introduced by the Horticultural Society in 1842.

Dendrobium spectabile.—This, although known for fifty years, has only recently been introduced to cultivation. It is a distinct and handsome species and grows in parts of New Guinea and the Solomon Islands. Several hundreds of plants are now being offered for sale, so that we may soon hear of plants flowering in many collections. *Dendrobium spectabile* belongs to the same group as *D. macrophyllum* and *D. atropurpureum*, but is larger and more handsome. According to Mr. Rolfe, in the *Orchid Review* it was described as a new genus by Blume in 1848, under the name of *Latourea spectabilis*, from a drawing made in New Guinea by M. Latour-Leschenault. Miquel transferred it to *Dendrobium*, and in 1890 Mr. Rolfe, overlooking the doubtful genus *Latourea*, described specimens from the Solomon Islands as *D. tigrinum*, which name, however, now falls to the ground in favour of *D. spectabile*. The pseudo-bulbs are each about a foot long, with four or five terminal leaves and erect racemes of about twenty to twenty-five flowers, the sepals and petals each $1\frac{1}{2}$ inches long. The colour is yellowish white, the sepals and petals being spotted, and the lip beautifully veined with reddish purple.—J. W.

Dendrobium Leechianum.—Though one of the older hybrids, this is still one of the most beautiful and free-flowering. It was raised from *D. aureum* and *D. nobile*, and thus according to strict nomenclature is a variety of *D. Ainsworthi*, but it is certainly distinct. The flowers are each about 4 inches in diameter, the segments white, tipped with purple, the lip having in addition a large feathered blotch of crimson. Well-flowered plants are extremely showy, and such are not difficult to obtain. Small bits grow to neat specimens in a very few seasons if properly treated. Like *D. nobile*, it requires pots of medium size, rather deep than wide, and a compost consisting of rough peat fibre and Moss, with a few lumps of charcoal over good drainage. All this section are greatly benefited by the presence of ammonia in the atmosphere, which, as has been often advised in these pages, is easily generated by sprinkling dry soot and lime about under the stages and in out-of-the-way corners of the house. In many places I have seen good results by keeping all the noble section in rather cooler quarters than that advised for the deciduous kinds, but in such it is necessary to ensure the thorough ripening of the stems by a long growing season and free exposure to light and air during late summer and autumn.

Oncidium luridum.—This is a very fine species when well grown and strong, but seldom met with in this condition; yet it is not a difficult plant to grow by any means in a suitable temperature. It has no pseudo-bulbs, but a large fleshy leaf, green, with spots of brown, is produced annually from each head. From the base of this the flower-spikes rise, and on strong plants



In the Rose garden at Mr. F. Spencer Charrington's. Engraved for THE GARDEN from a photograph by Mr. F. Mason-Good. (See p. 273.)

subsequent repottings will be added to, not replaced. It is in such cases that good fibrous loam is of great assistance to the Orchid grower, for unquestionably this lasts longer than peat under similar conditions. Hardly less sensitive to disturbance, yet not so well able to push through what may be termed a heavy compost, are the big fleshy roots of the *Vanda*s. Here we use Moss principally, as its decay leaves no earthy deposit as do peat and loam, and if properly kept apart by the addition of large rough lumps of pottery ballast and charcoal, does not become close or sour. The plants then may remain in the same pots or baskets until they grow out of them or the latter decay, a thin top-dressing annually keeping them in good order. In this way—although a good deal must be learnt by actual experience—amateurs may tell to a certain extent the class of compost an Orchid requires by an examination of the roots, and, without for the present giving any more examples, a safe guide is their size. The larger and more fleshy the roots the rougher should be the material allowed, while the finer

sary until the plants are again established. Watering must not be overdone, for it may be noted in passing that the new compost dries rapidly on the surface, and if kept always moist is apt to be too much for the young roots. But when these are getting well away, and growth above is active, newly-potted plants require a lot of moisture.

Phalænopsis grandiflora.—Excepting in the size of the flowers, this differs little, if any, from *P. amabilis*, for though it is said to have a different habit, it would, I think, be difficult always to pick out the one from the other when not in bloom. It is a most lovely Orchid and should be grown by all who have the convenience. The wire stands lately invented by a well-known grower should be of service to lovers of this class of Orchid, as it is well known that in some cases it is almost impossible to grow them well on the stages, no matter how close to the glass, while suspended they do better. This points at once to the fact that the more freely the air of the house plays about the roots, the better for the plants, and the invention indicated is a step in

these are upwards of a yard in height, containing many blooms. They are chestnut-brown in ground colour, with a narrow wavy margin of yellow to the sepals and petals, the column usually white—rather an uncommon feature in *Oncidiums*. *O. luridum* may be grown in well-drained pots in a compost consisting of one part peat to two of Sphagnum Moss, and plenty of hard material should be added to ensure aeration. Like many other West Indian plants, the foliage is better and longer-lived in a house kept fairly dry at mid-day and where the temperature rises high. Then damp down freely at night and growth will be rapid, yet firm and solid. While growing, a liberal water supply is necessary, but while at rest much less suffices, though the absence of pseudo-bulbs must not be lost sight of in this connection. *O. luridum* is widely distributed over the West Indian Islands and Central America, and has been in cultivation in this country since very early in the century.

BRASSAVOLA GLAUCA.

The pretty and fragrant blossoms of this Orchid should ensure it greater popularity. The habit is that of a small *Cattleya* or *Lelia*, the pseudo-bulbs springing from a creeping rhizome, and the flower-spikes appearing at the base of the leaf as in *Lelias*. These seldom produce more than one flower on each, this being about $4\frac{1}{2}$ inches across, the sepals and petals greenish, the beautiful spreading lip pure white with a faint pencilling or blotch of purple in the throat. A nicely-flowered specimen is not very often seen, but when this occurs it is very noticeable on account of the fragrance of the blossoms, which quite fills the house wherein it is grown. Many fail with this species owing to giving it too great a body of compost and a very hot, moist, and shady atmosphere. These are not the conditions which obtain in its native country, for it is purely epiphytal and grows in company with quite cool species. The plants thrive best in a compost of three parts Sphagnum Moss to one of peat fibre, only a rather thin surfacing of this being needed. Grow it in pans, and fill up to within an inch of the rim with clean crocks, trimming the compost off neatly. The best position is one close to the roof-glass in the lightest and coolest part of the *Cattleya* house or even with the Mexican *Lelias*. It may, in fact, be almost fully exposed without injury, this treatment making the plant hard and very much more likely to flower. It is quite useless to expect small weak bits to bloom; the plants must not only be well ripened, but they must have sufficient strength, or no flowers will be produced. Nor in most instances do they flower the first season after being disturbed at the roots, so it is safest to give the plants sufficient width in the pans to carry them over a few seasons, the thin compost allowing of this. Some cultivators choose rough blocks of wood for this Orchid, and they make an excellent holding for it if kept properly moist. Tree Fern stems are also suitable if they can be obtained. During the time growth is active, plenty of water is necessary—indeed, well-rooted plants can hardly have too much; but while at rest the supply must be greatly reduced and the plants kept quite cool. The most suitable time to repot is directly the flowers are past, the present being its usual flowering season. *B. glauca* is a native of Mexico and was sent home by one of the collectors for the Royal Horticultural Society in 1837. It is known also as *Lelia glauca*, its botanical structure somewhat resembling that of the *Lelias* and differing from the other *Brassavolas* with narrow segments and terete stems.

NOTES AND QUESTIONS.—ORCHIDS.

Epidendrum bicornutum.—A flower of this chaste Orchid comes for a name from a correspondent. It is a great pity it is not more easily cultivated, for few things are prettier in their way than the white flowers lightly dotted with

purple. It is useless trying to grow *E. bicornutum* in any but the warmest house, heat, moisture and air being necessary for its successful culture. For a few years after importing it flowers freely and well in any hot moist house, but after this a lot of care and attention is necessary. It is a native of Trinidad, and was introduced in 1834.

Oncidium lamelligerum.—A pretty effect in conservatories or flowering houses generally is obtained by arranging this class of Orchid when in flower with Palms or large Ferns. The flowers are far more beautiful this way than tied up to or around stakes stuck in the pot. They are each about 3 inches across, produced on long scendent scapes, the sepals and petals yellow, barred with brown, the lip bright purple. Rather large pots are needed to do it well, and a very rough open compost, the plants thriving in the cool house the whole year round. It is a native of Ecuador, and was introduced in 1877.

Phaius maculatus.—This is a useful and beautiful old species with very ornamental foliage and pretty yellow blossoms spotted with crimson. It is of very easy culture, thriving well in a rather shady part of the *Cattleya* or intermediate house. It is best grown in pots, these being thoroughly drained, and the compost may have a fair addition of good loam with the peat and Moss. Its season depends a good deal on the time it is started, and, if possible, a few plants should be brought on at a time to form a succession. It requires a very liberal water supply when growing, and light doses of liquid manure have been found to give good results.

Brassia verrucosa.—A nice form of this old species is now in flower, and although it cannot be described as showy, it is extremely distinct in colour and the spikes are very graceful. The sepals and petals are greenish, the lip white with several small blackish warts about the base. It is an easily cultivated plant, not fastidious as to temperature, and if properly attended to with regard to moisture it thrives in an ordinary plant stove or fernery. Shade is necessary during the summer months, the foliage being easily damaged by direct sunlight, though, on the other hand, the plants like a light position in winter.

Odontoglossum Edwardi.—The pretty branching spikes of this Orchid are now very attractive, more on account of their unusual and bright colour than their size. The flowers are individually among the smallest of the genus in fact, in colour a bright rosy purple. *O. Edwardi* is named after E. Klaboch, a collector who has in years gone by sent home a great many cool Orchids from Central America. It thrives under the coolest treatment with such as *O. crispum* and *O. Pescatorei*, and should be grown in medium-sized pots in a compost consisting of equal parts of peat fibre and Sphagnum. No dry rest is needed, the roots requiring careful watering the whole year round.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS WORTH GROWING.

G. W. CHILDS.—Although the blooms of this variety are small, and therefore of little use for exhibition, they are useful, because of their vivid crimson colour, for conservatory decoration. It is also among the best as a late variety. In fact, the colour keeps bright later in the season than that of any other dark red. It is of a dwarf, sturdy habit.

GEORGIANA PITCHER.—This is little known, but it is a first-rate variety. It bears large, full blooms of a distinctly well-formed type. The florets are long and have a tendency to curl towards a high-built centre. The growth is sturdy. Early buds may be retained. This is likely to make a valuable late yellow, the colour being clear, but not a deep tint.

GOOD GRACIOUS is esteemed by some for its peculiar shape. It has long, thick, rounded florets that twist in a manner quite its own;

colour bluish white. It will never be generally liked in this country, but a white sport from it appears to have been the most striking of all varieties at the late American shows.

HAIRY WONDER.—Sorts with hirsute florets appear to be but little cared for after the first novelty of their introduction is over, and this is really the only one that has stayed beyond a year or two. Personally I like it as a show sort, because the blooms come large, and its fluffy appearance adds variety to a stand. This is easily grown, the later buds giving the best blooms both in colour and form. A fair description of its shade would be bronzy brown.

INTERNATIONAL.—This is an exceptionally large flower and somewhat coarse. It is, however, often seen in good condition, its salmon-tinted rose being a distinct shade. It is dwarf in growth and essentially an exhibition kind. Early buds give the better formed blooms. They are then composed of drooping petals, otherwise incurving slightly and not particularly graceful.

JOHN NEVILLE is a fine new variety with a splendid sturdy growth; colour deep crimson. Early buds must be obtained. For that object the plant should be topped in early April. A good way of growing this is to strike cuttings in March, then to restrict the plants to one shoot and one bloom. As a general decorative kind it is of little value, late blooms coming single and indifferent specimens of that class.

JOHN SHIRIMPTON.—Among dark red Chrysanthemums for other than show blooms this variety is about the best. It is a dwarf grower, very free, with blossoms of medium size and nice shape.

JOSEPH BROOKS.—This is an English-raised sort of a pretty orange shade of colour. The florets have fine substance, the shape being slightly incurving. Its growth, too, is short and sturdy. Crown buds may be selected for large blooms.

JULIE SCARAMANGA has flowers of a bronzy terra-cotta shade and composed of a number of narrow florets. Its blooms come large and exceptionally deep in build. This English-raised variety is likely to be generally grown.

KENTISH WHITE is a useful kind for flowering during late October.

LADY ESTHER SMITH.—This is a dwarf-growing white variety also capital early in the autumn.

LADY BYRON is a charming Chrysanthemum; ivory white, large, full and deep in formation. Every bud opens a perfect flower, the early ones producing the larger specimens. Grown not disbudded it bears branches of blossom of the most chaste description. It is somewhat early as a show sort and does not last in perfection long, but for general culture too much cannot be said of it.

LADY HANHAM is a sport from Vivand Morel. It retains the matchless shape and size of the parent, whilst the shade of colour is most pleasing. Salmon-rose is a short description of this. For this as well as the type I prefer cuttings rooted in February, and buds that come about mid-August may be retained.

LADY RIDGWAY.—This gives blooms of splendid proportions for exhibition; the salmon-buff shade is quite distinct. The flower-buds are small, and one wonders that so large a bloom can spring from them. Probably the best mode of culture is to root the cuttings in February and secure crown buds.

LADY SAUNDERS.—This is grown well by only a few cultivators; not that it is difficult, but somehow only a limited number know the variety. It is really a beautifully finished flower, the florets drooping; colour soft primrose. It has a dwarf, sturdy habit and deserves to be widely grown.

LADY T. LAWRENCE is a first-rate late-flowering white variety.

L. CANNING is a late-flowering white of short growth, somewhat extensively grown for the supply of cut blooms for the markets.

LOUISE is a bluish-white of incurving form, with a dwarf habit of growth. This was popular for a time and is still useful as an early-flowering variety.

MME. AD. CHATENAY.—A pure white bloom of noble incurving form; quite the best of its type. It is dwarf and sturdy. Second crown buds may be retained, and little feeding is desirable, the roots being especially tender.

MME. CARNOT.—This is acknowledged to be the finest show Chrysanthemum yet raised. Most growers succeed with it. It should not be treated too liberally with manures, and the soil should be made porous. Nor would I use pots over 9 inches in diameter. Early-rooted plants may be topped in early April, three or four growths trained upwards, and the second-crown buds retained. Early buds seldom open properly. When in good condition, the florets droop in an archlike form, building up a bloom about 8 inches across and nearly as deep—a solid mass of glistening whiteness.

MME. EDMOND ROGER.—This is new, and will become popular on account of its novel colour. It is the most distinct of the green-tinted whites. The blooms are medium-sized, and incline to incurve; the habit very dwarf and sturdy.

MME. GUSTAVE HENRY is a very easy sort to grow, of a dwarf, sturdy nature. It is white. The florets incurve somewhat regularly, and the blooms are large and massive. In quality there are better white sorts; still, it is one likely to be esteemed for a few seasons. Second-crown buds produce the better blooms. H. S.

NOTES AND QUESTIONS.

Chrysanthemum Pink Mme. Carnot.—There is considerable excitement in certain Chrysanthemum circles because of the reputed discovery of a pink sport from Mme. Carnot. The great value of the white and yellow forms of this handsome flower only enhances the value of this sport if it is a fact that it does exist.—C. A. H.

Chrysanthemum Mychett White.—Of the many beautiful early-flowering Chrysanthemums recently introduced there are few to equal this variety. Planted in the open border last season alongside several others, also of the purest white, every visitor was struck with the neat and dwarf growth of this plant. The plants continued in bloom for a long time. The footstalk of the flower is just sufficiently stiff to keep it upright—an important feature in cut flowers. It is, therefore, to be regretted that the plant has been so seriously tried through over-propagation, that just now it is difficult to get stock sufficient to meet the demand made for it. The only course open to those who do not wish to impair a fairly good constitution is not to overdo the plant further, and to plant a good stock outdoors to be lifted directly after the flowering is over. In this way this desirable acquisition may be saved.—C. A. H.

Chrysanthemum Mrs. J. Ritson.—During the last year or two much has been heard of Vivand Morel and its sports, and during last season it was possible to exhibit in one collection of distinct varieties no less than three varieties of the same family, viz., Vivand Morel, Charles Davis and Lady Hanham. The variety under notice, there seems little doubt, is a white sport from the parent plant, and was obtained two years ago. White sports from Vivand Morel have often been mentioned, but apparently they were blooms resulting from an early bud selection, and which often develop blossoms of a dirty white colour, as upon a trial in the succeeding year and a late bud selection, flowers quite characteristic of the original both in colour and form have been the result. That the variety under notice is a distinct acquisition is proved by the fact that blooms exhibited at the great Edinburgh show in November last were awarded the silver medal for the best new Chrysanthemum not then in commerce.—C. A. H.

New French Chrysanthemums.—The French journal *Le Jardin* publishes a list of the new Chrysanthemums of 1898 which have received certificates or other acknowledgments from the different horticultural societies of France. Each

raiser's varieties are grouped together, so that one may see at a glance the numbers for which the different cultivators are responsible. M. Calvat, many of whose seedlings are so popular in this country, heads the list with thirty-eight varieties; after which comes M. de Reydellet with sixteen; M. Héraud, fourteen; M. Chantrier, thirteen; M. Nonin, eleven; M. Rozain, eleven; M. Scalarandis, eight; M. Morières, eight; and M. Bonnefous, five. Four other raisers have three varieties each, among them being M. Délaux, who at one time occupied a very prominent place among the raisers of new French Chrysanthemums. A couple of varieties each stand to the credit of two other exhibitors, while eight different persons are responsible for one each. From this it will be seen that, what with the varieties from other sources, particularly from America, Australia, and from this country, as well as the 148 certificated French kinds, there will be no lack of so-called new varieties during the coming season.—T.

FLOWER GARDEN.

TUFTED PANSIES—WHITE SORTS.

AFTER the spell of unpleasant weather such as we have recently experienced is over, the spring planting of these invaluable hardy plants will have to be carried out without delay. White Tufted Pansies always seem to be more in demand than the many other shades of colour in which these flowers are now obtainable, and a few remarks with reference to the best sorts may be welcome at this season. That there has been an advance in the white kinds within the last few years will be readily admitted, but, except to those who have closely followed the recent developments of these flowers, comparatively little is known of the list of excellent sorts which are now catalogued by the leading specialists. There is a difficulty, however, in inducing old growers of the Tufted Pansy to take kindly to the newer introductions, their partiality for the older sorts being most pronounced. Among the many excellent novelties there are those suited for almost every purpose. Pure white flowers on a nice dwarf habit of growth are *Blanche*, very large blossoms; *White Empress*, very similar in every respect to the first-named, and both possessing a robust constitution; *Niphotos*, sent out by some growers as *Marchioness*, a very refined flower; *Ethel Hancock*, of the purest white, the plant of capital habit, also free-flowering. Mrs. Scott is another variety and a most profuse blossoming plant; the flowers are of good size, but lack substance in the petals. Another new sort is *Mrs. J. Donnelly*, which may be described as a bluish-white flower. It is a free-flowering plant, and a batch of some thousands of this variety in full bloom at Tamworth last summer was very fine. Each of the foregoing sorts belongs to the rayless type of the flower. A neat little plant and one deserving notice is *Pencaitland*, sent out by Messrs. Dobbie and Co. two or three years since. This has a beautiful compact habit, flowers very freely, and has a rayed centre. There are several other good varieties which cannot be considered pure white, yet only a few shades removed, and are best described as creamy white. Of the dwarf, compact style of growth *Christiana* is perhaps one of the best. No one who values the Tufted Pansy should be without this variety. It is a free-flowering plant, being literally covered from spring until autumn with charming medium-sized blossoms, each of which has a rich orange blotch in the centre. *Sylvia* still retains its position as a good all-round sort. Countess of Hopetoun still does well in many

gardens, although I have seen many instances within the last two years where it has seriously deteriorated. The substance, too, of the flowers will not compare with that of many of the newer introductions. One variety in particular deserves special mention, and that is *Nellie*, sent out by Mr. J. Smellie about two years ago. Although not quite so compact and tufted as the foregoing sorts, it is invaluable where a plant which is free-flowering, with large blossoms, and a long-continued display is wanted, and I have no hesitation in recommending it to those growers on the look-out for a variety possessing all the good points just mentioned. Of the taller growing sorts, so well adapted for association with other plants, there are just a few worth mentioning. Countess of Wharnclyffe is probably known to many as a chaste flower and beautifully scented. *Gigantea*, although so very robust, has a neat and pretty style of growth, and the flowers are of enormous size and substance. *White Flag* is another strong-growing plant, of which little is now heard. One variety which should have been included with the dwarf-growing creamy-white flowered plants is *Devonshire Cream*. The blossoms are of medium size, freely produced, and it is a most continuous blossoming sort.

D. B. CRANE.

The best hybrid Clematises.—Will some reader kindly give me the names of the best hybrid Clematises?—X.

* * Messrs. Jackman and Son, of Woking, who have for many years paid much attention to the Clematis, kindly send us the following list: *Alb magna*, *Ascotensis*, *Beauty of Worcester*, *Bello of Woking*, *Blue Gem*, *Countess of Lovelace*, *Countess of Onslow*, *Duchess of Albany*, *Duchess of Edinburgh*, *Duchess of York*, *Fair Rosamond*, *Fairy Queen*, *Gem*, *Gipsy Queen*, *Henryi*, *Jackman*, *Jackmani superba*, *Jackmani alba*, *John Gould Veitch*, *Lady Bovill*, *Lady Caroline Neville*, *Lucie Lemoine*, *Mme. Grange*, *Mme. Edouard André*, *Mme. Van Houtte*, *Miss Bateman*, *Miss Crawshay*, *Mrs. Geo. Jackman*, *Mrs. Hope*, *Otto Froebel*, *Princess of Wales*, *Purpurea elegans*, *Rubella*, *Sir Garnet Wolseley*, *Star of India*, *Stella*, *The Queen*, and *William Kennett*.—ED.

Androsacæ carnea.—There is no brighter gem in the rock garden at the present time than this. Just now the pincushion-like tufts are freely covered with bright pink blossoms that render it a perfect gem when seen in good condition. All that is needed for this delightful plant is a good depth of moist, gritty loam for the roots to descend into. It is also of service to cover the soil with small stones to stay evaporation. Too frequently failure among these plants is due to indifferent planting. Nothing is more conducive to health than firm planting in the right kind of soil. Gather the tuft quite firmly in the fingers and insert in such a manner that the rosettes of leaves lie upon the surface in a compact little tuft, not loosely spreading about with much of the old growth exposed. Some growers of alpine fear to bury these parts, which is a mistake. If covered somewhat firmly with gritty loam the plants are much better able to endure any hardships that ensue. A nice lot of this was sent to the Drill Hall by Messrs. Paul and Son, Cheshunt, last week, the plants flowering quite freely.

Lenten Roses at Dulwich.—I am sending you a gathering of Lenten Roses, to show how well they do in a cool, heavy soil composed of yellow clay to within a few inches of the surface. As we are fairly within the smoke zone, it may be said that they are town plants. Many of these, especially the lighter ones, have been in flower since Christmas, but in ordinary seasons they do not commence blooming until the middle of February. I have to-day counted over forty spikes (in one case forty-eight) on one plant. They are mostly seedlings raised from home-saved seed, which is sown as soon as it is ripe,

It is sown in a cool, shady border, where it lies dormant until the following spring. The seedlings are left here until the following spring, when they are, as soon as growth commences, transferred to their permanent quarters. They are planted in clumps of three in some well-manured soil and where they are shaded from the mid-day sun. At two years old the strongest will flower, but it is three years before the majority are strong enough. They then get an annual top-dressing, the old soil being worked away from around the plants and replaced by some well-rotted manure and leaf soil mixed. With this treatment the plants increase in size every year. Some of them have been in their present positions for at least a dozen years and are this season better than ever.—R. B. L., *Woodhall, Dulwich*.

* * A beautiful gathering, the flowers of good size and the colours rich and varied.—ED.

Exhibiting Daffodils.—There is one point concerning Daffodils which is very slow at receiving attention, but which may be carried out effectually by some leading specialists of the flower. It is this: In place of the fan-shaped bunches minus foliage, or the half-forced examples in 6-inch pots, why not cultivate a collection for exhibition in pans 12 inches or 16 inches across, allowing them to come in at their natural time, each pan to contain, say, a couple of dozen or one and a half dozen bulbs? In such examples we should see all the beauty and grace of foliage now wanting. Indeed, quite a mine of useful information may be forthcoming from such an exhibit, and what a welcome change from the perennial repetitions wherein one sees no change, little fresh or novel in the flowers, and no attempt at such so far as arrangement or design is concerned. Daffodils thus grown and naturally flowered would last two seasons perfectly, and two dozen representative pans would carry greater weight and prove far more instructive than 150 present-style bunches. The thing wants doing, but it needs doing well, the bulbs being potted in early autumn, wintered and grown outside, merely plunged to the rim, or perhaps 3 inches deep, for the sake of safety of the pots from frost.—E. J.

FLOWER GARDEN NOTES.

THE work of pricking off annuals and other plants treated as annuals that were sown early in February will soon have to be started. None of them require any great amount of heat. They come along very satisfactorily on the slightly warmed pipes of a vinery that is just started, or on a bed of leaves that will furnish a slight warmth, and with a top temperature that does not drop much below 50°. The quantity and variety of things will vary according to different requirements. In my case they include *Salpiglossis*, *Gaillardias*, *Marguerite Carnations*, *Ice-land Poppies*, *Antirrhinums* in variety, and *Pentstemons*. A goodly number of each is pricked out into a series of home-made frames just cleared of *Tufted Pansies* and *Pinks*. These frames, it may be added, play a somewhat important part in the propagation, after-growth, and protection of many things in connection with flower garden work, and the method of construction may be briefly described. Pieces of quartering 3 inches square, the ends of which have been previously soaked in gas tar, are driven into the ground to enclose spaces some 30 feet long by 5 feet in width, the back row of posts being 22½ inches and the front row 13½ inches, the relative measurements representing respectively the width of two and a half and one and a half 9-inch boards. These are fastened to the quartering at either side at back, front, and sides, and the 3 inch space between the boards is packed with *Heather* or *Bracken*, a packing through which only the most severe and prolonged frost is likely to penetrate. For the top covering, where old lights are available they are used. Failing them, however, a substitute is found in a light framework made in 6-foot lengths and the width of the frame, strong enough to bear

the weight of mats or cloths that are used as covering, as well as a few inches of dry *Bracken* when the weather is very severe. Alike for the purposes of propagation or pricking off, from 3 inches to 4 inches of soil will be found sufficient, and this may consist of old potting soil to which have been added a bit of fresh leaf-mould and a dash of road-sand. It should be pressed down firmly, be fairly moist, and rest on a hard ash bottom. If these details—trifling it may be, but none the less necessary—are attended to, cuttings and pricked-out seedlings will come away quickly and lift when required with a fine mass of roots. Naturally, this pricking out in the open applies only to those things that are

I proceed, therefore, to a selection of hardy plants adapted for the purpose, making a special point of the small greenhouse and the ability to provide the frame for protection. *Daffodils* will furnish the first display, their season being prolonged by a selection of varieties not necessarily very many or expensive, but so that the flowering is continued from the earliest expanded *Bulbocodiums* to the late-flowered *poeticus*. They can be potted up in early autumn, stored away in the frames, and introduced into the house as required. *Polyanthuses* in variety are also capital plants. I saw a very pleasing display last year in a small greenhouse, where a well-grown batch of a good dark variety was associated with a nice lot of *Daffodils*.

Plants potted up from a batch of seedlings answer the purpose very well, and can be grown in comparatively small pots. Just sufficient protection may be given through the winter to prevent frost laying hold of the soil, but they must not be coddled in any way. Many varieties of border *Carnations*, too, will give every satisfaction if free-flowering, non-splitting sorts are chosen, and if a selection of, say, some eight or nine different colours is made, the effect will be very pleasing. Thoroughly well-rooted plants can be potted up in October, but if there is any doubt about the supply of roots, they can be left in the quarter where layered until February. I generally put them into 5-inch pots, using as a compost good friable loam with which a little horse droppings are incorporated. *Saxifraga umbrosa*, *Campanula persicifolia*, and the herbaceous *Lobelias* are also all good. A mixture of the last-named with a nice little batch of *Funkia undulata* and its varieties is about as effective a contrast as one can possibly have, and with their lasting properties the *Lobelias* will hang on until autumn has well advanced. In *Chrysanthemums*, the dwarf very free pompons are the best for small houses, and a judicious selection will give a display for about three months. Among the dwarfest of the section, and consequently the best adapted for the circumstances under consideration, are *Anastasia*, *Early Blush*, *Flora*, *l'Ami Condercet*, *Mignon*, *Deuil de Pere*, *Jolivart*, and *Piercy's Seedling*. Another



A border of pillar *Roses* in Messrs. Cooling and Son's nursery at Bath. (See p. 273.)

hardy or semi-hardy, and not to tender subjects that may have been sown about the same time.

HARDY PLANTS IN POTS.—The reference to home-made frames in connection with tiny plants suggests a note on hardy plants in pots. I am not writing now for big flower gardens, but on behalf of the thousand and one suburban places around all our big towns where small greenhouses are increasing to an extent hardly dreamed of in the old days. These small structures are erected, and the outcome is the want of plants to fill them, sometimes with not the slightest idea as to how this can be effected. A few hints on the best things and the method of dealing with them are given.

late summer and early autumn-flowering plant is the *Pentstemon*, and a few in different shades of colour will be found to associate admirably with other things. In *Starworts* I have tried *dumosus* and *versicolor nanus* in pots and found them both useful. The above brief list gives but a faint idea of the many hardy plants suitable for pot work where, as I have said, the glass accommodation is not of a nature to admit of the production of a quantity of border things. It might be extended to very considerable length. Enough, however, has been said to give an idea as to the kind of things available and the comparative ease with which they may be produced.

E. BURRELL.
Claremont.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

MARCH 30.

THE first show of the above society was held on the above date. In many respects, regarded mainly as an exhibition of spring-flowering plants, it was a success, this in spite of the fact that the competing classes were by no means well filled. The miscellaneous groups were in strong force and alone constituted a very fine display. Cinerarias from Messrs. Carter and Co., Holborn, represented a really fine strain, in which great variety, free growth and flowering were marked features. Another fine group of these plants came from the garden of the Hon. H. C. Legge, Slough, the plants displaying good culture. Messrs. Young and Co., Stevenage, Berks, also contributed a group of these plants. The Orchids from Messrs. Low and Co. contained choice examples of *Cittleya Trianae*, *Odontoglossum gloriosum*, *O. Rossi rubescens*, *O. aspersum*, *O. Alexandra*, *O. luteo-purpureum*, *O. Andersonianum*, *Dendrobium Boxalli*, *Lycaste Skinneri*, *Cymbidium eburneo-Lowianum*, and others. The St. George's Nursery Company staged a splendid lot of their magnificent strain of Cyclamens, the plants (about 200) profusely flowered throughout. The Church Road Company showed a similar lot. Messrs. J. Peed and Son contributed an interesting bank of mixed plants in great variety. A group of cut Narcissi came from Mr. W. Grant, Bassaleg, near Newport (Mon.), and contained some very good things. Not least among the pleasing features of this exhibition was a fine display of Lily of the Valley from Mr. T. Jannech, Dersingham, arranged in circular and pyramidal groups on a groundwork of green Moss and backed by fine-foliaged plants and Palms. The Lilies were especially well grown and the strain very fine. The Ferns from Messrs. J. Hill and Son, Lower Edmonton, were, as usual, excellent, and contained many good things. *Davallia tenuifolia stricta*, *Lastrea erythrosora*, *Pteris nemoralis*, *Cheilanthes Ellisiana*, *Asplenium Colensoi*, and *Asplenium Hilli* (a cross between *A. biforme* and *A. Belangeri*) were very good. *Adiantum decorum* and *A. scutum* were also in fine form. Another group of Ferns from Mr. H. B. May, Edmonton, included *Asplenium ornatum* and *Asplenium Mayi*, both kinds possessing similar characteristics, the dark-coloured fronds in each case being heavily lacinated. Other notable plants were *Lomaria ciliata major*, *Nephrolepis plumosa*, and *Doryopteris Duvali*, a broadly palmate form. These, with *Pteris longifolia Mariesi*, were very pleasing. Roses from Mr. Rumsey, Waltham Cross, were a grand lot, and consisted of some ten boxes, in which *Maréchal Niel* predominated with grand deep golden blossoms of large size. Another lot of *Niphetos* was equally good. The new Rose Mrs. W. Rumsey was again in grand form, some of the blooms being of extraordinary size with the clear pink shade so much esteemed. In this Rose we have all the fulness of *La France* without the conical point, which is a drawback to its opening well when forced early. *Magna Charta*, *Prince Arthur*, *Duke of Wellington*, and *The Queen* were other fine Roses in this group. A lot of the *Noisette l'Idéal*, a saffron-yellow and rose-tinted kind, was charming. Floral decorations and designs from Messrs. B. S. Williams and Son, Holloway, were very fine. Messrs. Williams also sent a fine bank of *Clivias*, *Amaryllises*, *Lilacs*, and *Orchids*, the last including *Cymbidium Devonianum*, *Cypripedium Lathamianum*, *C. oenanthum superbum*, *C. polium*, *Cymbidium Lowianum*, *Odontoglossum aspersum*, *O. Rossi*, *Dendrobium densiflorum*, *Celogynes*, *Masdevallias*, *Epidendrum radicans*, and others. The *Amaryllises* were very fine in this group. A similar lot of floral devices came from Messrs. Laing, of Forest Hill, pink and red Roses, *Clivias*, and *Lilies of the Valley* being chiefly employed. They also sent a mixed group of stove and greenhouse plants in their usual

style. *Crotons*, *Caladiums*, *Ferns*, *Palms*, *Azaleas*, *Tree Pæonies*, *Aralias*, *Clivias*, *Calla Elliottiana*, *C. Little Gem*, *Streptocarpus*, the handsome *Lea amabilis*, *Croton Laingii* (a grandly-coloured piece), and *Acacia longifolia*, with globular heads of flower, freely produced, were also shown. Messrs. Barr and Sons, Covent Garden, had one of their characteristic groups of cut *Daffodils*, in which were also included some of the better kinds grown in pots, the latter showing clearly what a few such things are capable of when naturally treated. Such fine things as *Weardale Perfection*, *Empress*, *Emperor*, *Glory of Leyden*, *Golden Spur*, *Queen of Spain*, *Grande*, *Horsfieldi*, and *Mme. Plemp* were in splendid form. Sir Watkin, many others of the *Incomparabilis* and *Leedsii* sections, together with *triandrus* and *Jonquils* were included in this lot. Mixed plants included *Anemones*, *Muscari*, *Chionodoxas*, *Allium neapolitanum*, and *Dog's-tooth Violets* in variety.

Hyacinths in pots from Messrs. Wm. Paul and Son were very good, and included all the leading kinds in commerce, the firm again showing *City of Haarlem*, which was singled out for honours a week ago. This group consisted of some 200 pots, backed with flowering *Prunuses* and other plants. *Pot Roses* from the same firm were also excellent, the well-known *Enchantress* being again to the front in many well-flowered plants. Others of note were *Antoine Rivoire*, a lovely tinted flower; *Souvenir de Catherine Guillot*, deep saffron and orange; *Mme. Cadeau Ramey*, white, very full, and *Mme. Jules Grotez*, a deep pink. A splendid lot of *Camellias* was also exhibited by this firm—pot plants as well as some half-dozen boxes of blooms. Among the former, *Beauty of Waltham*, a flesh-coloured variety, is exquisitely beautiful, the white *Mathottiana*, the finest of all whites, being also shown. A bank of *Narcissi* from Mr. T. S. Ware included many of the leading sorts, some in a cut state and others in pots, the new bicolor *Victoria* and a yellow self called *Alexandra* being noticed, as also a pot of the pretty *N. calathinus*. A highly creditable group of greenhouse flowering and fine-foliaged plants was sent by Mrs. Abbott, South Villa, Regent's Park (Mr. G. Kelf, gardener). This included *Tulips*, *Hyacinths*, *Azaleas*, *Lily of the Valley*, *Narcissi* in variety, *Deutzias*, *Ferns* and other things. From Highgate, Messrs. Cutbush sent a capital assortment of greenhouse flowering subjects, such things as *Erica persoluta alba*, *E. hyemalis*, *Boronia megastigma*, *Eriostemons*, *Calla Elliottiana*, *Acacias* in variety, and *Malmaison Carnations* being among the best. Some plants of *Magnolia Soulangeana* in flower had a fine effect in the centre of this group. *Diosma capitata*, with pretty mauve heads, was also shown.

A full prize list will be found in our advertisement column.

NATIONAL CHRYSANTHEMUM SOCIETY.

ON Wednesday evening last, the 25th, the committee of this society met at Anderton's Hotel, Fleet Street, E.C., and held a somewhat protracted sitting, under the chairmanship of Mr. T. W. Sanders. The minutes of the previous meeting having been read and confirmed, Mr. Wells suggested that a special meeting of the committee should be held to take into consideration the question of the fungus recently seen on the foliage of the *Chrysanthemum*. In the end the matter was deferred for the time being. The wording of the address on vellum to the late treasurer, Mr. J. R. Starling, who had acted in that capacity for twenty years, was agreed upon. The secretary stated the members, &c., on the roll to be as follows: Ordinary members, 706; Fellows, 101; foreign members, 43—a total of 850, or a net gain on the year of seven, the smallness of the net gain being due to resignations. A vacancy on the committee having occurred through the retirement of Mr. Witty, the names of two amateur members of the society were submitted to the meeting, Messrs. C. E. Wilkins and H. A. Needs. As the result of a show of hands, the chairman declared Mr. Wilkins elected. Messrs. George

Gordon and W. H. Lees desired to retire from both the floral and classification committees, but upon considerable pressure by the meeting, they agreed to retain their positions. The election of seven members to the floral committee was then proceeded with, ten members of committee being nominated. In the end the following were declared elected: Messrs. W. H. Lees, J. W. Moorman, D. B. Crane, H. Cannell, J. P. Kendall, W. Howe, and G. Langdon. The tariff of charges for floor and table space at the forthcoming exhibition was then agreed upon. The election of the classification committee was taken next, fifteen members in all being the required number. Four new names were nominated, and upon a vote being taken, the following gentlemen were declared elected: Messrs. Gordon, Jones, Lees, Bevan, Gibson, Cannell, Mease, Crane, Moorman, Beckett, Wells, Gleeson, Lyne, Stevens, and Higgs. The committee meet on Monday next to consider the question of preparing a list of "too-much-alike *Chrysanthemums*." Mr. Bevan moved, and Mr. Moorman seconded, that a fixed sum be given as a salary to the general secretary to cover all expenses for clerical assistance. It was ultimately agreed that this matter should be relegated to the finance committee. This last-named committee was then chosen, Messrs. Gordon, Moorman, and Willis, with the officers *ex-officio*, constituting that body. An instruction to the finance committee was proposed by Mr. Gordon and seconded by Mr. D. B. Crane, that they prepare a code of rules for the administration of the finances of the society, such rules to cover the expenditure and disbursements of the funds, and this to be submitted to general committee afterwards. In addition to the finance committee, the following gentlemen, Messrs. Bevan, Crane, Taylor, Wilkins, and Outram, were to constitute a sub-committee to consider the question of duties of the general secretary, and to report to the general committee. A drawing of the new diploma for the presentation of honorary fellowships was submitted and agreed to. The resolutions carried at the adjourned annual general meeting, and proposed by Mr. Moorman, regarding the future working of the society, were referred to the sub-committee just formed. A further question as to the cost of medals to affiliated societies was referred to the finance committee for consideration. A vote of thanks to the chairman concluded the business at a late hour.

NOTES OF THE WEEK.

Fritillaria nobilis.—In stature as well as in the size of its drooping blossoms this handsome form may be compared to the golden *F. aurea* except in colour, which is a shade of crimson-maroon. Its exceptional colouring should make it welcome for pot culture.

Fritillaria tulipifolia.—This very striking and distinct species from Kurdistan should prove a welcome addition to this extensive and highly interesting group. The leafy growth is about 9 inches high, the blossoms very compact and of considerable substance. In the flowers a dusky copper prevails externally, while the interior is of a shining golden bronze.

Placea (Amaryllis) ornata.—This is a somewhat scarce bulbous plant, a consignment of which has reached Mr. Amos Perry at Winchmore Hill. It comes from the Chilian Andes, the compact, dark-skinned bulbs being not unlike those of some of the smaller *Narcissi*. The flowers are said to be of the purest white, with a pale band in the centre of each segment.

Soldanella pyrolæfolia.—This is, perhaps, the most profusely flowered species of this small, though interesting group of alpine. The blossoms, however, are small in proportion to the foliage, of a deep lilac-blue shade, the segments so deeply cut as to form a miniature fringe-like drooping bell. It is extremely free flowering. This pretty kind was noted recently in the alpine house at Kew.

Hepatica triloba vars.—These are now very beautiful in the spring garden, more especially in semi-

shady places. One of the greatest charms of the Heraticas is their great variety of colour, the shades of blue alone being very considerable and many of great beauty also. A fine example full of flower of a good blue form was among the hardy plant exhibits at the Drill Hall a week ago.

Tufted Pansy Molly Pope.—One of the first Tufted Pansies to bloom with me this spring is this beautiful rayless sort. It is a lovely rich yellow flower. Comparatively weak little pieces are each carrying blossoms which are very welcome thus early. It is also worthy of note that at the close of last year's display stock plants of this variety were in exceptionally fine form.—D. B. C.

Draba Loi-eleuri is a very pretty species from Corsica, with golden yellow blossoms that render it even in a small state very conspicuous in the rock garden in March. It is in flower with the European *D. aizoides*, and partakes of the style of this in some respects. The colour of the flowers, however, is much more telling. The species promises to seed freely, and in this way may be readily increased.

Aristea Eckloni.—This very attractive plant, which is by no means of every-day occurrence, is in flower in the succulent house at Kew. The example is composed of a more or less erect tuft of leaves, the latter intermediate between *Gladiolus* and *Liberia*, with the nearly upright habit of *Liberia* and at 2 feet high producing an almost endless array of bright blue flowers. It is a pretty and interesting plant.

Frythronium giganteum.—Where special positions have been prepared for such things as *Cypripedium parviflorum*, *C. pubescens*, the *Dentarias*, and other plants of like requirements, a little colony of the above, which is one of the finest of this family, would also prove attractive. It is in such positions these things usually come strong and vigorous each year, and when the handsome creamy yellow blossoms appear the plant is indeed beautiful.

Rhododendron Gibsoni.—A splendid bush of this handsome kind, which is some 8 feet or more across, is now in full beauty in No. 4 greenhouse at Kew. The example in question is in excellent condition and will continue a feature of this house for some considerable time, so great is the profusion of its pure white flowers. Another well-known though very distinct kind also in bloom is *R. Taylori*, with pink and salmon-pink flowers that are very striking.

Tufted Pansies and the inclement weather.—Had the genial weather which was generally experienced during the earlier part of March continued, many old plants which were cut back last autumn would have ere this been covered with bloom. These old plants were bristling with innumerable little buds, and only needed a few more days' sunshine to have given an exceptionally early display of the welcome flowers.—D. B. C.

Primula frondosa.—In many respects a glorified form, so to speak, of *Primula farinosa*, but certainly a more useful kind, because of its almost continuous flowering. In this respect it is surprising so small a plant should yield so great a profusion of blossom. Its flowers are frequently among the earliest in early spring, and still quite late in summer and autumn. To these good points it may be added that the species is easily grown, flowering and seeding with considerable freedom in ordinary sandy soil.

Carnation Countess Ferrers.—I am sending by Lady Ardilaun's directions a few blooms of perpetual Carnation Countess Ferrers raised here by me in 1896. The growth and habit of plant are all that can be desired, and, as you will observe, it is very sweetly scented. I have at present a large batch, all of which is flowering freely.—A. CAMPBELL, *St. Ann's, Clontarf.*

* * Very cheery, yet delicate in colour, and with a fine scent.—Ep.

Narcissus Emperor.—Even now this kind is perhaps too valuable to be hard forced, but with cold frame culture and slight warmth in the latter stages, when the scape has cleared the orifice of the bulb, this variety may be flowered much in advance of those in the open ground. For such work, too, it is well suited; its large handsome blossoms have an imposing appearance in a vase or even in the pots as grown associated with its own leafage. Three or four bulbs, according to size, are ample for 6-inch pots.

Shortia galacifolia.—A large pan of this at the last meeting of the Royal Horticultural

Society attracted attention. The example in question, however, lost some of its many charms by being brought into flower under glass, the effect being to elongate the stems and to take away that ruddy glow of colour all admire so much. It is so hardy and enduring, and withal so beautiful in the varying tints of its crimson leaves, that any such protection appears but to rob this hardy gem of much of its true beauty and worth.

Forsythia suspensa.—At the present time this is one of the most valuable of deciduous shrubs in flower. It is specially suited to groupings on the grass. Just now at Kew in close proximity to the stove aquatic house a large group of this plant is flowering abundantly. The groundwork of the bed is gay with thousands of sprays of *Chionodoxa Luciliae*, obviously somewhat late planted in anticipation of the flowering of the *Forsythia*. With both plants in the heyday of their splendour the result is excellent, the groundwork being a veritable carpet of the Glory of the Snow.

Tree Pæonies.—A gently forced batch of these is one of the most effective groups in one of the greenhouses in the Royal Gardens, Kew. They are represented in many shades of colour, the principal being blush, pink, peach, and pure white. It is scarcely possible to give an adequate idea of the beauty of these plants in words, the glistening of their petals or their crowning beauty as seen in the usually fine tuft of golden anthers. The grey-tinted and much-divided foliage is distinctly pleasing when grouped with other subjects at this season. These Pæonies, however, require some care after flowering to make success complete another year.

Megasea Stracheyi.—If regarded from the point of view of flowering alone, this handsome form may be said to be the finest of this group, but it detracts greatly from its general value and usefulness year by year to see the well-nigh complete loss of foliage. In the rock garden at Kew is a splendid group of this occupying a good position, but still its weakness is obvious. At the last meeting of the Royal Horticultural Society, Messrs. Paul and Son, Cheshunt, had a fine mass of it in full bloom, but this had obviously received protection. Planted in the open, this lovely kind should receive the most sheltered position and be given a good depth of soil with free drainage.

Primula marginata cœrulea.—Among the earliest of the true alpine species, *Primula marginata* is deserving of a leading place, as indeed are all its forms. Possessing a decidedly vigorous constitution, it is well suited to the rock garden, where in deep sandy soil it is well able to take care of itself. The chief difference in the above is merely that of colour; in other respects it is identical with the type. These beautiful Primulas if planted beside a large piece of rock receive a more uniform condition of moisture. At the present time such things require attention in the matter of fixing in position after the lifting during winter. In doing this a slight mulch of loam and grit with a little manure will be an advantage.

Isopyrum thalictroides.—Among the very choicest and most dainty of alpine plants this frail little species is ever deserving a place, but this must, however, always be a warm and well-drained one, though by no means hot or excessively dry. In the matter of soil it is, perhaps, best to grow it in a mixture of equal parts peat, well-decayed leaves, and loam, the whole made very sandy. This if kept well watered in summer will suit it well, and provide one of the prettiest of hardy plants early in the spring months when the exquisite pure white blossoms put in an appearance. It is not a plant for the ordinary herbaceous border, and where no position for choice things exists is better grown in pots or pans. In this way the delicate Fern-like leaves are always welcome.

Phædranassa chloracea.—This very distinct and beautiful plant is not often seen, yet it possesses a certain interest as well as beauty of

its own. It is a somewhat variable plant in point of colour, the latter in some being of a rose or purplish-rose, in others approaching to scarlet, while occasionally a vermilion shade predominates in the flowers. At the present time in No. 7 range at Kew some large bulbs are flowering, in which the colour is bright scarlet, heavily tipped with green. At times it is cited in hardy plant lists as a hardy subject, but, grown as such in the hottest parts of the garden, it has not been a success. In the greenhouse, when grown on the lines followed for *Nerines* and the like, the bulbs flower each year after having attained to a sufficient size.

Fritillaria aurea.—Though one of the dwarfiest of its race, this species is evidently vigorous. Of a few bulbs planted in the autumn of the past year, some were in full flower prior to the wintry spell of the past week. That the mixture of hail, snow, wind, rain, and frost would have shattered its blossoms beyond recognition I had but little doubt, and therefore it is all the greater surprise to find the flowers little the worse after such an experience. It is worth noting, in case any reader is in similar circumstances and in doubt, that while some are now in flower, others of equal size and planted at the same time are only just emerging from the soil, and will therefore be fully a month later in bloom. This tardy growth is, perhaps, due to extremes of dryness of the tubers at the time of planting.—E. J.

TRADE NOTE.

Mr. Riley Scott, for twenty-five years gardener and steward to Miss Foster, The Holme, Regent's Park, and Oakover, Ticehurst, Sussex, has, we learn, purchased the Station Nurseries, Horsham, which have been carried on for the past twenty-five years by Mr. J. G. Jenner.

Correction.—In the article on the "De Tous les Mois Radishes" in last week's GARDEN (p. 252), near the bottom of the third column, instead of "the valveless pod of the cultivated Radish" read "the one-celled pod of the cultivated Radish."—W. M.

The Royal Gardeners' Orphan Fund.—We are reminded that the annual festival dinner of this most deserving charity will take place on Wednesday, April 20, at the Hotel Metropole, under the presidency of Mr. C. C. Keyser, of Aldermaston Court, Reading, and late of Stanmore. Mr. Keyser is so well known as a patron of horticulture, that we hope there will be a large number of gardeners present.

The weather in West Herts.—A very cold, wet, and sunless week. On the 25th the reading in shade rose only to 34°, while the exposed thermometer fell below the freezing point on every night, and on the coldest of these showed 11° of frost. The ground temperatures have consequently fallen, that at 2 feet deep being about 2°, and at 1 foot deep about 3°, below their respective averages for the end of March. Rain or snow fell on each of the first six days of the week, the total measurement being 1½ inches, making this the wettest week as yet of the present year. On the morning of the 25th, snow covered the ground to the average depth of 4½ inches, but melted quickly, and was only to be seen in places on the following morning. About an inch of rain-water has come through the percolation gauges during the week. The winds were, as a rule, rather high, and came mostly from some northerly point of the compass. Throughout the four days ending the 28th no sunshine at all was recorded.—E. M., *Berkhamsted.*

Name of plant.—*R. C. S. W.*—An interesting variety of *Ilex dipycna* without the usual spines on the leaves.

Name of fruit.—*H. C. Baker.*—Small fruits of Apple Scarlet Pearmain.

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ROSE GARDEN.

NOISSETTE ROSES.

THE Noisette Roses are classed with the Teas by the National Rose Society. Although this arrangement may suit the exhibitor, it is rather misleading to the novice, for he would naturally conclude they were all tender; whereas many of the old varieties are quite hardy and are the most effective nearly evergreen, autumnal-flowering climbers that one could possibly desire. The history of their origin is rather interesting. A popular error prevails that Noisette Roses take their name from the French word for nut or Hazel, their bunches of flowers having a certain resemblance to a cluster of nuts. But if the American version be true, they should rather be called Champney Roses. John Champney, of Charlestown, South Carolina, obtained a hybrid between the white Musk Rose and the Blush China, which he named Champney's Pink Climber. Philip Noisette, a florist of the same town, raised a few years later a blush variety from Champney's Pink Climber, which he sent to his brother in Paris under the name of Noisette Rose. This variety reached England about 1820. It was perfectly hardy, very vigorous, and most profuse in flowering. From this Rose seedlings and hybrids were soon raised, and in 1828 M. Vibert gave us that even now most lovely Rose Aimée Vibert, which is almost unsurpassed as an evergreen autumn-blooming, white rambling Rose. But Rose growers of that day were not satisfied with the white and blush colours at that time prevalent among the Noisettes, so hybridised them with the Tea-scented. These hybrids produced some beautiful colours, but unfortunately the tender nature of the Tea-scented was also imparted to this hitherto hardy tribe. True Noisettes are distinguishable from the Tea-scented by their very elegant pendulous growths, and large, oftentimes immense, trusses of flowers with the Musk-like odour of one of their pro-

genitors. They almost invariably flower from the long secondary shoots of the previous year, differing in this respect from many of the Teas; consequently they require very careful pruning, or rather non-pruning, for if these shoots are removed to any great extent, little or no blossom will be produced.

A few varieties which most certainly belong to the Noisettes are sometimes found in the Tea-scented lists, and *vice versa*. To enumerate two or three of the true Noisettes that are hardy and free-flowering, one must commence with

AIMÉE VIBERT, mentioned above. In addition to being a good climber or pillar Rose, it is seen to great advantage on a hedge Brier, either of medium height or very tall.

CELINE FORESTIER, a delightful primrose-yellow variety raised nearly forty years ago, is still unsurpassed in many ways. Its pretty buds, which are sometimes splashed with crimson on outer petals, develop into lovely, almost flat, blossoms. The foliage and wood are of a very distinct pale green shade. It is excellent as a standard both outdoors or planted under glass, and one of the very best for pots. Many will remember the huge specimens of this variety that were exhibited in the palmy days of South Kensington.

DESPREZ A FLEUR JAUNE is another pretty rambling kind with reddish buff-coloured flowers. Although of irregular form, the general effect of a good specimen is good. As a standard it is, perhaps, seen at its best when its long flower-laden branches droop almost to the ground.

DESCHAMPS, known also as Longworth Rambler, was raised by M. Deschamps in 1877. It is one of the very best autumn-flowering climbers we possess. Its rosy cerise flowers are lovely.

FELLENBERG follows closely on Deschamps and is perhaps better known. It is a grand Rose for massing where bold groups are wanted. The immense shoots it will make in a season, almost as thick as a walking-stick, are really marvellous.

Other good varieties to grow for their autumn-flowering qualities are La Biche, Mme. Massot, and Triomphe de la Duchere. If their flowers

are small, fine specimens in full bloom are very striking.

Of a somewhat less hardy nature, but yet not absolutely tender, mention might be made of

ADELINA VIVIAND MOREL, a delightful little miniature bloom, with growth of climbing habit.

JOSEPHINE BERNACCHI, with long pointed creamy yellow buds, is really first-rate.

MARIE LAVALLÉE and REINE OLGA DE WURTEMBERG are sometimes classed as Teas or H.T.'s, but they surely belong to the Noisettes, or at least to the Hybrid Noisettes; indeed, their raiser, Nabonnard, describes them as hybrids of Tea and Noisette. They are really excellent Roses for climbing, the former continuing to flower nearly to Christmas. The latter is rather apt to run to growth and not flower.

MARIE ROBERT, a recent variety of Blaire No. 2 colour, is a very rampant grower and likely to prove a valuable addition to this class.

REVE D'OR is too well known to need any description. One could not desire a better climber than this, producing such an abundance of Safranc-like buds. It is almost evergreen, and it has the very good trait of breaking out into growth well from the base. This quality cannot always be claimed by the Teas, for they often have a most meagre appearance at the base after a few years.

WM. ALLEN RICHARDSON is almost as widely known as Gloire de Dijon and Maréchal Niel and is quite essential to every garden. I have found the standard Brier the best stock for it. The flowers appear less erratic, but the seedling Brier will also produce highly-coloured flowers if deep root-room is afforded, and I believe the best position for it as a climber is upon a west wall where it can escape the fierce sun of midday.

ALISTER STELLA GRAY is a grand acquisition, and is very valuable as an autumn bloomer. It is not quite so clambering as one could desire, and will perhaps be more valuable for low arches or pillars. It is quite possible we may yet see some improvements on this Rose. I understand Mr. Gray raised it from seed he brought back with him from his residence in the Azores. If this be so, he must have some others, and perhaps even better than this beautiful Rose.

The following are decidedly tender and should be cautiously planted. Most of them

are excellent under glass, and in favoured spots outdoors they make delightful climbers of a very refined and graceful character. In my opinion such tender climbers as these would well repay anyone for the trouble of erecting a glass coping for them along a south or west wall. Then if they were shaded from the sun during frosty weather they would come through the ordeal of our usually rigorous winters practically unharmed. It is radiation that is the cause of so much mischief accruing from frosts. I have known Roses escape under a north wall, whereas the same variety was killed on a southern exposure.

LAMARQUE can only be safely attempted under glass, and very lovely it is when well cared for.

SOLFATERRE, a seedling from the above, is also a first-rate sulphur-yellow variety with very large trusses of blossoms.

MARÉCHAL NIEL is most decidedly a Noisette. It can hardly be considered an outdoor Rose with us, but there are, nevertheless, some grand specimens in the country growing in sheltered localities, and many exhibitors are very successful with it in standard form. The richest coloured blossoms are obtained from plants in cool greenhouses. The best lot I ever saw was on short hedge Briers planted in an old Vine border with simply the protection of a glass roof and sides, no artificial heat whatever. A little blood manure was occasionally given, and the blossoms were of immense size and of that rich golden yellow that is so attractive. Canker is its greatest foe. This is often brought about by overcropping. A slight cut down the stem of the Brier will often save a plant from total destruction by this disease. But the best plan of all is to select a really vigorous young Brier with a network of fibrous roots; plant this carefully as one would a Vine, and little fear but that the best results will follow. I am not sure the white Maréchal will be of any use to us, but it has not yet had a fair trial. Perhaps by a selection from this sport of still paler blooms a pure white may eventually be obtained. This year we are promised a red Maréchal, and our Continental friends are preparing a surprise for us next season in a cross between Maréchal Niel and Maman Cochet, which is to bear the name of *Souv. Pierre Notting*.

CLOTU OF GOLD is a lovely but very uncertain Rose, and requires the greatest skill in management to induce it to bloom. No pruning whatever is required beyond thinning out miffy growths, and a very essential point to remember is to thoroughly ripen the wood.

FORTUNE'S YELLOW, when grown as it is at Wantage Park, is a gorgeous Rose. A conservatory or greenhouse is the best place for it, and even here it must have plenty of room and little or no pruning. I must not forget to mention an old favourite named

OPHIE. It was highly esteemed before the advent of W. A. Richardson, but its flowers were rather rough and irregular, although of a very pretty colour.

MME. CARNOT is only suitable for indoor culture. Here it is excellent, with its globular, orange-coloured, white tipped blossoms. And in

L'IDEAL we have very enchanting colour and delicious scent, but it is not nearly so vigorous as commonly supposed. I like it best in standard form or grown as a bush, with very little pruning. This applies also to

MME. PIERRE COCHET, a charming acquisition, with its great bunches of reddish orange buds and blossoms.

With such a number of Noisettes there is still room for improvement, but I think there should be an attempt to infuse a hardier nature into future additions to this class. As we originally obtained the Noisettes from the Musk Roses hybridised, so also should we still further utilise these Musk varieties and hybrids

of them, such as The Garland, Mme. d'Arblay, the Fringed Musk and others, and cross-fertilise these with such varieties as Deschamps, Fellenberg, some of the very hardy Hybrid Teas and Teas, and also the Bourbons of the robusta type. P.

DIFFERENT STRAINS OF ROSES.

THE remarks of Mr. A. Piper touch upon a subject which I am sure ought to receive more consideration than it has done, and I am sure the matter to which he alludes will explain many of the conflicting opinions held by Rose growers. How often has one heard discussed the habits of some particular Rose. One will tell you that its habit is very moderate and that it is difficult to keep, and another entirely disagrees with that. How is it that they can form such different opinions of the same variety? I think most probably the explanation is that the plants have not had an equal start; some had been budded from a vigorous shoot, and the others from a weakly one, and these vigorous shoots ensure a continuation of strong-growing plants. The extent to which this change may extend is exemplified in the case of some of what are called climbing Roses. Take, for instance, *Devoniensis*, a very dwarf and moderate grower, and yet from it has come that remarkable and rampant variety *Climbing Devoniensis*, which will send forth shoots 16 feet to 18 feet in length. The same occurred with the climbing variety of *Niphotos*, and we are continually seeing climbing varieties of H.P.'s and H. Teas announced. The same takes place with regard to the colour of some of our Roses. For some years I had two plants of *Comtesse de Nadailac*, which were planted against a wall facing S.W., and which had blooms of the most brilliant colour, and this was the more remarkable, as flowers in this position generally have a good deal of colour taken out of them. I have had in the same position W. A. Richardson quite white without any of the beautiful orange colour which makes it so conspicuous and valuable, but the Countess remained constant. The plants were very vigorous, and at one time they reached to the top of the wall. In the same way I remember seeing at Mr. Mount's, at Canterbury, a strain of *Maréchal Niel* which he obtained from a plant in the neighbourhood, and which in the brilliancy of its colour far exceeded any other blooms that I had ever seen.

Where amateurs bud their own Roses of course the matter is entirely in their own hands; they will take care to take their buds only from strong shoots, and I think they may be pretty sure that like will beget like. It is different, of course, with purchased plants. In large nurseries especially it is not to be expected that the same discrimination will be used in the selection of wood for budding. Where perhaps a couple of hundred of one variety are wanted, every available piece has to be used. More especially is all this true with regard to new Roses, and we are oftentimes told when moderate plants are complained of, "What can you expect when everything that can be used for budding or grafting has been taken, and when the plants are hurried on so as to enable a large supply of buds to be available?" One does not wonder to hear a grower say of many a new Rose, "I can do nothing with it." I would advise growers to be very careful as to the wood they use in the propagation of their Roses. DELTA.

Noisette Perpetuals.—These are hybrids between the Noisettes and the Hybrid Perpetuals and Bourbons. They partake of the character of the former in their flowers, and of the latter two tribes in their foliage and wood. Strangely, they are all of a white or pink shade of colour. If we could obtain a crimson Mme. Alfred de Rougemont it would be very welcome and a great gain as a garden Rose. Most of the varieties make handsome pillar Roses, and where possible they should be trained in that form. A far larger

quantity of flowers is obtained in this manner. Perhaps the best of the group are *Baronne de Maynard*, *Boule de Neige*, *Coquette des Blanches*, *Louise d'Arzens*, *Mme. Alfred de Rougemont*, *Mme. Auguste Perrin*, *Mme. Fanny de Forest*, beautiful as a pot Rose, with its large white blossoms, and *Perle des Blanches*. I think a still further infusion of some of the Bourbons and Hybrid Perpetuals, such as *Queen of the Bedders*, *General Jacqueminot*, &c., with these Hybrid Noisettes would be productive of good results, for these Roses run the Teas and Chinas very close in their extraordinary profusion of blossom and grand decorative qualities.—P.

NOTES AND QUESTIONS.—ROSES.

Rose G. Nabonnand.—There is always—though in greater degree in some flowers or varieties—among the Tea Roses a certain delicacy or combination of tone that not only renders them most charming in the bud, but equally fascinating in the developed flowers. It is so in this kind, and while it opens to a large size it is by no means wanting in its pleasing characteristics.

Banksian Roses.—It is no uncommon occurrence to hear growers of these say they cannot get them to bloom. Frequently they are planted in unsuitable positions, where they begin to grow very early. Owing to the mild winter some plants on a south wall here made considerable growth by the end of February, but the severe frost early in March destroyed the blooms which were showing. Far better plant where the growth is late in starting than in sunny positions.—DORSET.

Deterioration of Roses.—I notice Mr. Piper in THE GARDEN does not take any account of the influence of the stock on his Roses. May not that very often be a cause of what is called deterioration? I had a large batch of *Grace Darling*, which was the admiration of everybody the first year, and the next (not interfered with in any way and in good deep soil) there were only a few miserable flowers. It is clear that the failure of this Rose, which is in perfect condition in many gardens, could not be in any way attributed to deterioration of the variety, but to some other cause.—ROSARIAN.

The Musk Rose.—This is supposed to have been introduced into England about 300 years ago. There are not many varieties of the Musk Rose. They are all beautiful, and if left almost unpruned give a good display of blossoms in the autumn months which renders them valuable, for the Ayrshires and Evergreens, although unsurpassed when in bloom, are very transient. Perhaps the best of all is the *Fringed*; certainly it is the freest grower. *Eliza Werry* is very sweet; so also is *Rivers*, a pretty pink variety. Of course one does not overlook the elegant single *moschata alba* or *nivea*, and *Pissardi* is also a pretty single closely allied to the Musks and useful for its autumn flowering. The pillar form is the one best adapted to the cultivation of the Musk Rose. The plants should be allowed freedom at the base, so that their long wavy shoots are the better displayed.

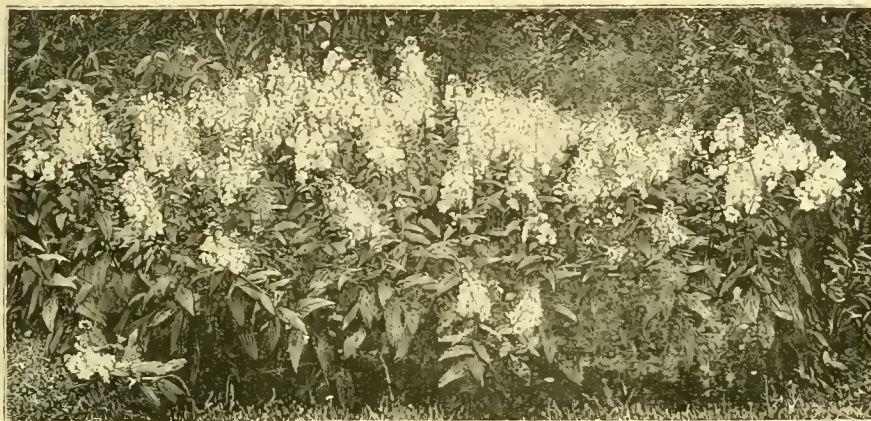
Rose sports.—Referring to your extract from my paper upon the above, appearing in "The Rosarian's Year-Book" of this year, it may be of interest to note that during February, 1898, the same plant of *Catherine Mermet* which sported *Muriel Grahame* in 1891 has now produced a similar sport from the base, some 2 feet from the first sport, and with a considerable amount of *Catherine Mermet* wood intervening. I am watching another sucker-like growth from the same point. If the new sport from *Maman Cochet*, which is described as a pure white and which will be introduced next month, is really a counterpart of *Maman Cochet* except in colour, we shall have a grand addition to our white Roses. Valuable sports from sterling varieties are becoming more numerous. I note that more than half a dozen are soon to be distributed.—A. PIPER, *Uckfield*.

FLOWER GARDEN.

OLD DOUBLE ROCKET.

How seldom one sees this in a good state in the gardens round London, and yet few memories are more pleasant than those of gardens in old times, when this plant was well grown—best, perhaps, in moist Irish and western gardens. Its brilliance and effect were both excellent where people grew and grouped it well. Any system of leaving it alone as a perennial is a mistake; to keep the plant in health, annual, or at least biennial, division and removal to freshly manured soil are essential for its health and fine effect. Even where the system of flower gardening does not allow of the use of such a plant, it is certainly well worth growing among things for cutting, or in bold groups in the mixed border. Mr. J. C. Tullack, from whom we received the photograph from which the engraving was made, sends us the following note as to the way in which he grows so well this fine old plant:—

“The double white form of *Hesperis matronalis* depicted in the engraving is not only the



Double white Rocket (*Hesperis matronalis alba plena*). Engraved for THE GARDEN from a photograph sent by Mr. J. C. Tullack, Livermere Park, Bury St. Edmunds.

best of the Rockets, but its claims as a valuable, hardy, and early-flowering plant for grouping are of the highest. Very compact in habit, it is never straggling nor encroaching; its delicious scent, most powerful in the evening and more delicate than that of the garden Stock, pervades the air during the whole of the flowering period, which begins in May and lasts for over two months. On most plants in the group here seen the central spikes reached a length of 18 inches, and were thickly covered with flowers; these were succeeded by the branching side spikes, which kept the plants in full beauty for at least the time stated above. I find the plant very easy to grow and not liable to be picked or eaten by game or birds of any kind. There is one essential in its cultivation, viz., an annual or biennial transplanting in spring. It is not necessary to remove the plants to a fresh site, but only that they shall be lifted, divested of much of the old root-stock, and the portions carrying the strongest crowns re-planted at a few inches apart in fairly manured soil; that in which the plants are growing here is very sandy and raised slightly above the lawn grass. In the same position they have thriven for years, and form an excellent foreground to crimson herbaceous Poppies, which flower at the same time.

“Seeing that the plant is so early-flowering, it might be thought that autumn planting would be preferable to spring planting, as it would give more time for the plants to become re-established, but I do not find it so, and choose the first mild weather that comes early in the year for planting, after which root-action is rapid and growth vigorous. I cannot too strongly urge the necessity of replanting often, for if this is neglected the plants die out wholesale after the second or third year, though in some soils it lives on better than in others. Annual planting will at all times give the best results.

“The single forms of this Rocket, which are numerous and may be had in various shades of purple or in pure white, are also charming plants for certain positions. I saw them last year by the thousand in a recently planted shrubbery which skirted for a long distance a carriage drive, and I have rarely seen such an effective sight produced by such a simple plant, while the scent was delicious and filled the air more than 100 yards away. Used in this way there was none of the spotted effect given by single plants here and there. These single forms may be raised from seed or by division,

and they do not require the frequent transplanting necessary for the doubles.”

CARDAMINE ROTUNDIFOLIA.

THERE are some flowers which, for reasons difficult to explain, grow in favour. We look upon them at first with indifference, if not with a feeling more akin to dislike. In time, however, with these plants this feeling changes and becomes not merely toleration, but admiration. Such has been my experience with some plants, and among these has been the round-leaved Lady's Smock. It is a good many years since I first saw it in a rock garden containing an extensive and choice collection of alpine flowers. There it remains still, and for long every time I saw it made me wonder how it came to be grown in that garden. “It comes so early” seemed hardly a sufficient reason for its presence, and had it not been that it found its way here to be named, it would probably never have been grown in my garden. A friend sent a small scrap without a flower and in poor condition, with a request that the name should be determined. This was impossible at the time, but the little plant was put in an odd corner so that it might be named when the proper time came. It bloomed and was identified as *Cardamine rotundifolia*, but was allowed to remain until it became better liked. By that time the spare corner in which it had been planted wa-

required for something else and the *Cardamine* was moved. It now occupies a somewhat conspicuous place behind a little Water Lily pool, on whose margin it has a prominent position. The individual flowers are small and the leaves are a little coarse—the plant is, in a word, inferior.

Yet it has merits. The expression “It comes so early” is no slight praise when we have rather a scarcity of flowers of its class. The heads of white flowers come in well for mixing with other hardy flowers when cut. They are longer in the stem than those of the *Arabis*, which they so much resemble. The aspect of the plant is distinct as well, so that it has at least some recommendations. All this is, of course, the “faint praise” which has so proverbial an effect, but there is no attempt to disguise its deficiencies or overrate its good qualities. It is difficult to trace the intricacies of the nomenclature of the plant through the “*Index Kewensis*,” which does not adopt the specific name of *rotundifolia*. It is known in gardens by the name here given, and does not answer to the descriptions of *C. bellidifolia* or *C. rhomboidea* (to which it is referred in the *Kew Index*) as given in the “*Dictionary of Gardening*.” *Cardamine rotundifolia* grows freely in partial shade. In light peaty soil here it attains when at its full height a stature of about 15 inches. It blooms freely and lasts in flower for a considerable time, coming first into bloom in shade here at the end of February or beginning of March.

S. ARNOTT.

Carsethorn, by Dumfries, N.B.

FANCY CARNATIONS.

TO THE EDITOR OF THE GARDEN.

STR,—In my article under the above heading of February 5 I made some observations on German Carnations, which I see by a letter in your issue of March 26 M. Benary, of Erfurt, considers applied to his collection. My remarks were intended to be general, not personal. I did not mention M. Benary's name, and there are other large florists in Germany that send over here quantities of Carnations, and who issue a catalogue of varieties in English. I spoke of German Carnations as I found them, judging from considerable experience of most of those that at one time and another have found favour in this country, but which now, owing to the late great improvement in English varieties, no doubt do not command so much attention as they did a few years ago. I am very pleased to hear that *Monarch* has been classed for two years as the best Carnation at Birmingham in the fancy class, a circumstance of which I was not previously aware. I shall look forward with increased pleasure to see it flower in my garden this July. There are some excellent German varieties. We have not yet succeeded in beating Germania as a yellow self, although it grows sometimes, and in some localities, better than it does in others. *Britannia* emanates from Hayes, but I doubt if it is better than the first-mentioned, and this year we shall see what the new *Regina* is going to do. That took first-class honours wherever shown last year, and is now considered the best yellow yet produced. But these are selfs, and what I am being taken to task about is my observations *re* German fancies.

The varieties in this class which appear in some of the best catalogues comprise some fifteen or twenty sorts, of which, I think, it will be generally admitted that *Stadrath Bail* is one of the best. Now let everybody who is interested in German Carnations send at once to M. Benary for his list and invest in the best dozen that he can supply, say half a dozen of each variety, and let us have a little amicable competition at the next Birmingham show, which is held on July 27 and 28—English *versus* German fancies. I have no doubt my friend Mr. Sydenham, of the Midland Carnation and Picotee Society, would be pleased to put this crude idea into shape if he were approached on the subject; but anyhow, let us see if something of this sort cannot be

managed. This is the time to plant from pots (although it is of no use to attempt to do so from the open border), and *M. Benary* will, I know, if applied to, gladly supply any number of his best varieties, carefully packed and despatched in pots. We shall then see examples of the best fancy Carnations no doubt that Germany can produce, and these, with what we shall hope to show against them, should make an interesting and beautiful display. An extra prize might be given for the best single bloom in this class, and we shall then see whether *Monarch* will again prove victorious, or whether we can bring anything as good, or better, against it. I would suggest that the competition be for one, two, or three trusses of blooms, shown as grown in the open border, or cut from plants grown entirely in the open air, without protection of any kind and without dressing of any sort. As to what I said about the descriptions in the list I had then before me, it would have been, perhaps, just as well if I had let that alone.

H. W. WEGELIN.

St. Mary Church, Torquay.

FLOWER GARDEN NOTES.

EARLY-FLOWERING CHRYSANTHEMUMS.—I have potted off the batch of autumn struck cuttings of the above, and the tips taken and inserted rather over a month ago will be similarly treated when they are fairly well rooted. These Chrysanthemums are rapidly growing in favour for flower garden work, especially in those places where a late summer display is the main consideration and the majority of beds are of large size. As there are a certain stiffness and formality about them when planted in quantity without some relief, I like to fill in round taller subjects already sparingly planted, and for this reason have given the preference to very free pompons of dwarf habit rather than sorts of which *Mme. Desgrange* may be taken as a type, and which are too tall to be used as a kind of semi-carpet to taller things. Where, however, the formality is not an objection, beds simply a mass of flower and presenting an effective contrast can be formed by planting such sorts as *Desgrange*, *G. Wernig*, *Mrs. Hawkins*, *Ryecroft Glory*, and others in alternate blocks with the early-flowering *Starwort*, *Amellus major*, or without resorting to other species. Different varieties associated will afford pleasing contrasts, as those above named in connection with *Alice Butcher* and *Ruby King*, working down to the edges of the beds with dwarfier sorts. Returning again to the dwarf pompons, a selection comprising all or either of such sorts as *Anastasia*, *Deuil de Pere*, *Mme. Picoul*, or *Mr. W. Piercy* is just about the height required for grouping round nice bushes of *Hydrangea paniculata*, and in each case the colour effects a pleasing contrast to the huge masses of flower of the taller plant. The whites and yellows, of which *Nanum*, *Mychett White*, *l'Ami Condercet*, and *Flora* are four of the best, want something bright and glowing in shade as the larger plants round which they may be grouped, and the best thing for the purpose is probably *General Roberts Fuchsia*, a fine dark variety of free and lasting habit. If facilities for growing on large plants from spring-struck cuttings are not to hand, old plants can be saved, and these if started in a little warmth will make big stuff by the time the Chrysanthemums are in flower and show up well above them. The latter should not be planted too closely either together or in the neighbourhood of the *Fuchsias*. Plenty of room to develop is a good rule, and the little dip between the plants helps in a measure to break the formality. When getting the Chrysanthemums ready for the open garden, a batch in different varieties can be set on one side for pots. They make capital plants for summer decoration of the conservatory.

DIVIDING HARDY PLANTS.—Like "*S. W. F.*," I have always divided the majority of my hardy plants with a sharp knife—such things, at any rate, as *Lobelias*, *Pyrethrums*, *Phloxes*, *Spiræas*, and others of similar nature, and have never experienced any ill-effects—at least, the divided

portions come away well and flower profusely the first season, so the practice can hardly be so objectionable as "*E. J.*" seems to imply. I think it is entirely a matter of the careful performance of the work. Indiscriminate cutting certainly means mutilation, but if, after shaking the soil well away, the fingers are passed about the crowns, the cutting can be performed easily and expeditiously with little injury. If a plant is to be pulled entirely to pieces solely for the purpose of propagation, the system advocated by "*E. J.*" is doubtless the best, but so far as the severance of any favourite variety into two, four, or six pieces as the size may admit, simply to replant and slightly increase the stock, is concerned, I think the slight mutilation of root that may be the result of division by the knife will lead to no worse results than "splitting the grain in all directions" with a fork. Writing of division reminds me that one of the greatest favourites among herbaceous plants (*Gypsophila paniculata*) does not lend itself readily to this treatment—not, at any rate, in the case of old-established stuff—and the most satisfactory way is to strike from cuttings. These at the time of writing are just about the right length for insertion, and if they are slipped off and inserted firmly into 2-inch or 3-inch pots, a nice little stock will be quickly obtained. Let me suggest as a very interesting bed alternate plants of this *Gypsophila* and fair-sized clumps of *Montbretias*. It is an effective and a charming contrast.

DAFFODILS.—Referring to *Mr. Arnott's* note on *N. cyclamineus*, it would be interesting if he would tell us if variations are found in these seedlings alike in the elongation or diameter of the trumpet, in shade, or in the more or less pronounced reflection of the perianth. Also if in their case there seems a likelihood of permanent establishment and not annual degeneracy. This last failing is noted with me year after year if the case of bulbs it was desired to establish in the drier parts of the pleasure grounds. Despite the fact that they were planted at a depth of from 6 inches to 9 inches, it was only the first season that they seemed at home, and since then show annually signs of increasing weakness. They are better in the low-lying parts and have shown improvement. The soil is, however, in all cases too much on the light side for them. I mean, that is, the natural soil where it has not been improved by cultivation. In certain parts of the kitchen and flower gardens where they were planted for cutting the result has been invariably good, and capital clumps are now to hand as the result of the single bulb planted some years ago.

E. BURRELL.

Incarvillea Delavayi.—I note an inquiry in your last issue as to the treatment of this plant. As a large cultivator of it I can vouch as to its perfect hardiness in any soil, a fact which is in no way surprising seeing that it is a native of Northern China, where the winters are far more severe than with us. The tuber needs only to be planted in the border with an inch or two of soil above its crown and to be let alone, its position being carefully marked by a triangle of short stumps. It may be lifted in autumn if desired and replanted in spring, in which case it will flower later than if allowed to remain undisturbed. Then those who may be fortunate enough to possess a stock of tubers may regulate the period of flowering by the time of planting. When lifted the tubers should be kept in a pot of soil, not absolutely dry, to prevent shrivelling.—*W. THOMPSON, Ipswich.*

Crocuses on grass.—Colour effects in garden landscape that are visible at distances of 200 yards to 400 yards, provided the colour is of the right kind, can scarcely be without considerable merit. The latter is also much enhanced where the effect is lasting and not merely momentary, or lasting a few days only. When this may be accomplished with the rich yellow *Crocus*, at once one of the cheapest of bulbous plants, it may be seen that such work may be indulged in with a

free hand at very little cost. Examples of this style may be seen at Kew, where some spacious mounds are covered with the glowing orange gold of the *Crocus*. One of these may be seen to advantage from the extreme end of the large Palm house, Victoria Gate end, the slight elevation of the grassy mound, together with the dense verdant green sward around, providing a rich carpet that is pleasing and effective because not overdone. A sprinkling of blossoms has been apparent for some time, but now these grassy mounds are at their best, and should be seen by those interested in this style of gardening. The profusion of flowers that is kept up renders such places attractive for a long time.

HARDY CYCLAMENS.

LIKE *Rev. C. Wolley-Dod* (page 261), I do not see the difference between planting on the surface and adding at once and every year afterwards a thick dressing of leaf-mould or planting at once 3 inches or 4 inches deep in leaf mould. Plants imported from their native habitats often have the leaves produced from what one may call a more or less elongated "knob" above the bulb. This appears to be an indication that the bulb was considerably below the surface, and in planting such corms I always cover them in such a way that there is a little soil above the part whence the leaves are produced. In the case of corms without this knob I only cover slightly until the second year, when there is a top-dressing of light soil added, so that the bulbs are well protected from frost. I can only grow *C. europæum* (Linn.) in shade, but *C. neapolitanum* is less particular in this respect. One troublesome thing here, and one which causes me to lose time after time some of the *Cyclamens*, is the way in which the gales from the sea break off the leaves. This eventually weakens the growth and causes me to lose a good many plants. *C. coum* and *C. europæum* are more easily injured in this way than *C. neapolitanum*. *C. africanum* I have been able to keep for a year or two, but the climate is too severe for this species, which is so ornamental with its handsome leaves. *C. alpinum* I had by way of Italy about three or four years ago. The corms were very much dried and the plants never showed much vigour. A white variety soon succumbed, but the pink form flowered for two years, but is now lost. I have, however, a *Cyclamen* sent by *Mr. Whittall* from *Kayen Kaya* which appears to be *C. alpinum*, although it has not flowered. As *M. Guiheneuf* remarks, *C. alpinum* may be only a geographical variety of *C. coum*. It is a very beautiful little plant with much smaller leaves and flowers than *Cyclamen coum*.

S. ARNOTT.

Carsethorn, by Dumfries, N.B.

SAXIFRAGA APICULATA.

FROM the note on this beautiful little Rockfoil on p. 270 and from references elsewhere, one gathers that there must be some difference of experience as to its flowering. As one who does not care for growing alpinists in pots and who has only had *S. apiculata* under such conditions for propagating, I shall not venture to question the necessity of the treatment advocated when grown as a pot plant, nor shall I dispute the value of pulling the plant to pieces in gardens where its flowering is unsatisfactory. In many gardens, however, this is unnecessary, as this Saxifrage flowers with perfect freedom without being interfered with. I have had it growing here in one position and without being removed since 1891 or 1892, and it flowers every year with the greatest freedom. It has now formed a nice cushion of considerable size. Occasionally small tufts have been taken off for propagation or for giving to friends who admired it, but otherwise this clump has been left alone with the exception of having the old flower-stalks removed. It is grown within 2 feet or 3 feet of *S. sancta* and under the same conditions as that species, but is much more free

flowering. I find it does very well in full sun and planted in sandy peat, with a considerable proportion of grit mixed with a few broken shells and a little lime rubbish. It is also well supplied with water in summer. Much of the value of many of the Rockfoils consists in the beauty of their foliage. This is seen to greater advantage when they are allowed to grow into large masses, which are admired at almost all seasons. If we can secure such with abundance of flowers we are fortunate. It is not always possible, but where it is there is more pleasure in growing a plant than is the case if it has to be periodically torn to pieces. This is necessary with some things here, but not with the charming plant to which I refer.

S. ARNOTT.

Carsethorn, by Dumfries, N.B.

DAFFODILS IN LINCOLNSHIRE.

SPALDING, in Lincolnshire, appears to be a district well suited to the growth of Daffodils, and if one travel by rail from Peterborough to Boston or from Spalding to Lincoln he will see in April large quarters of Daffodils in full bloom. One grower has twenty acres under cultivation with Daffodils. He cultivates not only for supplying cut flowers, but also dry bulbs at the proper season. The leading varieties grown on a large scale are Sir Watkin, Housfieldi, Emperor, Empress, Grandee, Cynosure and Barri, all single, and of double varieties, Van Sion and Orange Phoenix, with the single Pecticus ornatus. The soil is a dark loam. It bears a great resemblance to the soil of Holland, but is of a rather heavier substance, and better adapted for Tulips and Narcissi than Hyacinths. One sees long beds, some 7 yards in width, some 10 yards and some 12 yards, filled wholly with one variety or with two varieties, and when in full bloom one of these beds presents a remarkable view. The flowers sent to market are gathered when about half expanded. They are taken into a house where a high temperature is maintained, here they expand without a blemish on their petals. They are then taken to the open in bunches and stood in troughs of water for a few hours, which imparts stiffness to the blossoms. They are then taken into a large room, made up into bunches by girls, then packed in boxes and despatched in various directions.

It must not be supposed that the newer forms are not also cultivated. There are beds of all the obtainable novelties of recent years. But there are standard varieties always in demand, such as those named above, and they are therefore cultivated in very large numbers. Every year plantations are uprooted and new ones formed. It takes from two to three years for a small offset to mature and become a strong flowering bulb. At the proper time the bulbs are lifted, carried to spacious barns, sorted, packed and despatched to their several destinations. Double Snowdrops are also largely grown. In walking through these bulb farms the visitor is struck by the order, method and cleanliness observed on every hand. Bulb-growing in Spalding is an interesting industry—a latter-day development that appears to be on the increase.

R. D.

NOTES AND QUESTIONS.—FLOWER.

Double Primroses.—What a pity these are not more often seen. I was impressed with their value recently as I picked some blooms from a good strong plant growing on the shady side of a Gooseberry bush. The blooms were large, very double, and had long footstalks.—DORSET.

Deep planting for Cyc'amens.—In your issue of March 12 in an interesting letter by M. D. Guineuf upon Cyclamens he says: "I conclude that deep planting is against the nature of these plants." This is not my experience with the tubers of the wild Cyclamens here in Attica, as to get them it is generally necessary to dig to some little depth.—E. H. EGERTON.

Candytuft Empress.—In this the flowers are white, large, and borne on long spikes several inches in length. As the plants grow much larger

than the ordinary Candytufts, they should have plenty of room, each individual having ample space for development. They should also be in good soil, for it is only when the plants are well grown that they can be seen to the best advantage. The seeds can be sown very thinly in drills and the seedlings thinned out to 5 inches or 6 inches apart, as they branch freely.—R. D.

Iberis stylosa.—This little Candytuft is one of our earliest flowers, and in a sunny position in the rock garden I have often had it in flower on New Year's Day. It is, in the dry soil in which I grow it, only about an inch high and inconspicuous, as are its little flowers; they are very welcome in an almost flowerless time. It also lasts in bloom for a good while. The flowers are almost white, with a slight tinge of rose throughout and with conspicuous styles. It is for all practical purposes a biennial here, but for the ten or more years in which I have grown it I can only recollect of having to raise it once from seed, and that was from that of my own saving. Self-sown seedlings always keep up the stock. Strictly speaking, its recognised name is *Noceea stylosa*, but seed is usually offered under *Iberis*.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Hardy Cyclamen (erratum).—I owe an apology to Sowerby's "English Botany" for having said that the portraits there given of British Cyclamen are referred to *C. europæum* (Lin.). I find on reference that they are named *C. hederifolium* (Willd.), which is rightly there identified with *C. europæum* of Smith's "English Botany" and of Bentham's "Handbook of British Botany" and with *C. neapolitanum* (Tenore). I was confusing Smith's "English Botany" with Sowerby's. Bentham, though he mistakes the identity of *C. europæum* (Lin.), rightly calls the species which is naturalised in England "the common Cyclamen," as it is by far the commonest hardy Cyclamen in English gardens. When, however, he speaks of ten or twenty varieties, nearly all belonging to it, being in cultivation, he might have added that there are endless gradations between the varieties both in the shape and markings of the leaf and the colour of the flower, all of which come from seed of the same stock.—C. WOLLEY-DOD, *Edge Hall, Malpas.*

Violet Marie Louise.—In my notes on this I did not question the fact that "climatic influences, situation, and soil affect this Violet." I did not say that the roots were active at Christmas; and if the roots that possess feeding points at pitting-time are checked by lifting, as I argued, then I should expect to find them at Christmas in just the condition Mr. Roberts hints at. I have grown this Violet in South Wales, in Suffolk, and various other parts of England, and know full well "the value of retarding the blooms," but I thought I made my meaning clear in my last note that there is no need of turning the heat on when it is not required. I am aware that forced flowers in the dark days are not exactly of first-rate quality, but they are greatly valued in private places none the less, and fetch a big price in the market. Hence my advice for a single 4-inch pipe where a succession of flowers through the winter is aimed at. A few dozen pots in a cool Peach house may answer the same purpose, but Violets in pots are more difficult to grow than in frames.—H.

Chionodoxas failing.—My *Chionodoxas* grow in various pockets of a rock garden. The soil is good friable loam, in which silver sand was mixed when they were planted. The three clumps of *C. Lucilia*, planted in 1889, have increased in size and beauty every year; so have three out of four of *C. sardensis* planted in 1895, but the fourth has always been affected by disease. The bulbs are mixed with *Narcissus minimus* in three of the pockets, but this flourishes in all. The affected flowers are of an unhealthy pinkish purple, and each year the same three bulbs are affected.—JUNIA.

* * It would appear that fungus of some kind or other is attacking your plants, which, however, we were unable to determine from the specimens

sent. If, however, we are correct in our surmise, the fungus will be apparent at the summit of the tube; this presently bursts, and the germs thus liberated both disfigure and destroy the colour. The only known remedy so far is to sprinkle dry slaked lime over the affected, if not the whole of the plants now in flower, and later on when at rest lift the bulbs, and, having given a complete rest, replant in a fresh spot with new soil.—ED.

Cyclamen cilicium.—On p. 235 Mr. Wolley-Dod points out that the spelling of the specific name with a third "c" in this case is wrong. He points to the fact that Boissier (the authority for the name) spells it without it, and he states that Boissier "is seldom wrong in the spelling of his classical names." He further states that "the Latin adjective for cilician is *cilicius*, never *cilicicus*." Now if it be the case that this name should always be spelt without the third "c," Boissier, as a perusal of his "Flora Orientalis" will show, is oftener wrong than right. In nine genera—*Carex*, *Euphorbia*, *Galium*, *Haplophylum*, *Nepeta*, *Pyrethrum*, *Salvia*, *Scorzonera*, and *Verbena*—he uses the third "c," while in seven—*Allium*, *Astragalus*, *Campanula*, *Erigeron*, *Potentilla*, *Senecio*, and *Vicia*—he leaves it out. Boissier and Heldreich use the third "c" in *Sideritis*, while in *Celsia* and *Cyclamen* it is left out. Boissier and Balansa and Boissier and Kotschy invariably make use of it in the eleven species described by them, as do also all the other authorities mentioned in this work who have applied the name, with the exception of Kotschy, who in one instance seems to depart from his usual practice. In the genus *Crocus* he applies the name to two distinct species, the third "c" being used in one case and left out in the other. In the whole "Flora" the name occurs with the third "c" in thirty-six genera, and in ten without it. Which is right?—A. D. RICHARDSON, *Royal Botanic Garden, Edinburgh.*

ORCHARD AND FRUIT GARDEN.

HARDY FRUIT PROSPECTS.

AFTER an unusually mild winter we have been visited with some extraordinary weather at the end of March. The rainfall up till the 24th had been very light for the month, as only .38 of an inch had fallen, and the weather, with the exception of the nights of the 6th and 13th, had been fairly mild. On these two dates we registered 14° and 15° of frost. The nights of 17th and 18th were very mild. On the former date the thermometer did not fall below 48°, and on the latter 47°. After this the nights became cooler, with bright sunny days. On Tuesday, the 22nd, the temperature reached as high as 60° in the shade. On the 24th and 25th snow fell nearly all the time both days, the aggregate when melted being 1.00. There was a little improvement on the 26th and 27th, though on each night we registered 4° of frost. With such weather there is little wonder that the fruit trees in bloom suffered so seriously. Many of the Apricot flowers were killed on the nights of the 6th and 13th, and what escaped then were destroyed later on. Peaches and Nectarines, though not nailed until the beginning of the month, were in full bloom and suffered in a like degree. Many of the Plums, too, were in full bloom, and, strange to say, those on the north walls were the first to expand their flowers, such, for example, as Grand Duke, Purple Gage, and a few others. With the Apricots it is not only the flowers that have suffered, but many of the branches are killed entirely. So far the Pears and Apples do not seem to have suffered, though many of the former were just expanding their buds. Gooseberries have suffered seriously, as many of the trees were in full leaf. In this district it is usually

the mild winters that are the most destructive, for growth commences early and is afterwards checked by the late spring frosts. During the last twenty years that I have had charge of the garden here there have been several springs when the frost has been most severe during the time Peaches and Apricots were in bloom, but rarely has this happened after a severe winter. In low-lying places there is a greater range of temperature than there is on higher ground; for instance, on the hills only a few miles away the Calceolarias that were planted out last spring are still green, and many other things that have died in the low ground are still fresh on the hills. Provided shelter can be given from high winds, kitchen gardens should always be made on elevated ground. In years gone by, when the appliances for raising water were not so numerous, the lower ground was chosen with a view of always having a good supply; but in these days of improved mechanical power there is no need for making kitchen gardens in low places.

It is too soon yet to say what damage has been done to the Cherries, as but few of them are in bloom; those, however, that have expanded have suffered the same fate as other fruits. There is a great advantage in having the walls protected with glass, provided proper ventilation is afforded. Houses so built ought always to have movable lights, that the air may be freely admitted in the autumn. When the ventilators are hung at the top it is seldom that sufficient air is admitted, the consequence being that, unless great care is given, there is a plentiful supply of red spider. Glass is so cheap now that very little more expense would be needed to cover the walls with it than is required for purchasing protecting material every two years. But, as before remarked, all such structures should be provided with ample ventilation, and the ventilators kept open both at top and bottom whenever the weather is favourable, that a free circulation of air may pass through, to retard the blooming period as much as possible. I have frequently noticed that trees in such structures are usually not so forward as those against open walls, as the cold current of air passing through keeps the temperature lower than that against the walls until the sun gets power to act direct on the glass, when, unless plenty of air be afforded, the temperature will rise rapidly.—H. C. P.

—The uncertainty of our climate has seldom been more manifest than during the past few days, when, after one of the mildest of winters and when we were congratulating ourselves that all danger of anything like severe weather was past, the wind suddenly changed to north-east with almost hurricane force, accompanied with sleet and snow. The Daffodils, Hyacinths, and other spring flowers have been sadly battered and weather-beaten. The blossoms of our fruit trees give the most cause for anxiety, and seldom has protection been more needed for Apricots, Peaches, Nectarines, and early Plums, which are very full of fully-expanded bloom. Where protected by old fish nets I think they have up to the present stood the severe test well, for it is surprising how well this apparently slight protection shields the blossom from wind-frost. Fruit trees in the open are, happily, not far enough advanced to suffer much. Pears, which are the most forward, have very few expanded blossoms. Plums and Damsons are also safe, but getting dangerously near the expanding point. Apples, that are by far the most important of all our fruit crops, are, happily, quite safe at the present, and this check will retard them so much that they will be little, if any, in advance of

ordinary years in the period of the blooming. Bush fruits have not apparently suffered much up to the present, although Gooseberries are getting well advanced in leaf and flower. The check to vegetation will be especially welcome to the growers of Strawberries, for the crowns had been unduly forward all the winter, and looked like bursting into bloom some weeks back. I think the cold will do much more good than harm.—JAMES GROOM, Gosport.

PLANTING CUT-BACK VINES.

THERE is often too much hurry in planting Vines at this time of year, and I have to plead guilty of it myself. Having the borders all ready and nicely warm and the Vines in rather smaller pots than I liked them, I planted the last week in February in two small vineries here. They came away beautifully, and I was congratulating myself, but the present cold snap is all against them, notwithstanding the temperature has been kept well up. It is not that they are badly checked by any means; still, the progress during the last week has not been so rapid as it was before, and this cannot be styled quite satisfactory. In my case the borders are entirely inside—unavoidably—so that it is not at the roots that the trouble is. The cold winds have done it, coming in at every crevice as they do, and would do, no matter how much heat was provided inside. Had the canes been left in the pots, the roots would not have been disturbed, and the young shoots, being further from the glass, would not have felt the difference in the temperature. The growth would not have been quite so free up till now, but there would have been no check afterwards had they been kept in the pots and planted the first week in April. Where any doubt exists as to the temperature of the borders, the old-fashioned plan of a mild hotbed of leaves on the surface is still a good one, but considerable care is necessary in its application and still more in its removal. I remember well a house of Muscats that for years had been forced early were not making quite the headway that was necessary if they were to be up to time, and this plan was followed, with the result that the laterals soon moved more freely. When this was removed the lower couple of inches was quite matted in places with strong white roots, and as this was not quite expected, there was nothing at hand to cover them with, and being a bright day they were doubtless rather dry. The last state of these Vines was a good deal worse than the first, and what was usually a creditable house of fine bunches was for the season quite the reverse from shanking. Had the material been removed piecemeal and a little nicely tempered soil been laid on, the Vines would never have missed it. Still, if young or old Vines can be kept going without it, it is a good deal better for them, for the roots made under these circumstances are by no means the best. When planting Vines from pots it is a mistake to leave the roots coiled up closely as they have grown, no matter how many strong young points there are upon them. The more they are spread out the more freely they ramify afterwards, while the check given by shaking out is not worth considering. A tight ball of roots will always be dry.

H.

NOTES AND QUESTIONS.—FRUIT.

Too many varieties of Pears.—The grower who is about to commence Pear culture is almost at his wits' end to know what to grow when so many have so excellent references, and my advice to those about to plant or select will be to reduce the number to a dozen or eighteen sorts. Any one may get the cream if he does not exceed two dozen kinds. I fail to see why so many poor varieties are catalogued. I am aware that sorts which succeed in one soil fail in others, as locality affects the growth and cropping.—S. M.

Apple Court Pendu Plat.—This Apple is a great favourite on account of its keeping quali-

ties. It is a distinct-looking fruit, having a flattened appearance and a firm flesh. The tree does not make a strong growth. It makes a compact bush on the Paradise stock, but I prefer it in standard form for late supplies. This tree in standard form is one of the last to open its flowers. The fruits are very firm and sweet, of a bright red colour, with russet markings. It thrives in most soils. I have bush trees which fruit freely, but the fruit does not keep so long as that from standards.—G. WYTHES.

Peaches on open walls.—It is curious to note that, although vegetation of nearly every kind is much earlier than usual here, Peach trees are fully as backward as usual. This will be all the better, of course, provided we get the usual white frosts in April and May, as the later the flowers are in opening the more likely are they to escape. Still, it seems rather singular that such trees as *Prunus Pissardi* should be in full bloom in an exposed position, the buds almost ready to burst on Pears close to them, while Peaches on a warm wall have not started. The flowers of Pears, Plums, Apricots, and Cherries are in a very forward state this season.—SUFFOLK.

Apple Margil.—This is probably one of the oldest of known Apples and certainly one of the best. From healthy well-grown trees the fruits are of good dessert size, conical and pale russet-yellow in colour, with a few streaks of crimson and golden orange. The flesh is yellowish, juicy, and of excellent flavour, the fruit keeping well into March if properly stored. The dry shelf with straw or paper on it in an airy light fruit room is by no means the best position for keeping good dessert fruit. Unless very clean and sweet, straw is apt to taint the fruit, and the more delicately flavoured kinds are the first to take a musty taste from bad surroundings.

Apple Lamb Abbey Pearmain.—This Apple is not seen so much as its merits deserve. Possibly its small size may be against its being a favourite. Those who study quality would do well to include this variety in their collections. A few years ago I saw this fruiting freely in the Royal Horticultural Society's Gardens. A dish of this secured the premier award for flavour at the last meeting of the Royal Horticultural Society, eight others being pitted against it. The fruits in question were as firm as when gathered and of delicious flavour. They were no doubt gathered from standard trees, as it does well grown in this form. It is a valuable dessert Apple during March and April.—S. H. B.

Peach Marquis of Downshire.—This is a very fine late Peach not so much grown as it deserves. Though many object to late Peaches as being deficient in flavour, no one can complain of this variety on that account if given a good position and the wood grown thinly to allow of the fruit finishing well. This is a distinct variety and in season at the end of September or early in October, according to the position it is grown in and the locality. The fruits are above medium size and handsome, with tender flesh. The stone comes away freely from the fruit, the flesh being very red at the stone. The flowers are large and it sets grandly. I have it on a west wall and prize it more than Barrington as regards its quality.—G. W. S.

Ripe Strawberries in Covent Garden.—With such large importations of various foreign fruits, ripe Strawberries have been selling badly. I am aware there are other causes besides foreign imports, as the immense quantities of glass that have been erected and the great increase of growers all tend to lower prices. Many other fruits, such as Grapes and Bananas, are so cheap at the present day, that no one can wonder at these being preferred to the Strawberry, which does not keep and at times sadly lacks flavour. I note that the fruits now sent to market are really excellent, in most cases bright in colour and equal in appearance to outdoor samples. There is no cause to complain of quantity.—S. H. B.

Strawberry Royal Sovereign.—It is many years since we had a new Strawberry with the

general good qualities of the above. I am aware for flavour it is not a British Queen. The advent of Royal Sovereign was a boon to those who need Strawberries in quantity and early. I find I can get this variety ripe earlier than any others with far less anxiety as to setting. There is no question as to the value of the fruit when forced, and it is a favourite in the market. I am aware market value in many cases is not a test of quality, but one must balance weight of crop, cost of production, and other points against mere quality. It travels well, and for a forced Strawberry is not of poor quality. For open beds it is one of the best paying Strawberries I have grown, and is not at all fastidious as to soil.—G. W.

ORCHIDS.

HYBRID MOTH ORCHIDS.

THE one ambition of the late John Dominy (the pioneer of Orchid hybridisation) was to see the flowering of an artificially raised hybrid Phalenopsis. This desire was never gratified, for it was not until 1886 that Mr. Seden successfully flowered and thereby proved the parentage of the previously known natural hybrid *P. intermedia*. It was raised by the intercrossing of *P. rosea* and *P. Aphrodite* (*amabilis*). The seed was sown in 1882. This hybrid and its varieties are too well known to need description here. The second hybrid to appear was *P. Rothschildiana*, the result of crossing *P. Schilleriana* with the pollen of *P. amabilis*. It was also raised in Messrs. Veitch's nursery and first flowered in 1887. It has the intermediate characters of the two species. The upper sepal is white, and the petals also are white. The apical half of the lower sepals is white, the inner halves light yellow, thickly spotted with bright purple towards the base. The front lobe of the lip is white, stained with yellow towards the base, and thickly covered with small red spots. *P. Harriette* (*P. amabilis* × *P. violacea*) also flowered in 1887 in Messrs. J. Veitch and Sons' nursery, the characteristics of both species being clearly discernible. The



Phalenopsis John Seden. From a photograph by Mr. Bowden, Dulwich.

sepals and petals are cream, stained at the base with rose-purple, the front lobe of the lip bright purple, shading to cream, thickly spotted with two shades of purple. The growth also has the intermediate characteristics of the two parents. In *Phalenopsis F. L. Ames* (*P. amabilis* × *P. intermedia*) the influence of *P. intermedia* has had a deteriorating effect in its combination with *P. amabilis*, but it is, nevertheless, an interesting hybrid. It was raised in Messrs.

Veitch's nursery, and first flowered in 1890. The sepals and petals are white, the front lobe of the lip reddish purple, the side lobes white, spotted with purple at the base. *P. John Seden*, the subject of the accompanying illustration, was raised in Messrs. Veitch and Sons' nursery and first flowered in 1888. It is a cross between *P. amabilis* and *P. Ludde-manniana*. The flowers are each upwards of 3 inches across, the sepals and petals ivory-white, densely and regularly spotted all over with delicate purple. The lip also has the intermediate characteristics of the parents both in colour and shape. The plant from which the photograph was taken was exhibited at the Royal Horticultural Society's meeting on March 8 last, and was the first to flower from a second batch of seed which was sown in 1891. *P. Vesta* and *P. Leda* closely resemble forms of *P. intermedia*, having the sepals and petals suffused with delicate rose. Both were raised by Messrs. Veitch. *P. Artemis* (*P. amabilis* × *P. rosea*) also closely resembles *P. intermedia*. *P. Amphitrite* (*P. Sanderiana* × *P. Stuartiana*) originated in Messrs. Sander's nursery. The characters of both species are well combined. *P. Ariadne* (*P. Aphrodite* × *P. Stuartiana*) flowered in Messrs. Veitch's nursery in 1896. The sepals and petals are white; the lip as nearly intermediate as could possibly be. It is an interesting and beautiful hybrid. *P. Hebe* (*P. Sanderiana* × *P. rosea*), as might be expected, resembles *P. intermedia*.

A few weeks ago a small plant was in flower in the Clapton nurseries of Messrs. H. Low and Co., the result of a cross between *P. Schilleriana* and *P. Stuartiana*. It was intermediate in character between both parents. I have not seen any record of its being named.

H. J. CHAPMAN.

Zygopetalum Perrenoudi.—A small plant of this hybrid was shown by Messrs. Williams at the Drill Hall on the 22nd. The spike bore several flowers, the sepals and petals of an olive-green tint, not attractive, but the lip is very bright and pretty, of various shades of violet and purple. The plant is of fairly strong habit, as would naturally be the case, its parents being *Z. intermedium* and *Z. Gautieri*. It more resembles the former kind, and will probably thrive under similar conditions.

Cypripedium Rothschildianum.—I recently noted a nice form of this. It is one of the finest of *Cypripediums*, not only bearing handsome flowers, but stately in habit. The ground colour is principally yellow, but so heavily spotted as to be almost hidden in places. It is a good grower where plenty of warmth and a moist atmosphere are at command, and should be allowed fairly large pots and a compost consisting of peat fibre, loam, and Sphagnum, with abundance of rough lumps of crocks and charcoal. It is a native of New Guinea, and first flowered in this country about 1888.—H. R.

Masdevallia Veitchiana.—There are few more showy species than this, the massive flowers, though not so richly tinted as those of some of the *M. Harryana* kinds, making a very fine display just now. The flat portion of the flower measures about 3 inches in diameter, and is a purplish-erimson in colour, varying in intensity. It does well in quite a cool house, and may be grown in pots in a thin but open compost over good drainage. Water is necessary all the year round,

and a very moist atmosphere serves to keep insects in check. *M. Veitchiana* is a native of Peru, where it is found growing at a great elevation, and was introduced by Messrs. Veitch and Sons in 1867.

ODONTOGLOSSUM CRISPUM VAR. BARONESS SCHROEDER.

This is one of the most remarkable forms of *O. crispum* in cultivation. In its distinct markings



Odontoglossum crispum Baroness Schröder. From a photograph by Mr. Bowden, Dulwich.

it is unique from any form that has yet been seen. It was purchased by Baron Schröder some twelve years ago, when it first flowered after importation. It was then a tiny plant with only a single flower. *O. crispum Baroness Schröder* seems to defy all endeavours to induce it to gain strength and vigour. It is now very little bigger than it was when it was first procured, and is considered by Mr. Ballantine one of the most difficult plants he has ever had to deal with. It was first exhibited at the Royal Horticultural Society's meeting on June 12, 1894, when it was awarded a first-class certificate. The accompanying illustration was taken when the plant was last exhibited on March 8 at the Royal Horticultural Society's meeting in the Drill Hall, the Orchid committee again showing their appreciation of it by their endeavour to recommend it for a gold medal. The flowers are each 3 inches in diameter, the sepals almost wholly covered with rich crimson-purple, margined and barred with white, the petals wholly covered with crimson-purple from the base to the apex, margined and mottled along the edges with white, the lip white, with a large crimson blotch in the centre, shading to yellow at the base. The small plant carried a two-flowered raceme, the flowers of which were of perfect form and substance. There have been a great many forms of *O. crispum* introduced of late years, as a glance at THE GARDEN reports of the past Royal Horticultural Society's meetings will show, but for richness of colour there is none to compare with the subject of the illustration.

H. J. CHAPMAN.

Rodriguezia planifolia.—A flower-spike of this pretty and sweetly scented little Orchid comes from a correspondent who has flowered it

for the first time. It varies a good deal in colour, but is usually some shade of orange with darker markings about the lip. It is not always a success under cultivation, being one of those plants that are singularly impatient of much compost about the roots. The best plants I have seen were grown on almost bare blocks suspended near a tank in a hot, moist house, and during the warmest months of the year the blocks were often taken down and dipped. It may also be grown in pans with a little Moss about the roots. It is a native of various parts of South America, and was introduced by Messrs. Loddiges about 1822.—H.

Epidendrum sceptrum.—This is a variable and pretty species, producing long racemes of flowers of a yellowish-white with deeper-coloured lip. The colour of the latter varies from a pale rosy-magenta to deep purple, and is often lined with yellow. The plants are not at all difficult to grow, though the flowers are not always very freely produced. It does best in the coolest part of the Cattleya house, or any structure kept a little above that of the cool house. The pots for it should be small, and a compost of the usual character will grow it well. Water freely while in active growth, and during the resting season give enough to keep the pseudo-bulbs plump. It is a native of Venezuela, and was introduced in 1843.

ODONTOGLOSSUM CORONARIUM.

THERE are not many growers in the ordinary way that are successful with this pretty species, but now and again one comes across specimens that are well managed and freely flowered. A great many make the mistake of giving it too confined a space, and, as I noted recently when speaking of Cattleyas, using the compost too fine and taking more care to give the plant a smart appearance than to ensure its well-being culturally. The habit is so totally different from that of *O. crispum* and the usual run of cool-house species, that to treat it on the same lines is quite wrong. The roots are of the same class as those of *O. grande* and similar kinds, that prefer rambling about over rough lumps of charcoal and peat to coiling themselves closely within the circumference of small pots. The pseudo-bulbs, again, are produced at a good distance from each other on the rhizome, so that they soon grow out of their pots if treated in the ordinary way. As very large pots are cumbersome, some growers favour trellised rafts with a couple of inches of compost upon them. They are excellent in theory, but untidy in practice, no amount of care at the time of planting preventing the material from shaking out or being silted out with the continuous watering. Pans are not so heavy or awkward as large pots and they keep the compost together. Flat, shallow baskets answer the same purpose, and are perhaps to be preferred to either, for the plants like light, and these may be easily suspended from the roof, while a large pan is rather heavy for this purpose. Plenty of rough material should, as hinted above, be placed with the compost, and width rather than depth is to be studied. *O. coronarium* dislikes disturbance more perhaps than any known kind, and this must be kept in mind when giving new material. Give plenty of room, even if it is filled up with crocks, as these can be removed when necessary and additional compost substituted. It is rather a singular plant in its habit and has no proper resting season. Often the plants are in growth the whole year round: sometimes they go for several seasons without producing a flower-spike. At others they flower very freely, and the large spikes constitute a rather severe strain upon the resources of the plant. Water then is necessary all the year round; more, of course, when active growth is going on and the atmospheric conditions favour rapid evaporation than when opposite conditions prevail. Drought either in the atmosphere or at the roots is wrong at any time, and is very apt to lead to an attack of red spider in the foliage,

a pest to which this plant is liable when not well managed.

The flowers of *O. coronarium* occur on erect spikes, a good many being produced on each, and each flower in a good form is about 2½ inches in diameter. The sepals and petals are chestnut-brown, the surface of these shining like the blossoms of *O. grande*, and the lip is yellow in front, marked about the column with white and purple. The species is somewhat variable, some forms having a bright yellow margin to the outer segments, others being more or less spotted, but they are all pretty and worth a little trouble to do them well. *O. coronarium* is found growing naturally at an elevation of about 1000 feet in New Grenada, so that under cultivation a cool, airy house and an atmosphere laden with moisture almost to saturation point suit it best. But this is not practicable in winter, of course, as our dark short days would under such treatment be very dangerous. A light house, a little heat on the pipes to keep the air moving, and as free ventilation as may be under the circumstances are the best we can give them at this season. Shade heavily in summer and do not allow the flowers to remain very long on plants that are weak or only semi-established. It was introduced about 1847 by M. Linden, of Brussels.

PHAIUS TUBERCULOSUS HYBRIDS.

IT is not at all surprising to those familiar with the beautiful characteristics of *P. tuberculosus* to find the four seedlings have inherited many of the fine qualities seen principally in the lip of that species. Not only has the colouring of the lip been transferred, but also the broad, open, and somewhat flat characteristics predominate in each of the different crosses in which it has been used. *P. tuberculosus* as a species is one of the most difficult Orchids in cultivation to grow satisfactorily. I have had four plants in my charge during the last five years. All four have been placed under the same conditions, within a few inches of each other. One plant continues to grow in a satisfactory manner, while the others are practically at a standstill. I know various others whose plants, like the majority of those in my charge, have been in about the same condition for years. The majority of the plants originally introduced have disappeared altogether. It is, therefore, surprising to note the robust habit and constitution of the seedlings which have resulted from intercrossing it with other species.

The seedlings require the treatment of the warm intermediate house, the potting compost consisting of good fibrous peat with a free sprinkling of turfy loam and a little Sphagnum Moss. To this may be added broken crocks or rough sand to keep the compost in a porous condition. When growing they require a liberal supply of moisture at the roots, with drier and somewhat cooler quarters during the resting season. While in flower the plants may be placed in a conservatory where the blooms last in perfection a considerable time.

Mr. N. Cookson, Oakfield, Wylam-on-Tyne, was the first to flower seedlings of this section of *Phaius*, his first introduction being

PHAIUS COOKSONI, the result of crossing *P. Wallichii* with the pollen of *P. tuberculosus*. This was exhibited at the Royal Horticultural Society's meeting on March 11, 1890, when it was awarded a first-class certificate by the Orchid committee. The habit of growth resembles that of the seed-bearing parent to a large extent, being dwarfed by the influence of the smaller-growing species. The flowers are produced on stout upright spikes, as seen in *P. Wallichii*. The sepals and petals also resemble those of this species, being light rose in colour, sometimes with a yellowish brown tint or pale salmon suffusion along the centre; the petals are rather broader than the

sepals; on the inside the colour is bright yellow at the base. The side lobes are marbled with crimson, sometimes suffused with brown, the front lobe heavily fringed and somewhat reflexed at the apex. Externally the flowers are bright yellow. It is a desirable and beautiful form, worthy of every consideration.

P. AMABILIS was raised by Mr. J. Seden in the nurseries of Messrs. J. Veitch and Sons, and was brought into notice on February 14, 1893. It is the result of crossing *P. grandifolius* with the pollen of *P. tuberculosus*. In the sepals and petals the ground colour is white suffused with pink, the large lip similar in shape to that of *P. Cooksoni* and externally yellow. The characters of growth are intermediate. The flowers are produced on scapes 15 inches to 18 inches in length. It is of good constitution and worthy of every consideration, being one of the most attractive of the hybrid *Phaiuses*. It received a first-class certificate when exhibited at the Royal Horticultural Society's meeting on the above given date.

P. MARTHE (*P. Blumei* × *P. tuberculosus*), raised by Mr. C. Maynard in the nurseries of Messrs. F. Sander and Co., was first seen at the Royal Horticultural Society's meeting on March 13, 1894, receiving a first-class certificate. This is one of the finest of the section. The sepals and petals are pale buff-yellow, of good size and substance, the front lobe of the lip white, blotched with rose in front, yellow with golden brown spots at the base. In growth it has the intermediate characters of the two parents.

P. NORMAN.—This is a cross between *P. Sanderianus* and *P. tuberculosus*, and was exhibited on March 8 last, when the Orchid committee unanimously awarded it a first-class certificate. It was raised in Mr. Cookson's collection. The sepals and petals are creamy yellow, suffused with purple; the broad lip deep purple in front, becoming suffused with brown towards the centre and through the side lobes. The flowers are produced on erect spikes. Some of the plants exhibited carried as many as eighteen flowers and buds. It appears to possess a robust constitution, judging from the numerous plants that were exhibited. There is in this, as in all other classes of seedling Orchids, considerable variation. Two other forms were also selected for distinction, the committee showing their appreciation of the distinctive merits by awarding a first-class certificate to *P. N. roseus*—this variety had a distinct rose colour suffusing the whole flower—and *P. N. aureus*, which received an award of merit.

The many forms are worthy of every consideration, and there is no doubt they are superior in every respect to any of their predecessors, and should have a place in every collection of Orchids. H. J. C.

Dendrobium Boxalli.—This pretty *Dendrobium* is by no means common, and a few well-flowered plants in Messrs. Low's group at the Drill Hall were very attractive. The plant is now generally supposed to be a natural hybrid between *D. Devonianum* and *D. crystallinum*, and this view is considerably strengthened by the fact that the scent is almost exactly that of *D. Devonianum*. It resembles this latter species somewhat in habit; the sepals and petals are white with purple tips, the lip yellow, with a whitish border. The blossoms are freely produced along the upper part of the stems, usually in pairs. It thrives under similar treatment to that recommended for deciduous kinds, and is a native of Lower Burmah, whence it was introduced in 1875.

Vanda cœrulescens.—The flowers of this charming *Vanda* are now opening, and although not so large as those of *V. cœrulea*, they are equally beautiful, the long racemes of pale blue flowers with deeper lip always being admired. It may be much more satisfactory than it is if only a little more common—sense were brought to bear on its cultivation. The plants are natives of mountainous regions in Burmah, where, although

doubtless it is very hot at midday, the exposed positions and the night dews form an atmosphere very different from that of a close Orchid house at night. It delights in heat, no doubt; heat from the sun especially more than from hot-water pipes, and, although we must perforce keep it in a tropical house, let the ventilation be perfect and keep the night temperature as low as possible. As much sunlight as possible without injuring the foliage is necessary, and for this reason the plants are best grown in baskets, so that they may be hung up near the glass. Keep the shading off the roof, then ventilate the house early and damp freely. The compost may be clean Sphagnum Moss, crocks, and charcoal only, and it is best to avoid very large receptacles. It must be somewhat freely watered at the roots in summer, but during the darker winter days very little suffices, only enough to keep the foliage in good condition being allowed.

Miltonia vexillaria.—The earliest flowers of this popular and lovely Orchid opened with me on March 23, considerably before their usual time. This should be grown by all who have an intermediate house at command. Too much heat is doubtless bad for it, but I have never been really satisfied with its behaviour in a cool house as usually understood. The growth is not free enough. I like to see the young shoots come away rapidly in early spring and root freely, so that they take plenty of water by the time the flowers open, and this they never seem to do in a cool and much shaded house. Some have objected to the warmer house because of thrips, but these make their appearance no matter in what temperature the plants are grown, and are, if taken in time, easily subdued by fumigating. Damping down in the house with soot water or liquid manure is very helpful in the culture of this Orchid, and in my estimation far preferable to feeding the plants at the root. The foliage soon shows by its deeper, healthier tint the good effects of ammonia in the atmosphere, and this without any danger, but in feeding at the roots there is always a risk of an overdose, and no matter how carefully it is applied it is questionable if much lasting benefit accrues. Frequently dipping in tobacco water and subsequent sponging are of great benefit in case of thrips appearing.—H.

KITCHEN GARDEN.

CUCUMBER CULTURE.

WITHOUT wishing in any way to disparage the many novelties among Cucumbers, I would yet unhesitatingly place the market grower's sheet anchor, Covent Garden Perfection, or Rochford's first. The fruit of the latter may not be so handsome as that of a dozen other varieties that could be named, but in point of quality it is unsurpassed, added to which it will keep quite fresh and eatable longer by several days than any other sort I know. In habit of growth, Rochford's is as near perfect as I ever expect to find a variety. It is of sturdy, short-jointed growth, the leaf-stalks short, the leaves of medium size, and the plants invariably very productive, without being sensationally so at any time in their career. For the benefit of those who have not seen this variety I would add that the fruits are of medium length, straight, somewhat thick, well furnished with spines—a point in their favour with the buying public—and not overburdened with "handles." Let me advise readers to try it. Once given a fair trial, it will always be grown.

It cannot be denied that the best formed, most quickly grown—and, therefore, the most wholesome—fruits are produced by young plants. Instead, therefore, of private gardeners adopting or still clinging to the old-fashioned plan of putting out a few plants and allowing these a considerable amount of head-

room with a view to keeping them in a healthy, productive state the whole season, it would be more to the purpose if the market grower's methods were followed. Four or five batches of plants, sowing at intervals of six weeks or so, are none too many, with a sixth if fruits are wanted in the winter. Whether two, four, six or eight plants constitute a batch should depend upon the conveniences for growing them and the requirements of the establishment to be supplied. Very little more space will be required, and not much more labour need be expended than is needed in the case of the older plan, and there would be no comparison between the value of the crops resulting from the two methods if tried side by side. Cucumbers pay for and must have good culture. From the time the seedlings show through the soil they must be kept growing strongly, and when the plants fail to respond liberally to good treatment, they are no longer worth house room. Commence well by sowing the seed singly in 3-inch pots of light loamy soil (not many in a pot, Mustard and Cress fashion), and place on a hotbed or a staging in moist surroundings, and in a temperature of 65° to 75° to germinate. When the seedlings are forming their third leaf, top-dress with more of the same kind of soil, and by the time this has become thinly occupied with roots strong plants will be ready for their final quarters. There must be no undue delay in planting, stunted plants not recovering quickly or satisfactorily from a check of that kind.

The fronts of well-heated lean-to and the sides of span-roofed houses are the best positions for Cucumbers, arranging them where those in charge can have easy access to the soil they are grown in. For early crops, or for plants raised early in January, bottom-heat is indispensable, and it is of good service for forwarding a successional batch. I prefer heat generated by hot-water pipes, the soil not coming into immediate contact with them, to hotbeds of manure or manure and leaves, the latter quickly losing heat, decaying and becoming badly saturated. The roots ought scarcely, so to speak, to be lost sight of, and the soil should be of a light open character accordingly. If really good fibrous loam is available, this greatly simplifies the matter, but more often than not heavy loam with little or no fibre in it has to be used, in which case nearly fresh horse manure, good leaf-soil and charred soil ought to be freely mixed with it. On no account commence with a large heap of soil for each plant. They succeed far better if the start is made with a peck or rather more soil in each mound, adding more as the plants gain size and the roots become plentiful. Arrange the heaps 2 feet apart and do not plant in them before the soil is well warmed through.

TRAINING

the plants is a very simple detail. They should not be topped until they are about two-thirds of the way up the wires on the roof. Any laterals that may develop between the soil and lower wires should be early pinched out and those higher up be laid on each side and duly topped just beyond the second leaf. Remove any fruit that shows on the main stem and please yourself about thinning out those forming on the laterals. Top all second breaks beyond the second leaf, making an exception in favour of a leading growth when there is plenty of head room, topping these after they have run 18 inches or 2 feet. Cut the fruits as fast as they become large enough for use, as leaving them hanging longer to fatten puts an uncalled-for strain upon the plants. After the laterals and sub-laterals have fruited, the plants will

have done good service and may be rooted up. Where most mistakes are made is in the

ROOT TREATMENT.

If the heaps of soil are small, as I prefer they should be, there must be no undue delay in adding more soil similar to what was first used. As the surface of the soil becomes overrun with roots, add another thin covering of soil, and which ought to have been previously disposed near the plants long enough to become well warmed through. Top-dressings after the plants have commenced fruiting may well be given once a week, a network of active roots taking possession of the fresh soil in the course of two or three days. Under this treatment the plants require—must have, in fact abundance of water. On bright, hot days three times may not be too often to water, but on dull days a single watering may suffice, but let it be thorough, as should the under portion of the soil once become dust-dry, as it quickly will do if neglected, it will be re-moistened again with difficulty, and an early collapse of the plant be the result. Liquid manure is also needed frequently. This must be clear, anything that clogs the surface of the soil and shuts out the warm, moist air from the roots militating seriously against the health of the plant. Soot water is safe and good, nitrate of soda, dissolved and used at the rate of one-quarter to one-half an ounce to the gallon of water, also suiting Cucumbers. The roots appear to like manures in which dried blood figures largely, lightly surfacing the mounds of soil with these quickly attracting them to the surface.

DISEASES.

Red spider is the greatest enemy, as far as the foliage is concerned, that growers of Cucumbers have to contend with. An attack is usually the outcome of dry heat, and once this pest is established on the plants, it is next to impossible to get rid of it again without the remedies being strong enough to injure the plants as well. If driven from the under surface the spider takes possession of the upper surface, where it is still more difficult to get at. High temperatures, or say from 65° to 70° by night, with a rise of 10° to 15° in the daytime, are necessary if Cucumbers are to be grown rapidly, but they must be accompanied by abundance of moisture in the atmosphere, or otherwise red spider and burnt leaves will soon be in evidence. If the express or non-ventilating system is adopted—this answering remarkably well in long houses with few or no brick walls exposed—then must the plants as well as the house be kept constantly moist all through the hottest part of the day. Nothing but frequently syringing the plants and well moistening the beds and floors will keep the leaves from first flagging, and then burning. The roofs ought to be lightly shaded late in March, hot lime-water made thin and applied with a brush answering well, adding more to this in May. During the hottest part of the summer Cucumbers grow quite fast enough with air admitted, and it is safer to open some of the top ventilators in the morning before the houses become very hot. Black fly is no longer the bugbear it was at one time, nicotine vapour effectually ridding the plants of these, and it is a matter for regret that something equally as simple and effective has not been generally accepted as a remedy for the celworm. It has been stated that private gardeners need not concern themselves about celworm remedies, for the simple reason that the plants under their charge are rarely, if ever, troubled by this—in market growers' estimation—dreaded enemy. Either my ex-

perience has been a most unfortunate one, or else the gentleman who made that assertion was, to say the least, misled. What gardener has not had to pull up Cucumber plants the roots of which were all galled or knotted, the result of an eelworm attack? The first indication of trouble in that direction is flagging of the leaves in sunshine, owing to the roots failing to perform their proper functions, and in a few days there is a total collapse. Old plants never recover from an attack of eelworm, but if young plants just commencing to crop heavily flag slightly from a cause other than dryness, it is most probably due to eelworm. At this stage it is possible to patch up the plants, or, in other words, prevent the eelworm from wholly ruining the plants, by watering about once a week with Little's soluble phenyl, diluted at the rate of a quarter of a pint to thirty gallons of water. This valuable disinfectant also possesses manurial properties, or how else are we to account for the improved appearance of the plants generally after it is applied thus well weakened? A constant succession of young plants, as already advised, is particularly desirable where eelworm is troublesome.

W. IGGULDEN.

NOTES AND QUESTIONS.—KITCHEN.

Tomato Cluster.—I shall be glad to hear if any reader has grown a Tomato under this name, and if so, what his experience of it is. Last August at Sidmouth, Devon, I found a Tomato growing under this name. It was a very strong grower and bore long clusters of fruit, each as large as a Victoria Plum. The cluster was from 12 inches to 18 inches long.—DORSET.

Potato Mona's Pride.—This Potato does not seem to be grown much at the present time. I have not seen it for years, although I note it is catalogued in several trade lists this year. I well remember some thirty years ago seeing some grand crops of it. It was a very heavy cropper, the flesh being yellow. I fear we are putting to one side some of our best flavoured Potatoes, of which Woodstock Kidney and the one above-named are types.—DORSET.

Stachys tuberifera.—It is a pity this vegetable is not more favourably received, because it is both pleasant to the taste (at least to the majority of palates) and highly nutritious, water in which it has been cooked, if allowed to cool, assuming the consistency of thick jelly. It would make a very agreeable and wholesome change through the winter months if properly cooked where facilities for growing forced produce in quantity are not available. It is, doubtless, the lack of careful preparation that is answerable for its rejection. The size of the tubers renders the cleaning a work of considerable time, and as this is a strong objection it is hardly likely the Stachys will be popular until the size is so materially increased as to allow of peeling the tubers.—E. B. C.

Sorrel.—In a few market gardens near London Sorrel is grown. It is valuable for salad and well worth room in all gardens. There are several varieties, but the large-leaved one is the most valuable. This is the one liked as a vegetable used like Spinach; indeed, it could be used as a substitute for Spinach, as when cooked it is a delicious vegetable. Now is a good time to sow thinly in drills 15 inches or 18 inches apart, thinning the plants to half that distance in the row. The plants are more often grown by division at this time of year; each small root or piece or a plant soon grows. Many leave the plants for years in the same soil, but treated thus good results cannot be expected, as the leafage is poor. Transplanted every year there will be large leaves and plenty of them. The plant likes ample moisture, and well repays a good dressing

of manure. If starved it produces a mass of flower-spikes and poor leaves.—S. M.

Carrots and disease.—In many gardens the maggots of the Carrot fly bore into the roots and sadly disfigure them. This pest is one of the worst that growers have to contend with. Unfortunately, there is more than one visitation in the summer, and the later ones deposit eggs, remain just under the surface of the soil during the winter, and in the spring reappear upon the tops of the tender seedlings in the fly state, and at that stage they can readily be got rid of. I find by using a solution of soft soap and petroleum, at the rate of half a pint of petroleum to a gallon of water, with sufficient soap to make the petroleum soluble, the pest can be got rid of early in the season. The mixture is syringed over the plants in dull weather, thoroughly wetting the tops. One dressing is usually sufficient. This is an

they will be shifted into a cold frame for a week or two before planting. Heads of the first-named sort are ready for cutting before autumn-sown Early London, and, given facilities for spring sowing and the necessary amount of attention, it seems hardly worth troubling about keeping a lot of plants during the winter.—E. B. C.

GARDEN FLORA.

PLATE 1165.

GARDEN VARIETIES OF ABUTILON.

(WITH A COLOURED PLATE OF A. GOLDEN FLEECE.*)

The genus *Abutilon* is a fairly extensive one, and some of the original species are very beauti-



Abutilon igneum.

excellent mixture for the Turnip fly also if used in time.—S. M.

Potting up Cauliflowers.—Although there is a certain amount of extra trouble entailed in potting up early-sown Cauliflowers rather than pricking them out into a frame, the results obtained more than justify the extra labour. The plants develop more quickly into good stuff, give naturally an earlier supply, and are not so likely to club, a disease to which in my soil they are peculiarly susceptible. I have tried all sorts of remedies, drawing deep drills and filling in with fresh compost, wood ashes, coal ashes and the like, dipping the roots in a soot and lime bath before planting, and other measures, but the only preventive, or rather combined preventives are to plant out the pot stuff intact, and as soon as they begin to move, earth up to the first pair of leaves. From seed sown in boxes early in February I have potted up as many as are likely to be required of Early Snowball, or First Crop, and Magnum Bonum, placing them on shelves in a cool vinery where they will remain until they make headway and show the slightest tendency to draw, when

ful, while in addition to them we have a great number of varieties of garden origin whose blossoms show a wide range of colour, as white, yellow, pink, purple, and different shades of red as well as striped flowers occur amongst them. These numerous varieties originated from the intercrossing of the pure white *A. Boule de Neige* with the bronzy-red *A. Darwini*, and Mr. George, of Putney, who was one of the first in this country to take the *Abutilons* in hand, commenced in 1876. The result proved very gratifying, and in the course of a few years Mr. George raised a great number of varieties, which were duly put into commerce. The early history of *A. Boule de Neige* (which, apart from its individual merit as still the best of the white-flowered *Abutilons*, has proved of such value to the hybridist) is almost unknown, the only thing definite being that it made its way into

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew. Lithographed and printed by J. L. Goffart.



ABUTILON GOLDEN FLEECE

this country from the Continent about twenty-five years ago. The other parent—*A. Darwini*—is a native of Brazil, from whence it was introduced in 1871. It is singular that the union of these two varieties should result in such a mixed progeny, with the colours of one or other of the parents in turn completely eliminated. The same results, however strange, have occurred in other classes of plants, notably in the



Abutilon vexillarium.

case of the now popular Javanese *Rhododendrons*, the first hybrid of which, the pink-flowered *Princess Royal*, was obtained from the white *R. jasminiflorum* and the orange *R. javanicum*, while of recent years Mr. Heale could give many more instances such as this.

Apart from their large, well-formed, variously coloured blossoms, most of these newer *Abutilons* flower with remarkable freedom, and often throughout the greater part of the year. Few classes of plants lend themselves to so many methods of treatment as these *Abutilons*, for they may be grown as bushes in pots, in which, however, they are not always seen to the best advantage; hence they are by some trained as standards, as under such conditions the pendulous blossoms are more freely displayed. For clothing the pillars or furnishing the walls of a greenhouse or conservatory many of the varieties are very suitable, but the finest position of all for them is covering the roof of a glass structure, for which purpose the drooping character of the flowers well suits them. Of the variety herein figured, *Golden Fleece*, there is a large plant in No. 4 greenhouse at Kew, which each recurring season shows its adaptability for such a position, and its great wealth of golden blossoms is the admiration of everyone. With a temperature a little above that of an ordinary greenhouse *Abutilons* will flower throughout the winter, and the white variety *Boule de Neige* is especially valuable for cutting. Planted out during the summer months, *Abutilons* grow and flower profusely, and in the more favoured districts are valuable as outdoor plants, for even if they are not quite hardy, a sheltered

spot may often be found for them. Those with ornamental foliage, too, are well known and frequently used as bedding plants during the summer.

The list of varieties to be met with in different catalogues is a long one, and as, in some cases at least, they greatly resemble each other, a good selection is necessary. At all events the variety herein shown (*Golden Fleece*) must have a place assigned it among the yellows, while *chrysostephanum* is another distinct yellow-flowered form. The variety *Golden Fleece I* have at times met with as *Golden Queen*. Of whites, there is nothing better than *Boule de Neige*, if, indeed, it is equalled by any other. The reds are numerous, and *Scarlet Gem*, *Firefly*, and *Sanglant* are all good. Different shades of rose and purple are represented by *Anna Crozy*, *The Premier*, and *King of Roses*, while *Emperor* is a kind of purplish crimson. To those fond of striped flowers can be recommended *striatum splendidum*, while variety is afforded by the double blossoms of the mottled-leaved *A. Thompsoni fl. pleno*.

Quite a group of varieties claims recognition from the foliage distinction alone, among them being *Souvenir de Bonn*, a form of *A. striatum*, in which the handsome lobed leaves are broadly, but irregularly edged with white. A second and newer variety—*Sawitzi*—is less vigorous in growth, while the white portion extends over much more of the leaf than in the preceding. *Thompsoni*, with its leaves mottled with cream, is a well-known kind, while much the same may be said of *nevium marmoratum*. A variety that needs more heat than many of the others, and was at one time seen among stove fin-foliaged plants when they were popular, is *A. Sellowianum variegatum*, whose large, almost horizontally disposed leaves are marked with tints of green and pale yellow in varying proportions. To these variegated-leaved varieties of *Abutilon* must be added *A. Darwini tessellatum*, whose markings of different shades of green and cream are well expressed by the varietal name of *tessellatum*. The variegated variety of *A. vexillarium*, though pretty when young, is apt to revert to the normal green-leaved form if planted out and growing freely.

There are several species of *Abutilon*, and besides those above mentioned the best are *A. striatum*, *A. venosum*, *A. vitifolium*, and *A. insigne* or *igneum*. With these distinct kinds, as well as the great number of garden varieties, several possibilities suggest themselves to the hybridist, as in the case of most of the *Abutilons* crossing is readily effected. The results, however, may not be always encouraging, to show which I may mention that I flowered several hybrids from *A. vexillarium*, or *megapotamicum*, as it is often called, none of which were worth keeping.

Abutilons have been several times illustrated in *THE GARDEN* by means of coloured plates, viz., *A. igneum* or *insigne* (vol. xviii.), a group of seedling varieties (vol. xix.), *A. vitifolium* (vol. xxiii.), *A. vexillarium* (vol. xxxvii.) and *A. vitifolium* for a second time, along with its white-flowered variety (vol. li.). H. P.

Asclepias tuberosa.—Why is such a beautiful old plant so much neglected? The root is white, fleshy, tuberous, tapering, something like a white Salsafy, and produces several stems about 2 feet and more high, covered with fine dark green foliage their whole length, and ending in July and August in large umbels of bright red-orange flowers of a rich shining colour. These flowers will last a fortnight when cut and kept in water. They are of the greatest value for cutting,

and for market, the plant succeeding perfectly well in pots. I know some florists who grow it in quantity for market and realise large profits, the flowers always finding a ready sale. It is known in America under the names of *Butterfly-weed*, *Canada-root*, *Flux-root*, *Pleurisy-root*, *Orange Swallow-root*, *Silk-weed*, *White-root*, and *Wind-root*. It succeeds in almost any soil, provided there is not excess of moisture. It prefers a richly manured, sandy, open soil, in the shade or in full sun. Plant the roots in spring 12 inches apart and give a good mulching. Watering in dry weather will greatly increase the size of the umbels. In autumn cut down the stems when they are dry and protect with sand or dry leaves in case of very severe weather. The plants may stay five or six years without being disturbed. For pots, plant the roots in spring, plunge the pots outdoors and treat like open-ground plants. If potted in autumn and the pots taken to a warm greenhouse in February, the plants will flower much sooner—about May. It is increased by seeds sown in the open ground in spring; seedlings bloom when two or three years old. It is advisable to transplant them when one year old, shortening the roots to a few inches in order to make them branched.—D. GUTHENEUF.

THE WEEK'S WORK.

FRUIT GARDEN.

FRUIT CROP PROSPECTS.—I never remember to have seen a better promise for the future fruit crop than now prevails round London. The frosts of the past month have been invaluable in retarding the blossom, and thus far it cannot be said that it is an early spring. Upon looking closely into the net-protected *Peaches* and *Nectarines* no real harm is discernible, there being an abundance of bloom which looks sturdy and hardy. A goodly portion, too, is later than the rest, and this I like to see, as it gives a better chance of a good set. With the warm weather to-day (March 30) the bees in the sun came out freely and were very busy for a time. This saves any tapping of the trees, but if these most useful insects in the garden are not plentiful, by all means tap the trees if on wires or use other means to suit the



Abutilon Boule de Neige.

case as may be most expedient. I have noted *Grand Duke* as the earliest of the *Plums*, several trees being quite forward, too much so if no protection were practicable. Other *Plums* so far are safe enough with me, and so are the *Pears*, of which, it is to be hoped, a good crop will be secured this year. As soon as the forwardest upon walls commence to unfold their first blossoms, I shall, if the weather be at all unsettled, protect with one thickness of half-inch netting, which in my case is hung on the square, thus covering in full as compared with that on the diagonal. It will well repay for the trouble to have every atom of net in use now or in a week's time if need be. The nets may as well be made the most of in this way, the advantage being obvious as contrasted with any material which has to be daily removed or to be rushed

on in a hurry when storms threaten. Choice Pears on south walls in particular will need some little looking after—at any rate, it will recompense one to see to this work. Apricots have been covered up rather more heavily in my case, as they are chiefly facing south, and at the same time exposed to cold winds. The heavier covering, however, is only No. 3 netting, this being removed on all fine days. Cherries on walls are really not at all forward and the promise of flower is prodigious in nearly all varieties, whether they be early or late ones. Given a good set, the crop will be a heavy one with the average of fine weather later on. Failing during the stoning process does not now give any anxiety; the remedy has been already given. Apples, whether as orchard trees or as dwarfs on the Paradise stock, are all looking exceedingly well. Now in particular is it an excellent time to take note of the peculiarities of certain kinds as regards the disposal of the fruit buds. Some sorts, it is well known, have a tendency to produce the best, and even the majority, of their flower trusses upon the terminals instead of upon the short close spurs. To these must be added the comparatively new Newton Wonder, which with me is doing so in a most marked degree. Now, to prune such a variety with the view of obtaining the fruits upon close spurs would tend to failure in a great degree. Fortunately, I had a suspicion of its disposition in this respect and treated it accordingly; the result is a full show for flower on every tree. Gooseberries, I note, are advancing rapidly, but, fortunately, they are not thus far in any danger as this is being written.

WATERING.—A note on this may to some seem superfluous—not so, however, if one has to deal with newly-planted trees on well-drained soil. Then it will pay to look to their condition, for it cannot fail to be noted by the observant cultivator that we have had but a medium rainfall during the present winter. In such cases the advice now given is to water well and then mulch if it be not already done.

ORANGES, LEMONS, LIMES, AND SHADDOCKS.—If any enthusiastic fruit grower has not yet included the above in his list I would advise him to do so, in some small measure at least. It is to be regretted that we have not now nearly so many fine examples of Oranges and Lemons in our large greenhouses and conservatories as obtained from thirty to forty years back. It is one of the strange, almost inexplicable freaks of fashion no doubt, combined with the now greater craze for fine-foliaged plants and the larger number of what are termed decorative plants. It may be possible also that the present position of the Chrysanthemum in such immense numbers, either for exhibition or home use, has in some measure elbowed out these and other plants of more permanent character in our gardens. If so, it does not reflect any credit upon the present-day gardener, either from point of taste or cultural skill, to allow precedence to be given to plants of such easy culture and fugitive character taking the place of the fine old permanently ornamental plants formerly seen in establishments where keen interest in gardening matters prevailed. This is, perhaps, a slight digression, but it calls for some notice as an excuse to recommend the renewal of interest in the subject forming the above heading. On reference to a well-known fruit catalogue of last year I have noted the following remarks:—

Oranges can be grown to perfection in England with a portion of the skill and care that is bestowed upon Grapes. An Orange house should be well ventilated, well lighted, and lofty, and as no excessive heat is necessary, it will form a beautiful winter promenade, the evergreen leaves and golden fruit making a delightful contrast, very different from the dull orangeries of former days.

With the foregoing remarks I am entirely in accord, and would also add a measure of praise on behalf of the fragrance of the blossoms. The present would be a suitable time to commence the cultivation of these fruits, better in many respects than during the autumn. There is time now for the plants to become acclimatised to their

new surroundings, with the best months of the year before them. With the present-day greatly improved erections in the form of winter gardens and conservatories, there should not be any difficulty in finding convenient spots, whether the plants be grown in pots or tubs, or even if planted out. Large specimens in tubs are fine ornaments in erections of corresponding dimensions, whilst small ones may be associated with other plants. The other method of planting out is also well worthy of notice, more especially so in the case of Citrons and Shaddocks, which, owing to their more straggling habit, are well calculated for training against walls where an average amount of light is at command. These latter also can be grown most successfully if planted out at the backs of vineries, so long as extremely hard forcing is not carried on. In no case is an over-large border essential; in fact, it will be better if not so for the first few years at least. What is needed is thoroughly good turfy loam. If the loam be heavy, some road grit or sand can be added, whilst if lime be deficient, some old mortar rubble or bone-meal should be added. Keep the soil firm, whether the plants be in pots or planted out. Look to the plants as regards cleanliness, scale in particular being partial to them. Of the Oranges, the best are Silver, Jaffa, Seville, and Tangierine, of which the St. Michael's form is reputed to be the better of the two. Of the others, the Citron, the Shaddock, the Lemon, the Lime, and the Forbidden Fruit can all be included.

HORTUS.

KITCHEN GARDEN.

GENERAL WORK.—With cold winds and morning frosts, the early vegetables have had a rough time. Unless plants raised under glass are well hardened off, they suffer greatly. For years I have advised raising plants in cold frames in preference to strong heat, and this season Peas planted out have scarcely suffered at all. They will soon make headway if the soil is drawn up to the sides and the hoe kept going between the rows. Cabbages will now greatly benefit by the application of some quick-acting fertiliser. This placed between the rows and hoed or raked in will promote early growth. Now is a good time to feed Asparagus beds, just before the growths appear. I use fish manure, which acts quickly, and the rains at this season soon wash the food down to the roots. I am aware near dwellings fish manure has an offensive smell. This can be minimised by covering it over with a little soil or raking it in. There are other foods, such as guano, that may be used with advantage at this season. The same remarks apply to other growing crops, such as winter Spinach and Lettuce. Any autumn-sown Onions that are left in the beds and not transplanted will be benefited by food given now; indeed, I find much better results follow spring feeding than giving large quantities of rank animal manures at sowing or planting to such as are termed annual crops and those which make little progress till spring.

TRANSPLANTING SEEDLING VEGETABLES.—If previous notes have been followed there will now be several vegetable plants needing attention. Severe weather may have hindered the work or retarded growth, but it is not well to delay longer. Brussels Sprouts sown under glass will need attention. The plants should have been freely exposed, to make them as hardy as possible, and if a little warmth in the way of bottom-heat can be given the seedlings for a few weeks, so much the better. I usually make up a shallow bed and cover with sashes or boards for a short time. The making of the beds is not costly, as the same soil comes soil, and after transplanting protect with spare in for Celery later on, and after the Celery has been removed, Marrows or other plants needing a little shelter may be grown in the same place. In pricking off, give ample room—3 inches between the plants is none too much. Treated thus they will lift with a ball later on. The soil over the manure should be made fairly firm, to encourage plenty of roots. Where glass is plentiful, cold

frames are just the places for pricking off, as shelter can be afforded for a time. The same remarks are applicable to such plants as Cauliflowers, Lettuce, and Celery. Seeds sown in boxes will need attention, as it is a difficult matter to secure a fair plant if left too long in the seed pan or box, growth being weak. Celery is often sown thus for early crops, but it should be transplanted when large enough to handle. Onions and Leeks sown under glass will need care in lifting, to preserve all the roots possible. These, if large enough and well hardened off, may be planted out in their permanent quarters. I prefer to plant in drills, as, should the weather be dry, moisture can be given more freely.

BROCCOLI.—I touched upon the early autumn varieties a short time ago, and my note will now concern those that give a midwinter supply. This is an important crop, as a good lot of winter Broccoli is of great value. I am aware in a measure we are dependent upon the weather as to the crop, but weather must not deter those who would have winter Broccoli, as, provided the plants are grown well, it is an easy matter to lift and store when the heads are formed. Many lose their crop by having poor plants, in many cases because land is not at command when the seedlings are ready. To those thus situated I would say, do not sow too early, as much mischief is caused by thick sowing and leaving the plants starving in the seed-beds. In all cases reserve, if possible, a piece of open land for this crop. Mine invariably follows the winter Spinach. This is cleared at the end of May and the Broccoli planted. For midwinter supplies we have none too many reliable varieties. A good strain of Snow's Winter White is the best, but I have been unable to rely upon it of late years. I find Superb Early White an excellent variety for February cutting if sown in May. This season I am sowing it twice—now and a month later, and by so doing hope to get heads soon after Christmas. Another excellent variety, Christmas White, is well worth a trial for the season named. Those that come in for March cutting are best sown the second or third week in April; here there is no lack of variety. Such kinds as Main-crop, Perfection, Penzance Early White, Leamington, Cooling's Matchless and Mammoth Spring White are excellent for cutting from March to May. I advise sowing the later kinds early in May, as it is best to get a quickly-grown plant, and there will be ample time if the plants are given good treatment. The useful Sprouting Broccoli must not be omitted; this is best sown now. I grow two varieties, the Early and Late Purple. They are excellent vegetables in their season.

BORECOLES.—These are always valuable, as they give a supply of green vegetables when others are getting scarce. I advise two sowings—one now, and another a month later. The earlier sowing should be a small one if room is limited, as the later the Kale the more valuable it is. Plants sown now are useful for March and April supplies. I prefer to sow these on a cool border—an east one if possible—as here growth is firmer, and the plants dwarfier. Give ample space in the seed-bed, and plant out before the seedlings are too large. There are few better varieties than the Dwarf Scotch for use from January to March. This stands the severe winter better than the tall green varieties. Reid's Hearting Kale is one of the best types of Scotch Kale. This is the last to run to seed and it hearts in nicely, making a compact growth and resisting frost and wet better than any of the others. In cold, late districts it may be necessary to sow the later varieties of Kale, such as Asparagus and Cot-tager's, now. Delay sowing for three or four weeks in warm soils, as the plants will be quite large enough for July planting. The Arctic Curled—purple and green—varieties are distinct types which frost, however severe, does not injure.

BRUSSELS SPROUTS.—Now is a good time to sow for late supplies; I mean from Christmas to March. I have seen excellent results by drawing drills and dropping seeds here and there, and thinning the plants, but I do not advise this.

Sow on an exposed border thinly, and transplant when large enough into the permanent quarters. These plants often follow early Potatoes, and as the season of growth is none too long, it is necessary to secure a strong plant. An open border is advised. For present sowing, Paragon and Dwarf Gem are excellent. The latter I consider the best late variety. It may be planted at 2 feet apart each way, as it is a compact grower. The soil for the earlier crops of this vegetable should now be ready for the plants raised under glass, and time will be saved by drawing drills. Three feet apart each way is none too much for large-growing plants, but medium growers may be given 6 inches less. Those who need this vegetable as late as possible will find it advantageous to prepare a north border, as grown thus there is no difficulty in having sprouts well into April if sown late.

MAIN-CROP CARROTS.—I am never in a hurry to sow this crop. Doubtless in most places where large Carrots are a necessity it is well to sow at this date to give a long season of growth, and where the roots often fail there must be more attention paid to the preparation of the soil. I question whether it is well to sow the large growers such as are stored for winter, as these being a longer time in the soil are more subject to disease. I sow fewer main-crop Carrots than formerly, relying now upon roots grown more quickly. By making three or four sowings during the year there are much nicer roots, as far as quality is concerned, and at no greater cost. In soil where Carrots canker badly I would advise liberal dressings of soot, wood ashes, or burnt garden refuse, and in heavy soil other aids, such as road scrapings and fine mortar rubble. Land badly infested with wireworm should have been got ready during the winter, giving a dressing of gas-lime. If this has been omitted use ordinary lime freely with soot. For large roots 15 inches between the rows is none too much, and such kinds as Model, Summer Favourite, and Early Gem are excellent for shallow soils. In heavy land Matchless Scarlet and Scarlet Perfection are very fine, the latter being one of the best quality Carrots I have grown. I make several sowings and do not store, leaving the roots in their growing quarters. Where Carrots are needed regularly frequent sowings have much in their favour, as the roots are more tender. Sowings made in the middle of May will furnish a late autumn supply, and a July sowing will furnish a winter crop. Thus the plants are quite hardy and can be lifted as needed.

PEAS.—The regular supply will be difficult if some attention be not paid to variety. From this date it will be well to sow what are termed continuous croppers. There is a wide selection. I find Prodigy, Autocrat, Eureka, Danby Stratagem, and Telephone reliable for what may be termed the summer crop if sown at intervals of fifteen to twenty days. These will bring the season well into August if sown at intervals as advised. In sowing now give the seed ample space, and in poor soils where the plants do none too well make trenches with several inches of manure under the plants.

S. M.

GAS-LIME IN THE GARDEN.

TO THE EDITOR OF THE GARDEN.

SIR,—Permit me to give your readers a word of caution as to the use of gas-lime, lest in following Mr. Tallack's advice they should have serious cause to repent it. I am a great believer in the virtues of gas-lime if judiciously used. But Mr. Tallack not only speaks of using it "judiciously," but also talks of a "heavy dressing," though he does not say what in his opinion is "judicious" or what is a "heavy dressing." I have known a whole field of wheat ruined and the land seriously injured for the next season by the application of four tons per acre. Dr. Voelcker's advice was to use two tons per acre. But it should be

borne in mind that whereas in his time lime was used in all gas-works for removing sulphuretted hydrogen and carbonic acid, and became sulphuret of calcium and carbonate of lime, metallic oxides are now largely used to remove the former and lime the latter; so that there are now two kinds of gas-lime, and Mr. Tallack does not say which of these two he uses. If the latter, I should say that he may use a "heavy dressing" with impunity; but if the former, then he must have found the virtue of moderation, or his soil must be very different from any of which I have any experience. —R. S. C.

As bearing on this subject, we herewith give an article by Dr. Voelcker, which appeared in *The Journal of Gas Lighting* in April, 1865, on "The Composition and Use of Gas-lime in Agriculture":—

Lime, it is well known, is largely employed in gas-works for the purpose of removing from crude coal gas, as it issues from the retorts, sulphuretted hydrogen and carbonic acid, which deteriorate its illuminating powers. After having served some time in the gas-purifiers and become more or less saturated with these and some other impurities, the lime is replaced by a fresh quantity of quicklime and thrown aside for the use of the agriculturist. This gas-lime, or refuse lime from gas-works, is generally obtainable at a much more reasonable expense than most other forms in which lime is usually employed in agriculture, and constitutes a refuse material which, in many instances, has been applied with marked beneficial effects both to light and heavy land. The successful application of gas-lime to the land, however, depends, like that of marl, chalk, and quicklime, upon a variety of conditions, some of which are peculiar to gas-lime. These conditions we purpose briefly to examine, after having referred more particularly to the composition of gas-lime. Different samples, as may naturally be expected, vary to some extent in their chemical constitution, but the differences are not so great as to lead to the conclusion that whilst some samples are very efficacious as fertilising agents, others possess little or no manuring property. Judiciously used, all samples are economical means for increasing the productiveness of land adapted for its reception. In order to guard against disappointment, it may be well to state at once that gas-lime is not a universal manure like farmyard manure, benefiting more or less every description of crop on every variety of soil, nor that it is a concentrated fertiliser acting in a similar manner to Peruvian guano, nitrate of soda, or bone manures. In point of fact, gas-lime exercises a most decidedly beneficial effect upon some soils, but has no effect upon others; success in its application, therefore, depends mainly upon the proper selection of the land upon which it is intended to be put. On this point we shall have, presently, to make some special remarks.

In the first place it will be desirable to inquire a little more closely into the

CHEMICAL CONSTITUTION OF GAS-LIME.

As already stated, the sulphur compounds and carbonic acid in crude coal gas transform the slaked quicklime in the purifiers more or less into sulphuret of calcium, a combination of sulphur with calcium, the metallic base of lime, and into carbonate of lime. At the same time some tarry matter, a little ammonia, and other volatile substances pass into the gas-purifiers and are partially retained by the lime in a mechanical way. Fresh gas-lime has a bad smell, arising mainly from the sulphur compounds contained in it, and should not be put on the land in this condition, for the ameliorating influence of a copious supply of air is required to transform these injurious sulphur compounds into fertilising materials, the presence of which, in some respects, renders gas-lime exposed to air for some time superior to quicklime. The oxygen of the atmosphere completely destroys the bad smell of fresh gas-lime,

by changing the sulphuret of calcium in it, first into sulphite, and finally into sulphate of lime, or gypsum. There is thus an essential difference between gas-lime newly removed from the purifiers and after it has been freely exposed to the atmosphere. In a fresh state it contains sulphur compounds, which give off sulphuretted hydrogen and are injurious to vegetable life; in the latter condition it contains gypsum, a well-known fertilising substance. The longer this refuse material is kept freely exposed to the air, the more completely these beneficial changes are effected, and the more efficacious it becomes as a manure. In addition to the constituents already mentioned, gas-lime contains a variable quantity of water, more or less unaltered quicklime, and all the impurities originally contained in the quicklime employed in the gas-works. In fresh gas-lime the proportion of water varies usually from 30 to 40 per cent.; in old samples there is much less. The following analysis, which I made some time ago, of a sample of gas-lime, kept long enough to be used with safety as a manure, will show at a glance its complex character:—

COMPOSITION OF GAS-LIME (dried at 212° Fahr.).

Water of combination and a little organic matter	7.24
Oxides of iron and alumina, with traces of phosphoric acid	2.49
Sulphate of lime (gypsum)	4.64
Sulphite of lime	15.19
Carbonate of lime	49.40
Caustic lime	18.23
Magnesia and alkalies	2.53
Insoluble siliceous matter	0.28

100.00

The efficacy of all fertilisers is due to the material substances which enter into their combination; and as many of the usual components of manures have a specific effect upon vegetation, it cannot be reasonably expected that gas-lime, abounding in combinations of lime, should produce the same results in the field as those which a phosphatic or ammoniacal manure is capable of producing.

A glance at the preceding analysis shows plainly that gas-lime acts as a fertiliser solely in virtue of the lime compounds which occur in it. Like quicklime, it discharges the four following important functions: (1) Gas-lime exercises a beneficial mechanical effect upon land, by rendering stiff, heavy clay land more porous, friable, and consequently better adapted for cultivation, and by consolidating, on the other hand, light, sandy soils. (2) It supplies food to plants. All our cultivated plants on burning furnish ashes, containing a good deal of lime, which is essential to the healthy development of all vegetable produce. As plants have not the power of generating lime, it is clear either the soil upon which they are grown or the manure which is put upon it must contain a sufficient amount of this constituent, so necessary for the very existence of all plants. Gas-lime not only supplies lime to plants, but also sulphuric acid, a combination not present in any quantity in quicklime. For leguminous crops, such as Peas or Beans, for Clover, and other crops specially benefited by sulphate of lime or gypsum, gas-lime, when obtainable, as is generally the case, at a trifling expense, is certainly preferable to quicklime as a manure. (3) Gas-lime, in virtue of its alkaline properties, exercises a beneficial effect upon the organic matters in the soil. In this respect its action is similar to that of quicklime. Both facilitate the destruction of organic matters, the remains of previous crops, and their conversion into plant food. (4) Gas-lime, like quicklime, has the power of unlocking, so to say, the naturally unavailable mineral stores of plant food in the soil. In many soils, but more especially in clay land, we find portions of granite and other minerals from which clay has been originally produced. These minerals are the chief sources from which the necessary amount of alkalies required by plants is furnished. But as their decomposition proceeds slowly, a long time must pass before potash and soda can be rendered

soluble, or made available for the use of plants. Gas-lime, like quicklime, materially hastens this decomposition, and thus produces an effect similar to that of a prolonged fallow.

ITS USES.

These remarks on the functions of gas-lime in relation to vegetable life at once point out the crops which are benefited by its application, and, in a special manner, the kind of land upon which it produces the most striking results.

The crops which are particularly benefited by gas-lime are: Clover, Sainfoin, Lucerne, Peas, Beans, Vetches, and Turnips. It is also a most useful fertiliser for permanent pasture, especially if the land is naturally deficient in lime. On natural grasses, the best farmyard manure often produces little improvement until a dressing of lime, marl, or gas-lime has been applied. The latter more particularly destroys the coarser grasses and favours the growth of a sweeter and more nutritious herbage. Gas-lime also kills Moss, Heath, Feather Grass, and other plants characteristic of peaty land, and is therefore a valuable means for improving peaty or mossy meadows. For improvement of peat land, the liberal application of gas-lime cannot be too highly recommended. On such land it is best to use gas-lime in the form of a compost, which should be kept in a heap for a period of ten or twelve months, and turned once or twice before spreading. On land naturally deficient in lime Turnips often refuse to grow, or, if they grow at all, produce but a scanty crop, which is moreover very liable to be attacked by a disease known to practical farmers as "finger-and-toe." A large dose of gas-lime applied to the stubble land in the autumn, before it has been turned up by the plough, in many instances is an effectual cure for this disease. An interesting instance of the prevalence of "finger-and-toe" in a Turnip crop grown on a light, sandy soil, and the complete cure of this disease by a liberal application of gas-lime, was brought under my notice some years ago. On visiting the field where the Turnips were affected by wart-like excrescences, and forked and twisted into the most fantastical forms, I noticed a spot on which the roots were nearly all sound. On stooping down and examining the soil, I picked up some bits of a whitish-looking substance, which appeared to me like dried gas-lime, and I learned afterwards that on this very spot a cart of gas-lime had been unloaded the year before. The chemical examination of the soil on this field showed merely traces of lime, and, at my recommendation, the occupier applied a heavy dose of gas-lime, which completely cured the evil.

With regard to the quantity of gas-lime which ought to be put on the land, no general rule can be laid down, for the quantity should be regulated by the relative deficiency in calcareous constituents which different soils exhibit. Speaking generally, however, two tons per acre may be used with safety, and in many instances a heavier dressing will not be amiss. The proper time for application is autumn or during the winter months, when vegetation is at a standstill. On arable land gas-lime should be applied to the stubble, spread out evenly, and left exposed to the air before ploughing up for three or four weeks. On grass land it should be spread during the months of December or January, or at any rate before vegetation is making a fresh start.

In conclusion, I may observe that it is well to remember that gas-lime acts beneficially as a fertiliser mainly in virtue of its calcareous constituents, and therefore is most usefully applied to land naturally deficient in lime. On land abounding in this substance it has little or no effect. Though by no means a substitute for farmyard manure, guano, and other concentrated artificial manures, gas-lime judiciously used is unquestionably a valuable auxiliary manuring agent which frequently can be used with greater economy than quicklime or marl.

I concur to a very considerable extent with Mr. Tallack in his observations in THE

GARDEN of the 26th ult. with regard to the value of gas-lime. A kitchen garden of mine of rather more than half an acre was so infested with wire-worm, slugs, &c., after two mild winters that its produce was disheartening in the extreme. My head gardener advised the application of a very strong dose of gas-lime, to which I assented, and it was applied in December, 1896. So strong was the application, that he further suggested that to a considerable extent the garden should lie fallow for the year 1897. However, as I was making a drastic experiment, I determined that the garden should in every respect be cropped as usual, the result being that I had in everything about the best crop of vegetables I have ever had from this garden—and this with very nearly fifty years' experience on it—and I think I may fairly look forward to similar results for several years to come without any further application of gas-lime, though this time will prove. This year I am trying it on a Pear and Apple orchard, the trees being much infested with blight and insects, especially the Apple trees. I also purpose trying it on my fruit garden in the hope that it may, partially at all events, destroy the ravenous appetites of the finches and sparrows who devour or destroy the buds, no doubt infested with maggots, especially on the Gooseberry and Currant trees, and, failing this proving a remedy, I see no alternative but wire or other netting, so wretched has been the produce for several years past.—G. WENT.

—In your issue for March 26 Mr. J. C. Tallack gives a most interesting account of experiments that he has made with gas-lime, but unfortunately he has omitted to mention at what rate per acre or yard he uses it. This is a very important matter. He speaks of a "heavy dressing," and says that he uses from 60 to 70 bushels a year, but that does not meet my point. I, and I am sure many others, would be very grateful to him if he would enlighten us as to the proper quantity to use.—G. S. S.

CHRYSANTHEMUMS.

LATE-STRUCK CHRYSANTHEMUMS.

In a general way Chrysanthemums rooted in April and the early part of May retain their foliage throughout the summer much better than those propagated in the winter. The lower leaves being made at a later date in a measure accounts for their remaining in a fresh condition during July and August; they escape in a great degree the drying winds and bright sunshine of the spring months, and do not, therefore, feel so acutely the heat and drought which are apt to prevail when the days are long. The final repotting is also made several weeks later, so that just at the most trying time for Chrysanthemums and when early propagated plants are getting root-bound, the roots of these smaller specimens are beginning only to work freely in the fresh, rich compost. Where plants of comparatively small dimensions are required either for edging groups or for room decoration, a batch of cuttings should be put in during this and the following month. One advantage of propagating at this time of year is that there is no difficulty in obtaining good cuttings. Even kinds that are notoriously shy in making young growths will give stout cuttings in April. These having made their growth under very different conditions to those that have to be employed in the winter are fresh, free, and of good substance. They root with great freedom, and in about a month from insertion are ready for potting off. By the middle of July they will be large enough to be put into 7-inch pots, and if allowed to grow on without stopping they will produce flowers of excellent quality. I have, indeed, known instances where flowers obtained in this way were good enough for the

exhibition board. When Princess Teck and its varieties were grown for market and individual good-sized flowers made good prices at Christmas and the new year, I used to propagate a lot in April, and I found that I got better blooms late in the year from these smaller plants than from those propagated at the usual time. The plants retained their leaves almost down to the pots up to the time that the flowers expanded, and the foliage cut with them was always very fresh and nice—an important point where single blooms are used with long stems. This late propagation will decrease the height by quite one-third, a distinct advantage in the case of low-pitched houses or where groups which require specimens of varying heights have to be formed. Cuttings put in at the latter end of April and early in May will make nice little specimens in 6-inch pots. One may really have nice blooms of both incurved and Japanese in such small pots by thinning out to one bud only. Varieties of a bushy habit having medium-sized blooms, such as Boule de Neige, Cullingfordi, and L. Canning, make nice little specimens suitable for room decoration when grown in this way, and I find that they come naturally into bloom somewhat later than larger specimens. If so desired, a portion of the stock can be retained in 4½-inch pots, but of course they must be liberally fed, and this feeding should commence from the time the roots begin to fill the soil. I have occasionally put in a batch of cuttings in June, and have had a nice lot of very dwarf, well-flowered specimens. I put three cuttings into a 2½-inch pot, shifting as soon as rooted into 5-inch and 6-inch pots. If these are put into rich soil they make nice little specimens from 1 foot to 18 inches high, and are just the thing for jardinières and room decoration generally. Some of the late varieties, such as Boule de Neige, Etoile de Lyon, Golden Gem and W. H. Lincoln, are well adapted to this method. In the case of such dwarf plants it is much easier to keep them in the open air to a late period, as they can be put into cold frames which are simply closed on frosty nights, the lights being off in the day and at night in mild weather. J. C. B.

TREES AND SHRUBS.

MAGNOLIA CAMPBELLII.

At Fota, this beautiful deciduous tree was in full bloom on Feb. 18—much before its usual time for flowering, in consequence of the very mild winter. This is only the third time it has flowered, although it has been planted over twenty years, but never so profusely as this season. Every twig, as the illustration will show, is furnished with a large terminal flower from 6 inches to 8 inches across, the petals of which are very thick, of a light rose inside, and very dark rose outside. The tree, over 20 feet high, is backed by Quercus Ilex to shelter it from north and east winds and flanked with Rhododendrons. W. O.

Fota, Cork.

Cratægus Pyracantha pauciflora.—M. Ed. André writes in the *Revue Horticole* in regard to a variety of *Pyracantha* known as *pauciflora*. It is a variety of the first order as regards its use for ornament in gardens and it is scarcely known. It is characterised by dwarf stature, bushy habit, thorny branches, flowers in scantily furnished corymbs, and orange-coloured or reddish fruit. It is, in fact, a dwarf form of the old and well-known plant of which the variety obtained by M. Lelaké, of Nantes, is the most vigorous form.

Its special qualities are (1) its use as a shrub for forming solid, evergreen, thick-set and impenetrable hedges; (2) its singular adaptability for adding picturesqueness to rocky places; (3) its capacity for resisting cold, which it has to a far greater degree than the *C. Pyracantha* type and the *C. P. Lelandei*, as has been frequently proved in the climate of Paris, Normandy, Beaufolais, and elsewhere.

DESTROYERS.

FLOWER GARDEN PESTS.

By no means the least of the difficulties that the cultivator of plants has to contend with is

garden is a regular nursery for all sorts of insects. Rubbish, stones, and the refuse of a crop should never be allowed to lie about, as they form a welcome shelter to many kinds of pests. Anything taken from a plant that has been attacked by an insect or fungus should at once be burnt. Some plants suffer most from the attacks of insects when they are quite young; in such cases the plants should be pushed into vigorous growth as quickly as possible by suitable cultivation. Birds should be encouraged in gardens. Few persons realise the enormous number of insects killed by them, especially during the breeding season, when nearly all the young birds are fed on animal food. Toads also are most useful

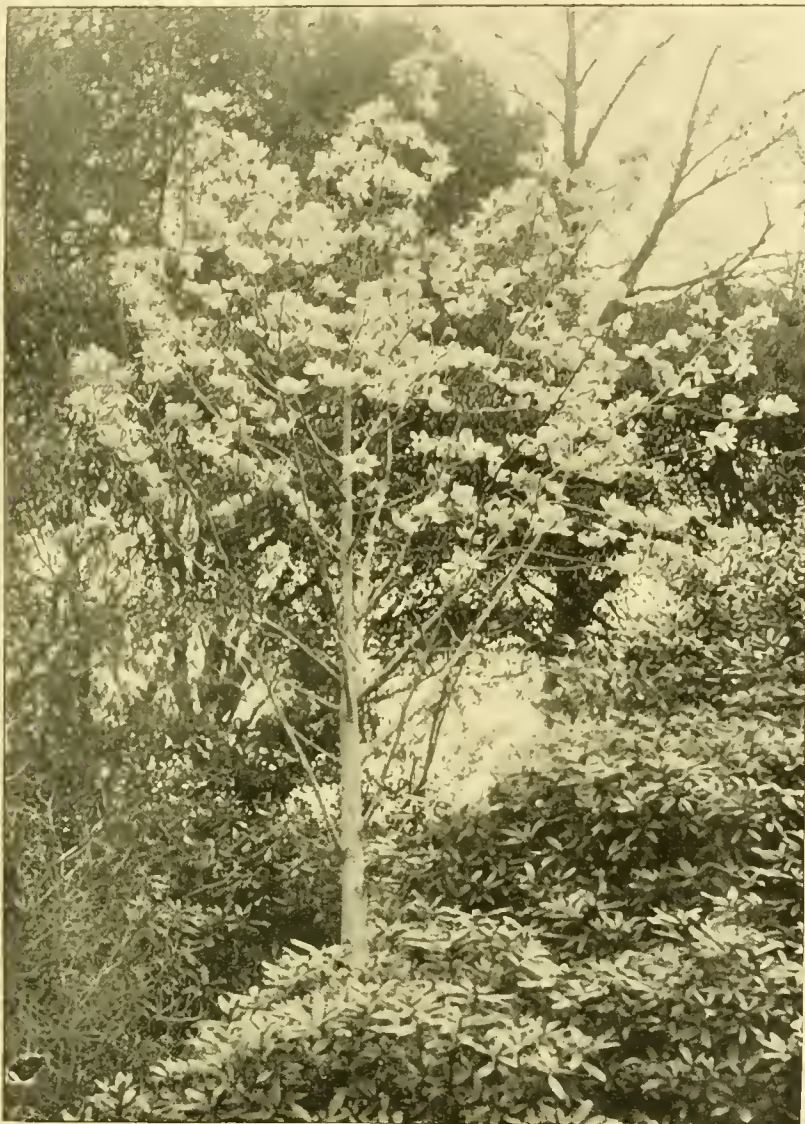
weeds and expose any insects which may be in the soil to the birds. As soon as the attack of any insect is noticed, steps should at once be taken to check it, as in this case the old proverb, "A stitich in time saves nine," is especially true. If ants are seen running over plants, it is generally the case that the latter are infested by aphides or scale insects, and when ants make their nests at the roots of plants it will often be found that the roots are attacked by one of the root-feeding aphides.

Remedies will be applied in a more intelligent manner if those who use them are acquainted with a few elementary entomological facts; so it may be mentioned that a typical female insect when in a perfect state lays eggs; from these are hatched grubs, maggots, or caterpillars, according to the kind of insect; these usually feed voraciously and increase rapidly; they change their skins several times, and when full grown become chrysalides; from these in due course the perfect insects emerge. Butterflies, moths, beetles, bees, wasps, ants, and some other kinds of insects undergo these changes, which are very marked. Others, such as crickets, grasshoppers, cockroaches, bugs, earwigs, green flies, and scale insects, really go through the same changes, but they are much less apparent; the young just hatched from the egg very much resembles its parents. It is, of course, very much smaller and is never winged, but there is a general family resemblance between them. The young one as it grows at times changes its skin, and at a certain change the wings may be seen in a very rudimentary condition. The insect is then in the state that answers to the chrysalis state in the other insects, and on the next change of skin the insect appears in its mature condition. After attaining this period in its existence it never grows. A butterfly, bee, wasp, fly, or whatever the insect is, when in its perfect state never becomes any larger. All insects in their mature condition have a general similarity in their structure, although it may not always be easy to trace the three divisions in which they are formed, namely, head, thorax or forebody, and body, which in a wasp are particularly well marked. The head is furnished with the organs of the mouth, the feelers or antennae, and eyes. To the forebody are attached the legs and the wings. The body contains the breathing, digestive, and other internal organs. Every insect should have three pairs of legs and two pairs of wings, but in some kinds they are altogether wanting, or there is only one pair. Insects do not breathe through openings in their heads, as the higher animals do, but, as a rule, through pores arranged along their sides, which lead into tubes that convey the air to all parts of the body.

Insecticides act upon insects in different ways; some smother the insects by clogging their breathing apparatus, or by their action on their skins, others by poisoning their food. Those first mentioned should be used in the case of insects which feed by suction, the others when the insects have biting mouths. Insecticides, as a rule, have no effect on the eggs, so that it is always best in the case of insects that breed very rapidly to use them again in the course of a few days, and perhaps even a third time, so as to make sure that the pest has been exterminated. There are now several kinds of spraying machines and spraying nozzles in the market. With them the insecticides can be used much more economically than with an ordinary syringe, and they can be applied with greater ease to the undersides of the leaves where the insects are as a rule.

INSECTICIDES.

Carbolic acid (erude) 1 pint, soft soap 1 quart,



Magnolia Campbelli at Fota, Cork. From a photograph sent by Mr. W. Osborne.

the number of different kinds of insects that feed on the objects of his care, at times rendering all his efforts of no avail. To keep a garden tolerably free from insect pests is never an easy task, and in some seasons an utterly impossible one, but a great deal may be done by a little well-directed care. Prevention is, of course, "much better than cure," and a great deal may be done in this way by never allowing any weeds to grow in a garden, as the insects that feed on them often prefer those in cultivation. A weedy, uncared-for corner in a

creatures in gardens, and should be encouraged far more than they are. All dead leaves should be collected and burnt unless they are required for leaf-mould, when they should be made into a heap as soon as possible. Any leaves that do not fall with the others should be picked off and burnt, as they often contain chrysalides. When borders are being dug, a sharp look-out should be kept for chrysalides or cocoons which may be turned up. Any ground that is not in use should be kept well hoed and broken up. This will keep down

water 1 gallon, or carbolic acid 1 part, water 50 to 100 parts.

Paraffin 1 wineglassful, soft soap 1 pint, mixed very thoroughly together with a little hot water, and then add 1 gallon of water. This must be kept well stirred.

PARAFFIN EMULSION.—Soft soap 1 quart, well mixed in 2 quarts of boiling water, while hot add 1 gallon of water, churn or pump the mixture through a garden engine for 15 or 20 minutes, then dilute ten or twelve times with water and add a quarter of a pint of turpentine, or condensed milk 1 to 1½ pints, water 3 pints, mix together and add 1 gallon of paraffin, churn until it forms a butter, dilute with ten or twelve times its bulk of water.

QUASSIA EXTRACT.—Boil 6 ozs. of quassia chips in a little water for half an hour, strain off the liquor and add it to 4 ozs. of soft soap and mix thoroughly in 5 gallons of water; if it is to be used to kill red spider, add half a pound of flowers of sulphur.

TOBACCO WATER.—Boil 1 oz. of strong tobacco in half a gallon of water and strain when cold.

SOLUBLE PARAFFIN.—Half a pint to 2 gallons of water for mealy bug, quarter of a pint to 2 gallons of water for aphides or red spider.

The water used with insecticides should always if possible be soft water; if this be impossible add a little soda.

Anemone	...	See snake millipedes and wireworms.
Aster	...	common dart moth.
Auricula	...	common dart moth.
Balsam	...	common dart moth.
Carnations	...	aphides, bulb mite, Carnation fly, frog hopper, earwig, red spider, thrips, and wireworms.
Chrysanthemum	...	aphides, frog hopper, earwigs, Marguerite Daisy fly, plant bugs.
Cyclamen	...	aphides, black Vine weevil, slugs, wireworms.
Dahlias	...	common dart moth, earwigs, thrips.
Ferns	...	black Vine weevil, frog hopper, plant bugs, various caterpillars.
Fuchsia	...	aphides, red spider.
Gladiolus	...	red spider, wireworms.
Hyacinth	...	bulb mites, Narcissus fly.
Lilies	...	aphides, bulb mites, wireworms, snake millipedes.
Mignonette	...	white Cabbage butterfly.
Narcissus	...	bulb mite, Narcissus fly, snake millipedes.
Pæonies	...	Rose beetle.
Pansies	...	slugs, snails, snake millipedes.
Phlox	...	frog hopper, thrips.
Rose	...	aphides, bell moths, Rose beetle, Rose gall fly, red spider, scale insects, sawflies.
Stocks	...	snake millipedes.
Verbascum	...	Mullein moth.

ANTS (*Lasius niger*).—Ants are not injurious directly to flowering plants in any way, but they are so at times by making their nests at the roots of plants. When this is the case it will generally be found that the plant is infested at the roots by one of the root-feeding aphides, and that the ants chose the locality on that account, so that they might benefit by the sweet substance secreted by the aphides. When a plant is overrun by ants it is an almost certain sign that it is infested by aphides or scale insects. Ants may be destroyed by pouring boiling water, paraffin oil, carbolic or sulphuric acid, diluted with ten or twelve times their bulk of water, into their nests. If in a position in which it is undesirable to use any of these, a garden pot with the hole at the bottom closed and partially filled with leaves should be inverted over the entrance to the nest, and the ground round the nest kept well watered; the ants will soon leave the damp earth and move their nest

into the dry pot. In about a fortnight the pot may be removed and its contents thrown into a pail of boiling water.

APHIDES (the family to which the greenfly and other nearly allied insects belong) may be destroyed in various ways, but whatever means are used no time should be lost in applying them as soon as the insects are noticed, as the latter increase and multiply in the most rapid manner. Spraying or syringing the plants is one of the most effectual methods of killing these pests. For this purpose use the extract from 6 oz. of quassia chips, 4 oz. of soft soap, well mixed and added to 5 gallons of water; paraffin emulsion, or a quarter of a pint of soluble paraffin in 2 gallons of water. They may also be destroyed when the plants are wet by dusting them with snuff, powdered tobacco, or Pyrethrum powder (commonly known as insect powder), or they may be killed by tobacco smoke. This can be effected out of doors, by covering the plant with some tolerably air-tight cloth and applying the smoke with a fumigator. When pruning Roses in the spring or autumn, the shoots cut off should always be burnt, as they may have some eggs of these insects on them.

BELL MOTHS OR ROSE TORTRICES (*Tortricidae*).—The caterpillars of several members of this family attack the leaves and flower-buds of Roses, rolling up and feeding on the leaves, and eating the young petals, or making holes in the buds. From the sheltered positions that they occupy, insecticides are almost useless; pinching the curled leaves is the easiest way of killing them, if you can be quite sure that the intended victim has not dropped out before your fingers closed on the leaf; or a basket may be held under the leaf or bud, which should be cut off so that it falls into the basket. The leaves and buds should then be burnt or crushed.

THE BULB MITE (*Rhizoglyphus echinopus*).—This little mite feeds on the bulbs of Hyacinths, Daffodils, and probably on those of other bulbous plants. It also attacks the stems of Carnations. It is impossible to make any insecticide reach them while the bulbs are in the soil, and even when taken up, as the mites work between the scales of the bulbs, it is only after many hours' soaking that they can be reached. For this purpose use the extract from 4 oz. of Quassia chips mixed in 2 gallons of water, or 3 lb. of sulphide of potassium dissolved in one gallon of water. The bulbs should be allowed to soak in one of these mixtures for twenty-four hours, and even then it may not be successful, as it is very difficult to make fluid pass freely between the scales of the bulbs, as there is often air imprisoned there. Immersing the bulbs in water at a temperature of 120° Fahr. for a quarter of an hour would, I believe, kill them; the mites when taken from the bulbs and placed in water at 115° Fahr. died in less than five minutes. The mites are only about one-twentieth of an inch in length, and are of a milk-white colour, and may be easily mistaken for grains of sand, but they may readily be detected with a good pocket lens.

THE CARNATION FLY (*Hylemyia nigrescens*).—The grubs of this fly feed on the pith of the stems of Carnations, doing much injury to the plants. The grubs, each about three-eighths of an inch in length, are nearly white with dark heads. There is no remedy but burning the affected plants.

THE COCKCHAFER OR MAY BUG (*Melolontha vulgaris*).—This insect is injurious to plants both as a beetle and as a grub; the cockchafers feed on the leaves of various trees, and the grubs on the roots of most plants. It appears to be useless to try and kill the grubs with any insecticide, but strong salt and water, or gas liquor diluted with ten times its bulk of water, renders the soil distasteful to them. The only practical way of destroying them is to open the ground round a plant which is attacked and find the grub. When full grown the grubs are each about 2 inches long and half an inch in diameter. They usually lie in a curved position, are whitish in colour, but the tail, which is the thickest part of the body, is bluish. As they take three years to come to maturity,

one grub will do an enormous amount of damage in the course of its life. The cockchafers may be shaken or beaten off the trees in the middle of the day, when they are generally sluggish, and crushed or collected as they lie on the ground.

DADDY-LONGLEGS OR CRANE FLY (*Tipula oleacea*).—The grubs of this insect are among the most mischievous of our garden pests, as they destroy the roots of turf and will eat right through the tap-root of a plant, and then go on to another and do the same. They are greyish brown grubs; when full-grown they are each about 1½ inches long and about a quarter of an inch in diameter, thickest near the tail, and tapering towards the head. They are commonly known by the name of leather jackets. They are very difficult to kill, and when below the surface of the ground, as they usually are, no insecticide can be made to reach them with fatal effect. Watering very thoroughly with strong liquid manure, such as a solution of guano, salt, or nitrate of soda, has been found beneficial, as it is distasteful to the grubs and stimulates the plants. They may be trapped by burying slices of Turnips, Mangold, Carrots, or Potatoes about an inch below the surface; each slice should have a small skewer stuck into it, so that it may be more easily found. The traps should be examined every morning.

THE COMMON DART MOTH (*Agrotis segetum*).—The caterpillars of this very common moth live on the roots of many different plants grown in gardens. Their favourites are Auriculas, Dahlias, China Asters, and Balsams. They usually feed on the crowns or just below them, and often bite right through the roots. They feed at night, lying hidden under stones, clods, or some similar shelter during the day. Warm soap and water applied to the roots of the attacked plants until the cracks and holes in the ground are filled will bring the caterpillars to the surface, but turning up the ground with a spud and picking out the pests is the most practical way of killing them. A full-grown caterpillar is from 1½ inches to 2 inches in length, and are of a smoky yellow colour with various small black spots and paler longitudinal stripes.

THE EARWIG (*Forficula auricularis*) feeds on many kinds of flowers, but is particularly fond of those of the Dahlia, Chrysanthemum and Carnation. The only way of destroying them is by trapping them, or, as they are night feeders, by catching them on the flowers after dark. The best traps are the hollow stems of Sunflowers or Broad Beans, from which they may be blown into a basin of boiling water, or water on which a little paraffin is floating, small garden pots filled with dry Moss or hay, or pieces of paper crumpled up. Or pieces of sacking or canvas, tied so that they hang in folds, or folded and laid upon the ground at the foot of the plants, are also very useful traps. In fact, anything in which they can hide during the day is useful.

THE FROG-HOPPER (*Aphrophora spumaria*).—The well-known little masses of froth so often seen on plants, and commonly called cuckoo spit or frog spittle, are formed by this insect when in its immature state, as a covering to itself, and the amount of sap withdrawn from the plant for the sustenance of the insect and the formation of the froth is very considerable and the cause of much injury to the plant. Honeysuckles, Lavender, Lilies, Carnations, Phloxes and grasses are among the plants which suffer most from their attacks. The best way to destroy this insect is to remove it with a small, stiffish brush, which should then be dipped in a pan of water; or the shoots and leaves may be drawn through the fingers, which should be dipped in water, to remove the froth and insects, before cleansing another leaf. Syringing is not of much use, as probably only the froth would be washed off.

THE MARGUERITE DAISY FLY (*Phytomyza affinis*).—The grubs of this insect burrow in the leaves of these Daisies, and also in those of Chrysanthemums, Cinerarias, and other composite plants, and feed on their inner substance. When many leaves are attacked in this way, the plants

are not only rendered unsightly by the discolouring and blistering of the leaves, but they suffer very considerably in health. The best way of destroying this insect is by cutting off the infested leaves and burning them, or, if the attack has only just commenced, by pinching the leaves at the part where the grubs are. Syringing with insecticides is not of much use, as they would not reach the grubs, but they would have the effect probably of preventing the flies from laying their eggs on the leaves, if they could be applied at the right time.

THE MULLEIN MOTH (*Cucullia verbasci*).—The caterpillars of this moth feed on the leaves and flowers of the Mulleins, and when abundant quite ruin the appearance of the plants. When full-grown they are about 2 inches long and of a greenish-white colour, with a yellow band across each joint, on which are several large black spots, so that they are conspicuous insects and may easily be picked off by hand.

PLANT BUGS (Hemiptera).—These insects are often injurious to the foliage and buds of plants, the buds of *Chrysanthemums* being frequently injured by them. These insects, of which there are many species, are provided with a long beak, with which they suck the juices of the leaves and buds. They vary much in size; the species that attacks *Chrysanthemums* is about one-eighth of an inch in length, the head and forebody are black, and the wings brownish yellow. The perfect insects run and fly readily, so that it is not easy to kill them, but in their immature condition they have no wings, and may be killed by syringing or spraying the plants with paraffin emulsion or quassia extract and soft soap.

RED SPIDER (*Tetranychus telarius*).—This most annoying pest is often very destructive to the foliage of plants, particularly to those which are dry at the roots. The best way of destroying them is by spraying or syringing with one of the following mixtures: 1 lb. of flowers of sulphur and 2 lb. of fresh lime, boiled in 4 gallons of water, then add 1½ lb. of soft soap, and, before using, 3 more gallons of water; or the extract from 6 oz. of quassia chips, 4 oz. of soft soap, and half a pound of flowers of sulphur, well mixed, added to 5 gallons of water; paraffin emulsion; or 2 oz. or 3 oz. of Gishurst compound in 1 gallon of water.

THE ROSE BEETLE OR GREEN ROSE CHAFER (*Cetonia aurata*).—This handsome metallic green beetle is unfortunately very injurious to the flowers of the Rose, Peony, Candytuft, Lilac, Elder, and several other trees and plants. Their grubs also are destructive to the roots of many plants. They are very much like those of the cockchafer, and are frequently mistaken for them, and are each about 1½ inches in length and scarcely half an inch in diameter, of a dirty white colour. The tail, which is the thickest part of the insect, is bluish. They lie in a curved position some 2 inches or 3 inches below the surface, so that no insecticide can reach them. Watering very freely with liquid manure or soap-suds is distasteful to them and may make them shift their quarters. The beetles are each about three-quarters of an inch in length, and are so conspicuous that they may easily be picked off the flowers.

THE ROSE GALL-FLY (*Rhodites rosæ*).—These gall-flies lay their eggs in the young shoots, and in the midribs of the leaves of Briers, the young grubs from which form the curious mossy galls formerly known as "bedeguars," sometimes 2 inches or 3 inches in diameter, often seen on Briers, and at times on other Roses. The best way of destroying this insect is to cut off and burn the galls.

THE ROSE SAWFLIES (*Hylotoma rosarum* and others).—The grubs of these insects feed on and do much damage to the foliage of Roses. Some (the species just named among them) eat away the leaves, leaving only the thicker ribs; others feed only on the upper surface of the leaves, and do not touch the lower skin or the veins; another species rolls up the leaves into tubes about the size of a quill pen and feeds within this shelter; another lives on the pit of the young shoots. The grubs mostly become chrysalides in the earth, so that after a bad attack it is best to remove the

earth from under the bushes to the depth of about 3 inches and burn it, or bury it not less than 1 foot below the surface. The grubs should be picked off by hand, or the bushes may be syringed or sprayed with paraffin emulsion, or quassia extract and soft soap, or Paris green. In the autumn cut off and burn any shoots that appear to be withered, as they may contain chrysalides.

SCALE INSECTS (Coccidæ).—These insects infest Roses, Cotoneasters, &c. To destroy them spray or syringe with paraffin emulsion, or quassia extract and soft soap; then, if possible, any of the insects that are on the stems or shoots should be scraped off. In the course of a few days spray again to make sure of killing any of the young that escaped the first application.

THE GARDEN SNAIL (*Helix aspersa*).—There is practically nothing to be done in the way of killing them but hand-picking. Thrushes are very fond of them.

SLUGS.—There are several kinds of slugs that infest gardens; the commonest is *Limax agrestis*, its ravages being only too well known. Small heaps of bran, each placed on a small piece of slate or board, make good traps. Dusting with fresh lime is very useful, and large numbers may be killed of an evening if the plants that are attacked and the ground round them are searched with the aid of a lantern. If the slug be stabbed or cut through with a sharp-pointed knife at the shield (that part just behind the head) the creature dies immediately.

SLAKE MILLIPEDES (belonging to the genera *Julus*, *Blanulus*, and *Polydesmus*).—These creatures are among the most annoying pests in gardens, as they are so difficult to destroy. They feed on the roots of Lilies and other bulbs, Anemones, Pansies, Stocks and various plants in the flower garden. Few insecticides have any effect on them, as their skins are so horny and smooth, but a strong solution of salt or nitrate of soda will kill them if it can be made to reach them. They may be trapped by laying bricks, slates, tiles, pieces of board, turf or Cabbage leaves about, as the millipedes are fond of creeping under such things. They may be distinguished from the centipedes—with which they are often confused, and which are of great use in gardens—by the slowness of their movements, while the centipedes are very active. There is, however, one exception, the luminous centipede, a long, thread-like creature, 2 inches to 2½ inches in length, which, in spite of its extraordinary number of legs, moves with the greatest deliberation. The snake millipedes, according to the species, when full-grown each measure from half to 1 inch in length, and are composed of a great number of joints. With the exception of the "flattened snake millipede," they are nearly cylindrical in form.

THRIPS (*Thrips adonidum*).—This insect is more injurious to plants grown under glass than to those in the open air, but Phloxes, Carnations, Dahlias, and some other plants often suffer from their attacks. Syringing or spraying with paraffin emulsion, quassia extract and soft soap, Gishurst compound, or tobacco water are the best remedies for outdoor use.

VARIOUS CATERPILLARS.—Besides the caterpillars already mentioned, most plants in the flower garden are liable to be attacked by the caterpillars of various moths, which it is hardly necessary to enumerate. Suffice it to say that they are best destroyed by hand-picking.

THE WHITE CABBAGE and TURNIP BUTTERFLIES (*Pieris brassicae* and *P. rapæ*).—In the flower garden the caterpillars of these butterflies are very injurious to the leaves of *Tropæolums* of various kinds and *Mignonette*. The plants should be carefully looked over, and the caterpillars picked off. If very numerous, syringe or spray with paraffin emulsion.

WIREWORMS (the grubs of various species of "click beetles," *Elateridæ*).—These well-known pests are by no means easy to get rid of, and as they are over two years in coming to maturity, if left alone they have plenty of time to do a great amount of harm. They attack various flowering plants, but they are particularly fond of Carna-

tions and plants of that nature. Those belonging to the largest species when full-grown are three-quarters of an inch in length, and much resemble a piece of brass or copper wire of that length, and they are almost as tough. No insecticide is of much use, and trapping them is the best way of destroying them. Slices of Carrots, Turnips, Potatoes, or Kape-cake buried about an inch below the surface make good traps. Each should have a small skewer stuck into it to show where it was buried. They should be examined every morning. Most birds are fortunately very fond of them.

WOODlice, if found to congregate at the base of a wall or in other positions, may be killed by pouring boiling water over them. They may be trapped by laying bricks, tiles, or pieces of slate or board near their haunts, which they will creep under. Toads kill great numbers of them. Or they may be poisoned by laying pieces of Potato about which have been boiled in water in which some arsenic has been placed. G. S. S.

STOVE AND GREENHOUSE.

LILIES IN POTS.

Of late years Lilies have been more generally grown in pots than was at one time the case. As we get some of the best from Japan, and the importations from that country are just now reaching here, the present is a very suitable time for obtaining and potting those that are intended for this mode of culture. Of course, where the Lilies have been grown in pots they should have been repotted before this, but when fresh bulbs are obtained they may all be got now in good condition. In any selection of Lilies for pots the different members of the tube-flowered group occupy a prominent position. Of these, first and foremost comes *L. longiflorum* in its numerous forms, of which the most universally grown is that known as *L. Harris*, which is sent here from Bermuda in great quantities early in the season. These have in most cases been potted for some time, and are employed for very early forcing. The Japanese *L. longiflorum* is, however, just about the same thing, though, owing to the different conditions under which they have been grown, the bulbs are totally different in appearance, and may now be obtained in good plump condition suitable for potting; whereas the Bermuda bulbs, if kept out of the ground till now, are very apt to suffer. The variety *Takesima*, in which the stems and exterior of the flower-buds are tinged with brown, is another distinct kind. These different forms of *L. longiflorum* may be grown in various ways according to the purposes for which they are intended. A single bulb may be flowered successfully in a pot 5 inches or 6 inches in diameter, and where large specimens are needed, about five bulbs in a 10-inch pot will yield a fine display. *Lilium Browni* is another beautiful tube-flowered Lily that will bloom well in pots when the bulbs are potted and placed out of doors, just protecting them from severe frosts. I prefer to leave these outside till the flower-buds are well developed, as the beautiful and characteristic chocolate tinge is far more pronounced than if the plants are grown under glass. Treated in this way it flowers, as a rule, about the middle of June. *L. Krameri* is a very beautiful Lily, and with ordinary attention will flower well the first season after importation; but the mortality among them is usually so great that few will flower more than once. We sometimes hear of the successful culture of this Lily, but with me it is a failure after the first year, and, whatever may be said to the contrary, the fact remains that it is almost impossible to obtain any bulbs of it from the dealers till the importations from Japan arrive. It is in all stages impatient of too much wet, and does best when potted and kept in a cold frame. As this is by no means a vigorous Lily, a pot 5 inches in diameter is large enough for even the strongest bulb. *L. candidum* (the Madonna Lily) is often grown in pots for

flowering under glass, but the disease has lately worked such havoc with it, and such immense numbers of *L. longiflorum* are now imported, that it is not forced so much as was formerly the case. When in good condition, however, it is admired by everyone. *L. neilgherrense*, another of these tube-flowered Lilies, is essentially a greenhouse plant, though it may be turned out of doors during the summer months. While some of these above mentioned claim special recognition from the fact that they can be forced into bloom early in the season, the great merit of *L. neilgherrense* is that it flowers in many cases after all the other Lilies are over. The long tube-shaped flower is generally of a creamy tint and agreeably, but not strongly, scented. In height this varies from 2 feet to 4 feet, but if kept out of doors during the summer it is dwarfer than if grown altogether under glass. *L. speciosum* is just now arriving from Japan in grand condition, and consists for the most part of *Kretzeri*, usually disposed of at the auction sales under the name of album (a totally different thing), and several forms of rubrum, and that to which the name of *Melpomene* is applied being the richest coloured of all. This and the white *Kretzeri* are two of the best and most distinct, forming as they do a direct contrast to each other. The massive blooms of album novum, which are pure white with conspicuous golden anthers, are sure to attract attention; and of the Dutch forms, the pale pink resem and the variety known as album, in which the flower is white inside shaded with chocolate on the exterior, are two good varieties. One variety, punctatum, has very pretty flowers when in good condition, but it does not grow with the freedom of the others, and is very apt to have a diseased appearance, which shows itself at first in the leaves as the stems develop. Among the numbers imported from Japan, there is among the coloured kinds a considerable amount of variation, and frequently if only a small quantity is purchased several distinct forms will crop up amongst them. These varieties of *L. speciosum* are particularly valuable where a greenhouse or conservatory has to be kept gay at all seasons, from the fact that they flower during August and September. Of *L. speciosum*, a large bulb will need a pot 6 inches to 8 inches in diameter, and large masses in pots or tubs can be made up by putting several bulbs together. When grown in pots out of doors the leaves of *L. speciosum* are sometimes liable to turn yellow just before the earliest buds expand, and to obviate this it is a good plan to take them under glass before that period, or, at all events, on the first signs of the leaves changing colour. *L. auratum* is undoubtedly a grand Lily, and, at the same time, in some respects a disappointing one, for it will often die off suddenly without any apparent cause. Some grand examples in pots may be, however, at times met with, and in any selection of Lilies suitable for pot culture this must have a place. There is an almost endless variety to be found among this Lily. The common Tiger Lily is, as a rule, not satisfactory in pots, though the variety thereof—splendens or Leopoldi—will do well under such treatment. The bulbs of this are cheap, can be depended upon to flower and supply a colour quite distinct from any of the others previously mentioned. Of this three bulbs at least must be put into a pot in order to ensure an effective specimen. This may be grown altogether out of doors till just on the point of flowering, which will be about the latter part of July. *L. davuricum* or *umbellatum* with its large heads of orange-red blossoms makes a goodly show. *L. elegans*, or *Thunbergianum*, is another somewhat in the same way, but there is a far greater variety in the height of the plant, colour of the flowers, and period of blooming. The dwarfer forms of *L. elegans* are most effective when grouped in a deepish pan or in some similar manner. The bulbs are small, though in the vigorous forms which more nearly approach *L. umbellatum* they are larger than in the dwarf kinds. *L. croceum* is the common Orange Lily so familiar in some cottage gardens. It will, however, flower well

in pots, and is occasionally met with so treated. The Martagon group contain the greatest number of species, but beautiful as many of them are, there are very few that can be depended upon to behave in a satisfactory manner when grown in pots. *L. Hansonii* from Japan is one of the best, the small yellow flowers with their thick wax-like petals being, as a rule, borne in considerable numbers. The blossoms of this are not so heavily scented as in some of the Martagon group, which on this account cannot be kept in a confined atmosphere. *L. testaceum*, the distinct and pretty nankeen-coloured Lily, flowers well in pots.

Besides the above, which may if needed all be grown in pots, there are a few which flower so late that out of doors they would not expand at all. Under this heading must be included *L. neilgherrense*, *L. nepalense*, *L. Wallicbianum*, *L. sulphureum*, *L. Lowi*, *L. polyphyllum*, and *L. philippinense*. The Chinese *L. Henryi*, which is such a grand Lily in the open ground, is more satisfactory in this way than in pots. H. P.

Begonia manicata.—This is a very old variety seldom seen now, but still amongst the best

induce them to flower is fatal to many of the roots and tries the bulb severely; whereas if the operation is delayed till the roots are on the point of becoming fully active, the flower-scape and foliage develop and the roots at once push forth. —H. P.

BASKET OF PLANTS IN THE GARDENS, REGENT'S PARK.

This is an instance of the bold and picturesque filling of vases, one of the good points in the gardens of Regent's Park which we have so often alluded to as an example of good work. It is as varied and artistic at all times as it well could be under the circumstances of the London smoke and the other difficulties of a crowded public garden. In such places a certain amount of beauty is sacrificed for the sake of fencing and walks, which would be quite needless in a private garden; also the original design of the place is without much dignity in some parts, and little narrow borders are backed by hedges



Basket of plants in the Botanic Gardens, Regent's Park. Engraved for THE GARDEN from a photograph sent by Mr. C. Jordan.

for blooming from the new year onwards. Where large light-looking plants are needed for furnishing, nothing can be more useful. I grow the plants in 8-inch pots. In April I put three strong cuttings round the side of a 5-inch pot. These are placed in a warm frame, where they quickly root. They are, when well rooted, potted into 8-inch pots, using loam, rotten manure, and a little sand. These are grown on in cold pits and in the autumn removed to a cold house. As the days shorten they are placed in a warm house. —DORSET.

Dividing Nerines.—Though loth to divide the Nerines more than is absolutely necessary, I have tried it at different periods, and have derived the greatest measure of success when the operation was carried out just as the flower-scapes make their appearance, as they develop with but little or no check, and the roots being at once active, they soon take possession of the new soil. Even then they sometimes show their resentment at being disturbed by refusing to flower the following year, and such is not only my own experience, but that of others who have been very successful in their culture. In dividing plants while totally dormant the ripening needed to

of Privet, borders in which it is not easy to get good or simple effects. But, on the whole, we know no gardens that are better worth seeing for eight months out of the twelve than those under Mr. Jordan's care here.

Richardia Elliottiana.—This beautiful *Richardia* has within the last year or two appeared in a new rôle, for in its early days we looked upon it as totally deciduous during the winter, and starting into growth only with the return of spring. Now, however, things are somewhat changed, for at the last two meetings of the Royal Horticultural Society that were held in the middle of February and the corresponding period in March, some grand flowering examples of it were shown, and that, too, when if treated as a greenhouse plant, it would be only just commencing to grow. It, however, responds readily to additional heat; in fact, the temperature of an ordinary greenhouse is in spring too cool for it, as in a warmer structure the leafage is more attractive. Where placed under similar conditions *R. Elliottiana* is much quicker at starting into growth than the nearly related *R. Penlandii*,

whose flowers are also golden. It (*R. Pentlandi*) is often imported in considerable numbers and disposed of in the London auction rooms, but I have never seen *R. Elliottiana* sent from Africa in this way. It is true we have had some imported under the name of *R. Elliottiana* Ressi, but what this will turn out to be has, in my case at least, yet to be proved, as they are only just starting into growth.—T.

THE NURSERYMEN, MARKET GARDENERS' AND GENERAL HAILSTORM INSURANCE CORPORATION, LTD.

The following report was presented to the shareholders at the third ordinary general meeting held at Simpsons' Ltd., 101, Strand, London, W.C., on Thursday, March 31.

The directors, in submitting to the shareholders their third annual report on the business of the corporation for the year ending February 23, 1898, together with the audited accounts, have to state that no alteration in the amount of capital issued has taken place during the past year. The hailstorms which occurred during the year 1897 will long be remembered for their extreme violence, for the large area over which they fell, and for the devastation and ruin which they wrought, more than eighty nurseries being very seriously damaged. On April 16, 1897, severe storms caused considerable damage to glass and crops at Luton, Dunstable, and Bedford, as well as in Lincolnshire, Cambridgeshire, and North Herts. On June 21, 1897, hailstorms of unprecedented violence occurred simultaneously in Essex, Hertfordshire, and Middlesex, the results being most disastrous at Chelmsford, Ingatstone, Ponder's End, Enfield Highway, Waltham Cross, Enfield, New Barnet, Heston near Hounslow, and Harrow. The glass houses at over sixty nurseries were wrecked by these storms, and crops in several localities were completely destroyed. Many of the nurserymen, market gardeners, and farmers were not insured, their losses amounting to many thousands of pounds. In Essex alone the damage to glass and crops was estimated at over £50,000. On the other hand, the owners of thirty nurseries whose glass houses were severely damaged had insured with this corporation, who immediately surveyed the properties, assessed the damages, and paid the claims within six days of the storms occurring.

When it is known that these nurseries are situated at considerable distances from each other, that the total length of the glasshouses exceeds twenty-five miles, that every house had to be carefully examined, and every pane of glass broken or cracked by hail counted, the fact that all were surveyed, the claims satisfactorily assessed (one amounting to £885 1s.) and settled within six days, demonstrates the manner in which this corporation carries on its business. The vast amount of damage done by these hailstorms, together with the prompt and satisfactory way in which the claims were assessed and paid, have resulted in the operations of this corporation becoming much better known and appreciated.

The directors are also pleased to draw attention to the fact that though the corporation had only been established so short a time, the whole of the claims were paid without any further call on the shareholders being made. Every possible effort has been made to inform the public of the special advantages and reduced premiums offered by this company, and the directors are gratified to be able to announce that the premium income this year is more than 50 per cent. over that of the preceding year.

The directors again desire to draw attention to the special advantage of insuring with this corporation, viz., that those insured can replace immediately their own glass broken by hail, the corporation paying them at the rate per square foot at which the glass is insured. Another special advantage, and of which several insurers are availing themselves, is that of being able to cover wholly or partially the value of the contents of their glasshouses by increased insurance of their glass—an advantage offered by no other insurance company. Twenty-nine additional agents have been appointed during the year, making 101 in all—viz., ninety-five in the United Kingdom, five in the Channel Islands, and one in the Scilly Isles. All agents are paid by commission only. The directors invite applications from gentlemen who would undertake agencies in those districts not yet represented.

The board of directors meets not less than once in every three months, whilst a committee of six of the

board meet as often as may be necessary to carry on the business of the corporation. The total number of meetings held during the year has been twelve.

It appears from the financial statement that claims to the value of upwards of £1500 have been paid during the year.

The following figures show not only the growth of insurance in this company, but also the amount of glass there is in the country, and its rapid growth.

PREMIUM INCOME.

In 1895-6.....	£ 861 1 9
„ 1896-7.....	889 11 5
„ 1897-8.....	1360 17 0

The premiums in 1897-8 are therefore 53 per cent. more than in 1896-7, and 100 per cent. more than in 1895-6.

GROWTH OF BUSINESS.

	Policies in force.	Sq. feet insured.	Value.
End of 1895-6	235	10,408,161	£132,215 16 0
„ 1896-7	346	13,886,095	179,366 11 1
„ 1897-8	550	20,098,104	263,590 19 1

CLAIMS PAID SINCE FORMATION.

In 1895-6	2 claims	£ 283 17 4
„ 1896-7	—	—
„ 1897-8	30 claims	1532 17 5

One claim amounting to £886 1 0

All these claims were settled within six days of the storms occurring.

Of the £399 4s. 4d. formation expenses, £239 4s. 4d. have been written off, leaving £160 to be written off in the next two years. The £500 reserve for unexpired portion of premiums is £200 more than the reserve of preceding year owing to the increase in premium income.

NOTES OF THE WEEK.

Iris pumila azurea is the first of this section of irises to open its flowers. Masses of these pretty dwarf irises are now showing freely, and at Winchmore Hill, Kew Gardens, Ditton, and other places they will form a really pretty sight during the Easter season and following days.

Amaryllises at Kew are now making a rich and telling display in the greenhouse No. 4. The plants are numerous and well grown, and in point of colour represent many beautiful and choice kinds. Some of the lighter kinds, with heavy veins of crimson or scarlet, are very beautiful.

Bauera rubioides.—Among greenhouse evergreen shrubs, for which quite cool treatment only is needed, this species is notable for its free flowering. Compact bushes 2 feet across are now covered with the deep pink and white shaded flowers that attract attention because of their numbers and dainty appearance.

Senecio macroglossus is a Groundsel with a climbing habit well suited to the cool greenhouse or conservatory in positions where it may be planted out, and if allowed the freedom the plant deserves makes a good display of its buff-yellow flowers, which are very distinct.

Bomarea frondea.—This species, though not of the largest size, is certainly among the most profuse flowering of this pretty genus of climbing greenhouse plants. For many weeks this kind will keep up a succession of bloom, the drooping orange-coloured blossoms being shaded with a crimson-red tone and spotted freely.

Cheiranthus Harpur-Crewe.—One of the most beautiful flowers of the week is this, a delightful plant in any garden, and possessing greater hardiness than many of its race. A fine batch of this at Winchmore Hill shows the plant in its fullest beauty. The plant is easily grown and also readily increased by cuttings later on.

Anemone (Hepatica) angulosa.—The Hepaticas are just now in very fine condition, but this one is the largest as well as one of the most desirable of all, and is not equalled by any of the varieties of *H. triloba*, notwithstanding these are all very charming in their way, and greatly diversified in colour as also in their prettily marbled foliage.

Anemone blanda in many of its seedling forms is now most beautiful, especially in those positions

where, by reason of a little natural shelter, the foliage was not harmed by the recent cold, searching winds. No more valuable plant exists, while its infinite variety from seed renders it still more beautiful for grouping freely in the garden. The scarlet Windflower, as well as the Apennine kind, is also gay with blossom.

Saxifraga Burseriana.—Some of the handsomest—i.e., the largest and the most abundantly flowered—plants of this we have ever seen are now in bloom in the alpine house at Kew, the cushion-like mounds composing the plants being simply studded with the large satiny-white flowers. Equally good, though naturally of much larger size, is *S. apiculata*, some tufts of this 8 inches across being loaded with blossoms.

Aotus gracillima.—This is one of the showiest and most beautiful of New Holland plants. The flowers are not unlike those of some *Chorozema* in colour, while the habit is more that of a graceful *Cytisus* or similar plant. The species is flowering freely at Kew in the greenhouse just now, the stems, between 2 feet and 3 feet long, being furnished for nearly 2 feet in some instances with rich orange and crimson flowers.

Gagea lutea.—As showing how great a variety of bulbous plants may be grown in a semi-naturalised way in the grass or other place beneath trees where gardening is not carried on in a strict sense, it is worth noting that this pretty little yellow-flowered plant has been blooming at the foot of the mound near Cumberland Gate at Kew for some time. The chief display, however, in this spot at the moment is a host of golden yellow Daffodils.

Tulipa saxatilis.—This, one of the most lovely species of Tulip, has been flowering recently at Kew in a warm border facing south. The warm rose-lilac tint is particularly pleasing and distinct, and descends half-way down the petals, then a circle of white, which is followed by a clear golden base. Not only is this a very handsome kind, but its early-flowering is also of considerable moment; indeed, it is one of the gems of the Tulip family. A native of Crete.

Fritillaria Meleagris in pots.—In those gardens where considerable diversity of colour and form is of importance, Fritillaries are certainly worthy of more attention for cultivating in pots. Easily grown and rapidly forced if needed, the flowers are both pleasing and attractive when grown as suggested. One point in favour of such things is they are to be had at a cheap rate, and after flowering in pots are helpful in beautifying such spots as are set apart for naturalising hardy things in general.

Narcissus Rip Van Winkle.—The little double Daffodil known as minor plenus or Rip van Winkle is a curious little flower with many pointed segments. In rich soil the flowers assume a greenish tinge, but in grass or on poor soil they are of a pleasing yellow. It flowers here fairly well, but in common with some of the other double Narcissi, has given fewer blooms than usual this season. This is more noticeable in partial shade than in full sun.—S. ARNOTT, *Carsethorn*, by *Dumfries, N.B.*

Primula acaulis varieties.—A lovely display of these hardy spring flowers in wonderful variety constitutes a great attraction at the Hardy Plant Farm, Winchmore Hill. It is not possible to enumerate the whole of the many shades of colour, suffice it to say that almost every conceivable shade is represented from the richest velvet crimson to purest white. Among the latter, however, a singularly fine variety is named *Snowdrift*, and at least, is remarkable for size and purity among these ever-welcome flowers.

Tulipa biflora major.—The two-flowered Tulip, while not a showy flower, is an interesting member of the genus. It came into bloom here in the closing days of March. The exterior of the flowers is green, and the inside white, with a yellow eye. The stems bear two or three, and sometimes four or five flowers. The whole plant is from 3 inches to 6 inches high. The most suitable place for *T. biflora* is in the rock garden, in a sunny nook. It was introduced from the Caucasus in 1806.—S. ARNOTT, *Carsethorn*, by *Dumfries, N.B.*

Corydalis cava albiflora.—This singularly pretty plant is now flowering freely at Winchmore Hill, where Mr. Perry is growing it in some

quantity. It is a really delightful little plant in the rock garden or among choice things in almost any position, though preferably where a fair amount of moisture is forthcoming. Scarcely less beautiful than the nearly pure white flowers are the pinnately-divided leaves, these with a glaucous hue and the reddish glaucous bracts supporting the blossoms all assisting to make it even more beautiful.

Narcissus Ajax Mrs. H. J. Elwes.—Although not one of the newest Daffodils, Mrs. H. J. Elwes is one of the most satisfactory of the yellow trumpets here. The flowers are of a beautiful clear self-yellow colour, of good substance and with finely-formed, spreading perianth and trumpet. Like the greater number of Daffodils here, it flowers freely when grown in full sun. In the rock garden it has been very pleasing for some time. This Daffodil was raised by the late Mr. Edward Leeds, at Longford Bridge, Manchester.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Dendrobium splendidissimum grandiflorum (Newhall Hey var.).—This is a remarkable form of this lovely hybrid, well meriting the name from its size and extraordinary dark colouring. The sepals are deep rose in colour, the petals dark rose at the apex, becoming lighter in the centre and towards the base. The lip is deep rose-purple in front, with a broad white band surrounding the rich maroon disc. This lovely form has recently been in flower in the collection of Mr. G. W. Law-Schofield, Newhall Hey, Rawtenstall, from whom a flower has been received. It is certainly one of the largest and best forms in cultivation.

Dendrobium Euryelia.—This lovely hybrid was raised in the nurseries of Messrs. J. Veitch and Sons, and is the result of crossing *Dendrobium luteiflorum* and *D. Wardianum*. It has the intermediate characteristics of both parents. The sepals are each upwards of 2 inches in length, the apical half deep rose-purple, the lower part nearly white. The petals similar in length to the sepals, are upwards of an inch in breadth. The lip has a bright purple tip in front of the broad white band. It is one of the scarcest and most beautiful hybrid *Dendrobiums* in cultivation. The only plant raised is now in flower in the collection of Mr. G. W. Law-Schofield.—H. J. C.

Fritillarias.—At the moment there are many beautiful species of this genus flowering in the open, with others that are decidedly interesting. Among the latter a large collection is grown at Kew in varying positions, though, perhaps, none in which greater interest centres than those naturalised in the grass at the base of the mound near Cumberland Gate. These are very effective thus grown, and deserve every encouragement to make them a success. Of the more attractive kinds, *F. pudica* and *F. pluriflora* are specially worthy of note. The latter kind, which so far promises to become a good garden plant, is also flowering well at Winchmore Hill.

Muscari botryoides carneum.—The whole of the *Muscari*, or Starch Hyacinths, are very beautiful, and in their compact growth and free and abundant flowering, singularly adapted to the rock garden in masses or groups. Two of the most charming of these are now in flower, the above-named and *M. azureum robustum*, the latter varying from ultra marine to porcelain-blue, the darker shade being rather the result of age. Mingled with the porcelain-blue shade are white lines and white tips; internally, more white prevails that lights up the flower as it were. The variety *carneum* possess just enough of the flesh shade to make its varietal name justifiable.

Pimelea ligustrina.—This, though not among the commonest kinds of this race, is a beautiful plant when well grown. It is also among the most distinct, particularly in foliage. Like all the race, the heads of blossoms, which are more or less globular, are singularly pretty, and in others very beautiful, but require a perfect system of culture to attain the best results. *P. Hendersoni*, *P. spectabilis*, and *P. intermedia* are all very

beautiful members of an apparently neglected group; indeed, the plants have been so neglected during recent years as to render good examples quite a rare occurrence. A large example of the above-named, several feet across, may now be seen flowering at Kew in the No. 4 range.

Pæonies and Daffodils.—Messrs. Kelway frequently tell us it is now time to plant Pæonies, and rightly extol this beautiful flower. I would like to suggest the great desirability of planting Daffodils amongst the Pæonies. The latter are pushing up their young growth, usually of a beautiful brownish crimson, just as the Daffodils are in flower, and the contrast between the deep red of the Pæony stems and the various tender yellows of the Narcissi is very charming. I saw a glorious bed of these at Straffan, and in a very meek way have imitated it ever since. There *N. princeps* was the variety employed. I used *Horsfieldi*, which was more plentiful with me, and in colour, I think, more suitable.—G. P.

Iberis gibraltarica.—We see this plant occasionally as a pot plant under glass by which treatment the large heads of blossom are nearly pure white, but as seen growing in the open without such protection the colour is very marked, and a deep lilac or lilac-mauve is the predominating shade. It is a handsome plant in the open, but is not quite hardy in severe winters, unless, indeed, it be seedlings as yet not flowered, which possess a certain vigour that assists them in great degree. Unlike other kinds this is best raised from seeds, and will make fine bushes, spreading out 18 inches across, and quite early producing its handsome flower-heads. Most of the *Candytufts* do best from cuttings, but the reverse is the case in this species, and seeds are generally abundant.

Rose Mrs. W. Rumsey.—The handsome flowers of this fine new H.P. Rose, exhibited at the spring meeting of the Royal Botanic last week, should do much to render it popular. In point of colour it will assuredly take the place of the well-known *La France*. Mrs. W. Rumsey is of a fine rich shade of pink, a very full flower, yet without the conical tip of *La France* and the impediments its peculiar construction has ever offered to free expansion. Not least among its good points is the stiff stem that permits of the flowers being cut with long stalks. In its foliage it is an advance on Mrs. J. Laing. In *La France* there are several inches of the peduncle quite leafless, nor is the peduncle itself safe without a wire. Mrs. Rumsey has none of these defects, the peduncle being comparatively short and of great vigour. It is also said to resist mildew.

Prunus spinosa fl.-pl. (Double Blackthorn).—The double Blackthorn is in every way a better and more beautiful shrub than the single type. The flowers of the common Blackthorn were, like those of *Prunus cerasifera* and others, practically destroyed by the frost and hailstorms at the end of March, but the double-flowered one has not suffered at all. It is now an almost complete mass of pure white, and, this year at any rate, is the most beautiful shrub in bloom during the first week of April. The little rosette-like flowers are each scarcely half an inch across, but every twig bears them in profusion. This shrub is by no means so common as its great beauty would lead one to expect. The chief reason of this is probably because it is not a good nurseryman's plant. It does not grow rapidly, and is not a good shrub to transplant; consequently it is not a paying shrub to grow in quantity.

Senecio kewensis.—The strain of *Cineraria* here indicated by its botanical name is perhaps one of the finest from a decorative point of view, and one also that is open to much improvement. In the ordinary florists' kinds we appear to possess flowers of the highest possible standard, so far as rotundity and size and clear and definite markings are concerned, but all of which have been gained at the expense of foliage and habit, with the result that we now find the present race of garden *Cinerarias* with flowers 3 inches or 4 inches across

on plants not much more than 8 inches or 10 inches above the pot. For general decoration such plants cannot occupy prominent positions in any arrangement by their very dwarfness, which is now overdone. It is in circumstances such as these that we welcome the taller and decidedly freer-flowering kinds represented by the above strain, and those given a few more distinct colours should prove of extreme value generally to the gardener.

PUBLIC GARDENS.

The Postmen's Park.—It would now appear that the Postmen's Park, in the City, is to be acquired for the postmen. The negotiations have been of a dilatory character, but only the question of £100 now divides the vendors and the Post Office. Hopes are entertained that the park will be acquired for the recreation of the postmen.

The Horniman Park at Dulwich.—The greater portion of the large park at Dulwich which Mr. F. J. Horniman, M.P., has resolved to present to the public, in addition to the free museum and library he is about to build, will be thrown open to the public at the end of this week. Temporary buildings of a suitable character have been erected for the accommodation of those visiting the picturesque grounds, and in other ways the comforts of holiday-makers will be looked after. The new building will take at least a year to complete.

Jubilee gift.—The Parks and Open Spaces Committee of the London County Council at a recent meeting reported that they had had brought to their notice by a deputation of residents in the district of Lee an offer made by the Earl of Northbrook and Viscount Baring to present to the public, in commemoration of the Diamond Jubilee of Her Majesty the Queen, a piece of land nearly seven acres in extent in Bromley Road, Lee, for the purpose of a recreation ground. The only conditions attached to the gift were that the ground should be taken over by the Council and laid out and properly maintained by it as a recreation ground, and that the costs of Lord Northbrook's solicitor and surveyor should be borne by the Council. Building operations were going on in the district, and there was a Board school close by. In the circumstances they did not hesitate to suggest that the Council should undertake the charge of the land on behalf of the public. It was estimated that the value of the land to be presented to the Council was £4125, and that the solicitor's and surveyor's charges would therefore be about 40 guineas and 25 guineas respectively. There might, however, be some other slight expense, and they therefore asked for a vote of £100 in order to cover all possible outgoings. They estimated the cost of laying out the land, including fencing, seats, and watch box, at £1000, and the annual cost for maintenance at £200. They recommended: "That the Council do approve the estimate submitted by the finance committee, and do agree to take charge of and maintain as a recreation ground the piece of land at Bromley Road, Lee, offered by Lord Northbrook and Lord Baring, and do undertake to pay the costs of Lord Northbrook's solicitor and surveyor in connection with the matter; that it be referred to the solicitor to take all steps necessary to complete the matter."

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, April 12, in the Drill Hall, James Street, Westminster, 1 to 5 p.m. A lecture on "Blight and Blessing," illustrated by lantern slides, will be given by Mr. Fred. Enock, F.L.S., at 3 o'clock.

Names of plants.—*J.C.K.*—1, *Narcissus incomparabilis* Cynosure; 2, *N. Leedsii* Duchess of Brabant; 3, *N. Leedsii* type.

THE GARDEN.

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FERNS.

NEW FERNS.

THE importation of new species is now of such rare occurrence, that it would almost seem as if the collectors had exhausted all resources in which new Ferns may be found. Even when we do get anything fresh it is generally a variety of some already known species. Varieties of garden origin are, however, as numerous as ever, and among them some remarkably distinct things occur. In many cases, though not quite distinct, they are yet, when compared with older varieties, found to be great improvements. As an instance I may mention

LOMARIA CILIATA MAJOR.—The normal form of ciliata, which I have known for many years, has never been of much service for decoration. The variety major, however, seems likely to be even more useful than the popular L. gibba, being of robust habit. The fronds are larger and have broader pinnae than the type. In a large batch just raised I find there is some variation, many of the seedlings being even better than the original plant.

L. CILIATA GRANDIS is another fine variety raised at the same time as the above. The general appearance suggests that it might be of hybrid origin, it having some of the characteristics of *Blechnum brasiliense*. This has not proved so prolific as major, but a small batch of seedlings has been raised, all of which appear to be quite true to character.

DORYOPTERIS DUVALI.—This is a desirable variety. I do not know its origin, but it appears to be closely allied to *D. nobilis*. It is destitute of the silvery grey variegation, the fronds being of a uniform bright green. *D. nobilis* is perhaps one of the most difficult Ferns to manage, and is rarely met with in good condition. *D. Duvali*, however, seems to be very free. I find it produces a number of crowns, and may be readily increased by division. If done carefully these will soon start away again. I have not yet seen seedlings, but I have no doubt it may be raised from spores, and if so, it should prove a really useful Fern.

PTERIS DRINKWATERI.—This is the finest form of *P. cretica major* that I have yet seen. It is certainly a great advance on Ouvrardi, a variety which has long been one of our most popular market Ferns. The fronds are of good substance, with broad, slightly undulated pinnae. It appears to come freely from spores and fully maintains its character. It will undoubtedly become a general favourite among market growers. It would be safe to say that no Fern is in more general demand at the present time than the ordinary *P. cretica major*, and any improvement will be welcome. A. H.

FERNS FOR CUTTING.

SINCE such a variety of other foliage has been used for intermixing with cut flowers, Fern fronds have not been so much in demand. The drawback to the use of Fern fronds is that they do not, as a rule, last well. Yet, provided the plants are grown under favourable conditions, this objection may be overcome to a considerable extent. In the first place, the plants should be grown in a light open position, and sufficiently far apart for air to pass freely between them, and as little artificial heat given them as is necessary for the full development of the fronds. By this treatment the fronds are not only brighter and of a less sombre appearance, but when cut they last much longer. Another point is the selection of sorts. This, of course, depends upon what particular purpose they are required for, and also, to some extent, personal taste. The beautiful, though somewhat fragile Maiden-hair (*Adiantum cuneatum*) will always hold first place, and as now grown by those who supply the market, it is of considerably more value than when it used to be grown under heavy shading, a mode of treatment not yet extinct among private growers. *A. elegans* is another Maiden-hair which now finds much favour among Fern growers. This variety has larger and more spreading fronds than the old favourite. It is also hardier and will grow freely during the winter months, where *A. cuneatum* would remain almost dormant. *A. scutum* may be recommended as one of the best large-fronded *Adiantums*. For some purposes, especially button-hole bouquets and sprays, the slender-growing *A. mundulum* is very useful: and the most beautiful

of all Ferns (*A. Farleyense*) may be added to the useful *Adiantums* for cutting from. Among *Davallias* there are several very useful sorts; though perhaps they do not produce their fronds so abundantly as some, yet they have the advantage of being of greater substance, and consequently last longer. When grown in either wire or wooden baskets suspended from the roof of the fernery they are pretty, and produce a considerable quantity of useful material for cutting from. The most useful sorts are *D. elegans*, of remarkably free growth; *D. Mariesi*, which succeeds well in a cool house; *D. decora* and *D. Mooreana*, the last-named being especially useful where large fronds are wanted. When constantly divided and grown in light, sandy compost it produces very pretty medium-sized fronds. Several of the varieties of *Nephrolepis* may be included among those useful for the above purpose, especially the long, slender-fronded *N. pectinata* and *N. philippinensis*, both of which are very pretty for small vases, &c., while *N. exaltata* and *N. tuberosa* are very effective for larger work. The varieties of *Pteris serrulata* are the most valuable of this genus; the lighter crested varieties, which droop over just enough to be graceful, should be grown. The normal form is not nearly so much grown as it deserves to be for this purpose. Where large spreading fronds are required, the Chiswick variety of *P. s. major* is most effective. The varieties of *P. cretica* are also very useful and last well, but are rather stiffer than the above-named. *P. tremula* when confined to small pots produces fronds which are very serviceable for large vases, &c. F.

NOTES AND QUESTIONS.—FERNS.

Polypodium cambricum.—I have often wondered that growers for market have not taken up the culture of this Fern on a large scale. It has a remarkably pleasing appearance when grown in pots, showing to better advantage in this way than when in the open ground. Many tender Ferns grown for decoration are not so pleasing as this variety. It may be grown through the summer in beds of good loam, and if potted up in autumn will be found of great service for

room and greenhouse decoration, or for corridors where cold draughts prevail.—J. C. B.

Anemia rotundifolia.—The above is described in Hooker's "Species Filicum," and also referred to in Mr. Schneider's "Book of Choice Ferns," and I lately saw it in Mr. W. Bull's nursery, but I am not aware of its having been previously cultivated in this country. It is a remarkably distinct and pretty Fern. The pinnate fronds are each about a foot long, and terminate in a long, slender stolon, at the end of which a young plant is formed, as in *Adiantum lunulatum*, to which it bears some resemblance, except in the fructification, the fertile portion being confined to two narrow, erect-growing segments at the base of the broader pinna. The barren pinnae are each about an inch long, slightly lunulate, when young of a bright reddish brown hue, changing to deep green with a bright surface. It appears to be free-growing, and should certainly be found in all choice collections of Ferns. It is a native of Brazil. If previously in cultivation it has evidently been lost.—A. H.

NOTES OF THE WEEK.

Claytonia caroliniana is a pretty species with pinkish white flowers and rather deeply coloured veins. It is, like other members of this family, of easy culture and free flowering. The very delicately suffused flowers of this always render it attractive, even where grown in pans or pots.

Triteleia uniflora.—Groups of selected roots are now a mass of showy flowers. The blooms, by reason of an odour not always admired, are not in great demand for cutting, yet it is one of the most free flowering of spring plants. Successional plantings will, however, provide a good succession of blossoms also.

A seedling Daffodil.—I send a few blooms of one of my new seedling Daffodils. The perianth is weak, but the fiery cups are fine in a mass and it is very free growing and strong.—A. L. L.

* A beautiful flower with a highly-coloured cup, but the segments are too flimsy. It is no doubt very effective in the mass.—E. D.

Narcissus Mme. Plomp.—This handsome kind, which is a recent addition to the list of good things this family contains, promises to be among the finest of all the bicolors, particularly in point of size if not in refinement. It is a bold and showy kind, vigorous in constitution, and invariably attracts attention, even in a collection, by its size alone.

Anemone ranunculoides pallida is all the name implies, a pale yellow form of the species named, but a pretty plant withal, though one which only exists in very small numbers at present. It is a very desirable form, however, and worthy of increase in every possible way. A moist peaty and very sandy soil suits it well, or in company with the *Dentarias* it would be quite content.

Pinguicula caudata.—This is now one of the most brilliant plants in the greenhouse, and one that attracts attention. The blossoms, too, brilliant at any season, seem decidedly so at the present time, at least by comparison with these flowers that usually appear late in the autumn months. Some plants of this appear well satisfied in the cool and moist surroundings of *Odontoglossums* or *Sarracenias*.

Synthyris reniformis.—This singularly pretty plant is now very attractive in the rock garden at Kew, where it promises quite a profusion of its pretty blue flowers. The plant is not at all difficult to grow, but is generally most vigorous in those positions where moisture and shade are afforded. Much of the leafage forming the tufts scarcely justifies the specific name given, the leaves in some instances being nearly orbicular and fringed.

Calypso borealis.—Several examples of this unique terrestrial Orchid are flowering in the alpine show house at Kew. It is a beautiful as well as elegant little plant, the only known species of the genus bearing solitary flowers on stems 6 inches high of a delicate rose-pink and brown, with a yellow crest on the lip. The species should be grown in moist, spongy peat in the company of *Cypripediums* or *Trilliums*, or, indeed, in any spot where a uniform moisture prevails.

Epimedium pinnatum is now very attractive with sprays of yellow blossoms in the rock garden,

where large established specimens are flowering freely. Some species of this genus are wholly deciduous, and in spring, simultaneously with the flowers, send up a fresh leaf growth. This is not the case with the above, that retains much of the old foliage till flowering is over in spring. Both foliage and flowers are in this kind very attractive. A deep, moist, sandy soil, or even peat, suits these plants quite well.

Primula Clusiana is, perhaps, one of the most useful of the Tyrolese species, and one well suited to free grouping in the rock garden, where its rosy-red flowers that nestle so closely to the glossy tufts of leaves are now very pleasing. The species succeeds well in gritty loam, preferring a position where moisture can be freely given during the growing season. Small crevices in the rock, or narrow fissures that run deep, also suit this plant, and if filled with soil mixed with grit or small stones, drought does not so readily affect it.

Iberis saxatilis.—The plant frequently seen in gardens bearing this name is not that now flowering in the alpine house at Kew, which may be best described as but a miniature, yet a very beautiful one, of the other. The little Candytuft here alluded to is one of the prettiest of all, not more than 4 inches or so high, compact in its growth and very free-flowering. It is a really ideal plant for the rock garden at any time. The corymbose heads are pure white and erect, much smaller than in that usually sold for it, which more nearly approaches *I. Garreuxiana*.

Romulea Linaresi.—This singularly pretty plant, that some readers may recognise by its synonym, *Ixia bulbocodioides*, has been flowering recently at Kew among the choice plants in pots. It is perhaps the most diminutive member of the Irid family, yet every plant, exceedingly minute and frail though it be, has its complement of richly coloured flowers. Externally the flower is of an intense violet-purple shade with deep violet inside, the flowers rising only some 2 inches or 3 inches above the soil, while the leaf blades, not more than the eighth part of an inch wide, extend an inch or two beyond.

Anemone nemorosa.—At the present moment, even if a common-place plant, there is nothing in flower more beautiful than the single white form of the Wood Anemone. It is not always that a plant is valuable by reason of great rarity; rather should it be valuable because abundant and beautiful and within the reach of all. The common Wood Anemone is all this, a perfectly unique British wilding that all who garden at all may grow, and enjoy the snowy wealth of exquisite blossoms that spread and increase from year to year, though always most, perhaps, where a light leafy mixture of soil is at hand for the roots to ramble in or for seeds to quickly vegetate.

Anemone vernalis.—The shaggy silken cups of this interesting Windflower may now be seen among the alpiners in flower at Kew in the small house set apart for this purpose. The chief colour is white, with a tinge or shading of palest mauve underlying the heavy silken down which so nearly covers every part of the cup, as also the involucre. The species is of slow growth, and may be well grown in pots, or in quite moist places in the lower parts of the rock garden. On no account should it be placed where subject to periodical dryness; this it cannot endure. Seeds are the best means of increasing this distinct kind, and these are best sown soon after being gathered. Such things give, perhaps, the least trouble, and frequently are safer when sown in shallow drills in the open in prepared soil, and, if covered by slates or boards, require but little attention up to the period of vegetating, which is usually in the spring ensuing.

Primula rosea.—This, the brightest and most useful of its colour of the hardy Primroses, is now gay with many expanded flowers, which, with the more intense hue of the advancing buds, render it among the most conspicuous of its tribe. We have now no more beautiful or useful species in cultivation. Easily grown and easily raised from seeds are points of importance in a good alpine

Primrose. The recommendation as to its moisture-loving propensity is, I think, frequently overdone. That the species delights in a certain amount of moisture is well known, but when the soil becomes a sodden mass it appears to fail. The finest clumps I have ever seen attained 15 inches high and through in two years in deep rich, though sandy, soil, which, owing to a high wall near, never became dry. In quite heavy and rather retentive soil with shade similar results have been secured, the tufts in each of these being superior to those planted where the conditions were semi-aquatic, or nearly so.

Campanula persicifolia grandiflora.—It may not be generally known, and it certainly cannot be too widely known, how well suited are the varieties of Peach-leaved Campanula for pot culture and gentle forcing. For the latter purpose, however, those plants are best where potting was done in early autumn and the plants in some degree established and ready for the purpose. Many Campanulas are equally useful as the above where colour is needed, but the pure white of this, as also the shapely and handsome flowers, are not surpassed by those of any of the Bellflowers. As these plants so quickly respond to artificial heat, the latter should be only cautiously applied, otherwise the growth will be too rapid and thereby weak. Possibly the best results will be secured by frame culture till the end of March, after which date the well-ventilated greenhouse should be ample to bring these plants into flower some time before it is their wont in the open ground. Already this year, as the result of too much heat, have I seen a few plants of this variety in flower, but the results do not commend the system to general use. Obviously too much heat has been given in the early stages and with recently potted examples. Far better pot some good pieces into 7-inch pots now and plunge outside for a full season if hard forcing is to be successfully accomplished; then without disturbance, and given plenty of liquid manure when growth begins, such plants will yield several beautiful spikes of their snow-white flowers. By the end of April the gently forced plants may be had in perfection, and the tall, graceful spikes are exceedingly useful for decoration during early spring.

Cinerarias at Farnham Royal.—We have written on more than one occasion of the Cinerarias in the nursery of Messrs. James and Son at Farnham Royal, Slough, but as the plants are in full beauty at the present moment, we again refer to this splendid strain of chiefly self-coloured varieties. Several low-pitched span-roofed houses are filled with the plants, which are almost painful to look at from the brilliant colour of the flowers. Each variety or type, whichever one is pleased to call it, is kept apart from its neighbour, and the effect is remarkably rich. Deep blue, purple, rose, pink, clear white, and many other shades make the houses gay with colour. We were delighted with the depth of colour in the blue varieties, and like also those tipped with the same shade on a white ground. A large house is filled only with the white Cinerarias, and the plants make a snowy bank, relieved only by the dark-coloured centre. The plants are extremely vigorous in growth and bear bold flower-heads, the individual flowers very broad, of fine substance and perfect form, yet not so formal as to create an unpleasantly stiff effect. This race of Cinerarias has been the outcome of years of patient work to achieve certain results, and not in vain. Mr. James has built another large house for the hybrid Cinerarias, those graceful, airy flowers which are becoming popular, hybrids resulting from crosses made between such species as *C. cruenta* and *C. l'Heritierii*. The plants are very beautiful, the flowers carried in abundance in lax racemes and more varied in colour than in the more strictly florists' kind. Some of the shades of colour are very tender and charming. Those who wish to see the Cineraria in its finest phase, whether the newer hybrids or older kinds, will find a rich treat in store at Farnham Royal.

ORCHARD AND FRUIT GARDEN.

A COVERED GARDEN WALK.

The picture represents a covered walk formed and planted exactly twenty-two years since, when I first came to Woodville, Kirkstall. It is not put forward as a thing to be copied or as anything artistic, but more as a suggestion as to what can be done by way of adaptation. To me this line of trees and climbers is simply a partial, but very profitable wind-break. The object in starting it was to better the condition of a wind-swept garden, and as I had plenty of orchard trees in pots and tubs of fair size, and no longer intended to continue that form of fruit culture, they were planted at Easter in 1876, and at once gave a stout and substantial effect to the ironwork. A few climbers, such as Clematis suaveolens, Forsythia, Ampelopsis, Atragene, and Roses, have been added from time to time. A friend who called with his small camera said it might make a nice picture then (autumn), and he took it, with the result as represented by this accurately engraved copy. I fancy it is one of those subjects which a photograph flatters; but still it can be commended as a wind-breaker and a pleasant cover in summer. One half of my garden has its capabilities enhanced by what is now a rigid line of trees and climbers, 9 feet or 10 feet high and 6 feet or 7 feet wide.

Woodville, Kirkstall.

J. WOOD.

ESPALIER APPLES AND PEARS.

UNDER this heading "H. R." (p. 283) has produced an indictment against the system which restricts the growth of these fruit trees within a small compass. The indictment is not a whit too strong, for there are but very few Apples or Pears which can be profitably grown as espaliers. The best that can be said of the system is that the trees are more or less picturesque and of some value as dividing lines in the garden, the bareness of which in the winter and spring months they relieve, and in the summer act as a blind to the vegetable plots or any other objectionable portion of the ground which it may be thought advisable to shut off from the main walks, also they are of some service in small gardens where there is no room for spreading trees, but in the latter case small bush Apples on the French Paradise stock and Pears on the Quince could be substituted with an increased fruit supply, for, as fruit producers, espaliers fall far short of trees grown on any other system. Certainly the top branches will now and then produce a few extra fine fruits for exhibition, but taken as a whole the crop of most varieties will be small, and no one in his senses would think of planting such troublesome playthings from motives of profit or economy, as the amount of labour entailed in keeping root and branch under subjection is out of all proportion to the crop they bear, leaving out of the question entirely the room they occupy or render useless for other crops. This wasted room is not to be measured by the exact space occupied by the top-growth, as the grower, having the welfare of his trees at heart, would not crop with other things close up to the stems, and, except perhaps on the sunny side, would get poor results if he did. Again, the closing in of vegetable quarters with espaliers or any other trees is by no means satisfactory to the majority of vegetable crops, which like a free play of air around them. Take Onions and Broccoli as instances, and I think that any gardener would admit that a plot,

especially if a small one, enclosed with espalier trees would be rendered unsuitable for either.

Well-grown and well-trained espaliers, when they can be found, are certainly a credit to the grower, and may by dint of much labour be kept in good condition, but when one remembers that the majority of espalier trees met with in gardens large and small are far removed from the ideal trees we read of often and see but seldom, one realises that the system is not to be commended for general use. There must be thousands of such trees in the country in which the upper branches have overpowered the lower ones to such an extent as to have destroyed all balance, and once that state is reached there is no room for hope that the latter will recuperate themselves again. The years that it takes to build up espalier trees so that the lower branches may be kept in advance of the upper ones and to bring them into bearing, must always be against them, and it is only by rigorously carrying out this system of building up that trees of respectable appearance can be formed. Apologists for the system may argue that root and branch-pruning could be reduced to a minimum by using dwarfing



A garden walk covered with fruit trees and climbers at Woodville, Kirkstall. Engraved for THE GARDEN from a photograph sent by Mr. J. Wood.

stocks for the trees, but the very varieties which are best suited for espaliers on the free stock refuse to make much headway on the dwarfing stock, and take years to cover the wires unless planted within a very few feet of each other. Then again, such trees, and especially Pears on the Quince, require much attention in the matter of watering in dry seasons. I think it may be safely said that no one should go in for planting espaliers largely except after the fullest consideration and for a special object, entirely apart from the production of profitable fruit crops, and though not wholly condemning such trees, I think them only justifiable in places where the greatest possible variety is sought for and where the limits of space are too narrow for growing trees in any other form.

J. C. TALLACK.

Long spurs on wall trees.—During the late spell of severe weather my attention was directed to some Apricot trees growing against a wall, but getting so little benefit from it in the way of shelter that for all practical purposes they might as well have been planted in the open, for

the spurs had been allowed to extend until they stood quite out of the reach of any warmth given out by the bricks; in fact the very object for which the wall was built was defeated by letting this extension of the spurs be carried to such a length that it was difficult to know what to do, except to grub up the trees and start afresh. I am by no means an advocate of close pruning or training, but I do think that wall-trained trees should have their growth kept close to the wall if they are to get the full benefit of its shelter. Especially is this the case in seasons like the present, when Peaches and Apricots were in full bloom early in March, and when quite severe frosts were almost a certainty. I am well aware that spurs cannot be kept so close to the wall as the annual growth of a Peach tree, but there is no excuse for letting them get out of all reasonable bounds. It is much better to cut them right off, and train the young wood down close over the bare portion of the stem, so that there may be young wood furnished with short, stubby spurs all over the face of the tree.—J. G., Gosport.

SUCCESSFUL STRAWBERRY FORCING.

At Westonbirt very hard forcing is not resorted to, and if good fruit is forthcoming towards the end of March, Mr. Chapman's employer, Captain Holford, is content. When I visited the gardens—this being during the first week in April—a grand lot of ripe fruit was hanging ready for gathering, with abundance to follow. The plants producing these, with more to afford successional supplies, are forced in small span-roofed structures, and arranged where those in charge have easy access to them. This is a great improvement on the older plan of forcing Strawberries on the front and back stages of vineries and Peach houses, where they are difficult to get at and water, and where they invariably become badly infested with red spider, some of which they leave as a legacy of a most injurious character to the legitimate and more valuable occupants of the house.

Arranged where they can receive every attention in the way of watering, feeding, and syringing, the pots also not being too small, the plants are quite free of red spider. Each carries not less than a dozen large, highly-coloured (where ripe) and, for the time of year, richly-flavoured fruit. Royal Sovereign is the favourite variety for the earlier crops, but Auguste Nicaise is in grand condition, the plants promising to produce many sensational, if not highly-flavoured, fruits. Mr. Chapman's method of preparing Strawberry plants for forcing appears to answer so well that I propose to give a brief outline of it here. Late in the season the requisite number of small runners are put out into nursery beds, where they remain till the following June, having any flowers that show on them early pinched out. They are lifted and placed singly in 7-inch pots, not quite in the centre, but towards the edge of the pot, as it is found that the fruit hangs clearer of the pot and soil from plants so arranged. The soil, principally good fibrous loam, is prepared three months before it is required for use, and the plants get the full benefit of the sprinkling of bone-meal thus early started decaying in the soil. A single oyster shell constitutes the drainage, Mr. Chapman not believing in either rapid or excessive drainage for pot Strawberries. Being early established in fruiting pots the plants are naturally prone to divide into two or more crowns, but, thanks to

the liberal root treatment, including a comparatively large size of pot, these double or triple crowns are an advantage rather than otherwise.

If I remember rightly, Mr. G. Wythes, who also is most successful with Strawberries, adopts a somewhat similar practice, only in his case the late runners are kept through the winter in small pots. At Wilton House Mr. Challis adopts a plan very similar to that followed at Westonbirt, and he has been remarkably successful with Auguste Nicaise, producing large quantities of really sensational fruit every season. It does not follow that two-year-old plants of Auguste Nicaise are absolutely the best for forcing, but those who have not been so successful as desirable in fruiting young plants ought to try what can be done with those somewhat older. I.

NOTES ON STRAWBERRIES.

THE notes from various growers of Strawberries in different parts of the kingdom that appeared last autumn in THE GARDEN were very instructive, as showing how kinds vary in different localities. The well-known Sir Joseph Paxton, for instance, is in many places absolutely worthless for flavour, but many growers included it in their list for flavour, so that in some parts of the country and on some soils it must be good. Many other instances of the same nature might be given, but those who read the notes carefully will have seen for themselves, and the above is quoted as a very well-known kind only. But with regard to time of planting there was almost complete unanimity, and no doubt can exist that the best time for this purpose is as early as good, well-rooted runners can be obtained. Where forcing is extensively practised there is often great difficulty in getting sufficient early runners for this purpose, to say nothing of obtaining a large stock for planting permanent beds with. The plan followed in many establishments is to turn out plants that have been forced after the fruit is gathered, the mid-season and late batches as a rule being chosen rather than those that have been hard forced. But it is not a good plan by any means, and only admissible where it is quite impossible to obtain a stock in any other way. Many growers are far too chary in allowing the fruiting plants to produce a few runners. Want of space has been the cause of my leaving a fair number on all my fruiting plants for years, although had I more space I should certainly leave a few, for no great harm is done, and a mistake as to labelling is more easily discovered than when plants are put out and the flowers pinched out for layers alone. Many in fact who are most keen for this method find often that they have to fall back on the fruiting quarters for layers. In principle it is all right, but, unfortunately, we cannot all carry it out in practice.

But to go to the other extreme and let the plants become a mass of runners, all draining the central crowns, is a far worse plan, wrong in principle and practice, leading to untidy beds and sadly diminishing their productive power. A safe course is the medium one, and to take say three or four of the strongest and earliest runners from each fruiting plant will do it no harm, and at the same time will greatly help the stock of young plants. As soon as possible let them be separated from the parent plant. They become largely self-supporting when once rooted, and even if a light shade has to be allowed for a few days to prevent flagging, no harm will be done. After this first lot of runners is removed all others should be rigidly suppressed, unless in the case of a new or scarce variety that it is desired to largely propagate. But this over-propagation is as bad for the Strawberry as it is for any other plant,

and should in all cases where possible be avoided. For my own planting I would prefer the plants that had been lightly forced—provided they were clean—to runners that are not fit to plant by the end of August. In some soils they may do, but here on a rather heavy soil they would be quite useless. Some time previous to planting, the plot or plots should be put in order; in fact, it is a good plan to have it trenched and thoroughly manured in spring, and to take a light crop of some kind that will be off by the beginning of July. Strawberries may follow late Broccoli, this giving plenty of time for a thorough preparation and settling of the soil before planting takes place. The great advantage of this early preparation is that the plants may be put out before they have time to coil their roots tightly about the pots. I use the 4-inch size, but smaller or larger will do, according to convenience, while some growers root them into turf—a rather questionable practice, I think. The runners should be laid before they commence to root, and the absurd plan of tying these up into bunches above the plants while the pots are being placed cannot be too strongly condemned. If the operation of layering is carried out at the proper time, it is unnecessary; if left until the runners are rooting, it is productive of much harm, the tender roots being exposed perhaps for hours to a burning sun. Pegs or small stones may be used for securing the layers, and, in spite of a little inconvenience, if a pot or two is turned over while watering or gathering the fruit, I must say I prefer the stones. They are not so apt to pinch the runners, and by their nature shade the roots a little and keep them moist. Anyone with a little experience can easily see when the layers are sufficiently rooted for removal from the parent plants, and every day they remain on after this is time wasted. It is safest to stand them for a few days on the north side of a wall or hedge, or to shade them slightly in some way.

PLANTING

should be more carefully done than is very often the case, and in the majority of instances and on most soils is best carried out in dry weather. No attempt should be made to uncoil the roots or interfere with the ball in any way, taking it for granted, of course, that the plants have been treated as noted above and not allowed to get pot-bound. If at all loose, the plots should be trodden or lightly rolled, and the top of the soil in the pot should only be covered with a little fine soil when finished planting. Too high or too low planting is equally bad, the former exposing the roots to drying winds and frost, the latter half stifling the crowns. Plant with a trowel and see that the soil is finely broken down about the roots and round the ball. Tread them again firmly and give a thorough soaking of water. All the after-treatment necessary will be to keep the soil clean by surface hoeing, and if dry weather sets in, keep them growing by watering. The more the hoe is kept going between them the less water is needed.

The distance apart depends upon the variety; most of the medium growers do well if kept about 2 feet apart in the rows and 30 inches between the rows, planting diagonally. The stronger and weaker growers will have more or less room respectively. Where large breadths are grown, it is the custom to lay loose straw litter from the stable about the plants in winter, the rains washing the goodness out of this down to the roots, cleaning it, and it is then left to keep the fruit off the ground. But for private gardens good clean wheat straw is

generally used, and nothing is better. The straw should be carefully drawn out, the leaves on one side of the plants carefully raised with one hand, and the straw pushed well underneath with the other. If this is done on each side the outer leaves and the fruit is kept well up, and only a very thin layer of straw is needed between the lines. Some cultivators have the straw twisted up into long bands, and lay these along close up under the plants on either side. The plan has much to recommend it. Where there are rough stretches of lawn cut with the scythe after Daffodils are over, the grass comes in about the time it is required for Strawberry beds, and in many places it is used. But it is not a suitable material by any means. It lies too close and seldom lasts the season through, while in a wet time it is worse than useless, tainting the fruit and harbouring insects of all kinds. Regarding the time the plants may profitably remain in the ground, much difference of opinion exists. Certainly the fruit is not so fine after the third season, while some few varieties, like the richly-flavoured Dr. Hogg, are seen at their best the first two years; but where there is a large demand for fruit for preserving, such kinds as Keens' Seedling, President, Vicomtesse, and others may be left longer with advantage. I have known beds and borders of Waterloo that for six or seven years at least produced fine fruit fit for dessert on the same ground.

H. R.

PEAR WILLIAMS' BON CHRETIEN IN HEREFORD.

THIS popular Pear is, taking it all in all, one of the best, if not the best flavoured kind grown for market for late August and early September supply. It is also a good paying sort, and one that commands high prices if sent to market in the right condition. For this purpose the fruit must not be allowed to hang until it begins to drop from the tree or until it commences to change colour. If allowed to do so, it is then too tender to travel any distance, and quickly becomes mealy and sleepy at the core. The fruits are best pulled before the stalk parts freely and while the flesh is comparatively hard. A good test is to cut a fruit in two, when if the pips are found to be brown there need be no hesitation in the matter. If gathered in the right condition, as indicated above, they can be marketed without risk if properly packed, and will then realise higher prices than riper samples, as they can then be kept for a time if necessary. To the retail man this is a great desideratum, as the liability to loss from decaying fruits before they can be disposed of is greatly lessened. Besides all this, the somewhat premature gathering of the fruits really improves them, as when ripe they are more juicy and more highly flavoured than when allowed to ripen on the tree.

GATHERING

can be done at two or three different times, as it is but seldom that all the produce is in a fit condition for pulling at one time. I have frequently known more than a week, and sometimes a fortnight, elapse between the first and last gathering of the fruit from a standard tree. The same thing happens with regard to bush and wall trees, only not to quite such a marked extent. This is an advantage, as the trees when relieved of the forwardest of the fruits are the better able to mature the remainder. The grower is then also able to dispose of his produce at intervals instead of having to market the whole of the crop at one time, and both grower and consumer reap the benefit by such a proceeding. Even in private gardens this is much the best course to pursue with Williams' Pear, and if more frequently done, there would be fewer complaints heard of its season being of such short duration, while the quality would be found greatly improved thereby.

Standards on the free stock are useful for planting in orchards for market work. The fruits do not grow to so large a size as on bush and wall trees, but they are invariably very good flavoured. Grown in the form of a bush or pyramid, the trees crop well and bear fine, handsome fruits. If worked on the Quince and grown as a bush slower growth is made, but its fertility is enhanced, and, in my opinion, such trees produce the highest-flavoured fruits. The finest fruits of all as regards size are undoubtedly produced by cordons. Such grow to a very large size, the skins are very bright and clean, and they assume a warm flush on the sunny side. The flavour is, however, not to be compared with that produced by bushes on the Quince. As regards cropping, it is somewhat fickle, as the trees will sometimes produce good crops two or three seasons in succession and then miss bearing for a year, or perhaps two. Such was the case last year with me, wall trees alone bearing anything like a full crop, but in the neighbourhood some standards bore well, and the produce proved exceedingly remunerative owing to the scarcity.

A. W.

APPLE WARNER'S KING.

AN Apple to prove really profitable for market work must possess size combined with a fine appearance. It should be firm, weighty, and of good colour, while the tree should be a good grower, have a hardy constitution, and be a regular and free cropper. Warner's King cannot be said to possess all these qualifications, as there are two exceptions. One of these is deficiency of colour, as it is only on warm soils and in favoured positions that the fruits really attain very high colour. The other is the tendency which the fruit has to become too soft for travelling if stored for any length of time after being gathered. With these exceptions, this variety possesses all the other qualifications in a marked degree, and it is one of the most popular and extensively cultivated Apples we have. In Hereford it has been known and grown as the Champion for the past fifty years or more, and is still as popular as ever. It is a fine market Apple, the individual fruits being so large and handsome, a fact which the fruit hucksters were not slow to avail themselves of a few years back, when they bought them up at prices considerably below what can now be obtained for them when sent direct to market. It is also a splendid cooking sort, it ranking equal with Lord Suffield, Wellington, and a few others in this respect. The fruit is best marketed as gathered from the trees, especially if required to travel any distance, on account of its becoming too tender for this purpose if allowed to become thoroughly ripe. If gathered, carefully packed, and despatched as taken from the trees, the fruit sustains no damage, while the salesman or purchaser can, if desired, keep them on hand for a few weeks afterwards.

The value of Warner's King for growing and succeeding either as a bush, pyramid or standard renders it equally suitable for the farm, orchard, market plantation, and the cottage and private garden alike. As a standard it forms a fine upright-growing tree, which is a true characteristic of the variety, and a full-grown specimen produces a great weight of fruit. In consequence of its upright habit of growth the trees may safely be planted 20 feet apart all ways for orchards, either on grass or arable land. The great weight of fruit is apt to bend the branches low down, it is true, but this can be averted in a great measure if the trees are looked after when young, and all whip-like branches prevented from forming by cutting back the young shoots somewhat. This causes them to grow stronger, but they become more quickly rigid, and are then more capable of supporting the weight of the crop. It is generally on standards that the most highly-coloured fruits are produced, as all which have free exposure to the influence of sunshine become handsomely flushed with crimson. This, it is almost needless to say, greatly adds to their

value. Grown as a bush or pyramid, the trees are very prolific and rarely fail to bear. If the fruits grown on such trees do not attain such a high degree of colour as they do on standards, they make amends for it by growing to an immense size. I have seen equally as good fruit produced by trees of this description in cottage gardens as in any private garden, and this without any special kind of cultivation whatever. One of the synonyms of Warner's King is Poor Man's Friend, and a very appropriate one it is, too, as it is found to be so very profitable by those cottagers who grow it. In private gardens space should always be found for a few trees, as the produce will keep in a cool store until the end of November and the end of the year in some seasons, while for cooking it cannot in its season be surpassed.

A. W.

NOTES AND QUESTIONS.—FRUIT.

Strawberries failing.—I should be greatly obliged if you would tell me the cause of enclosed Strawberries being crippled. Every attention has been given them—well syringed previous to flowering, kept dry at flowering time, and plants are as healthy as one could wish. The enclosed leaves will testify to their being clean and free from red spider and green fly.—G. HUBBARD.

* * * Your Strawberries have been attacked with mildew in their earlier stages, and not having been arrested, the disease crippled the fruits. From the appearance of the fruits sent the mildew must have been bad before the flowering, and the plants having been kept drier during that time the disease did not make much progress. The bloom was affected, and this has prevented the swelling of the fruits. The weather a few weeks ago was very bad, and we have had many complaints. Many used a sulphur solution previous to the opening of the flowers and saved their plants. If you examine the leaves of your plants you will find black spots where the mildew was present. You would do well to cleanse the house, shelves and any part where the plants stood before replacing other crops, using sulphur freely.—ED.

THE MARKET GARDEN.

MR. T. ROCHFORD'S NURSERY.

IN little more than half-an-hour's run from Liverpool Street (detraining at either Broomfield or Cheshunt) the famous market nursery of Mr. Thomas Rochford may be reached. It is advisable to start as early in the day as possible, as it will take not one, but many hours to see the nursery. And even then there will be a feeling that you have only just skimmed over the surface, and that a whole year would really be hardly sufficient to gain any idea as to the methods employed by Mr. Rochford to bring his plants to such perfection, and as to how he succeeds in arranging his crops in such rotation that his houses are always producing something. No sooner, indeed, is one crop finished than another is ready to take its place.

THE NURSERY.—Nine years ago Turnford Hall Nurseries were scarcely begun. Now they cover nearly eighty acres of ground, and of this more than thirty acres are covered with glass, and building has not yet ceased, as there were at the time of my visit seven new Orchard houses, each about 200 feet long and 40 feet wide, in course of erection, and others—some of which will be much more extensive—are to follow. Mr. Rochford has all his plans "cut and dried," so to speak, before he begins operations, and he sees beforehand what the result of his labour is likely to be.

To give some idea as to the extent of the nurseries a few facts may be interesting.

About 2,000,000 square feet of glass have been used, every sheet being 24 inches by 18 inches. Ninety miles of hot-water pipe are required to heat the houses. This immense volume of water is kept in circulation almost from one year's end to another by means of 106 huge boilers, known as the "Rochford" horizontal tubular, made by Messrs. Chas. Kinnell and Co., of Southwark Street. The coke required for the furnaces reaches the respectable total of about 9000 tons annually, and is brought into Mr. Rochford's nursery in his own trucks, giving constant employment to several men and horses in distributing it. Speaking of employment, it may be mentioned here that, as a rule, about 400 men are engaged, but this number is greatly exceeded during the spring and summer seasons, when Cucumber growing, Tomato tying, and Grape thinning must be attended to.

THE INSTITUTE, LIBRARY, &C.—Mr. Rochford not only employs a vast amount of labour, but he has provided for the recreation and welfare of his men after working hours. With this object in view he has built an institute where the men may obtain not only everything in the way of food, but also books, papers, and periodicals to read, all kinds of games to amuse themselves, also a dormitory with sleeping accommodation for over fifty men. In addition to the institute, which cost £5000 to build, Mr. Rochford has also had numerous well-built cottages erected close to the nursery for the married portion of his staff. This was almost a necessity, as there was no place close at hand for the men to live, so that now the nursery and staff practically make a community in themselves, and as far as population goes they are certainly larger and more important than some real parishes in the country.

SOIL, WATER, MANURE, &C.—Perhaps the most impressive thing about the place is the tidiness, neatness, and economy which are manifest even in the smallest details. The broad expanse of meadow round about the nursery is made to play its part by yielding up an excellent top spit of turfy loam, thus saving great expense. In its place the old soil from the nursery is spread, and as Mr. Rochford says it will take about twenty years to clear off the top spit from the meadow, by the end of that time the first portion will be ready for cutting again. As the soil, so the water. At the foot of the nursery is a large moat with a plentiful supply of water. A pumping engine has been connected with this, and huge tanks are filled to supply the houses from it. During the hottest days of the year as many as 200,000 gallons of water are used for the plants.

REFRIGERATOR AND PACKING SHEDS.—Mr. Rochford is always on the watch for anything that is likely to be of use in his business; hence his adoption of the refrigerator. With its help thousands of crowns of Lily of the Valley may be kept in a state of rest the whole year round, so that unless they are really wanted they are not allowed to grow, and according as flowers are required, so the crowns are taken from the refrigerator and brought on as described below. In all nurseries the packer is an important individual. It would never do to grow a plant well and then have it spoiled or smashed in transit simply through careless or ignorant packing. Thousands of plants are sent off every week—every day would be accurate—and each one is carefully wrapped in paper and fastened in such a way as to ensure safe delivery. Cut flowers have also to be carefully handled—more so, indeed, than the plants—and it was a sight to see large shallow tubs filled with water containing Lilies

of the Valley, Tulips, Narcissi, Liliun Harrisii, &c., all being prepared for market or exportation.

THE PLANTS.—When I saw the thousands of Palms, Ferns, Cucumbers, Vines, Orchids, Crotons, Araucarias, Dracenas, Aspidistras, Hydrangeas, Asparagus, Liliuns, &c., I began to wonder where all the produce sent to Covent Garden went to. The Chrysanthemums were over, but there were about 80,000 young plants which will be in their glory next November and December. The plants were all well grown, vigorous, and clean. Mr. Rochford explained this remarkable fact by saying that it was easier to cultivate well thousands of a particular species than it was to grow half a dozen of this, that, and the other, each of which would perhaps require different treatment, and while special attention was being paid to one the others would in the meantime suffer. Certain, however, it is that if a gardener has to look after a few houses of, say, *Odontoglossum crispum* or *Asplenium bulbiferum*, he soon recognises what the type of a healthy plant should be, and notices any that are not up to or beyond that standard, and the slightest departure one way or the other from the beaten track. A passing reference to each of the chief groups of plants cultivated may not be without interest.

CUCUMBERS.—Several long houses were filled with these, and some thousands of plants are grown annually. Last year the plants were attacked with the eelworm (*Anguillula*), which Mr. Rochford thought was present in the soil. To avoid its attacks this year a board has been placed upon bricks right along the floor of the house, and on this board little heaps of soil, each containing a Cucumber plant, are placed, and it is hoped that this will check the evil. As soon as the plants have set their first fruits the shoot immediately above them is pinched out, and so are all the lateral branches, so that the vigour of the plant is for the time being concentrated on the fruit. In this way the first crop of fruit is readily obtained. But in the meantime another leader has been allowed to develop and to set more fruit, and then pinching-out is again done. In this way each plant yields on an average about four crops, after which it is practically exhausted and a fresh plant takes its place.

TOMATOES.—At the time of my visit about 80,000 plants were well advanced, each in a 12-inch pot and supported with a stout bamboo cane. For the past three years the plants were grown in the beds of soil in the houses, but these having become exhausted in Mr. Rochford's opinion, it would be unwise, or at the least risky, to try them a fourth year in succession on the same ground. The Tomatoes in one house alone of eighteen spans produced 120 tons of fruit last year, the area covered being three and a half acres. This is somewhat under 35 tons per acre, but if the fruit realised an average price of, say, 6d. per lb., the result would be about £1920 per acre. The expenses must not be overlooked. Even at 3d. per lb. the result for the three and a half acres would be about £3360. The variety grown is one of Mr. Rochford's own raising.

VINES.—I was prepared to see hundreds of Vines in various stages of advancement for the season, but I must confess I did not anticipate seeing almost a whole year's cycle of growth represented in one day. There were Vines dormant, Vines just budding, Vines somewhat advanced, and Vines a good deal advanced, but the finest sight of all was some large houses of Gros Colman with about 8 tons of last year's Grapes still hanging. They alone were a

sight worth seeing, as were also a few hundred-weights of Black Alicante in the same condition. To preserve the fruit from the effects of the sun these particular houses were heavily shaded with canvas. The floors were covered with dry brown leaves which had dropped from the branches, and here and there were still some clinging, as though loth to part while the luscious berries still remained. Unfortunately, this prolongation of the fruiting season is by no means good for the constitution of the Vines. Mr. Rochford's keen eye has detected signs of exhaustion, but for that he is evidently prepared, and in due course these will be replaced by others to carry out a similar programme. I ought to mention that several baskets of these Grapes were at the time being prepared for shipment to America and the Continent, a fact in itself showing their reputation.

ARAUCARIAS.—Of late years the Norfolk Island Pine (*Araucaria excelsa*) has been very popular among nurserymen, not only in England, but also on the Continent, and thousands are now raised and grown annually in 5-inch and 6-inch pots. To see hundreds of these plants it is like looking upon a miniature Pine forest. It is readily propagated by inserting the tops singly in pots and placing them in a close, warm frame, when they will strike in about two or three months, according to the season. In the summer-time they may be stood out in the open air, but it is advisable to protect them from the fierce heat of the summer sun by means of light canvas or lattice-work. As this plant is liable to be attacked by thrips, a sharp eye must be kept upon that pest.

ASPARAGUS.—Perhaps there is no plant so popular for bouquet work among florists as the Asparagus Fern, the name they apply to *Asparagus plumosus nanus*. Many hundreds of plants are grown at Turnford Hall up trellises or wires about 12 feet high simply to supply cut fronds. Two forms, however, seem to be in cultivation—one, tall (12 feet to 15 feet), with stout, plum-coloured stems and rather harsh, wiry fronds; the other, short (3 feet or 4 feet), with more slender and paler stems and much softer, lighter, and more graceful foliage. The tall variety is probably that known as *Asparagus comensis*, and this Mr. Rochford is going to discard, as it is not so suitable for market. An interesting feature about the germination of Asparagus seeds is that if soaked in almost boiling water they germinate more quickly and more regularly than if sown without such treatment.

ASPIDISTRAS.—Everyone knows the Parlour Palm, which submits to all sorts of unkind treatment. Mr. Rochford grows many thousands of plants of both the green and variegated forms of *A. lurida*, and they realise good prices in market.

ANTHURIUMS.—Only one kind—*A. Scherzerianum*—seems to be worth growing for market on account of its beautiful scarlet spathes, which realise as much as 4d. and 6d. each. This plant is a native of Costa Rica, and may be readily increased from seeds, which are borne on the outside of the spadix in pulpy masses, which when ripe resemble pale Red Currants.

BULBS.—During the winter months some little space is occupied by the forcing of Tulips, Daffodils, and Hyacinths. Mr. Rochford forces 1,000,000 Tulips—red, white, yellow, &c.—1,000,000 Daffodils yearly, and over 180,000 Hyacinths. These are all planted in boxes about October, and plunged out of doors until root-action has commenced and the flowers are wanted. They are then brought in in batches, and as soon as the flowers are fit they are cut for market and the old bulbs thrown away.

After forcing it is waste of time and labour—from a market point of view—to give further attention to the bulbs.

FERNS.—Although there are several thousands of species of Ferns known, and many of them are in cultivation, it is astonishing that only a few find favour with market growers. Mr. Rochford grows about sixty different kinds, and of these some are much more popular than others. *Pteris cretica*, *P. serrulata*, and their improved varieties are very popular plants, and when grown well with two or three plants in a pot, always realise good prices. The same may be said of *Pteris tremula*, with tall, graceful fronds not unlike those of the Bracken; *Polypodium aureum*, *Nephrolepis tuberosa* (of which a new variety named *Faulkneri* has appeared), *N. plumosa* and *N. exaltata*, *Lomaria gibba*, and *Cyrtomium falcatum*, or Holly Fern. The Maiden-hair Ferns are almost invaluable as a crop for cutting, the varieties of *Adiantum cuneatum* being chiefly cultivated with this object in view. *Adiantum Farleyense*, which at one time was considered a difficult subject, is now successfully managed by the market grower, and its fronds realise as much as 3d. each, so that it pays for any extra trouble it may entail. Another very popular Fern is the New Zealand *Asplenium bulbiferum*, with light green, gracefully arching fronds. The above are all now more or less well known as market plants, but they have been augmented by a decided acquisition in the Bird's-nest Fern (*Asplenium Nidus-Avis*). Seen as grown by Mr. Rochford, this is a glorious plant without blemish, its deep green fronds, with a black-purple midrib, forming an inverted hollow cone, at the base of which the new fronds are seen untwisting their crozier-like heads.

The Ferns are in all stages of cultivation. Hundreds of pots, standing in saucers of water in glass cases, contain millions of spores just germinating. Others show the prothalli well advanced and fit for pricking off into pans or boxes. They are sold in immense quantities, as many as 12,000 plants having been sold in one day alone, so that it is no wonder that Mr. Rochford speaks of growing millions of Ferns every year in the thirty two large houses allotted to them.

PALMS.—Several species of Palms are grown, the most popular being *Kentia Belmoreana* and *K. Fosteriana*, *Cocos Weddelliana*, *Latania borbonica*, *Areca Baneri*, *A. lutescens*, *Seaforthia elegans*, *Corypha australis*, *Geonoma gracilis*, &c. Others worthy of note are *Latania aurea*, a distinct golden-coloured Palm, which is really a variety of *Livistona chinensis*, and is well worth growing. It came as a surprise to Mr. Rochford among the seedlings of *Latania borbonica*. *Pritchardia* (or *Licuala*) *grandis* is another noble Palm, with large, graceful fan-like leaves. Mr. Rochford tried to obtain this particular species for several years before he was successful, and now he has reared some magnificent specimens which would make striking objects in any Palm house or conservatory. *Cocos insignis* (or *Glaziova insignis*) is a Palm not very well known, and other species have been and probably still are grown for it, but Mr. Rochford seems to have the genuine article. *Phoenix rupicola* has become a popular plant, and large quantities of it are now grown. To give some idea of the trade done in Palms, it may be mentioned that 60,000 plants alone of *Latania borbonica* are disposed of every year. Several acres of glass are devoted to the Palm houses, where large plants are grown. In addition to these are many smaller ones for the seedlings. Each seed of *Cocos Weddelliana* is sown by itself in a 2-inch pot. This is done

because it naturally makes a tap-root which goes straight down, and if sown in beds or pans like Kentias, this tap-root would be broken at the first removal and thus check the young plant and probably spoil it. In the pot, however, the tap-root must coil itself round and round, and when the necessary potting takes place no harm is done. It is very interesting to see the long lines of these young plants, each frond turned exactly in the same way.

ORCHIDS.—Mr. Rochford has spent £20,000 in these plants, all of which are clean, healthy, and vigorous. There are thousands of Cattleyas, including labiata, Mossiae, Trianae, aurea, Mendeli, and Lawrenceana, all in pots. Under the stage is a duplicate one covered with coke. The idea is that when the water has passed away from stage No. 1, it is intercepted and absorbed by the coke on stage No. 2, and is given back again as vapour. *Odontoglossum crispum* has several houses devoted to it. *Dendrobium Phalenopsis* reaches

Another free-flowering Orchid is *Oncidium ampliatum majus*, of which there were some huge masses suspended over the heads of Kentias, Cocos and other Palms. The spikes, which averaged from 4 feet to 6 feet long, were as thick as the little finger at the base, and bore hundreds of buds, which when expanded are a sheet of the loveliest bright yellow. The plants were only imported twelve months ago and they are growing like weeds.

LILY OF THE VALLEY.—Eight large houses are devoted to Lilies of the Valley, six million crowns being grown. During the winter months they are brought in from the beds outside and placed on a hotbed, which is kept close and dark by means of wooden lights instead of glass. As soon as the flower-spikes have been developed and the pale leaves formed, they are taken out and placed in the daylight to develop into the form in which they go to market. In the summer-time the crowns are brought from the refrigerator referred to above.



A seedling *Gloxinia*. From a photograph sent by Mr. A. Croucher, St. David's, Freshwater Bay, Isle of Wight.

a total of 10,000 plants. These Mr. Rochford is growing on for himself to supply cut bloom. For this purpose it is well adapted with its long, arching sprays of large, *Phalenopsis*-like blossoms varying from white to deep rose or purple. Other *Dendrobiums* grown on a large scale are *D. Wardianum*, *D. Findlayanum*, *D. Devonianum*, and, of course, *D. nobile*, with a lovely variety having creamy white flowers with only a purple blotch in the lip. *Laelia purpurata* is represented by strong pieces, as is also *L. harpophylla*, all recently imported. At present only a few kinds of *Cypripediums* are grown, the chief being *C. insigne*, *C. Lawrenceanum*, *C. Spicerianum* and *C. Rothschildianum*. When grown closely together in hundreds, as Mr. Rochford grows them, plants of *Odontoglossum Rossi* and its variety *majus* make a beautiful picture. As a market crop *O. Rossi* is very valuable, each bloom fetching from 2d. to 4d., according to the demand.

From one year's end to the other a succession is kept up, so that it is often possible to cut as many as 5000 bunches per day.

LILIUM LONGIFLORUM AND L. HARRISI.—There are several houses, each 282 feet long, devoted to these. About 70,000 plants of *L. longiflorum* are grown and 30,000 *L. Harrisi*. These are in all stages of growth, the great object in view being to keep up a good succession without at any time creating a glut in the market.

CHRYSANTHEMUMS.—This is a very important crop, nearly 80,000 plants being grown each year. The system adopted is three plants in a pot, shifting these on until they reach a 12-inch pot, in which they bloom without any pinching out of the shoots, although disbudding is attended to at the proper season.

PANDANUS VEITCHI.—There was one house entirely filled with this lovely Screw Pine. This plant is largely used for bouquet work. The

head of the plant is cut off level with the surface of the soil, and the stalk serves as a handle. In conjunction with the variegated foliage, Orchids, such as *Cypripediums*, *Cattleyas*, &c., are used, with *Smilax* (*Medeola asparagoides*) or *Asparagus* according to taste, and a very effective bouquet is obtained. No manure is used to bring the plants to such fine perfection, but a little peat is mixed with the ordinary loamy compost.

DRACENAS AND CROTONS.—Of the former, hundreds of *terminalis*, *imperialis*, and *ambabilis*, as well as *Lindeni* and *Massangeana*, are grown. *D. gracilis*, once very popular, is still also grown, and is very elegant in habit. *D. Lord Wolseley* is a beautiful sport from *D. terminalis*. It has a splendid rich crimson and green colour, and has the great advantage of colouring even when only grown in a 4-inch pot. The large house of *Crotons* contains many fine specimens remarkable for their richness and variety of colour. Of late years the foliage of these plants has become very popular for working into wreaths and bouquets, &c., and in this connection it is very effective. Mr. Rochford has been fortunate enough to secure a fine sport from *Croton Evansianus*. It is of a glowing golden orange colour, mottled with green and red, and promises to be a very fine acquisition.

MISCELLANEOUS.—Under this heading must be placed such plants as *Nepenthes*, of which a very large number are grown chiefly for their leaves and pitchers, which find a ready sale in market. They are used for table decoration, and the pitchers being half filled with water make a natural receptacle for holding cut flowers. *Caladium albanense* is a curious species, quite unlike any other *Caladium* in the shape of its leaf, which is somewhat bluntly spear-shaped and green, with red stripes. *Heliconia illustris* is a magnificent member of the Ginger family with ornamental leaves, feathered with brilliant red veins. *Hydrangeas* occupy two or three houses, and are grown both as bush plants and on the single-stem system, with all the lateral shoots pinched out. The beautiful white variety known as *Thomas Hogg* was covered with bloom at the time of my visit. Cycads are not forgotten. *C. revoluta* and *C. circinalis* are grown for their fronds, which are used for wreaths or memorial emblems. Several kinds of *Zamia*, a nearly allied genus to *Cycas*, are also grown. J. W.

STOVE AND GREENHOUSE.

SEEDLING GLOXINIAS.

GLOXINIAS have been so much improved, that it would appear difficult to imagine any greater advance either in form or flowers or in richness and diversity of colours, unless it were possible to get a yellow variety. At the present time we have all the various shades from the purest white, pink, scarlet, crimson, blue, and on to the deepest purple, with all intermediate shades, and where it was formerly necessary to depend upon named varieties, at the present time all of these beautiful colours may be obtained from a packet of seed. In a few instances of extra fine varieties it may be worth the trouble of propagating from leaves in the autumn, but the great advantage of growing seedlings is that they are of more robust growth and less liable to disease than those propagated from old stock.

The seed may be sown in February or March. When sown early the seedlings require great care, being liable to damp off before

they have hardly appeared above the surface. I like to surface the seed pots with some leaf-mould which has been baked to destroy all insect or fungoid germs. This mixed with sand and rubbed through a fine sieve should be spread evenly over the surface and, after the seed is sown, pressed lightly; the seed will not require any further surface covering. I like to place the seed pots in a light, open position and to avoid the direct rays of the sun. The pots may be covered with glass during the day, this being taken off at night, and as soon as germination has commenced the glass may be dispensed with altogether. In the earlier stages the seedlings may be grown on in the stove, but with as little shade as is consistent with safety. After the plants are well established and during the summer they may be grown without the aid of artificial heat. When grown under cool treatment they not only make more sturdy growth, but the flowers are of greater substance and last longer. It not infrequently occurs that these beautiful plants are ruined through giving them too much heat and shade. I have often grown seedlings the first year planted out on a spent hotbed. Under this treatment they make good growth and the best varieties may be selected for growing in pots the following season. Gloxias are often grown in a light peaty compost, but I prefer using good loam, leaf-mould and some well rotted stable manure, with sand added. The first season the plants will seldom have more than from two to four blooms out at one time, but I have had upwards of twenty blooms out at the same time on plants in 5-inch pots the second season.—A. H.

Mr. A. Croucher, who sent the photo from which the illustration was prepared, sends the following note:—

I send you a photo of a plant that I grew last summer. It had forty-five fully expanded blooms at the time the photo was taken and over thirty blooms not open. It was grown in a 6-inch pot. The bulb is about four years old.

MIGNONETTE.

WHEN I first grew for the London markets I started with a good strain of Parsons' White, which variety I had known from its origin, and which I had grown in Sussex with great success, and always found it to be preferred to the dwarf red variety which was grown by another firm. I soon found, however, that for the London markets the dwarf red was the general favourite, the variety known as Vilmorin's Giant Pyramidal being the best form. This has since been superseded by Machedet. Although I am still, personally, much in favour of the white variety, I find a great advantage in growing Machedet, for, in the first place, it is much easier to manage. When growing the two varieties together I have had the white lose its foliage or turn a rusty brown, while Machedet has kept a bright fresh green, and it is also of a dwarfer habit; the flower spikes do not run up so long, but they are much broader.

Throughout the spring there is a very large demand for Mignonette, much of it being used for planting out and for window boxes, and for these purposes it must be dwarf and only just coming into flower. I have often seen quantities of forward, well-grown stock left behind while the short backward lot has been cleared out to a pot. Of course for using as pot plants the forward is preferred. For early flowering, the seed is sown about August or earlier, so that the plants get well established in the autumn. Some growers use but one plant for a pot. After the plants have made a good growth, they are twisted round and pegged down. They then branch out and flower, the plants being very dwarf compared with those grown through the winter in the ordinary way. For flowering in May and June the seed may be sown in the early part of Feb-

ruary, further sowings being made at intervals to keep up a succession. It may either be sown in the pots that it is to flower in, or sown in boxes and pricked off as soon as large enough to handle. About six plants in a 4½-inch pot will fill it out well. When it is pricked off it requires care in handling, and also in treatment. Until it gets hold of the new soil it must be kept close and shaded when the sun is very bright, but the shading must be dispensed with as soon as the plants have made a start.

Mignonette cannot be forced, but with plenty of sunlight and air a little artificial heat may be given. The great secret in growing Mignonette is in giving it regular attention. It will grow in almost any soil provided it is enriched with manure. The pots should be filled as firmly as possible. Provided the soil is in good condition and not too heavy, it would be difficult to press it down too firm. The early batches may be grown in houses where plenty of air can be given, but later on pits with a southern aspect are best, and the lights may be taken off in favourable weather. Heavy rains must be kept off, but soft showers will help it on considerably. Liquid manure may be used freely as soon as the plants are about an inch high, and continued until ready for sale. Once neglect Mignonette and let it get too dry, it will be difficult to do it well afterwards. Over-watering is also sure to prove fatal. In dry, hot weather a good sprinkling overhead twice a day will be beneficial. A.

A new variety of *Asparagus plumosus*.

—In addition to the well-known *nanus*, another form of *Asparagus plumosus* has now appeared, and is grown by Mr. T. Jannoch at Dersingham, near King's Lynn. The new variety called *cris-tatus* has deep green branches, somewhat more densely clothed with verticillate clusters than the ordinary *A. plumosus*. The chief charm of the plant, however, consists in the main rachis being several times divided towards the tip, then producing a beautiful cresting after the style of the crested varieties of *Pteris serrulata cristata*, only, of course, much finer and more graceful in appearance. In addition to the crested peculiarity it may be added that the plant is not a climber, so that if grown in pots it should prove very attractive and a great acquisition.—J. W.

Golden-leaved *Caladiums*.—The golden-leaved *Caladiums*, which were raised by the late Mr. F. Bause over twenty-five years ago, form a very pretty and distinct class, and at no time are they more striking than they are now, just as the earliest leaves have unfolded, their colour being particularly telling. There are about half a dozen varieties, but some of them resemble each other very closely. A good form is Golden Queen, the entire leaf of which is of a pale golden yellow, while Prince of Wales, with a bright red centre, but with the major portion of the leaf golden, is also particularly effective. Other varieties are Princess of Wales, Princess Royal, and Princess Teck. Some of these were very telling in the various groups at the Temple show last year, but it is, I think, early in the spring that they are the more effective. They are less robust in constitution than many other kinds, and, though grown for so many years, are rarely seen in quantity, even where they make a speciality of this class of plants. Despite the number of new kinds, this section has not received any decided acquisition of late years, though one of the newer Brazilian varieties, Ouro Fino, promised, when first imported, to be a valuable addition to this group, but as far as I can learn it has not borne out its early promise, the foliage being much too green.—H. P.

***Thyrsacanthus rutilans*.**—This has recently been shown in good condition, and when such is the case one cannot help feeling surprised that this one-time popular subject should be so much neglected. It was, I think, a couple of years ago that Sir Trevor Lawrence exhibited it in such a manner as to be admired by everyone, and it has now cropped up again. Cuttings of this *Thyrsacanthus* will strike root readily in the spring, and

should be grown on freely throughout the season. Owing to the excessive length of the long, pendulous clusters of blossoms, it is seen at its best when grown as a standard, but I have also met with it in a dwarf state, and then, during the flowering period, the pots were suspended from the roof, so that the long, pendulous racemes could develop without let or hindrance. They certainly presented a very uncommon and highly ornamental feature in this way. According to the "Dictionary of Gardening," the plant known in gardens as *T. rutilans* is *T. Schomburgkianus*, introduced from New Grenada in 1855, the true *T. rutilans* being a native of Colombia, from whence it was introduced two or three years previously. In any case the name of *T. rutilans* is too well fixed in gardens to be now changed.—H. P.

HIPPEASTRUMS AT WESTONBIRT.

UPWARDS of fifty years ago the late Mr. Holford, of Westonbirt, Gloucester, commenced hybridising the genus *Hippeastrum*, which is catalogued and better known in private gardens as *Amaryllis*. A beginning was made with species and hybrids purchased from the late Mr. Sweet, of Clifton, Bristol, who at that time had one of the finest collections in the country. The best of these were *H. Ackermanni*, *H. Ackermanni pulcherrimum*, *H. Johnsoni*, *H. reticulatum*, *H. solandrifolium*, and *H. stulosum*. By crossing and intercrossing these, several very pretty hybrids were obtained, but the constitution of most of them, and more especially those of high colour, became weak, and signs soon became apparent of the need for the infusion of blood of a more robust species into the strain. In 1870 *H. pardinum*, a species with flowers about 6 inches in diameter, with scarcely any tube, the colour being of a creamy white, dotted over with crimson, was obtained. This used as a male parent gave a better constitution to the plants, resulting also in improving the form of the flowers. In 1879 a variety of the *Gravianum* type, named *W. Pitt*, was added to the collection, the flowers in this instance being diminutive, of a brilliant scarlet colour, with a broad white stripe up the centre of the much curled petals, and this crossed with the best of the seedlings soon added strength and new colours to the stock.

A species named *Leopoldi* was afterwards purchased from Messrs. Veitch and Sons, Chelsea. Some difficulty was experienced in crossing other varieties with this species, but Mr. Chapman, the gardener at Westonbirt, persevered with it, the outcome being many of the fine round-petalled varieties that florists admire, and which also prove generally attractive. It, however, became evident that, although this species gave size and good form to the flowers, the constitution of the plant was not good, nor did the flowers possess the lasting property of the older varieties. Some of the best seedlings comprised deep crimson and purple shades of a distinct character. In 1880 *H. Empress of India* was purchased, and this finely-constituted variety has done excellent service to the collection. Having a number of excellent varieties which had a tendency to curl their petals, these were crossed with *H. Empress of India*, and this gave the colour to many of the seedlings for which the Westonbirt collection is justly noted.

Captain Holford, who succeeded to the property and evidently inherits his father's good taste in all matters connected with horticulture, takes the greatest interest in the *Hippeastrums* and the progress made in improving the strain, and has had a span-roofed house specially constructed for their culture and proper display. This is about 56 feet long and

24 feet wide, with a wide central pit and two narrow front pits. Here at the time of my visit a magnificent bank of *Hippeastrums* was to be seen, not to be equalled probably elsewhere for either extent, quality, or rich colouring of the flowers. About 2000 bulbs have bloomed or are still blooming this season, many of them producing two scapes, while the flowers are remarkable for their perfect form, substance, and rich colouring of the petals. A considerable number of them have been exhibited at the Drill Hall recently, gaining the silver-gilt medal of the Royal Horticultural Society, and it speaks well for the keeping properties of the flowers and the care taken in moving the plants that they are still in a presentable condition. Only those perfect in form, substance, and colour are named, and opportunities of contrasting these with their parents and older types are afforded, this adding greatly to the interest, a mere novice seeing at a glance what great strides have been made.

Some of the most valuable varieties raised at Westonbirt that came under my notice were Princess Teano, richest scarlet, with white stripes up each petal; Lord Howick, a grand flower, scarlet, with pure white base; Countess Bathurst, deep red; Mrs. A. Grey, white, flushed red; Rearguard, scarlet, pencilled white; Sybil, vermilion, with white margin; Vesuvius, crimson, with deep crimson base; *Gladiolus*, so-called from its resemblance to a *Gladiolus* flower; James O'Brien, rich claret, with deep maroon base; T. W. Wright, rich crimson; Coral, fine bold flower, coral colour; Virginia, white, pencilled rose; Charming, a beautiful flower, and one of the most perfect in the light shades of colour; and Coquette, white, flaked rose. *Marginatum perfectum*, with comparatively small flowers, cannot be improved, numerous crosses, or rather attempts, not having altered it in any way. Many varieties are under numbers; hundreds of seedlings flowered for the first time this season will find their way to the rubbish heap, only a very small percentage surviving the critical tests applied to them. As before hinted, great size of flower alone does not save a seedling from destruction. Form and colour of flowers and constitution must be as near perfect as possible, and it only remains to be added that some of the seedlings comply with these conditions. Some of the flowers measure 9 inches across, while the petals are 3 inches to 3½ inches broad, well rounded, and of great substance.

Seedlings are raised and flowered in about three years. The seed is sown when ripe or in May in pans or boxes of light sandy soil, and placed in a brisk moist heat to germinate. The seedlings are first moved into 3-inch pots, three plants in each, and kept growing in gentle heat without a serious check, not being dried off till they eventually singly occupy 6-inch pots, in which they are first flowered and proven. After flowering and completing their growth, all the bulbs to be saved, whether old or young, are gradually dried off at the roots, a good baking in the full sunshine benefiting the bulbs and leading to their flowering strongly the following season. They are wintered in a dry, somewhat dark position, and will bear retarding in a cool, cool cellar. At Westonbirt they are re-started into growth early in the year, half plunged in a mild hotbed of leaves in the pits previously alluded to. The blooms are not produced much in advance of the leaves, and they serve to show off the flowers to the best advantage.—W. I.

AT CHELSEA.

The unique collection of these showy spring flowers, for which Messrs. Veitch and Sons have

long been celebrated, is now in great beauty, the centre bed of the large house devoted to their culture being a blaze of rich and varied colours. The dull, heavy weather has been rather against the flowers this season, and in some instances they have not developed to their full size; yet there are some remarkably fine things among them, and a greater diversity of colour than I remember having seen in any previous year. Many seedlings are now blooming for the first time, and the flowers show a distinct advance in form and shades of colour. Jarbas is the nearest approach to a yellow yet obtained. I cannot say the yellow was very decided. It may, however, prove the first step, and further generations may lead to a distinct yellow variety, which would be a great acquisition. Feronia is a perfect shaped flower of medium size, each petal having a clear white edge and a bright orange-scarlet centre. In Zabalus the crimson-shaded scarlet flowers are very fine. Jobates, white ground veined with red; Euryades, rich crimson, with a lighter shade at the base of the petals; Uragus, bright orange, very large flower; Hadsor, deep crimson; Adana, fine flower of a bright orange-scarlet shade; Alares, white, veined with rose, and many other distinct varieties deserve mention.

The cultural requirements of this showy class of plants are evidently well understood and attended to at Chelsea, the foliage being remarkably fresh and bright, the flower-stems short and sturdy. All the plants are plunged in tan, which evidently keeps the roots in the best possible condition. Although these fine varieties properly belong to the genus *Hippeastrum*, Messrs. Veitch and Sons still keep to *Amaryllis*, the name by which they have so long been recognised.—A.

NOTES AND QUESTIONS.—STOVE.

Asparagus scandens deflexus.—A note appears on page 270 respecting this plant. I would like to know where it could be obtained, and am willing to exchange a plant of *A. decumbens* for same.—G. PIM, *Monkstown, Dublin.*

Tulip Early Single Maas.—This is a superb new variety of the build of the *Pottebakkers*, and of a very deep scarlet hue, as well as of perfect shape. It will make a fine companion to *Vermilion Brilliant*, being distinct from it. At present it is both scarce and dear, though not beyond the reach of those who pride themselves on having a select collection.—R. D.

Tulip Early Single Golden Queen.—This is proving a formidable rival to *Ophir d'Or*, hitherto our best single yellow. It has been described as the finest yellow in cultivation. It is of perfect shape and immense size, and as an exhibition flower will be greatly valued. It is somewhat scarce as yet, as time is required to obtain a sufficient stock to put a new variety into commerce.—R. D.

Double Tulip Yellow Tournesol.—This still stands at the head of all the double yellow Tulips. Generally regarded as a sport from the old *Tournesol*, it possesses all the good qualities of the type. *Couronne d'Or* is also a double yellow, the blossoms of good shape, but, like those of yellow *Tournesol*, there is a shading of bronze on the petals, and it is generally regarded as inferior to it. There is ample room for a double Tulip of the rich golden tint of the single *Ophir d'Or*—one with the low growth and rigidity of stem of *Tournesol*.—R. D.

Early Tulip Bon Spaendoueh.—This is a very distinct single variety and was prominent in a collection from Messrs. Cuthbert, of Southgate, shown at a late Drill Hall meeting. It may be described as of a deep salmon-rose ground colour, edged and flaked with pale canary, which makes it attractive. Sometimes the canary or buff colour will predominate, and sometimes the rose colour; in either form it is decidedly attractive and will be helpful in making up an exhibition eighteen varieties or so.—R. D.

Camellia Mathottiana alba.—As with most classes of plants that are in general cultivation, there is quite a long list of different varieties of *Camellias*, though many of them are but little grown. Of white-flowered kinds we have several forms, the best known and the most generally grown being the old double white (*alba plena*), and for early flowering it is particularly valuable.

Among the later-blooming varieties, *Mathottiana alba* is one of the best, and planted out it forms a very handsome bush, the foliage being much more ornamental than in the old double white, for the leaves are of a very deep green tint, thick in texture, and of a somewhat rounded form. It flowers freely, and when small is, as far as my experience extends, less liable to drop its buds than *alba plena*.—T.

Lachenalias.—These pretty winter and spring-flowering bulbs are frequently neglected from the time they cease blooming until they begin to grow again, and they are sufficiently long-suffering to bear such treatment and still flower. There is, however, no comparison between the flowers from such bulbs and those from others which have been well grown. Instead of being allowed to dry off directly after the flowers fade or are plucked, they should be kept well watered for a time, giving occasional doses of manure water until they show signs of wanting to go to rest. After a short interval of resting and dryness they should be shaken out of the old soil and repotted in sandy loam well enriched with decayed manure, and allowed to start naturally in a cool house. It is surprising how early they flower without forcing provided they are potted early. The various batches should be so treated that no forcing is required, as the plants do not like it at any period of their growth.—J. C. T.

Triteleia uniflora in pots.—This is seen sometimes planted in the open ground, but it never looks so happy treated thus as it does when grown in pots in a cold frame, for the flower-stalks bend so easily that the flowers soon become weather-beaten when exposed to inclement weather. Few bulbs are easier to cultivate or give more flower in proportion to the room they occupy, and the starry white blooms with steel grey shading are very effective when seen together in such numbers as may be produced in a 6-inch pot. They are, moreover, very sweetly scented in themselves, though the stalks when bruised or plucked have a distinctly unpleasant odour of garlic. The specific name seems to imply that the stalks are one-flowered, but I find that many bear twin flowers under pot culture. Cultural needs are simple, and consist in shaking out the dormant bulbs every two or three years, sorting them into sizes, and repotting thickly in ordinary sandy soil. With the help of a little water when needed this will ensure an excellent crop of flowers during March and April.—J. C. T.

Magnolias under glass.—The different *Magnolias* stand out very distinct from all other hardy shrubs that are forced prematurely into bloom for the embellishment of the greenhouse or conservatory at this season, yet several of them readily conform to this treatment, and are on this account very useful. The earliest flowering kinds, such as *M. stellata*, *conspicua*, *Lenné*, *obovata*, and others of this class, are well adapted for this purpose, as they need but little forcing, and though some of them (*conspicua* especially) attain tree-like dimensions, yet an established plant not more than 6 feet high will produce several of its large showy blossoms. Again, the massive globular flowers of *M. Lenné*, which out of doors are conspicuous by reason of their rich colour, are under glass, though somewhat paler, still very striking. The little *Magnolia stellata* may, if needed, be kept in pots for years, and treated in this way it will flower profusely every spring, as indeed it will when planted in the open ground. Though later in blooming, the two newer kinds, *M. Watsoni* and *M. parviflora*, will flower well in pots, and so will the little evergreen greenhouse *M. fuscata*, whose flowers, though not showy, are deliciously fragrant—a character common to most of the *Magnolias*. When needed for blooming in pots they should be plunged out of doors in a sunny spot during the summer and be well supplied with water.—H. P.

Freesias after flowering.—To ensure success with home-grown *Freesias*, the plants need to be well looked after for a few weeks after the

flowers have faded, and those which have been brought into bloom early by gentle forcing should not be turned out into cold houses or frames till the leaves have ripened off. Water must be given freely while the leaves remain green to ensure that the bulbs swell up to their proper size before going to rest; but it is mainly on the subsequent treatment which they get during the so-called resting period that next year's results will depend, the great point being to thoroughly ripen the bulbs by keeping them without water, and by roasting them while resting in the driest and sunniest spot that can be found under glass. This roasting will ensure that the bulbs start freely and regularly in a few days after being potted, and such well-ripened bulbs will need no aid in the way of covering the pots with some few inches of cocoa-nut fibre or ashes, that is by some thought necessary, but which makes the plants weak at the collar unless carefully watched and uncovered directly they peep through the soil. In potting the bulbs it is well to select from last year's earliest for the earliest pottings, as these will produce their flowers by the middle of January without subjecting them to a night temperature of more than 48°, and that only for a few days when the flowers begin to show colour. With such cool treatment the flowers are sturdy and fine.—J. C. T.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS WORTH GROWING.

MME. EDMOND ROGER.—The novel colour of this, a distinct tint of green on a white ground, will cause it to become a favourite for cutting. The blooms are well formed, of medium size, and incurving in shape. It has a stout, bushy habit of growth.

MME. FERLAT is a new white variety which has been classed as an incurved. But apart from its value as a show flower, it has merits as a general all-round kind. The habit is dwarf and branching, and the blooms, which are carried on stiff stems, have excellent substance.

MME. GUSTAVE HENRY is somewhat early to bloom. The flowers are large and double, of loose, incurved form. It is especially free in growth, therefore an easily-managed variety, of a dwarf nature. Handsome show blooms have been seen of this kind, and for such purpose late-formed flower-buds are best.

MME. J. BERNARD is a fine sort which has escaped most cultivators. The flowers are full, deep, and of striking substance; white, tinted cream and rose.

MME. G. BRUANT.—Extra large varieties are eagerly sought after, and this is one. The shape is drooping; colour white, tinted rose on the lower portion of the blooms. It has just a suspicion of being undecided in tint, otherwise it is a sort exhibitors will be anxious to obtain. The growth is excellent. It is rather late-blooming—a fact which makes late-bud selection necessary.

MME. MARIUS RICOURD.—In colour this is a bright carmine-rose, and perhaps the best of the shade. Its blooms are not over-large, but full and well formed. It is exceedingly useful as a show bloom, because it supplies a colour which is scarce among Chrysanthemums.

MME. P. RIVOIRE.—This has been introduced some time, and is yet comparatively unknown. It bears very handsome pure white flowers of recurring shape: the habit of growth also being dwarf. It is an exceptionally fine sort for the amateur as well as the exhibitor.

MME. A. DE GALBERT.—A season or two back this variety was noted in splendid form. Somehow it does not retain these fine qualities, and was small and ill-formed last year. It would not be wise to discard it, although white kinds are plentiful. The form of the bloom is striking,

being large and of great depth. It is rather tall, and is best from crown buds.

MME. LAURENCE ZÉDÉ.—This is one of the best of recent introductions; colour a bright mauve tint. The flowers are composed of long, broad florets which incurve and twist in an irregular manner. They are very large and full. It is easily grown, the habit being dwarf and sturdy. Late buds may be selected for show blooms, a purpose for which it will be esteemed, as well as for general culture.

MME. LUCIE FAURE has white blooms of first-rate quality. It has been classed as an incurved, a form it takes when late buds are retained. From early ones the florets recurve, and in either case the flowers are charming.

MME. THÉRÈSE REY.—For some time this was regarded as the best white Chrysanthemum, and it certainly is beautiful when in good condition, the substance of its petals being exceptional. But of late years it has had a tendency to form "blind" flower buds, which refuse to swell and open. This habit detracts from its merits. It

MODESTO has flowers of a particularly rich shade of yellow. They are slightly incurving in shape, not over-large, but very handsome. As an exhibition kind it is true to character from rather late buds, and the plant is easily grown. It is also first-class for general culture, the habit being not too tall.

MUTUAL FRIEND.—This is a popular white kind for exhibition. The blooms are of extra width and not over-deep. This latter fact will most likely cause it to be less cultivated in the future. It is also liable to damp, as early flowers are generally. Its habit, easy culture, and constancy make it a good amateur's sort.

MRS. C. HARMAN-PAYNE.—When well grown this is a very fine large Japanese bloom, of a rich rose colour, the formation of the bloom being inclined to incurve to the centre. This is when the plant has been cultivated well and late buds selected. Often, however, we find this kind among the worst in all respects save size.

MISS ELSIE TEICHMANN.—This is one of the finest Chrysanthemums yet introduced. For



Cactus Dahlia Loreley. From a photograph sent by Messrs. Goos and Koenemann.

appears to grow better when cuttings are struck late in the season—at least for show blooms.

MASTER N. TUCKER has flowers of a chestnut-crimson tint, and is therefore welcome, as dark colours are scarce among Chrysanthemums. The only fault one can find with this variety is that the florets are rather short. It bears large, full, deep blooms, and the growth is sturdy.

MATTHEW HODGSON is a valuable kind, because of the rich crimson colour of the blooms and a dwarf habit of growth. Not over-large as an exhibition bloom, it is yet useful, and first-rate for grouping or for cut flowers in quantity.

MÉDUSE.—This is not cultivated largely, but has been known some years. The colour is a charming shade of bronzy terra-cotta. The blooms are well formed. It is not large enough for show blooms, but is early and especially free. For the supply of a quantity of flowers in October it is excellent.

quality of petal it is exceptional. The flowers have size and rare grace of form, the florets having a way of hanging down and curling upwards at the points. When in good character the colour is creamy white, tinted lilac, bright and pleasing. Rather late buds may be selected for the finest blooms.

MRS. F. A. BEVAN.—This has drooping shaped blooms of a clear lilac-pink shade, not over-large, but striking and especially refined. The growth is somewhat tall, and late-formed buds produce the better blooms.

MRS. BLACK is among the best of white varieties. The flowers are not over-wide, but very deep, solid and well formed. The florets hang down and curl at the points, sometimes they form quite a full incurving flower. A good way to grow this variety for show is to root the cuttings in March and allow but one flower to a plant.

H. S.



DAHLIA LORELEY

GARDEN FLORA.

PLATE 1166.

CACTUS DAHLIAS.

(WITH A COLOURED PLATE OF D. LORELEY.*)

THE cultivation of the Cactus Dahlia has greatly increased in Germany, and the accompanying coloured plate shows what progress we have made in raising new kinds.

The first attempts to popularise Cactus Dahlias in this country were somewhat disappointing, a good deal of misconception as to their proper value for cutting and massing in the flower garden arising through the indiscriminate introduction of second-rate

predict a great future for the true free-flowering Cactus type in this country. Hohenzollern (shown in the illustration) is a novelty for the year 1899, and a seedling from *Gloriosa*, possessing every characteristic of the parent except colour, which is an amber-flamed apricot. Loreley will be sent out this year. This seedling from *Delicata* we place without hesitation in the foremost rank as a cut flower, and for the flower garden it inherits none of these bad qualities so conspicuous in the parent, but possesses distinct erect growth of medium height, exceedingly free-flowering habit, and strong stems, supporting flowers of the most perfect porcupine quill shape. The colour is a love'y rose, shading in late autumn to pure ivory-white. Each of these novelties was awarded



Cactus Dahlia Hohenzollern. From a photograph sent by Messrs. Goos and Koenemann.

sorts, short-stemmed and shy-flowering sorts predominating, contrasting anything but favourably with the rich-flowering Liliputian varieties so long cultivated by German florists. Their great value for cutting and decoration has now been found out, and every gardener depends in late summer on the queen of all our autumn flowers, and no public or private garden but includes them. Probably their popularity is as great here as in England, and we venture to

* Drawn for THE GARDEN by H. G. Moon from flowers sent by Messrs. Goos and Koenemann. Lithographed and printed by J. L. Goffart.

the large State medal at the Hamburg exhibition.

GOOS AND KOENEMANN.

Nieder-Walluf (Rheingau), Germany.

Arum Lilies.—Of the eleven notes that have appeared during the present year on the treatment of the above, eight have advocated permanent pot culture, while only two writers have favoured the planting-out system. There is, I should imagine, but little doubt that, at all events for market, the former method is preferable. The cultural directions given by those who recommend pot culture are in the main identical, the most noticeable exception being that "E. J." reports in the middle of August and houses in the middle of September, while Mr. J. Mayne repots early in July and houses before the appearance of frost, which in South Devon would probably

mean mid-October. In each case the treatment appears eminently successful, as the plants produce a quantity of bloom between housing-time and the end of the year. Whilst being myself in favour of permanent pot culture, a case has lately come under my notice, from which it appears that under certain circumstances plants fail to come into full bloom before the advent of the new year. The plants in question were dried off as recommended and repotted at the end of July. In consequence, however, of there being no house ready for their accommodation earlier in the autumn, the batch—consisting of between 200 and 300 pots—were not brought under glass until the close of October, and, instead of being in full bloom at Christmas, produced their fullest complement of flowers in January. The only reason that I could assign for the lateness of their blossoming was that their housing had been unduly delayed, but Mr. Mayne appears to house but little earlier and to procure plenty of bloom by Christmas. The house in which the Arums were placed was a low span-roofed structure which had been utilised for Cucumber culture, and a temperature of 65° to 70° was maintained during the winter months.—S. W. F.

THE WEEK'S WORK.

KITCHEN GARDEN.

THE VEGETABLE MARROW CROP.—I advised sowing a small quantity of Vegetable Marrow seeds some weeks ago for an early supply, but the plants now raised with less heat may be termed the main-crop supply. These will be strong enough to plant in the open at the end of May and will not need protection. Marrows grown quickly always give the best results, and, provided short, sturdy plants are secured, they fruit quicker, and are therefore more profitable. Only a little heat is needed at the start to assist the seeds to germinate, as, owing to their fleshy nature, they soon decay with excess of moisture. I find it best at this season to sow two or three seeds in a 4½-inch pot, and when the plants are developed to thin to the strongest, placing at the start in a warm house and removing to cold frames near the glass. To secure a strong plant, if ample time is allowed, the seeds may be placed in the frames at the start, but moisture must be sparingly given till growth is active. Plants raised earlier as advised will now be in condition to plant out in frames or under hand-glasses. At this early date it will be well to give warmth at the roots to promote growth, well covering at night. I find frames from which the early Potatoes have been dug come in useful for the early Marrows.

FRENCH BEANS.—The early dwarf Beans advised to be sown for planting in the open and protected will now be in condition to plant out. Should the weather be very cold, it may be advisable to defer the planting a few days. An early border at the foot of a south wall will be found a suitable place, and if the soil is at all poor or heavy it should be made good, and some lighter material given at planting. When turned out of the pots, it is not well to break the balls of earth and roots if thinning was done as previously advised, as I find it a severe check if the roots are disturbed. The plants delight in a rich, friable soil, and need to be planted firmly. I also water when needed with tepid water, and for the next three weeks it will be necessary to cover regularly at night. I use spare sash-lights placed on inverted flower-pots, and use mats or sheets round the sides. Mohawk and Early Favourite are my earliest kinds. To save space I plant at 21 inches between the rows and half that distance in the row, planting very firmly, as this encourages quick root action. Plants grown thus are profitable, as in favourable seasons one can gather at the end of May or very early in June.

BEANS IN POTS AND FRAMES.—A final sowing may be made in pots or frames. This lot of

plants will give a heavy return if not stinted for food or moisture. I am averse to growing Beans in fruit houses after April, as it is almost impossible to keep the plants free of red spider no matter how well attended to. I adopt a middle course and sow in large pots, plunging these up to the rims in the soil. This saves much watering, and it is an easy matter to shift the pots if the frames are needed. Another reason why pot culture is advised is that such varieties as the Canadian Wonder in rich soil and with a large root-run at times go so much to leaf that the crop is a long time about. On the other hand, with a shallow bed and warmth pot culture is not needed. In pits one may take two and three crops from one lot of plants by feeding, stopping, and top-dressing freely. For a quick crop in cold frames, Early Favourite is an excellent Bean and very prolific, especially if a little warmth can be given the roots at the start in the way of a slight hotbed.

BEANS IN THE OPEN.—In the southern parts of the country I always sow the first crop in the middle of April. It is also necessary to sow new well-ripened seed, as any old seed will lack germinating power. It is essential to have a warm well-drained soil, as unless the seed germinates freely there will be slow progress. In heavy soil it will repay the cultivator to remove a portion after drawing drills and to replace with lighter soil, such as old potting soil, spent leaf mould, in fact anything that promotes quick root action. An early variety should be grown. Those named previously will be very suitable, and though it may be necessary to sow thickly at this season, one can readily thin when it is seen which are the strongest plants. I do not advise large sowings, as at the best Beans are a precarious crop thus early. A small sowing now and a larger one at the end of the month will be advisable. At the latter date such kinds as Ne Plus Ultra, Syon House and Early Favourite are good; Canadian Wonder should be sown later.

POTATOES.—All arrears of planting should be cleared up. It will be found that seed kept to this late date will be more difficult to plant, having long shoots. These will in some cases need removal, leaving the best placed and strongest. Many who are short of space are obliged to resort to various means to plant the late crop. I had Kales occupying the quarters, and it was impossible to destroy them. I forked between the rows, placing a good quantity of spent Mushroom manure and burnt garden refuse under the sets. It will be an easy matter to remove the Kales later and fork the ground previous to moulding up. Plants just showing through the soil will now cause the grower some anxiety, and I find drawing the earth up over the plants not sufficient. With small quantities it is a good plan to place long litter over the rows at night, removing it in the daytime. This will save the plants. It is a good plan to keep the litter dry, as in a wet state it is not an efficient protector.

MAIN-CROP BEETROOT.—From this date to the first week in May the main-crop supply of the above vegetable may be sown. I am aware in some seasons there is a difficulty in getting the seeds to germinate quickly. Ground that was well manured for a previous crop is best for Beetroot. On the other hand, there should be deep cultivation, and in poor soils one may with advantage add some fertiliser. The plants always do best in an open, exposed position and not crowded in the rows; 18 inches between the rows is none too much, leaving the plants 12 inches apart. For many years I have grown Cheltenham Green-top as my main crop. It is not so shapely if grown in rich soil and inclined to come large. Sutton's Blood Red is a specially fine garden Beet, and noted for its shapely roots and colour. The older Nutting's Dwarf Red is still one of the best and keeps well. In shallow soils the Globe roots are useful. These sown about three times, say April, June and August, will furnish nice roots and provide a year's supply. The best kind I have

found to be Crimson Ball, a very fine root for colour and quality.

SAVOYS.—In previous notes on Brassicas I purposely omitted to advise the sowing of these. Now is a good time to sow for late supplies, but should there be a demand for early Savoys, by sowing a small variety, such as the Early Dwarf Elm or Dwarf Vienna, there will be good cutting material in August. I always sow on a cool border to secure a dwarf plant. For late supplies I have found Drumhead sown the first week in May most useful, and even this year, when vegetable growth was early, the last-named Savoy was good well into March. There have been some very fine additions to this family of late years. The new Perfection is an excellent late variety, and such kinds as Bijou and Tom Thumb are splendid little Savoys for table, having a delicate flavour and most useful if sown for late supplies. The last-named needs but little space; 15 inches between the rows and half the distance between the plants are ample. The land should be fairly good. Perfection is large, needing the same space as the Drumhead, but it is remarkably hardy.

AUTUMN CABBAGE.—There are few vegetables more useful than autumn Cabbage. By this I do not mean the well-known Colewort, but the small, compact-growing Cabbages such as turn in from October to Christmas and later. Now is the time to sow, and as regards variety much depends upon the size liked. I am greatly in favour of the small or medium growers, as these have such a delicate flavour; in fact, are on an equality with the early spring Cabbage in this respect. St. John's Day, a dwarf-growing variety with a short stem, is specially good. This sown now will give a winter supply. Christmas Drumhead is similar in quality and equally hardy, and for earlier supplies from September to November I have found Dwarf Gem very good. This is a cross between the Rosette Colewort and a dwarf Drumhead Cabbage. These varieties may with advantage follow early Potatoes or land cleared of dwarf Peas. It is not necessary to give much manure, as if a good fertiliser is used during growth the quality will be excellent. I plant the above varieties 2 feet apart between the rows, as this allows of hoeing and cleaning during the summer. S. M.

FRUITS UNDER GLASS.

PEACHES AND NECTARINES.—The fruits in the earliest house are now commencing to take on their second swelling (or within a very near approach of it), and with this change fairly begun it will be safer to raise the temperatures both during the day and the night than at any other period of forcing. Now is the time when, by so doing, it will be possible to gain a few days in the ripening, almost or quite a week being possible; even if it be less, it is all-important to be a few days earlier where the first pickings are of special value. By what I can see of my own I estimate to have Cardinal Nectarine from pot trees about May 1, and Early Beatrice Peach a few days later. When in the experience of those who have charge of the watering it is considered safe to mulch the pot trees, it should be done without any delay. This will greatly assist the trees during the final swelling, and at the same time save some little labour in watering. Sufficient importance is not at times attached to the mulching of pot fruit trees, for it not only assists in the final stages of the fruit development, but it also greatly assists the trees in the completion of the wood growth for the following season. If it assists Chrysanthemums and other flowering plants and pays to spend the time upon them, it will do so in the case of fruit trees in pots. This mulching of the pot trees may be extended with advantage to those that are planted in shallow or limited borders, but where the borders are without any practical limitation it will scarcely be advisable, otherwise the growth may be stimulated too much in the form of gross wood. Save where the latter circumstance is likely to

obtain, a quick acting manurial stimulant will now greatly assist the trees; that containing a small amount of blood, which can be readily detected as a rule, will be a good choice. As soon as the fruits are beyond any question swelling up for the final stage, the night temperature may be 65° on the average at the time of banking up the fires, and the day temperature may safely range at 80° by sun-beat or 75° by fire-heat, with ventilation, of course; at closing time 85° will not be too much to aim at. With the increased temperatures and also with the greater influence of the sun, combined with the easterly winds so often prevalent at this season of the year, red spider may make its appearance. This insect is more to be dreaded than any other just now, but by keeping a constant and close watch it can and should be kept in check. Persistent use of the syringe, and that in no half-hearted manner, will be the best remedy. Do not resort to sulphur unless it is found imperative to do so before the fruits are gathered. Red spider is also encouraged by the greater susceptibility of the foliage to its attacks when either a too close atmosphere has prevailed or where there has been any continued period of drought at the roots, in both of which cases the leaf-tissue is weakened and thereby made more liable to this pest. Look to it, therefore, that neither of these circumstances prevails. The watering is an all-important matter now, but do not yet use absolutely cold water. I prefer to water the early borders with the water at about the night temperature of the house itself; to do this should not give much additional trouble. As soon as any indications of colouring are apparent, see that the fruits are as fully exposed to the beneficial action of the sun's rays as possible. Trees trained near the glass or on walls can have the fruits trussed up on labels for the time being, or at any rate have the leaves tied on one side, not cut off. Tying aside the foliage will also answer for pot trees.

SECOND EARLY HOUSES AND LATER ONES.—The usual routine work in these, and which may be gathered from previous calendars on the first early houses, will need close attention. It is, of course, safer to thin the fruits to a closer margin now, unless by previous experience in any particular variety it has been found that too great a proportion has given out during the critical period of stoning. Watch also the wood growths, and if there be any tendency to over-luxuriance, endeavour to modify it by deferring the final thinning of the superfluous shoots and also by stopping the too sappy wood. It is surprising what may be accomplished in this way by what might be termed the exhausting process, and it will be found far more practical in the long run as well as a preventive of canker, or at any rate it will modify this evil to some extent. The latest houses will now be safely over the setting period, and it will possibly occur that green fly or its more-to-be-fared relation, the black fly, may make its appearance. Immediately this is detected, even if only upon a few shoots, lose no time in resorting to fumigation. It is far cheaper to expend the time, and material too, in fumigating for the few than for the many. Above all, it is quite safe to employ the XL All vaporiser for this purpose even before the flowering stage is past. In late houses with no fire-heat it will be advisable to close in good time, so as to assist in keeping up the temperature, and, if need be, do not hesitate to run some light material over the glass if the trees are trained close to it. These trees are scarcely any safer than those upon walls during a stinging spring frost.

APRICOTS.—Grown under glass there will be a slight gain of time as compared with trees on the open walls, and by now the fruits should be swelling away freely. Where there is an abundant set it should be quite safe to thin a portion of the crop for preserving in a green state, although this method, for some reason not quite apparent, does not now prevail to the extent it did a generation back. Insects on Apricots are not so very serious, the most annoying being the

small dark caterpillar, which, after first knitting together a few leaves, may attack the fruits. Hand-picking for this enemy should be sufficient; if very numerous, then treat as just advised by vaporising. Note also the remarks on over-vigorous Peach and Nectarine trees, and carry out the same course of treatment. We should not hear, methinks, of so much canker in Apricots if a more rational mode of culture were adopted, viz., less use of the pruning knife and a smaller proportion of manure in the soil, especially of such as encourages too rank or luxuriant a growth. Do not let the trees suffer from want of water, and see that they are well soaked when water is given.

PEARS AND PLUMS.—A few of each of these useful fruits may possibly be grown in cool houses. It must not, however, be taken for granted that a safe crop of fruit is all the same going to be secured by this means of protection. Two points at least must be looked at, viz., that the borders are well watered without being water-logged; and secondly, take particular note that when a very bright sunny day ensues a light shading is employed in order to protect the flowers from undue warmth, so as not to set them too quickly. Half-inch netting is enough for this purpose.

HORTUS.

ROSE GARDEN.

SOME DISEASES OF ROSE TREES AND THEIR REMEDIES.

The fungus known as *Ceroospora roseicola* produces on the upper side of the leaves small spots of a violet-brown and orange-yellow colour, which destroy the epidermis and cause the leaves to fall rapidly. There are other forms of these dangerous parasites which are still but little known and are not determined. I shall, therefore, confine myself to the forms which come under the name given above and point out the means which, up to the present, have been employed to combat them. Twenty years ago, before anything was known about using solutions of sulphate of copper, the leaves were washed on both sides with a sponge dipped in soapy water containing table salt in the proportion of from 3 to 30 grammes of salt to 1 litre of water. This not very practical or speedy operation was soon abandoned and recourse was had to dusting the leaves with flowers of sulphur, which was attended with better results. The sulphur being applied with a bellows had the advantage of being rapidly distributed over the Rose trees, and the application could be repeated more frequently. It was the remedy which was most effectively employed. Under glass sulphur gives good results, but in the open air its effects are too often counteracted by atmospheric influences. Rose trees were also syringed with a solution of 500 grammes of sulphur and the same quantity of lime boiled for ten minutes in 6 litres of water. There were also many other specifics which gave more or less relief, and later on, from the imperfect action of these various nostrums, and especially the inconvenient methods of applying them, recourse was had to compounds of copper under the form of sulphate or ammoniate, which were used as preventive remedies. After a great number of experiments, the use of sulphate of copper has been established as the best method of dealing with cryptogamic diseases, and at the present day it is successfully employed against the Vine mildew (*Peronospora vitis*) and other fungi which attack the leaves of plants. Several solutions of it have been tried and have given the best results, notably the Bouillie Bordelaise, the Bouillie Bourguignonne or Dauphinoise,

and the Bouillie sucrée. Everyone knows how these "Bouillies" are prepared, and the proportions of lime, sulphate of copper, carbonate of soda, and molasses which should be used. It is well to remark that sulphate of copper when used by itself is corrosive in its action and burns the leaves. The solution recommended by M. Weber, of Dijon, is a very good one, and causes both the white and the red fungus of Rose trees to disappear rapidly. The following is the formula for it: Dissolve 1 kilogramme (2½ lb.) of sulphate of copper in twenty litres of water (a litre is = 1 $\frac{1}{5}$ pint). To this add 2 kilogrammes of slaked lime and 1 kilogramme of flowers of sulphur. Boil the mixture for forty or fifty minutes, keeping it constantly stirred; then strain it. The result will be a liquid of a yellowish-green colour, 1 litre of which is to be added to 10 litres of water when required for application.

The diseases of Rose trees now under consideration are generally produced by minute cryptogamic plants, which live at the expense of the vegetable tissue of the plants on which they have established themselves, and multiply with astonishing rapidity. Several species of microscopic fungi grow parasitically on the leaves and young shoots; other kinds are found on these same parts when they (the leaves and shoots) are dead. I merely mention these last kinds in passing, although it is possible that some of them may be injurious to young Rose trees when they are commencing their growth. The most common and injurious of these minute fungi is the white kind, popularly named "Blanc" or "Meunier," and which belongs to the genus *Oidium*. Its scientific name is *Spherotheca pannosa*. It attacks all the young shoots of a Rose tree, preferring the Tea Roses and more especially certain hybrids of the *Géant des Batailles* race. Its presence is made known by spots of a velvety pale grey appearance, which rapidly increase in size. The parts attacked become greatly altered in their appearance, swelling up and shrivelling, the flower-stalks and the calyces become irregularly twisted, the flowers open badly and lose their brightness, the growth of the shrub flags and it soon shows signs of suffering, droops, and loses its leaves. This fungus especially attacks Rose trees growing in the shade of walls or under trees; everywhere, in fact, where there is not a free circulation of air. I have often found that the first attacks of the disease manifest themselves after a heavy dew accompanied with fog, and even after rain at times of very hot sunshine, such conditions being favourable to the evolution and propagation of the parasite. This most frequently takes place in June and July. If the conditions occur frequently, the fungus will multiply very rapidly up to the time when frosty weather causes it to disappear. On the other hand, should the weather be dry and the soil contain but little moisture, its attacks will be of a mitigated character and will not do much harm to Rose trees. Another variety of the "Blanc" or white fungus has been observed on the under side of the leaves of Rose trees growing under glass. This kind much resembles the preceding one, but the spots which it forms are not so large nor so well marked. Sometimes other spots of a brownish colour appear on the upper side of the leaves. These are produced by *Peronospora sparsa*; they gradually extend themselves over the whole leaf and destroy it. This fungus is often insensible to syringings, sulphur-dusting, and fumigation with sulphur, and the best way of dealing with it is to pull off all the affected leaves and burn them. Another fungus grows abundantly on certain kinds of Rose trees in dry seasons. This is the "Rouille" or red

rust, and is characterised by reddish spots, more or less numerous, which make their appearance on the under side of the leaves. It shows a preference for attacking certain varieties of Hybrid Perpetual Roses. The Victor Verdiers, for example, are affected sooner than the Moss, Cabbage, or Provins Roses, but the kind which suffers most of all is *Rosa laxa*. Two forms of this fungus exist, which, however, are only two different stages of the same species, the summer form being known under the name of *Uredo* (*Lecythea*) *rose*, and the autumn form under that of *Phragmidium mucronatum*. In spring the red rust exhibits the appearance of an *Aecidium*, that is, it assumes the form of roundish or oval pustules of a pale yellow colour. The *Phragmidium* shows itself in patches of spores, which have a very different appearance. This fungus is seldom dangerous to Rose trees, but it covers the under side of the leaves with an orange-coloured dust or powder, which completely absorbs the vegetation. Up to the present it has been found difficult to destroy it by any application, and the best plan is to gather all the leaves affected and burn them, otherwise all the healthy leaves will speedily become diseased. Some other fungi injurious to Rose trees have been observed. The kind known as *Asteroma rose* forms spots of a dark purplish-brown colour, which appear to be composed of delicate fibres radiating from a central point. *Marsonia rose* early in the season forms largish rounded spots on the leaves, which then rapidly wither away. This fungus first attacks tender varieties of Rose trees, gradually extending its ravages to those of a hardier constitution. Its mycelium or spawn lives under the epidermis of the leaf, which it tears or bursts in developing its numerous elongated spores. My colleague, M. Pernet-Ducher, successfully combated this fungus with the following mixture: Sulphate of copper, 1 kilogramme, dissolved separately in water; flowers of sulphur, 1 kilogramme; and lime, 2 kilogrammes, boiled in 20 litres of water. The latter is then strained and the copper solution added to it. The "Barèges" of the druggists may also be successfully used in the proportion of 10 grammes to the litre of water. In the same proportions it is also effective against plant lice.

It may be added that coal cinders and wood ashes sifted and sprinkled on the leaves will destroy fungoid germs. Indeed, it may be observed that Rose trees planted close to roads from which they receive quantities of dust, and also Rose trees which are constantly exposed to the smoke from chimneys, are rarely attacked by these diseases. Remedies in the form of powder should be applied with a distributor, and to obtain the best results care should be taken to direct the play of the jet on both sides of the leaves, so that the entire surface may be as completely dealt with as it is when fumigation or vaporisation is resorted to. In vaporisation it is indispensably necessary to follow exactly the directions given as to proportions or quantities, and to shake the liquid well in the bottle before putting any of it into the vaporiser, so that it may be homogeneous or of the same strength throughout. Vaporisation should be done in the morning or in the evening, but never in the heat of the day if it is to be done thoroughly well. When from any cause a single application does not prove effectual in an advanced stage of the disease, it is absolutely necessary to repeat it at intervals of eight days until the disease is subdued.

It is imperatively necessary that vaporisation should be done during dry weather, for in damp weather the active principles contained in the specific employed would be destroyed before

they had time to act effectively against the disease under treatment.—P. GUILLOT, in *Le Roses*.

Tea Rose Pauline Labonte.—In THE GARDEN, March 26 (page 270), there is a note from Mr. J. Mayne upon this old Rose. It has long been a great favourite with me. It was sent out by M. Praedel in 1851. I first obtained it at Souvenir d'Elise—not the Vardon variety—and upon finding it was not what is generally known by that name, I made inquiries. The result was that I found it was largely grown in Devonshire under the names of Souvenir d'Elise and as Devonshire Souvenir d'Elise. Some twenty years ago it was the means of my being disqualified at Ealing after the first prize had been awarded. Mr. R. Dean was the secretary, and when I called his attention to the fact, he at once recognised it as what he had frequently seen under that name, viz., Devonshire Souvenir d'Elise, and the disqualification was withdrawn. Three years back I met with the same Rose at the Tunbridge Wells show under the name of Souvenir d'Elise, and failed to persuade the grower that it was really Pauline Labonté. Mr. B. R. Cant, of Colchester, has recognised flowers sent him as Pauline Labonté. In the course of a season I see many Rose and other gardens, also the whole of the chief Rose shows, and am frequently surprised not to meet with it. Only twice during the past twenty-five years have I seen it growing, except in my own grounds. It is a very hardy Rose, but, being so early, frequently fails to open the first crop.—A. PIPER, *Uckfield*.

ORCHIDS.

NOTES ON BRASSIAS.

Those who are fond of quaintly-flowered Orchids will find in this genus a number of interesting and beautiful plants that are very free-flowering. Their culture, moreover, is very easy; anyone having a little experience in Orchid growing may take up Brassias with every prospect of being successful. The plants come from various parts of America, on the mainland and the adjacent islands, and though some come from warmer parts than others, they will all thrive under cultivation in an intermediate or Cattleya house temperature. If any are selected for warmer treatment, the choice will fall perhaps on *B. caudata*, *B. lanceana*, *B. Lawrenceana*, and one or two others that are found at a lower elevation and in warmer parts, but this separation is not really needed. Choose a part of the house where a good light reaches the plants from all sides, but where they will be shaded from direct sunshine. This latter point is very necessary if plants with healthy green leaves are desired, for, although the foliage has a hard look and rustles when touched, it is almost as easily damaged as that of an *Odontoglossum*. Plenty of fresh air, too, is very necessary, the plants seldom flowering freely in a close, moist house. But if grown with Cattleyas and the house treated properly for these, the Brassias will be satisfactory as far as atmosphere and temperature are concerned. When in good condition, the roots of Brassias are, as a rule, wiry, strong, and persistent, and when the conditions of the house are congenial, it is not unusual to see them pushing, not downwards among the compost, but upwards towards the light and air. In these cases the plants are, as a rule, doing well, and usually the pot is well filled before this takes place. When repotting, these roots are covered with the new material, and as they ramify in this the plants gain additional strength. Generally speaking, it is unnecessary to disturb the roots much when repotting, and I have often put the

whole of the old ball into the new pot. But of course, if in bad condition, this would not do, as, like all other Orchids, Brassias will not thrive in sour material. For the new compost use two-thirds of peat to one of freshly gathered clean Sphagnum Moss, draining the pots thoroughly and covering the drainage with a little rough Moss. The habit of the species is in a measure the best guide to the size of pot required; the health of the individual specimen also requires consideration. For those with the habit say of *B. verrucosa*, a larger shift will be needed than for *B. Lawrenceana*, because the distance the pseudo-bulbs are apart carries them more quickly to the edge of the pot. Fill up with the compost to the base of the leading pseudo-bulbs and dibble a few "points" of Sphagnum around the surface so that during the summer it will grow up around them, keeping them cool and moist.

The present is a good time to re-pot any plants not in flower or showing the spikes, the flowering specimens having attention directly the blooms are past. If propagation is desired, it is also a good time now to set about it. Most of the species are extremely easy to propagate, it being only necessary to separate the rhizome at as many points as young plants are required—provided always that there is a good lead to each divided portion—potting them separately into pots of suitable size. It is necessary to look carefully after the old plant for a time, especially if several young pieces have been taken off, as this causes a severe check in some cases. Water must be very sparingly given until new breaks are produced and the roots are again on the move, and the same applies to the plants that have been potted. But when once they get well away water must be given freely, and this is why the careful drainage spoken of is so necessary. Even in winter Brassias need a lot more water than most Orchids when strong and healthy. If they do not get it the roots shrivel, and when water is again given in spring they have not the power to take it up, and decay in consequence. Heavy overhead syringing is not advised, as when a lot of water is used it wets the surface of the compost and makes it very difficult to determine whether the roots are dry or not. A light, gentle spray is, however, refreshing to the plants on hot summer days, and more than any other means that could be used keeps insects in check.

Botanically these Orchids come nearest to *Oncidiums*, while the habit of some is almost identical. The flowers are, however, quite distinct. They occur usually on long, simple spikes, and last a very long time in good condition. *B. lanceana* and *B. Lawrenceana*, for instance, retain their form, and are quite rigid even after the colour is gone, and they usually turn from a pale greenish yellow to a very deep orange ground before fading. A frequent characteristic is the very long sepals, this feature being more marked in some species and varieties than in others. The oldest species in the genus is *B. maculata*, a Jamaican kind, upon which the genus was founded by Dr. Brown very early in the present century. It contains upwards of a score of so-called species, but probably not more than half of these are really distinct or in general cultivation.

H. R.

Calanthe Williamsi.—This is a very beautiful late-flowering *Calanthe* not sufficiently known, for it is distinct from all the varieties of *C. vestita*, and a winter and early spring-flowering Orchid of much value. It appears to vary a little in colouring, the sepals and petals being nearly pure white, the lip deep rosy crimson. In habit it is

nearest *C. Veitchi*, and it should be grown in a sound, fairly rich compost consisting of equal parts of peat, loam, and chopped Sphagnum Moss, a little of either dried cow manure or guano, and plenty of charcoal finely broken. It is a native of Cochin China, and was introduced about 1885 by Messrs. Williams and Son, of Holloway.

Odontoglossum excellens.—The flowers of this beautiful *Odontoglossum* are bright yellow in ground colour, this being almost entirely covered in some forms with large purple-brown spots. It is usually considered a natural hybrid between *O. Pescatorei* and *O. tripudians*, but in the artificially raised plants *O. triumphans* has been used as the second parent. Such fine plants make a welcome change from the better-known species and are, if anything, more easily grown. The roots should not be too closely confined, a margin of a couple of inches around the plant being none too much, and the general treatment is the same as advised for *O. Pescatorei*.

Epidendrum Endresi.—Although this lovely little species was sent home by the collector whose name it bears as far back as 1873, it has always remained a rare Orchid, and even now is expensive. It is one of the cylindrical-stemmed kinds, of dwarf, though fairly slender habit, the leaves seldom exceeding an inch or so in length and the racemes erect and many-flowered. The individual flowers are pure white, the only colouring being a few violet or purple spots about the lip. The plants are not vigorous rooters and may be placed in medium-sized pots only, in a compost of peat fibre and Moss, these being kept as near the light as possible in the Cattleya house. It is a native of Costa Rica.

Lælia harpophylla.—Very bright and showy are the blossoms of this species just now. They are produced from the apex of rather slender pseudo-bulbs or stems in number according to the strength of the plant or the individual stems. The colour is cinnabar-red, the lip more or less fringed with white. Not being a very large grower, small pots only are needed, the tufted habit rendering the culture in such receptacles easy. It is better to tie the plants up rather closely, for, much as this detracts from the beauty of some species, the *Lælia* named looks very untidy if the growths are allowed to hang about, and being so small at the base are also liable to be twisted off. It does best at the cool end of the Cattleya house.

NOTES ON ORCHIDS.

THE work of repotting will be going on rapidly, and considerable care is necessary with repotted specimens. The most careful cultivator and the most experienced is not able to repot an Orchid that has for several years been growing in a pot without checking it less or more. This I was reminded of lately when attending to some plants of *Cypripediums* of various kinds, including the old *C. insigne*, *C. villosum*, and some of the better-known hybrids. All had been somewhat neglected and the pots were quite full of roots. To get them out without breaking the pots or damaging the roots badly was obviously out of the question, so the former was chosen as the less evil. But even so, many of the roots are torn more or less and a check is inevitable. Rather more warmth than usual, a shady, moist atmosphere, and light dewings overhead are the conditions that most newly-potted Orchids like. There are some kinds that repotting really makes little difference to, as the roots die annually, and the time chosen for the work is just before the emission of new ones. To this class belong *Pleiones*, *Thunias*, *Calanthes* and others, and as far as disturbance goes these cannot be injured provided they are repotted at the proper time. The *Phalenopsis* are a case in point of Orchids easily injured at the roots by disturbance, and plants growing in cylindrical or other baskets are much more liable to damage than others growing in pans or pots. But baskets decay sooner or later in the moist heat of tropical houses and must be replaced. There is no more

suitable month than April for the work, as the temperature from this time onward is easily kept up and root action is just getting vigorous and free, enabling the plants to take with a will to whatever is placed for their reception. When a *Phalenopsis* grows too large for a pan it is usually a fairly easy matter to give it a larger one without much injury to the roots, for this is easily broken with a hammer and the roots may still be left clinging to the ware. Often the old pan may be placed entire in the new one, this plan having much to recommend it when one is sure that no sour or decayed material is present. The best and cleanest parts only of the Sphagnum Moss should be used for the Moth Orchids, and the quantity needed will vary with the habit of the species and the size of the plants.

Almost as much care is necessary with cool house species of *Odontoglossum*, *Masdevallia* and others that want attention at this time of year, for with these it is often the case that they go on growing for months without a single new root being produced, and it is difficult to provide

be rather early than late with the shading just new, the number of young growths on the plants being larger than at any other season, and these are very easily injured by sunlight.

Lycaste fulvescens.—This is one of the most distinct and pleasing of *Lycastes*, and a plant deserving of extended culture. It is a medium grower, very free-flowering, the sepals and petals dull brown with a paler base, the lip yellow and fringed in front. The scapes take almost a pendent position, and a basket or pot suspended has a very pretty effect when the plant is well flowered. It is not a difficult species to cultivate, thriving well in a cool house with abundant moisture all the year round. The compost may consist of equal parts of peat, loam, and Moss, with plenty of crocks and charcoal.

Maxillaria sanguinea.—The blossoms of this species are very bright, though small, and it seems to be a very near relation of *M. tenuifolia*, the foliage being narrow and Sedge-like, as in



Odontoglossum Wilckeanum Pittæ. From a photograph by Mr. Bowden, Dulwich.

sufficient moisture for their needs without at the same time making the new compost sour and heavy. It is different of course with such as *Anguloas*, that commence rooting early, or such as *Lycastes*, *Maxillarias* or *Sobralias*, that root constantly all the year round, and whose principal roots often ramify after being disturbed, while those of other species would either die back or grow from one point only. The dry scorching winds that we get at this time of year render the ventilation rather a heavy task. Constant watchfulness must be practised, for when the sun shines out brightly the houses rise rapidly, even with the blinds down, but when dull the temperature falls even more rapidly. Damping also will take a lot of attention, for the wind dries up the moisture from the atmosphere very quickly, and though the stages or floors may appear to be moist, the air around the plants is dry and harsh. Under such conditions insects spring up as if by magic, and nothing but frequent fumigations and spongings will keep fly and thrips in check. It is wiser to

that old species, the flowers having the same peculiar odour. Both are pretty little Orchids that are suitable for cultivation by amateurs, as they are easily grown, take up little space, and flower freely. The pseudo-bulbs occur on erect rhizomes, so that they in a few seasons get well away from the compost. The pots or baskets used need not be large, but must be clean and well drained, and an ordinary peat and Moss mixture suits the roots well.

Oncidium insculptum.—The flowers of this species are very distinct in colour, and it would probably prove popular if sufficient plants were forthcoming to make it so. The flower-spikes are each 12 feet or more in length, with many small side branches, and the individual flowers are not large. The sepals and petals are reddish brown, with a narrow yellow margin. The lip is greyish purple in front, the centre spotted with deep purple, the crest yellowish white, not unlike that of *O. serratum*. The plant has strong pseudo-bulbs and bright green leaves, and requires care-

ful culture. It should be repotted just as the flowers are past, the pots being of medium size and well drained, the compost consisting of peat fibre and Moss, with some large, rough lumps of charcoal. The rougher and more uneven the surface of the compost is left the better. Grow it in the coolest house in a shady, moist position, and water the roots in accordance with the state of growth, never allowing them to be really dry for any length of time. Like all in this section, it likes a free circulation of air at all times, especially during the night in summer. Light overhead dewings from the syringe are helpful in keeping down insects and serve to keep the foliage in good condition. It is a native of Ecuador, and was introduced in 1872.

ODONTOGLOSSUM WILCKEANUM

PITTÆ.

THE subject of the accompanying illustration is no doubt the finest form of *O. Wilckeanum* that has been seen. It was exhibited at the Royal Horticultural Society's meeting on March 8 of the present year, when it was awarded a first-class certificate. The sepals are 1½ inches in length and nearly an inch in breadth, having, as shown in the illustration, large rich brown blotches, barred and tipped with bright yellow. The petals are of the same length as the sepals, but rather broader, the ground colour wholly bright yellow, the spottings being of the same brown shade as in the sepals. The large, broad and heavily fringed lip is yellow, with a distinct blotch of brown across the centre. The whole flower is of great size and substance. The plant carried a raceme of seventeen flowers. It is dedicated to Mrs. Pitt, the wife of Mr. H. T. Pitt, to whom the plant belongs, he having procured it in the sale rooms about two years ago. It was said to be part of the same plant as one that had previously been certificated as *O. W. Queen Empress*. Although somewhat in the way of that form, Mrs. Pitt variety is altogether superior, as was apparent from the drawing which had been made at a previous meeting of *O. W. Queen Empress*. S.

Dendrobium chrysothoxum.—Though not to be compared with some others of the yellow-flowered section, this is a distinct species and still worth a place. The pseudo-bulbs are evergreen, and the blossoms occur on longish slender spikes. It delights in ample moisture while growing, and fully as much heat as any of the evergreen kinds. The growing season, as a rule, is only about three months out of the year. No absolutely dry rest is needed, but water always in accordance with the atmospheric conditions outside.

Aerides Vandarum.—This is a very distinct plant, both in habit and the shape of the flowers, and a very fine one as well when carefully grown. Like many others of the distichous-leaved class, it is apt to lose its lower leaves in spring, and this is especially annoying after having grown a plant carefully all summer and protected it from harm through a long cold winter. It is doubtless owing to want of air that these plants fail in our Orchid houses. Heat and moisture we can manage all right; shading, too, is a fairly simple matter; but open the ventilators a little too wide on a bright, dry day, and the proper balance of the temperature is at once destroyed. *A. Vandarum* likes heat and moisture, and, wherever it is possible, something in the way of a piece of Tree Fern stem or a Moss-covered block should be provided for the roots to lay hold of as they are produced. *A. Vandarum* is a native of Sikkim and the Khasia Hills, and was introduced about 1857.

Lycaste Harrisoniæ.—A very fine form of this old species comes from "J. C." for a name, the sepals very pure white, and the lip having the yellow tinge underneath the crimson-purple

veinings that is characteristic of *L. H. eburnea*. In such form it is a lovely Orchid, and the scent is very perceptible as I write. It would be interesting to know how many of these fine varieties of this species are in collections. I am sure there are many. Only a very few years ago I came across some fine old specimens growing in an ordinary plant stove, and these, though very badly grown and covered with insects, were very beautiful, owing to the large number of flowers on them. The temperature best suited to this Orchid is one slightly lower than that of the *Cattleya* house or in a shady part of this structure. Atmospheric moisture should be plentiful, and while growth is active plenty of water at the roots is needed. The syringe may be freely plied about the plants in summer. It is a native of Brazil, and was introduced to this country about 1820.

Oncidium cucullatum.—The varieties of this little species are fairly numerous, and form quite a distinct set not less beautiful and interesting than many showier and more popular kinds. The habit in every case is dwarf, the pseudo-bulbs seldom exceeding a couple of inches in height; yet these push fine spikes containing, when healthy, perhaps a dozen or more of the bright and telling blossoms. The culture is easy enough when healthy specimens are obtained, but they are hard to bring back from an unhealthy condition. I can confidently recommend anyone who has such specimens to deal with to turn them right out of their pots, and wash them quite clear of every bit of compost, laying them out in a temperature rather above that of their growing quarters on crocks or Moss in the way usually followed with newly-imported plants. It does not matter if they are not potted up for a month or two—all the better, in fact—but when young roots are pushing rather freely, pot them into clean pots with a compost consisting largely of Moss. The pots should be small for the first season, as the plants may then be repotted into larger sizes without any disturbance, or very little. For established plants, a position not far from the roof-glass, with abundance of air and moisture all the year round in the cool house, is the most satisfactory.

COLAX JUGOSUS.

ALTHOUGH the flowers of this Orchid are not large or particularly showy, they are distinct and very interesting. They differ little from those of some of the *Lycastes*, but as a garden plant this *Colax* is quite distinct. The habit is dwarf, the pseudo-bulbs about 3 inches high, the foliage broad and handsome, the spikes few-flowered. Each flower is about 3 inches or less across, the sepals and petals milk-white, the latter somewhat heavily and transversely blotched with chocolate or purple, the tint varying a little in different plants. The lip is marked with a deeper colour than that on the other segments. This pretty plant is not often seen well grown, and this as often as not is the fault of the cultivator. The proper temperature for it is in the coolest part of the *Cattleya* house near the roof glass, as it likes a clear light, but in such a position that the sun does not shine directly on the foliage, this being very easily damaged. A moist atmosphere is necessary all the year round, and this is very important. I do not know an Orchid of this class more likely to be attacked by thrips than this, and in the majority of the plants one comes across under cultivation this insect has left its mark on the foliage. Between the leaves is a favourite hiding-place for thrips, and here it works sad havoc if left alone. A damp atmosphere will check it of course, but will not kill the insects when once they have obtained a hold, and frequent vaporising and syringing should be persisted in until they are quite destroyed. The best plan is to fumigate on a dull evening, and the next day clean

the plants, first immersing them for an hour in a tank or tub of water to drive out any chance insect from the compost, then dipping the heads in a weak solution of tobacco water and soft soap. This should make a clearance of them for the time, and must be repeated if they again put in their appearance. With clean plants one stands a chance of getting healthy growth. The plants may be grown in pots or pans in soil consisting of equal parts of peat fibre and chopped Sphagnum Moss, a little loam being added for strong healthy plants. In addition, a larger quantity than usual of charcoal and potsherds may be allowed, the drainage also requiring careful attention. *C. jugosus* is very impatient of anything in the way of closeness at the roots, a lump of decayed peat or thoroughly saturated charcoal being often sufficient to kill any root that it comes into contact with. The reason then for great care in the selection of material will be obvious. At the same time, the roots are rather impatient of disturbance, but rather than allow them to remain in a heavy or water-logged compost, I would certainly repot annually, or at any time in the year. Healthy plants soon get a hold on the compost and grow away very freely, rendering a frequent application of water necessary. The Sphagnum in the pots, if the atmosphere and compost are right as regards moisture, will grow rapidly and soon reach the bases of the pseudo-bulbs, keeping them moist and making a capital hold for the roots. Regarding overhead watering, it must not be over-done, as the texture of the foliage is such that spotting soon takes place if kept too moist during dull weather. But on bright summer afternoons at closing time nothing is more refreshing to the foliage than a light sprinkling of tepid soft water. It keeps it plump and stiff, and is one of the very best preventives of insect attacks. Though while at rest a slightly decreased water supply is necessary, at no time is drying off needed, this leading to weakened bulbs, and no corresponding benefit accrues. *C. jugosus* is a native of Brazil and was first introduced by Messrs. Loddiges in 1840. H. R.

NOTES AND QUESTIONS.—ORCHIDS.

Cattleya Mendeli.—The first flower of this pretty species to open is a nice form of *C. M. grandiflora*, a beautiful variety, with flowers of great size and substance, pure white on the sepals and petals, the latter prettily waved and the lip very finely tinted, showing well the characteristic white band. *C. Mendeli* thrives well in the *Cattleya* house under the same conditions as *C. Mossiae*; but, of course, flowers earlier and also finishes up its pseudo-bulbs earlier in autumn. It is one of the most beautiful of the labiate section and a native of New Grenada. It was first introduced by Messrs. Hugh Low and Co.

Cœlogyne asperata.—In this species the flowers are produced in long semi-pendent racemes, and each flower is about 3 inches across. The ground tint is a milk-white, but the centre of the lip is very beautiful. From a yellow central ridge there are radiating lines of purple-brown and yellow. Its culture is not difficult, and such a fine species ought to be more grown. Being a native of Borneo, a high temperature is best for it, and as the growth is somewhat free, plenty of room is needed in the pans, rafts, or whatever is used for it. Water must be freely given all the year round.

Dendrobium euosmum and its varieties.—There has never been a more varied batch of seedlings raised than has resulted from the intercrossing of *D. endocharis* and *D. nobile*, some of them resembling in colour *D. nobile*, while others have the pure white segments of *D. endocharis*.

Two forms are before me from Mr. G. W. Law-Schofield in which the hybrid parent predominates as regards colour. One is *D. e. leucopterum*, in which the sepals and petals are pure white, the broad lip white in front and round the large rich maroon disc. The other, *D. e. virginale*, has narrower sepals and petals than *D. e. leucopterum*. The lip differs considerably from that of the latter variety in its being rounder. Both are distinct and desirable forms and worthy of every consideration.—H. J. C.

Lælia superbians.—In a note in *THE GARDEN* of April 2 a correspondent says it is difficult to account for the vagaries of some Orchids, and gives the peculiarities of a plant under his charge. My idea always was that it was an absolute necessity to give it a strong light; in fact, that it almost required the full sun to induce it to flower in a satisfactory manner. I have a plant that has been in the collection about ten years and which has flowered each year. During the last five years it has had six spikes of flower, being in bloom at the present time. Instead of the scorching-up treatment commonly considered necessary, the plant has been grown in a basket suspended from the roof under the conditions necessary in the successful culture of *Vandas*. The plant was rebasketed last season, having grown out of its limits. The check possibly caused the plant to make a side break, from which it has now flowered. The potting material used is the same as recommended for *Cattleyas*, and no special conditions of any sort have been given in the way of resting, &c. The *Vandas* having the chief consideration, dense shade throughout the bright months of the year is necessary, thereby upsetting the theory that strong light is a necessary condition in the successful culture of this species.—H. J. C.

KITCHEN GARDEN.

PLANTING POTATOES.

THE idea is rapidly gaining ground among farmers and gardeners that early planting of Potatoes is a mistake, and the experience of the past few seasons tends to strengthen that view. The kidney-shaped varieties are very much more popular than formerly, the round kinds seldom making so good a price in most markets. But the former in the majority of cases are far more liable to supertuberation than the latter, as they do not require such a long season of growth and the skins are often thinner. Rarely has the land been in such good condition for planting as this year, the dry winter and light frosts experienced having taken all the surface moisture from the soil. This has led many to plant earlier than usual in case of heavy rains being experienced during April. But, as a matter of fact, nothing is gained by it even in the most favourable seasons, while to get on the land for early planting when in bad order is very wrong. The evil of shallow working of heavy, poor land is never better exemplified than when it is put to Potatoes. The sets are only just covered in the first place, and through this often become the prey of rooks, while those that escape come through too quickly and are cut by frost. There is not proper depth for the roots to get down, nor is it easy to get enough soil to cover them properly when hoeing. For several seasons I have grown the bulk of the field Potatoes between rows of newly-planted trees, and this, from the trenching necessary, has put the land into good order. But to grow good Potatoes one season of deep working is not sufficient; the ground must be thoroughly mixed, and plenty of manure of a suitable character should be allowed. Given this, it is quite easy to get good crops of first-

rate quality for many years in succession from the same piece of land, prevalent opinions to the contrary notwithstanding. In the garden proper the soil is usually quite rich enough and sufficiently cultivated. Potatoes should never be grown on ground heavily manured the same season, but after one green crop has been taken it is usually in good condition for them. The soil here being heavy and not too well drained, I always keep a smother going, and refuse of all kinds is charred upon this. The ashes are used for many purposes, and as far as possible I use them for Potatoes, drawing the drills deeply and placing this material above and below the sets. From this they come out clean-skinned and of good quality, and there is a very marked difference always between plots so treated and others where they have no such assistance. For the early crops on warm borders the same plan is followed, and when they are coming up a top-dressing of ashes is given. Owing to the sharp, gritty nature of the material slugs dislike it and are not troublesome, while there is a certain amount of manurial value in it as well.

Regarding varieties for early use, I still plant the much abused Sharpe's Victor, for, though the colour is not quite so good as in some others, it is one of the best croppers, and this must not be lost sight of where there is a heavy demand and only a limited space to grow them in. Myatt's Ashleaf is another good kind to follow it, while for lifting and using at once there is not another variety to equal Sutton's Seedling on this soil. It is not a good keeper by any means, and, speaking from my own experience of it, rather liable to disease, but certainly one of the nicest flavoured kinds in existence. Abundance is a capital late kind, good at lifting time and keeping well into May. It is also a splendid cropper here if allowed plenty of room between the sets. Imperator was a favourite of mine in the south of England, but here it is quite useless. Magnum Bonum is the worst flavoured of all, while all the Rose varieties I have tried are not of good quality, though cropping freely. Windsor Castle is my sheet anchor, and from my experience of it on different soils and in various parts of the country, there never was a better kind sent out.

A SUFFOLK GROWER.

Late-sown Parsnips.—In many gardens it is usual to sow Parsnips as early in the year as possible, as by many it is deemed necessary to have very long roots. I would advise sowing in May in preference to February. From a fairly long experience I have proved that roots grown quickly are more tender, have less core, and for private use more profitable, as they are more readily prepared, and of a better colour. Sown in May the roots winter where sown. For many years my early-sown roots were diseased, but by later sowing they are free from this. I admit they are smaller, but quite large enough for all purposes, and the quality all one may wish.—S. H. B.

A new Parsnip.—The advent of the well-known Student Parsnip a few years ago was of great importance to lovers of this vegetable, as up to that time there had not been much attention paid to Parsnips. We now have a new variety called Tender and True, which promises to eclipse the variety named. Tender and True is a smaller root than Student. This I think is an advantage. It is remarkable for its splendid quality when cooked and its absence of hard core. The old type of Parsnips had a yellow skin; this is much whiter, quite smooth, and with no waste whatever. This variety is more suitable for gardens of limited space, as it requires less room.—G. WYTHES.

Potatoes.—The recent colder weather helped materially to check the all too rapid growth seed tubers were making even when stored under the

coolest conditions. The tubers exhibited marked pushing of shoots during the very open and mild weather which for so long previously had prevailed. I found that, although exposed in a very light, airy store, growth was too rapid. However, the recent check will be beneficial, because the tubers, although they have strong shoots on them well hardened, will be in capital condition for planting, and that work may proceed rapidly now. It will need a couple of weeks of moderate sunshine and mildness to get the ground into its earlier desirable temperature. Tubers that have so sprouted are best planted in drills as the forking takes place—a very convenient plan, especially if planting be not too rapidly forced. Failing that method because the ground is ready, then the next best course is to fork out a rough drill beside a line where the row is to go, then run along the bottom of the furrow with a hoe, plant the tubers, draw in what of artificial manure, soot, wood ashes, or other material may be cast in with them, fork the soil back over them, and go on to the next row. By this way the soil between the rows is much trodden, but that can be forked up again later when there is less pressure of work. Potato-planting often has to be performed in a hurry. Generally, it is well to plant fairly deep, especially in the case of seed tubers that have been previously well sprouted; or if not planted beyond 5 inches below the surface, it is well to keep the soil in ridge form just over the rows that the tops may be kept from harm by late frosts as long as possible. For very hurried planting of unsprouted sets the dibber is a very useful implement on light loose soil. Much depends in method of planting, on nature of soil, condition, and size of sets, and time at disposal just then.—A. D.

THE BEST LATE CELERY.

I WOULD be very thankful if some of your correspondents could give me the name of a delicate white or red Celery that would be at its best from February until May. My employer informs me that such a variety is supplied in the principal London hotels at a late date. I would be pleased to know the variety grown for the late supply of the London markets, and also any information as to time of sowing and cultivation. I have sown the ordinary varieties as late as the middle of May, and yet they have invariably bolted by the middle of March, which renders them unfit for salads.—T. S.

* * * The best Celery I have grown for late use is Standard-bearer. This, I find, keeps later than others and retains its sweet, nutty flavour to the last. The variety in question is a red Celery, a medium grower. There are others much larger, such as Mammoth Red and Manchester Giant Red, but for late use I find a medium grower much the best for keeping. There must be special culture to get late supplies. In some of the market gardens, notably in the Fulham district and along the Thames valley, the soil is light and well drained, this assisting in keeping. Fortunately, you have inquired just in time to sow a late crop for next season. I find the red or pink Celeries hardier than the white. The seed of Standard-bearer is sown the first week in April either in a cold frame broadcast or on a border, and merely protected by mats or boards. I place much importance upon growing the plants as hardy as possible from the start and avoid thick sowing. I sow under an east wall in prepared soil, using plenty of decayed manure and old leaf-mould for the plants to root into. If covered over with mats, germination is more rapid. Little moisture will be needed if the seeds are covered over as advised. By sowing thinly there is no need to transplant or prick off into beds previous to placing in their permanent quarters. I go over the plants when they are large enough, lift where thick, and prick out in rows. The old bed is then watered thoroughly and the disturbed soil is settled, the plants being left till planting-time. By all means avoid drought from the time the plants make the third leaf.

Should they need food, use soot, this keeping the Celery fly away. My late Celery follows Peas. The rows are made as soon as the Peas are cleared. It is essential that the position be an open one, not under trees, as a sturdy, hard growth from the start is a necessity. I do not give late Celery much manure or very deep trenches, as I rely upon surface feedings. Plants given much food at the start make a gross leaf-growth, which is not needed for keeping. The plants are lifted direct into their permanent quarters when ready in June or early July, and never flag or droop. They are kept well watered, but there is no attempt at earthing up, as this is fatal to keeping. During August and September I give liberal supplies of liquid manure, with an occasional dressing of soot and salt. I never earth up till October, only a little then at the base; a little more a month later. The plants being dwarf and hard, the weather does not injure them. In March or April, according to the weather, all the plants are lifted with a good ball of earth and placed closely together in rows under a north wall or under trees, and a thin coating of strawy litter placed over them in bad weather. The lifting checks growth, and the plants treated thus keep well into May.—G. W.

EARLY SPRING BROCCOLI.

OWING to absence of severe frost, the spring Broccoli has been a most satisfactory crop. Many people do not plant the late winter and early spring Broccoli largely, as they are a precarious crop in many parts of the country. Of late years it has been a difficult matter to get Broccoli that could be relied upon for February and March supplies, as some of the best are much too tender in our climate if not given protection. Many growers still rely upon Snow's Winter White, but I am unable to rely upon this variety now. A variety I have now grown for two years, and one that so far promises to eclipse Snow's, is Superb Early White. I cut the first heads in February and am now just finishing the crop (the last week in March). Of course if the weather had been severe this would have failed unless lifted and housed, but this is a simple matter. The difficulty lies in getting a supply, not in protecting the supply when grown. This variety when lifted last year remained good for weeks. Being a short, sturdy grower, it suffers less in severe winters than larger varieties. This I sow at the middle of March for February supplies, and again the first or second week in April for a succession. It is planted out on an open border, and usually follows the early Potatoes, no manure being given. There are other varieties which may be sown, such as Michaelmas White. This turns in early in the year, but is less reliable. Christmas White is earlier than the Superb White, but with me less hardy. Last year I tried Winter Mammoth, but this with me so closely followed the autumn Broccoli, that I cannot advise it for early spring supplies. The sprouting varieties of Broccoli are most valuable at this season. Of the two varieties I think the Purple Sprouting the more useful. The white variety is more productive and has a very delicate flavour, but I find it runs to seed more quickly than the coloured variety. G. W. S.

Imported Potatoes.—Amongst varieties of kidney shape that proved to be the best at Chiswick last year was one stated to have come from the Canary Islands. This was a great cropper and cooked admirably. I have a few tubers of this variety to grow against a long white kidney which I recently purchased in a semi-green state as being an early consignment from Tenerife, and may prove to be the same thing. I have thought it may be well to see also how far varieties that are the product of tubers grown in those islands may be able to withstand disease or otherwise. Last year's experience was that no variety, however reputedly disease-resisting, was unharmed by disease; indeed, the tuber loss was great. We have evidence of that now by seeing in the

shops a capital example of Magnum Bonum Potatoes from Belgium. It is long since there has been a market in this country for imported old Potatoes, although new ones have an enormous sale. I was able to purchase these excellent Teneriffe kidneys at 2d. per pound. A famous Potato for importation some years ago was Dawes' Matchless, a very white, floury kidney, long and flat in shape. It, however, diseased terribly when grown here, as is the nature of all tubers having the soft flesh of the Regent type. The well-known and not at all good International Kidney is now grown very extensively at Malta and in the Channel Islands to furnish fine new Potatoes for the English market, and in the young condition it is as good as most very imperfectly matured tubers usually are, and is sold in great quantities. As a mature home-grown Potato whilst one of the finest and handsomest ever raised, yet no one likes it to eat. One of the most acceptable cooked Potatoes I have tasted for many years is a white kidney named The Devonian. I shall grow a few this year, and I expect it will be tried at Chiswick. A very handsome round, named Challenge, comes with a high reputation from the raiser of that popular variety Up to Date.—A. D.

NOTES AND QUESTIONS.—KITCHEN.

Autumn-sown Lettuce.—Among Cos Lettuce for autumn sowing and early clearance I find Hicks' Hardy White to be the best, as it requires but little blanching to get it fit for use in the spring, and from its more appetising appearance in the half-grown state it sells better than Brown Cos of similar size. This is a great point in its favour, as pale green Lettuces with hearts a little blanched by tying up for a few days pay well from Eastertide onward, however small they may be. Were I growing in quantity with the object of early spring clearance, I would grow no other Cos variety but this, for as regards hardiness there is nothing to choose between it and the Brown Cos, and it makes a bigger plant in the same time. I do not recommend it for summer use, as the thick midribs it develops during the summer, but which are not so noticeable in spring, make it inferior to the best forms of summer Cos. As a companion variety of the Cabbage section I have found none to beat the old Hammersmith Green, which is also thoroughly hardy, so that it keeps on growing almost all through the winter and turns in fit for use after a week or two of growing weather.—J. C. T.

FLOWER GARDEN.

THE WINTER HELIOTROPE.

(PETASITES FRAGRANS.)

THIS is an unruly plant as regards growth, and, no matter what the soil, it overruns everything near. With a few trusses of its fragrant flowers in the early winter, some winter Aconites and Snowdrops, a very pretty table decoration may be obtained. It may be planted on rough banks and in hedgerows, and will also be found useful for carpeting shrubberies, where its sweetly-scented pale dingy lilac flowers may be conveniently gathered.

A screen of Sweet Peas and Canary Creeper.—In many gardens there are places that it is found desirable to hide. In kitchen gardens and around houses and frame yards there are many spots that can hardly be done without, but yet are unsightly. Under these circumstances it is often found desirable to use a screen during the summer months. In my kitchen garden there is a centre walk with the vegetable garden on either side. I form a screen 6 feet away from each side of the walk. This is done every year in just the same position. Each year in January I prepare the ground by removing the soil 2 feet wide and

2 feet deep. In this trench I mix the top spit from the next, with old hotbed manure, putting the bottom of the next trench on the top and leaving it as rough as I can. Early in April a drill is drawn. In half the width of the drill Sweet Peas in different colours are sown thinly. In the other half I plant out Sweet Peas that have been sown in turf under glass. These are planted in separate colours, as the effect is much better than when mixed. In this way I obtain an early supply, and by sowing at the same time I get a long blooming period, as often I can gather well into November when the autumn is mild. As soon as planting out is finished, a few short sticks are placed inside the plants, and early in May the whole lot is staked. When the summer is moist the Peas reach the tops of the stakes, which are 12 feet high. When staking is finished I go along the rows, making a small hole between the Peas and close to the stakes, and drop in three or four seeds of Canary Creeper. By the time the Canary Creeper has begun to run the Peas have got a good distance up the stakes, and the Canary Creeper entwines itself round the stakes and covers them. As they get intermingled they are most attractive. Should the summer be a very dry and hot one and the Peas cease to bloom, then the Canary Creeper



The Winter Heliotrope (*Petasites fragrans*). Engraved for THE GARDEN from a drawing by H. G. Moon in January, 1898.

covers the whole and keeps up a good display till destroyed by frost. In very hot situations where the soil is dry, *Mina lobata* would answer.—J. C., in *The Field*.

PLANTS FOR BOLD BEDS.

ON page 261 mention is made of certain plants which might be used with good effect in beds of bold design. *Lilium pardalinum*, which is among those recommended, is remarkably handsome when growing in vigorous groups, its tall slender stems and delicately poised blossoms giving it a very graceful appearance. Although this is a so-called Swamp Lily, I have found that when once established it succeeds in comparatively dry soil. Bulbs planted in my garden in a mixture of leaf-mould and loam, in a naturally dry, though somewhat shaded position, have for some years thrown up flower-stalks, each 6 feet and more in height, bearing from two to six dozen blooms. *Lilium superbum* and *L. canadense* planted in the same bed have not proved so satisfactory in a dry summer, but growing in leaf-mould in a damp spot the

former does fairly well, though it never attains the vigour of *L. pardalinum*. *L. Humboldtii* does well with me in loam with a third of leaf-mould, and is very attractive when in flower, as is the scarlet Turk's-cap Lily (*L. chalcedonicum*), which has increased rapidly in the last few years. The giant Himalayan Lily (*L. giganteum*) is very effective in bold groups, but as the bulbs perish after flowering, a considerable number of bulbs, ranging in size from the largest procurable down to bulblets, must be planted to ensure a yearly display. Some bulbs of this Lily appear to advance their growth very slowly, one that I lifted last autumn having increased but little in size during the past three years, though the bulb was apparently healthy, while others that three years ago were but half its size have since flowered. *Iris orientalis* (*ochroleuca*), also mentioned in the note above referred to, is very ornamental when in vigorous health, its fine leafage being valuable for effect even when the plants are not in flower. Growing, with me, near the water, this *Iris* attains a height of between 5 feet and 6 feet. Two equally decorative varieties, so precisely similar to *I. orientalis* in habit that when out of flower it is almost impossible to tell them apart, are *I. Monnieri* and *I. aurea*, both bearing yellow flowers. The variegated Water Flag is extremely striking from its very distinct variegation in the spring and early summer. After the plants have flowered, however, the variegation becomes less and less noticeable, until in the autumn no difference can be detected between the colouring of the leaves of the variegated and the common form. Unfortunately, my garden is so infested with water rats, that I annually lose a portion of my *Irises*. During the past winter the whole of the variegated Water Flag has disappeared, as well as a clump of *I. aurea* and a few plants of *I. Monnieri*, while the preceding winter witnessed the destruction of two fine clumps of *I. Kämpferi*, *I. sibirica*, the German Flags, and the bulbous *Irises* have not as yet been touched, while the only Lily that has been attacked is *L. umbellatum*. The shrubby *Spiræas* are invaluable for effect, and in moist situations increase in size with great rapidity. A small plant of *S. Lindleyana* which I placed near a streamlet in 1893 is now 10 feet high and as much in diameter. This *Spiræa* is very charming when covered with its ivory white flower-sprays, and its deeply-cut foliage renders it a decorative shrub even when not in bloom. *S. arifolia*, whose flower-clusters are more pendulous than those of the first-mentioned variety, is, perhaps, a more profuse bloomer, large specimens clothed with a veil of blossom being objects of great beauty. The flowers of *S. arifolia* are more lasting than are those of *S. Lindleyana*. *S. flagelliformis* is another variety of the shrubby Meadow-sweets that is very decorative when in bloom. Tall specimens of *Abutilon vitifolium* 6 feet to 8 feet high, when covered with their lavender blossoms, are very effective in bold beds, and are often advantageously employed for this purpose in the south-west, while the Cape Hyacinths (*Galtonia candicans*), with their lofty flower-heads of drooping white bells, have a graceful appearance when grouped amongst subjects of lower growth. *Montbretias* are amongst the most striking of our late summer flowers, the orange-scarlet of their bloom-scapes being a very telling tint. They are generally supposed to succeed best in a dry soil, but I have never seen them growing in such luxuriance as by the waterside in the gardens of Abbotsbury Castle, Dorsetshire, where their roots must have been below the water-level. *Tigridias* close by were showing remarkable

vigour, their leafage being fully 2 feet in height and the large size of their blossoms evidencing their robust health. S. W. F.

Saxifraga oppositifolia.—This lovely little plant is found in great luxuriance in the north of Scotland amongst other places, and is generally growing in wet places on the top of high cliffs close to the sea and facing north. It seems to like the salt spray, for it is never found in abundance except where this can reach it easily. The effect of its rosy flowers growing along the sides of small streams running over the cliffs is charming, and at the time of year almost unique in the British Isles. February and March are the best months to see it. The colour varies somewhat from deep purple to a lightish pink. It seems to prefer a gritty, somewhat sandy soil among stones and rocks, and where it grows profusely is always damp and even wet.—S. T.

Draba Mawi.—There is so much sameness among the yellow-flowered species of this genus, such, for example, as *D. aizoides*, *D. Loiseleurii*, &c., that one welcomes such as the above, a really pure white kind and a gem of the first rank. Happily, too, it is free-flowering and perfectly hardy, and besides such qualities as these it is easy to manage. It is almost *Androsace*-like in the way the tufts are smothered with flowers and the way in which the blossoms so closely nestle to the tufts. The species, a Spanish kind, is amenable to quite the ordinary run of good alpine culture, and in the usual gritty loam and leaf-soil succeeds admirably. It is a charming plant at the present moment, studded with white flowers, and deserves every encouragement. Whether in pots or planted out it should receive fairly rich soil, and with this firm planting also. With many such things there is a tendency to mound up the plants, an item easily carried to excess, for the reason that the moisture is directed from the plants, which is not requisite to the extent practised by some, and certainly not with these hardy and free-growing plants. In deep soil such plants may be quite happy on a gentle slope, where they enjoy the moisture as it descends and passes over the plants, provided the latter by the mode of planting permit it. Planted on a level with the soil, this pretty species slowly, yet surely, spreads itself out if soil and position suit it.—E. J.

The old double Rocket.—The praise bestowed on this old-time favourite (p. 293) is well merited. It would be difficult to over-estimate its value as one of our best hardy flowers, though the bedding craze has banished it from many a garden, in common with not a few other old-fashioned flowers, to the temporary, but, we will hope, not irreparable, loss of such gardens. The pleasures of the garden are manifold, but there are none that transcend that of fragrance, not even the delight of the eye in suave colour-harmonies, effective contrasts, or breadths of lovely tints. Mr. Tallack in his note refers to the exquisite scent of the double Rockets, which is well-nigh unrivalled amongst our hardy flowers. In this immediate neighbourhood the culture of the double Rocket has, providentially, not died out—at all events, in cottage gardens—and on dewy June evenings, when the perfume is most potent, one has no need to look over confining hedge or lattice gate to be aware of its presence, for every breath of the moist air is heavy with the odour. The advice to divide and replant in fresh soil should be made especial note of by growers of this plant, for on this depends its successful cultivation. Plants that are left undisturbed for years, as far as my experience goes, dwindle and lack vigour to exhibit their true characteristics. I note that Mr. Tallack divides in the early spring. I have done so in the autumn with satisfactory results, the plants in this heavy, damp soil attaining a height of about 2 feet and flowering well. The single Rocket is grown in some quantity and is much appreciated by the bees, being charming in the wild garden, but for

the flower garden proper it must yield the palm to the double variety.—S. W. F., *Torquay*.

Narcissus cyclamineus.—In reply to Mr. Burrell (page 294), I regret that I cannot give any information as to the variation of this Daffodil from seed. It is in every way probable that there will be considerable difference among the seedlings. I have not yet flowered any raised from seed by myself, and my correspondents have been silent on the point in question. Regarding seedlings being less likely to degenerate, I can only say that those who find it necessary to raise *N. cyclamineus* from seed do so because they find it cannot be established as a permanent occupant of their gardens through its dying off generally after flowering. Mr. Burrell's interesting note of the behaviour of the flower with him bears out the opinion that one has been led to form, that, as a rule (but not an invariable one), dryness is unfavourable to this *Narcissus*. In some of their catalogues Messrs. Barr and Son gave an illustration of the home of *N. cyclamineus*, in which the flower is shown in growth on the margin of a stream. Brief notes of the conditions under which it is successfully grown in this country are appended. One curious thing is that we are told that Professor Foster has grown it for several years in his garden at Shelford with a subsoil of chalk, and that there it has improved and is increasing. This is contrary to the general experience on dry soils, but Professor Foster may have some special method of cultivating it by providing moisture. Since my last note on the subject, I have been told of other instances in this locality where this quaint little flower has been established with little trouble.—S. ARNOTT, *Carse-thorn, by Dumfries, N.B.*

ZONAL PELARGONIUMS.

To those who are fond of zonal *Pelargoniums* for the flower garden, a trial of some of the newer kinds hitherto grown chiefly under glass, or sent out as desirable for that purpose, may be recommended. They will not be quite so free outside as *bona-fide* bedding varieties, but individual trusses and pips are much finer, and the relief afforded by a bit of foliage between the bright colour is very welcome. The pleasure, too, in sampling the many different shades, the almost perfect regularity of pip in some, and the enormous size of others are, to the lover of these plants, greater than a contemplation of varieties simply furnishing a solid mass of colour. The majority of these varieties being of vigorous habit, the beds they are to occupy should not be enriched with manure, at least to only a very slight extent. A good plan is to take out some 3 inches or 4 inches of the natural soil if this is somewhat light, and substitute an equal quantity taken from a heap of rather stiff road sidings, that has lain some time and been turned once or twice; such a compost, alike for outdoors and for pot plants, causes short, sturdy growth and a good display of flower. The under-mentioned were tried last year and were very satisfactory. They are not, perhaps, quite the largest to be found in pip or truss, although some of them measured respectively $2\frac{1}{2}$ inches and 9 inches in diameter, but they are certainly very fair outdoor sorts. In the crimson and scarlet shades, Red Eagle, Duke of York, J. Bidwell, John Ruskin, Cannell's Favourite, Lord Aberdeen, Majestic, with a very large and clearly defined white eye, and Volcanic, a variety with a very rich shade or rather combination of shades in orange tints; Magnificent and Eleanor, the latter very free; in purples, Blue Beard and Royal Purple; in salmons, Mrs. Hall and Enone; pinks, Lady Carlisle and Constance; and whites, Niagara and Duchess of York. Duchess of Marlborough was also tried, and is a taking flower, but the colour not sufficiently pronounced for outdoor work. In the hybrid Nosegays, as previously noted, the flowers are now of immense size, and with the size has come increased substance. There is little of the flimsy nature that was characteristic of old sorts

like Stella, Cybister and others. Vulcan, Mrs. Mayes, and Dr. Rothera are three good varieties. I have tried a few doubles outdoors, and have found Raspail and Turtle's Surprise, scarlet, Guillion Mangilli, purple, and Clontable, pink, about the best. Where cut flowers are required in quantity I would strongly recommend a bed or two of these, as they give a brilliancy of colour together with the speciality of standing remarkably well in a cut state, and they are welcomed for vase and dinner-table work. The shape and regularity of truss naturally render them a bit formal, but this can be relieved by introducing plenty of *Gypsophila elegans*, *G. paniculata* and *Statice latifolia* in their respective seasons, or, failing these, such foliage as can be furnished by *Thalictrums*, *Tamarix gallica* or the beautiful scented *Pelargonium filicifolium odoratum*.

NOTES AND QUESTIONS.—FLOWER.

Daffodils in window boxes.—I have lately seen very good effects made by filling window boxes with the old variety of double Daffodil. The large bulbs are selected, and may be all relied on to produce at least one, and in many cases two or three blooms. A single wire or string run along just under the level of the flower-heads to support them is all that is needed.—J. G., *Gosport*.

Narcissus incomparabilis C. J. Backhouse.—This is one of the most striking of the yellow Peerless Daffodils. The perianth segments are of medium size, and clear yellow in colour. The long cup has a fine orange-scarlet colour. It is flowering fairly well with me this season. Its distinctness and beauty make it worthy of the first-class certificate awarded by the Royal Horticultural Society. It was raised by Mr. Backhouse, of Weardale.—S. ARNOTT, *Carse-thorn, by Dumfries, N.B.*

Narcissus Leedsi Duchess of Westminster.—There are some very beautiful flowers among the Silver Star or *Eucharis*-flowered Daffodils. The variety Duchess of Westminster is a general favourite with its charming blooms of white and canary-yellow. The large perianth segments are white and the long cup a pretty canary colour, the beauty of the latter being heightened on first opening by a tinge of orange. It blooms regularly here. Duchess of Westminster is one of the late Mr. W. Backhouse's seedlings.—S. ARNOTT, *Carse-thorn, by Dumfries, N.B.*

Corydalis Halleri.—Tastes in flowers differ, and adverse criticism is sometimes a thankless task, although a useful one. I do not think, however, that many will resent being advised not to add Haller's *Fumitory* to their gardens. It is catalogued as "blue," with what one can only call a latitude beyond what is allowed in colour nomenclature—even in describing flowers. The common *C. cava* is much prettier, *C. Halleri* being quite dull-looking and ineffective beside it. Both are referred to *C. tuberosa* by the "Index Kewensis," but they are distinct in colour although very like in habit and form.—S. ARNOTT, *Carse-thorn, by Dumfries*.

Yellow flowers for cutting.—During the past few years there has been a great increase in the demand for yellow flowers, and during the spring the supply is very largely composed of Daffodils, of which there is now a great variety. Tulips and Roses, followed by *Doronicums* and, later on in the season, *Helianthus* in great variety, are all largely grown for cutting. When *Chrysanthemums* come in late in the season, I find that yellow-flowered sorts are in even greater demand for house decoration than any other kind, and those who have to cater for the market, or even private supply, are bound to go in very largely for this popular colour.—J. G., *Gosport*.

Anemone nemorosa purpurea.—The charming Wood Anemone has sported into a considerable number of varieties, some of which are very pleasing. In some woods these sports are more frequently found than in others. Rose and pale blue forms are perhaps those most frequently found. The variety *purpurea* came to me from Mr. James Allen, of Shepton Mallet, and is either

a seedling or a selection from *A. nemorosa cœrulea*. It is difficult to describe its colouring, which may, however, be said to come between *A. n. rosea* and the finest of all the Wood Anemones—*A. Robinsoniana*. In bud it is very bright and effective, and when open the tint of purple gives some warmth to the flower.—S. ARNOTT, *Carsethorn, by Dumfriess, N. B.*

Gypsophila paniculata.—This plant, as Mr. Burrell (p. 294) suggests, associates charmingly with Montbretias. Its grey and billowy clouds of flower-lace require a contrast of bright colour and distinct form, and this is most effectually provided by the orange-scarlet flower-scapes of the Montbretias; but with me it is generally past its best before the Montbretia scapes are fully expanded. The tall scarlet Lobelias also render an effective contrast, but are open to the objection of being rather later in arriving at perfection than the Gypsophila. *Statice latifolia* is a plant whose inflorescence suggests that of the Gypsophila, although it does not approach the exquisite lightness of the latter's fairy-like flower-sprays. Its spreading flower-heads of countless minute lavender tinted blossoms make a pleasing setting for such subjects as herbaceous Lobelias. Groups of *Gladiolus brenchleyensis* form a striking contrast when planted in association with this *Statice* or the Gypsophila.—S. W. F.

Isoyrum thalictroides.—On page 290 I observe a note commending this pretty and seductive little weed to the delicate attentions of the grower of alpine. I have had it in my garden for about twenty years, and can assure the writer of that note that kindness is thrown away upon it. It is capable of surviving the hardest winters in exposed situations, and seems not in the least particular as to soil. I call it a weed because it persists in growing where it is not wanted, for when I first got it I planted it in two or three spots on my rockeries, where it soon ran into its neighbour's domains, and was so persistent and troublesome, that I have tried in vain to eradicate it from these places ever since. One lot, dug up when in flower, I carelessly put into the rather stiff clay at the edge of a neighbouring Strawberry bed. There it was, and still is, quite contented. Two or three other rough spots, either damp or dry, where it could not annoy choicer plants, seem to answer all its requirements. It naturally likes wet. I have seen it growing in abundance close to streams in the woods between Bayonne and Cambo, in the south-west of France, but it has a wide range in Central Europe. I think it might easily be naturalised in similar positions in England. It reminds one of the more choice *Thalictrum anemonoides*, which soon dies out in this garden, but the *Isoyrum* seems to intend to survive without the least care.—C. WOLLEY-DOD, *Edge Hall, Malpas.*

Dividing Hellebores.—I notice that on p. 260 "E. J." advocates the use of a hand-fork rather than a knife for the division of hardy plants. An expression of opinion by one whose wide experience has afforded him ample opportunity of weighing the merits and demerits of the different methods of division is entitled to every consideration, and I, with comparatively limited data on which to base a judgment, should not, if I wished, feel in a position to join issue with him on what is a large subject. My note (p. 209) had reference exclusively to the division of Hellebores, and detailed a system which has been followed with excellent results in dividing large clumps of these plants. I have been careful to disentangle the roots as far as possible by hand, and only to use the knife for severing such portions of the root-stock as had necessarily to be divided for the purpose of forming separate plants. Treated in this manner the divisions have always made good growth, far better, indeed, than some others that I procured, and which, I think, were needlessly maltreated in division, although I must admit that after the first year or two the latter became practically as vigorous as those that I have myself divided, but this I attribute chiefly to the care with which the

plants were attended to in the matter of watering and mulching. The chief drawback to the plan that I have pursued lies in a greater time being occupied in effecting the division than if the clumps are merely broken apart with the hand-fork, and in many cases this fact would doubtless prove an obstacle to its adoption.—S. W. F.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 12.

THE show in the Drill Hall on the occasion of the last meeting was large and interesting in spite of the Easter holidays. The chief feature was the hybrid Cinerarias, of which there were several groups, arranged with fine-foliaged plants to show how decorative are these graceful flowers. Messrs. Wm. Paul and Son, Waltham Cross, exhibited several new Camellias, and there were good displays of Roses, Orchids and hardy flowers. The Rev. G. H. Engleheart also showed some of his new seedling Daffodils, these being great improvements on anything we have in cultivation at the present day. With the fine varieties we now have to work on, it is difficult to say what may be in store for us in the course of a few years.

Orchid Committee.

First-class certificates were awarded to the following:—

CYPRIPEDIUM OLEUS (Bulford var.) (*C. bellatulum* × *C. ciliolare*).—This is by far the finest of the bellatulum hybrids. The large dorsal sepal is white, shaded with pale green in the centre, becoming suffused with deep purple at the base, and heavily veined from the base to the apex with deep crimson-purple. The broad petals are white at the margin and suffused with rose and rich purple at the base, the whole thickly covered with deep purple spots. The broad lip is deep purple, shading to green at the base. The plant carried a spike with one open flower and a bud. The foliage in comparison with that of the *C. bellatulum* crosses previously shown was proportionately strong. From Sir T. Lawrence.

EULOPHIELLA PEETERSIANA.—This is far superior in every respect to *E. Elizabethæ*, the sepals and petals being about 2 inches in length by an inch in breadth, bright rose-pink in colour, the lip bright rose in front, the outside of the side lobes deep rose, the inside white, shading to yellow at the base, and lined with reddish brown. The flowers are produced on a raceme upwards of 4 feet in length, carrying its cluster of flowers at the apex. This is the first time this remarkable species has flowered in Europe. From Sir T. Lawrence.

ODONTOGLOSSUM WILCKEANUM (Pitt's var.).—This is superior to the variety certificated at the meeting on March 8 last, although the colouring is somewhat similar. The sepals are pale yellow, having large blotches of brown in the centre; the petals yellow, much fringed at the margin, thickly spotted with brown from the centre to the base. The plant carried a raceme of two flowers. From Mr. H. T. Pitt, Rosslyn, Stamford Hill.

Awards of merit were adjudged to the following:—

PHALANOPSIS SCHREDERÆ (*P. leucorrhoda* × *P. Portei*).—In this the sepals and petals are white, slightly shaded with rose; the lip white, suffused with rose, with some yellow at the base, and longitudinally lined with purple. The side lobes are white, suffused and veined with rose at the apex, and yellow, spotted with brown at the base. It has the intermediate characteristics of the parents. From Messrs. H. Low and Co.

PHALANOPSIS STUARTIANO-MANNI.—This is a distinct hybrid, the sepals and petals being yellow, barred and spotted with brown, the front lobe of the lip creamy white in front, becoming suffused with yellow, and deep brown at the base. The side lobes are white, lined with brown at the

base. It is a most interesting hybrid, with the intermediate characteristics of both parents. From Messrs. J. Veitch and Sons.

ODONTOGLOSSUM CRISPUM VAR. LINDENI.—This is a beautiful form, the sepals white, with a suffusion of rose at the base, with three to four large light brown blotches. The petals are also white, fringed at the margin, and having rich brown blotches in the centre; the lip white, shading to yellow at the base, and thickly covered with brown blotches and spots. A plant carrying a raceme of eight flowers came from Mr. A. Warburton, Vine House, Haslingden.

DENDROBIUM ASPASIA LANGLEYENSE (D. Wardianum × D. aureum).—The sepals and petals are pale yellow, tipped at the margin with purple; the lip pale yellow, tipped with purple in front. It is a distinct and beautiful form. From Messrs. J. Veitch and Sons.

EPIDENDRUM ELEGANTULUM LEUCOCHILUM.—A distinct and pretty form of this well-known hybrid. The sepals and petals are creamy white, the lip pure white, with an orange blotch at the base. It is the result of a cross between *E. Endreso-Wallisi* and *E. Wallisi*. From Messrs. J. Veitch and Sons.

Messrs. J. Veitch and Sons, Ltd., sent a choice collection of interesting hybrids, prominent amongst which were well-flowered plants of *Cymbidium eburneo-Lowianum* and its reverse cross, much lighter than the form certificated as *C. Lowio-eburneum* last year. *Lælia Latona* (*L. purpurata* × *cinnabarina*) improves as the plants become stronger both in colour and number of the flowers on the racemes. Of *Lælio-Cattleya Pallas* there were two plants with three flowers on each spike. In *Lælio-Cattleya Ascania* (*L. xanthina* × *C. Trianae*) the sepals and petals are creamy-yellow, the front lobe of the lip suffused with rose, with bright orange through the throat. In *Cattleya intertexta* (*C. Warneri* × *C. Mossiæ*) the intermediate characteristics could be clearly discerned both in the flower and habit of the plant. *Epiphronitis Veitchi*, with its rich scarlet flowers, was most attractive. *Epidendrum elegantulum* in its varied forms was well represented, as was *E. Endreso-Wallisi*. The flowers of *Cypridium Schrederæ* were fine in substance, but pale in colour. Among the hybrid *Dendrobiums* was *D. Wiganie* (*D. signatum* × *D. nobile*), in which the sepals and petals are cream suffused with rose, the front lobe of the lip yellow, broadly margined with deep rose, having a deep maroon disc with some yellow at the base. In *D. Niobe superbum* (*D. tortile* × *D. nobile*) the sepals and petals are deep rose, the lip white, tipped with bright rose, and having a deep maroon-purple disc at the base. *D. Cybele* and the natural hybrid *D. Rolfeæ* were also well represented. Among the new Orchids were a nice plant of *Lælio-Cattleya Wellsiana* (*C. Trianae* × *L. purpurata*), in which the intermediate characters of both parents were prominent, and a new hybrid *Epidendrum* between *E. vitellinum majus* and *E. radicans*. Mr. J. Bradshaw sent a choice group consisting principally of finely-flowered *Odontoglossum crispum*, *O. Coradinei*, good forms of *O. Wilckeanum* and *O. Hunnewellianum*. *Cymbidium Lowianum*, *C. eburneo-Lowianum*, *Cattleya Trianae* in variety, *C. speciosissima*, and a white *C. labiata autumnalis*, an imported plant in flower, were also shown. A silver Banksian medal was awarded. Major Joicey, Sunningdale Park, Ascot, sent a group consisting principally of *Epidendrum (Diacrium) bicornutum*, finely grown and beautifully flowered; *Dendrobium atroviolaceum* with twelve expanded flowers, a finely-flowered *C. Trianae*, and *Brassia Lewisi* (silver Banksian medal). Mr. J. Coleman was also given a silver Banksian medal for a group consisting of finely-flowered *Dendrobium nobile nobilium* and other good forms of *Dendrobium nobile*. *Lycaste Skinneri alba* with two flowers, *Sophranitis grandiflora*, a finely-flowered *Cœlogyne cristata alba*, a distinct *Odontoglossum ramosissimum*, a good *Dendrobium Brymerianum* and *Miltonia cruenta* with four spikes of flowers were also included. Mr. R. J. Measures sent an interesting

group consisting of finely-flowered *Cymbidium Lowianum*, *C. eburneo-Lowianum*, and the reverse cross, *C. Lowio-eburneum*, certificated last year; finely-flowered plants of *C. Devonianum*, one with seven spikes of flower; *Pleurothallis Masdevallias*, *Dendrobiums* and *Cypripediums* in variety. Sir F. Wigan sent a grand cut spike of *Cœlogyne pandurata* with nine of its green and black flowers. Sir Trevor Lawrence showed several *Dendrobiums*, amongst which was a grand form of *D. micans*, the sepals and petals rose, lip rose in front of the disc, with a broad band of white. *Odontoglossum nebulosum candidum*, a fine *O. coronarium*, a finely-flowered *Epidendrum Endreso-Wallisii*, *Cymbidium Devonianum* with six spikes of flower, a beautifully flowered plant of *Polystachya Ottoniana*, a grand *Odontoglossum Pescatorei* Prince of Orange, a yellow form resembling *O. excellens*, and a grand plant of *Epiphrountis Veitchii* were also shown. Mr. M. Cook sent a distinct form of *Cypripedium Chamberlainianum* and *Odontoglossum triumphans aureum*. Mr. W. C. Walker sent a pretty spotted *O. Andersonianum*. Baron Schreder sent finely-flowered plants of *Odontoglossum crispum Schrederianum*, white, thickly covered with rich brown spots; *O. Osmani*, a pretty form of the *O. Hunnewellianum* section, and *O. excellens delense*, in which the sepals and petals are thickly spotted with rich brown. Mr. J. Moss, Bishop's Waltham, sent a finely-flowered plant of *Odontoglossum Ruckerianum*, and Mr. C. J. Ingram showed a small plant of a fine variety of *Lælio-Cattleya* Sir W. Ingram.

Floral Committee.

The following received an award of merit:—

AMARYLLIS DAONES.—A beautiful variety with bold trumpet-shaped blossoms of an intense vermilion-scarlet, with a pure white margin. Messrs. Jas. Veitch and Sons, Ltd., Chelsea.

CAMELLIA MRS. J. BUCHANAN is a singularly pretty form of the semi-double type, the predominant shade white, freely speckled with pink. Messrs. W. Paul and Son, Waltham Cross.

CAMELLIA DUCHESS OF TECK.—A lovely clear pink self, of fine form and size. Messrs. Paul and Son.

CAMELLIA PRIDE OF WALTHAM.—A charming flower, pure flesh-pink in colour and of fine form. Also from Messrs. W. Paul and Son.

DRACÆNA AUREA STRIATA.—This is a distinct plant, the broad handsome leaves of that deep, leathery green seen in the well-known *Aspidistra*, the copious markings and stripes being of a creamy yellow hue. From Messrs. Hugh Low and Co., Bush Hill, Enfield.

Among the more noticeable groups on this occasion was a fine bank of *Rose Crimson Rambler* mixed with *Spiræa japonica* and *Acer Negundo variegatum*. The *Roses* were profusely flowered, and being relieved by the *Acers* produced a really telling, if not indeed unique, effect. This fine group came from Mr. H. B. May, Edmonton, and was deservedly awarded a silver-gilt Banksian medal. From Messrs. Wm. Paul and Son, Waltham Cross, came one of their fine displays of *Camellias*. This fact, from the many successional displays made by the firm, at once shows the wonderfully profuse flowering character of these plants. Particularly fine were *C. Cup of Beauty*, white, flushed pink; *The Duchess*, flesh, lovely in shade and form; *C. M. Hovey*, scarlet; *Conspicua*, a lovely semi-double; and *Montironi vera*, a pure white perfectly cupped bloom. Many boxes of blooms as well as fine plants in flower were shown (silver Flora medal). The cut *Roses* from Mr. W. Rumsey, of Joyning's Nursery, Waltham Cross, were, as usual, a feature, particularly in the several boxes of *Maréchal Niel*, of which the fine globular flowers were really splendid, together with many of the *Tea-scented* and *H.P.* sections. In these latter, such varieties as *Capt. Hayward*, *La France*, *Ideal*, *Niphetos*, *Duke of Wellington*, *Chas. Lefevre*, *Jean Cherpin*, and *General Jacqueminot* were noticeable, and not less so the new pink kind *Mrs. Rumsey*, raised by the firm in ques-

tion. This latter has been noted previously, and the fine blooms on this occasion merely sustain its previous character as an ideal *H.P.* for the garden or for exhibition (silver Flora medal). Another meritorious lot of *Roses* in pots was set up by Messrs. Paul and Son, The Old Nurseries, Cheshunt. This group covered considerable space and included dwarfs, half-standards, and standards. That fine *H.T. Viscountess Folkestone* was grand, and very good were the plants of *Mme. Hoste*, *Mme. de St. Joseph* with large blush flowers, *Innocente Pirola*, *Homère*, *La France*, *Antoine Rivoire (H.T.)*, a lovely rose shade, and *Marquis Litta*, a deep red-scarlet. Other good kinds were *Captain Hayward*, *Souvenir d'un Ami*, *Rubens*, and *Helen Hillier*, of a rose shade and very full. In the margin of this group *Royal Scarlet*, a single, a cross between *Marie Rady* and *Cheshunt Scarlet*, was very conspicuous. A silver Flora medal was awarded. Another fine exhibit of *Roses* came from Mr. J. Walker, of Thame, Oxon, consisting of *Maréchal Niel*, which for size and richness of colour could scarcely be surpassed. Indeed, if such a grand lot could be said to have a fault, it was on the side of size and massiveness—yet withal the whole were marvels of rich colouring, and as such attracted much notice. A silver Banksian medal was awarded. Of rather an exceptional character in Drill Hall meetings was a bank of *Azaleas* from Mr. W. Kemp, of The Gumyat Nurseries, Barnes. These consisted of plants in 6-inch pots on stems a foot high, and compact, well-flowered heads throughout. The varieties were numerous, but such as *Bernard Andrea alba*, *Comte de Paris*, *Impératrice des Indes*, and *Othello* were conspicuous among some six or seven dozen nice plants, these being margined by well-flowered examples of *Lily of the Valley*, for which a bronze Banksian medal was awarded. Some cut *Roses* in boxes were sent by Lord Gerrard from Eastwell Park, Kent (gardener, Mr. H. Walters), consisting of *Maréchal Niel*, *La France*, *Souv. d'Elise Vardon*, *General Jacqueminot*, and others (bronze Banksian medal). The Messrs. Wallace and Co., Colchester, had a small though exceedingly interesting lot of hardy bulbous plants, largely composed of *Dog's-tooth Violets* in variety, most noticeable being *Erythronium giganteum*, with its lovely creamy blossoms above the bronze marbled leaves, which is always so great a feature when grown in the open garden; *E. Hartwegi*, creamy-yellow, with brown base; *E. revolutum*, *E. Johnstoni*, &c. *Fritillaries* were represented by the rose-coloured *F. plurifolia*, *F. lanceolata gracilis*, *F. coccinea*, &c., and *Muscaris* by *M. conicum* and *M. Szovitzianum* (bronze Flora medal). Of *Cinerarias* there were three large groups, that from Messrs. Carter, High Holborn, consisting of well grown plants freely flowered, and representing a strain of exceptional merit. In this case that over-rigid disbudbing, which results in half a dozen flowers only to a plant, had not been indulged in (bronze Flora medal). In Messrs. Veitch and Sons' group the plants were taller in growth, and the habit as in the *kewensis* strain. A third group, from Messrs. Sutton and Sons, Reading, was arranged on the floor amid tall, graceful *Palms*, &c. The blossoms were large and greatly varied, and from them a useful decorative strain in the near future will doubtless result. Another large exhibit of these came from Lord Foley, Ruxley Lodge, Esher (gardener, Mr. Miller). The Chelsea firm also set up a few choice flowering shrubs, such as *Deutzia Lemoinei*, *Rhododendron racemosum*, very beautiful, and *Azalea obtusa alba*, as shown only some 3 inches or 4 inches high. Messrs. Hill and Sons, Edmonton, brought again a fine assortment of *Ferns*, most of which have been previously noted. On this occasion *Adiantum macrophyllum* was lovely in small plants filling a basket, the red-copper tone of the young fronds being very pronounced. *Adiantum scutum* possessed a similar hue of colour, as also *A. rhodophyllum*. Among the handsomest is *Pteris arguta*, a plant of noble habit. Messrs. Laing

and Sons, Forest Hill, had a group of *Palms* and *Ferns*, with *Streptocarpus* in many shades freely interspersed. Mr. Charles Turner, Slough, had three baskets of *Nepeta (Glechoma) variegata*, a pretty variegated plant for trailing in boxes or the like; while from Highgate Messrs. Cutbush and Sons brought a fine display of flowering deciduous shrubs, such as *Deutzia Lemoinei*, *Cytisus Laburnum*, fine plants 3 feet to 4 feet high in full bloom, *Staphylea colchica*, &c., the whole set in a groundwork of *Ferns* and margined with *Isoplepis*. An interesting display of *Camellia* blooms cut from the open air was shown by Mr. F. T. Barry, St. Leonards Hill, Windsor (gardener, Mr. R. Brown). While the flowers had not size to commend them as compared with those grown under glass, it is obvious that such things are more generally hardy than is supposed, seeing there was considerable variety in the blooms shown. A pink *Calla* called *Trinder's variety* was exhibited by Mr. Trinder, Dogmersfield Gardens, Winchfield, the spathes being of a decided pink hue, and, though rather small, very pretty. Some handsome heads of *Clivias* came from Sir Peter Walker, Osmaston Manor, Derby (gardener, Mr. Wm. Bardney). Mr. Ware, Hale Farm Nurseries, Tottenham, had a nice assortment of hardy spring flowers, comprising *Trilliums*, *Tulipa Greigi*, *Primula cashmeriana*, *P. frondosa*, *P. viscosa nivea*, *Scilla sibirica alba*, *Iberis saxatilis*, *Androsacea carnea*, *Ophrys Speculum*, *Sisyrinchium grandiflorum*, &c. The same group contained a curious and distinct bulbous plant under the rather doubtful name of *Melanthemum pinciflorum*, a plant of fragile growth and bearing pure white flowers with purple base.

Narcissus Committee.

Apart from several large and important groups, a considerable number of novelties was presented for certificates. The Rev. G. H. Engleheart secured no less than three first-class certificates and two awards of merit for seedlings of his own raising. Messrs. Barr and Sons also received recognition for two novelties.

The following novelties received first-class certificates:—

NARCISSUS LADY MARGARET BOSCAWEN.—This is no less than a bicolor *Sir Watkin*—that is to say, a *Sir Watkin* cup and segments, the latter as pure as in *Horsfieldi*; an undoubted acquisition. Rev. G. H. Engleheart.

NARCISSUS WHITE QUEEN.—A pure white *Sir Watkin*, though of self colour, the cup and segments of the perianth being of a uniform white throughout. This was also shown a year ago. Rev. G. H. Engleheart.

NARCISSUS POETICUS HOMER.—A variety with snow-white obovate segments, expanding out to very nearly 4 inches across, the petals well imbricated and emerging, as it were, from a fine spreading crown, heavily margined with crimson and shading to orange at the base. Rev. G. H. Engleheart.

Awards of merit were given to the following:—**NARCISSUS LUCIFER.**—An incomparabilis kind, segments pale yellow, cup large, of a new and striking shade of orange, very fine. Rev. G. H. Engleheart.

NARCISSUS ORIFLAMME.—This is a remarkable flower with creamy segments to the perianth, and a lovely cup with an intense scarlet-orange hue that pervades it to the very base. In this respect it is quite unique. Rev. G. H. Engleheart.

NARCISSUS LADY HELEN VINCENT.—A finely proportioned, nearly self-coloured flower in the way of *F. Moore*, the segments and the trumpet of fine substance. Messrs. Barr and Sons.

NARCISSUS APRICOT.—A rather small bicolor flower, the trumpet having an apricot tone with rather pale perianth. Also from Messrs. Barr and Sons.

In the competitive classes, Rev. G. H. Engleheart obtained the first prize for a unique group of his own seedlings. Apart from the certificated forms above-named, this group contained many gems, such as *Southern Star*, *Sir W. Scott*,

Dorothy Yorke, Flamingo, Cresset, Torch, besides many seedlings as yet not named. One of these, a cross between Horsfieldi and triandrus, has produced a pure white Horsfieldi, beautifully refined, though of an intermediate white throughout. The second prize was taken by Mr. J. W. Jones, Woking, for a group of cut flowers of well-known kinds, C. J. Backhouse, Barri conspicuus, Sir Watkin, Empress, maximus, tortuosus, and others being noticeable.

Messrs. Veitch and Sons, Chelsea, had a large and varied display of these flowers in all the leading kinds. Palms and Maiden-hair Ferns were mixed with the flowers, producing a fine effect, Mary Anderson, Glory of Leyden, Victoria, Maximus, Katherine Spurrel, Chelsea Beauty, a kind much in the way of W. Wilks; Leedsi Gem, Maurice Vilmorin, Golden Spur, Empress, and Sir Watkin being the best (silver Banksian medal). Messrs. Barr and Sons, Covent Garden, had one of their characteristic displays arranged on this occasion in groups of one kind that created an effect of its own. The collection was a remarkable one, and only a few leading kinds can be named. Michael Foster, M. J. Berkeley, P. R. Barr, Ellen Barr, M. M. de Graaff, Portia, Victoria, in more naturally grown flowers displaying the wonderful solidity of its blooms; Minnie Hume, Goliath, Henry Irving, rarely seen in such condition; Fred Moore, C. J. Backhouse, Sir Watkin, and many others were noteworthy (silver Flora medal). A small collection of cut Narcissi also came from Mr. T. S. Ware, Tottenham, in which many leading kinds were noticeable. A very large and distinct Daffodil named Pope's King came from Mr. Pope, King's Norton, the flowers, which were of fine size, being after the style of those of Maximus—indeed, a flower possessing the rich colour of Maximus with the massive growth and vigour of Golden Spur.

Fruit Committee.

There was very little in the way of exhibits before the fruit committee at this meeting. A fine basket of Royal Sovereign Strawberries was exhibited by Mr. E. Beckett, of Aldenham House Gardens. The fruit was of good colour and of uniform size, well meriting the award—a cultural commendation. Mr. J. Miller, Ruxley Lodge, Esher, showed Mushrooms in quantity, grown in the open air on ridges. Some three dozen Brown Turkey Figs were shown by Mr. McLeod, of Dover House Gardens, Roehampton. These were gathered from a trained tree, carrying a very heavy crop, and covering a space of about 6 feet by 18 feet. The fruits exhibited showed the average size of the crop and were very good for the time of year.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

VICTORIAN ERA FUND.

YOUR readers will doubtless remember that this fund was established last year to commemorate the completion of the 60th year of Her Majesty's beneficent reign. They will also recollect its object is to temporarily assist unsuccessful candidates whilst awaiting election who have been (or their husbands) subscribers or life members of the institution. The total amount received up to December 31 last has been invested, and the committee are glad to be able to announce that the income derivable therefrom this year enables them to distribute the sum of £106 10s., the first half of which was sent on April 1 last to eighteen unsuccessful candidates as follows, and has been divided at the rate of 15s. for each year they (or their husbands) had subscribed.

	Years self or husband subscribed.	Amount sent on April 1, 1898.
Bryan, Andrew	13	£4 17 6
Nixon, Francis	13	4 17 6
Plevy, James	12	4 10 0
Staples, George	11	4 2 6
Wood, Caroline	11	4 2 6
Gibbons, John	10	3 15 0
Watt, James	10	3 15 0

	Years self or husband subscribed.	Amount sent on April 1, 1898.
Hackwell, Elizabeth	9	3 7 6
Wills, George	9	3 7 6
Barnfield, Alfred ...	8	3 0 0
Hatch, Annie	8	3 0 0
Mitchell, Lucy	7	2 12 6
Shearn, Joseph	7	2 12 6
Lee, Alexander	5	1 17 6
Evans, Thomas	4	1 10 0
Gould, William ...	2	0 15 0
Thomas, William ...	2	0 15 0
Woodward, Emma	1	0 7 6

From the above it will be seen that the aggregate number of years of subscriptions is 142, which at 15s. for each year gives a total of £106 10s., the first instalment of which, as already stated, was sent on April 1 last, and the remainder will be sent on October 1 next. The committee are very anxious to bring up the total amount of this fund to £5000, to do which they require a sum of £925, and I should like to draw attention to the generous offer made by Mr. N. N. Sherwood (trustee) to contribute £50, provided the amount required be raised, in response to which the following gentlemen have each kindly promised a similar sum: Mr. Arthur W. Sutton, Reading; Mr. Leonard Sutton, Reading; and Mr. Harry J. Veitch, treasurer. Several smaller contributions have been already received. The committee sincerely hope before the close of the year they may be able to announce that the balance necessary to make up the £5000 has been received. They trust, therefore, that every well-wisher of the institution will note that the "Victorian Era Fund" is still open, and that donations to it will be most gratefully received. The committee also desire again to emphasise the notice, which has already appeared in your columns and elsewhere, that this special fund is intended for the benefit of those only who have subscribed to the institution. GEORGE J. INGRAM, Secretary.

PUBLIC GARDENS.

A botanic garden for Aberdeen.—We understand that Miss Cruikshank, sister of the late Dr. Cruikshank, has given £15,000 to Aberdeen University to found a botanic garden in memory of her brother.

Metropolitan Public Gardens Association.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Sir William Vincent, Bart., vice-chairman, presiding, it was announced that in accordance with the representations of the association, and of the local authorities, the Home Secretary had declined to sanction the removal of human remains from the Cross Bones Burial Ground, Southwark, which cannot, therefore, be used as a building site; and that the Inner Temple Buildings Bill, in which powers were sought to build on the frontage adjoining the Thames Embankment, had been rejected by the Select Committee of the House of Lords. It was agreed, if its maintenance were secured, and if funds were forthcoming, to lay out the churchyard of St. Mary, Plaistow, E., at a cost of £300.

The weather in West Herts.—The days during the past week have been all warm ones, while the nights, on the other hand, have been mostly cold. On the night preceding the 5th the exposed thermometer showed 12° of frost. At 2 feet deep the temperature of the ground is now about average, but about a degree colder than is reasonable at 1 foot deep. No rain or snow has fallen for ten days. There has been a capital record of sunshine during the past week, the mean daily duration amounting to six hours. March was a cold spring month; indeed, the coldest for six years. Rain fell on thirteen days, to the total depth of 1½ inches, which is half an inch below the mean for the month. As the first half of the present drainage year ends with

March, it may be interesting to see how the rainfall for this period compares with the average amount for the same six months in a long series of years. The total rainfall for the past six months is 9 inches, whereas a seasonable quantity for the same period would be 15 inches, so that there is a deficit of 6 inches. We have to go back seven years to find the same six months as dry. The sun shone on an average for about 3½ hours a day, which is half an hour a day less than the March average for the previous twelve years.—E. M., Berkhamsted, April 7.

— During the past week there have been no unseasonably cold days, and on no night has the exposed thermometer fallen below the freezing-point. Both at 1 foot and 2 feet deep the temperature of the ground is at the present time slightly warmer than the April average. Rain has fallen during the week to the depth of about half an inch. On several days the wind blew at times with considerable force, and on the 9th reached the strength of a moderate gale—direction W.S.W. Since the present month began the sun has shone on an average for 5½ hours a day, which is a capital record for the early part of April.—E. M., Berkhamsted.

Agricultural Rates Act (Smith and others v. Richmond).—The Court of Appeal, reversing the judgments of the Courts below, has held that glasshouses are not to have the benefit of the relief given by the Agricultural Rates Act, 1896, to "market gardens and nursery grounds." Having regard to the importance of the question to growers, my association has determined to carry it to the House of Lords if we can secure the support of the trade generally. We have many calls on our funds, and it is felt that the serious expense involved in proceedings of such widespread interest should not be wholly thrown on the subscriptions of our members. Growers throughout the country are invited to inform our treasurer, Mr. George Munro, by letter addressed on or before the 30th inst., to the offices of the association, 32, King Street, Covent Garden, W.C., what financial support they are under the circumstances prepared to afford the association.—WILLIAM POUPART, President of the Market Gardens, Nurserymen and Farmers' Association.

Mildew on Chrysanthemums.—I shall be glad if you can give me any information respecting the enclosed leaves of Chrysanthemums. The greater part of my plants looks as if there is a disease of some kind amongst them. It shows itself most on the oldest leaves, which go off as if burnt.—M. G.

* * * The leaves sent appear to be affected with mildew, and the sun has caused them to burn. There is no sign of any bad disease. The spread of mildew may be prevented by dusting the leaves so marked with sulphur.—ED.

Pruning Roses.—Will you kindly tell me how I am to prune standard Rose trees. Some were planted last November, and as I have not an experienced man to do them, I am quite at a loss as to how they are to be done. They seem to have put out very long shoots. The dwarf bushes look most untidy just at present.—MEADER.

* * * A great deal depends upon the variety of Rose. If a very vigorous grower, the long shoots made last summer should be left almost intact, and the weaker growths be cut back to about a third of their present length. If medium growers, they only need the strongest shoots cut back halfway and the rest to within a few inches. Very weak growers should be pruned hard. There is no difference between standards and dwarfs in this respect, except that the long rods of the latter should be secured in a horizontal position by wooden or other pegs, while those upon the standards will droop over from their own weight.—ED.

Names of plants.—C. T. P. *Blundell*.—1, *Scilla italica*.—J. R. D.—1, *Erythronium giganteum*.—J. B.—Violet not recognised.—*Springhill*.—1, *Dendrobium Pierardi*; 2, *Cotyledon Umbilicus*.

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ORCHIDS.

LÆLIAS.

As habit, form, and colour these beautiful Orchids vary a great deal, and as their geographical distribution is a large one, the culture of the various species differs widely. The most showy section is that from Brazil, and this is the most tractable group under cultivation. Even here they are scattered over a wide range, but with care all may be grown in the Cattleya house. Some, like *L. pumila*, do best in small baskets or pans in a thin compost, the best position for them being in a good light close to the roof glass. The roots of these plants are fairly strong, but they do not push far from the centre of growth; hence the need for small receptacles. None of them like to be dry at the roots for any length of time, especially, of course, when growth is active or the plants are carrying their flowers. But, on the other hand, a constantly moist state of the compost is equally wrong, leading to damping of the young leads and a general unhealthy condition. There is not the least doubt that many of the smaller-growing epiphytal Orchids would be far more satisfactory under cultivation if the roots were quite dry for a short time—say an hour or two—daily. But, obviously, with plants growing in peat and Moss this is out of the question, and judgment in watering is followed by good results and *vice versa*. In this class of plant there are gradations in habit up to the *L. purpurata* varieties, and the requirements of these may be roughly estimated by their habit. For instance, *L. Perrini* will need more room than *L. pumila*, but less than *L. grandis tenebrosa*, and so on. The larger the pots, the rougher the compost should be made by the addition of larger lumps of charcoal or burnt clay. The compost, too, will need to be thicker in comparison with that for the smaller plants, the roots of *L. purpurata*, for instance, or *L. crispa*, pushing through a thickness of compost that would stifle those of *L. harpophylla* or

L. cinnabarina. Another plant from a different locality, but liking plenty of root room, is *L. superbiens*. All these large-growing *Lælias* do well on a central stage or some such position where their heads are a yard or so away from the roof, yet in a good light, and every one of them is better and healthier in a large, spacious structure than a small, stuffy one. Every *Lælia* likes a roomy house, the only thing necessary being to place the dwarf and weak growing kinds as close to the glass as possible. With regard to shading, this will be necessary from the middle of March until October for all Brazilian kinds. The blinds must not be run down in the morning and there left for the rest of the day, or weak, spindly growths will ensue. Ventilation and shading must be managed systematically, and one will help the other, so to speak. Early ventilation will allow of the blinds being kept off the roof for some time in calm, warm weather, while judicious shading makes it possible to keep the ventilators closed when cold, biting winds accompany bright sunshine. Besides the kinds noted above there are the

MEXICAN LÆLIAS,

and although some of these, notably *L. anceps* and *L. autumnalis*, do well under cultivation many years, there is no doubt they are the most trying section to deal with. They should be allowed a house to themselves where this is possible, and it need not be large, for the simple reason that all through the summer months it may practically remain open night and day. Not always wide open, of course, but with more or less air according to the state of the weather. Where these plants only are grown, there is practically no need of shading, and many who grow the kinds largely do not fix blinds to the houses at all. But if any of the Guatemalan and Mexican *Odontoglossums* and other plants are grown with them it will of course be necessary. There are various methods of growing the plants, as in baskets, in pots, or on trellised blocks or rafts

In any case the most important point to be studied is to give a thin compost, so where pots are used they may be filled to within an inch of the rim with crocks. For *L. anceps*, *L. peduncularis*, and *L. autumnalis* the rafts make a very suitable holding, but for *L. majalis* and *L. albida*—two kinds very difficult to keep in health many years—pans suspended from the roof are preferable. Though both are peculiar plants to manage successfully, I would much rather take the "May Flower" than *L. albida*, for it seems almost impossible to free this latter beautiful species from the soft white scale that is frequently imported with it. So persistent is this troublesome insect that it insinuates itself below the scaly buds or young growths, where it is quite impossible to dislodge it without seriously damaging the plant; and so prolific is it that in a very few weeks the chance insects left behind after sponging will quite over-run the plants again. The most likely method to keep the plants in health is to keep them as cool as possible all the summer, with abundance of air over the foliage night and day. With *L. majalis* it is a great help to turn the plants quite outside in the full sun after the growths are made up, this ensuring a thorough ripening of every part of the plant and conducing to freedom of flowering. In fact, if it were not for our heavy autumnal rains there is no doubt all the plants in this section would be benefited by a couple of months in the open air after the pseudo-bulbs are made up—the exact season varying with the species—for in their habitats they are often exposed to lower temperatures than occur in this country at that time of year. Healthy, well-ripened plants require a good resting season, the roots meanwhile being kept perfectly dry. Not for long, however, for as soon as movement of flower-spikes or growth is observed, water will again be needed. The resting season, too, must be led up to by a gradual decrease in the water applied to the roots after the pseudo-bulbs are made up, or the flowers past, as the case may be. It will be noticed that plants

newly imported produce very much finer flower-spikes than those that have been cultivated a few years. In this they differ from the more easily grown of the Brazilian species, for many of these will go on gaining strength year after year. There are exceptions, of course, but in most cases they are plants of easy culture. The present is a capital time to procure newly-imported plants of any that happen to be on offer, as they have the season before them and plenty of time to make up a good growth by autumn. After a thorough cleansing they may all be potted up in clean crocks and charcoal, damping these occasionally, but not too often, until new roots or growth appear.

An exception to the usual run of Brazilian *Laelias* with regard to the amount of water required I have noted in *L. grandis tenebrosa*. Looking through a well-known collection recently, I noticed that this variety, though only recently received, was kept quite moist, and inquiry elicited the fact that it was always treated in this way. The appearance of the plants showed the treatment was quite to their taste, and the hint, I think, is worth taking. It is better to take a little trouble in fixing and disposing the plants, even though they are only potted in crocks, as it saves a lot of trouble afterwards. When properly set up, all that is needful is to remove a few of the upper crocks and replace them with a little good peat and Moss when growth or root-action commences. This being new and sweet, the roots push into and through it freely, and soon establish themselves among the drainage material. This in most cases will be found preferable to using peat or Moss at first, for this material soon becomes sour and unsuited to the new roots, and if these do not take at once and with a good will to whatever is presented to them at first, the chances of the plant ever being really satisfactory are very remote.

Cymbidium eburneo-Lowianum.—The flowering of this beautiful hybrid from an imported batch of the latter parent is a very interesting event, and should it appear in any quantity our houses will be enriched by one of the most beautiful of natural hybrids in existence. The hybrid is by now fairly well known, though the number of plants of this or the reverse cross in cultivation is not large. This being the case, a few plants of the naturally hybridised or wild plant would be all the more acceptable. But there is, of course, no reason for thinking that it will ever be imported in any great quantity, for the habitat of this species—*C. Lowianum*—has been pretty well exploited in the last twenty years. On the other hand, there are doubtless many unexplored nooks in Northern India, the Khasia Hills and various parts of Burmah, from any of which this plant may turn up. Like many other hybrids, the growth of the plant is free, but still it is of the character that does not lend itself freely to propagation. The flowers of this hybrid are produced on racemes, more after the style of *C. Lowianum* than *C. eburneum*, but the flowers are nearly white in ground colour, the lip white, with a V-shaped blotch of crimson in front, the disc yellow.

Ceologyne lentiginosa.—This is a distinct and pretty *Ceologyne* not much grown lately. It has somewhat square-looking pseudo-bulbs that occur at some 2 inches or 3 inches apart, a stout rhizome separating them. The flowers are produced in erect, simple spikes, and are of a pretty straw or pale yellow colour on the outer segments, the lip being bordered and crested with reddish brown. *C. lentiginosa* thrives in a cool, moist, and shady part of the Cattleya house, and should be carefully grown. The roots are very easily damaged by disturbance; in fact, it is one of the worst species in this respect. It is imperative then in preparing the compost to keep

in mind that a lasting make-up, and not too much of it, is better than a lot of material that will need renewing the next season. If pans are used—and these are very suitable—fill them up to within an inch of the rim with charcoal and crocks, finishing by planting the rhizomes in peat fibre, a little half-decayed leaf-mould, and chopped Sphagnum Moss. Begin at one side and work across it, keeping the leads at a suitable distance from each other and so disposed that a well-balanced plant is the result. It makes very pretty specimens in this way, that from their comparative rarity will command admiration. It was introduced in 1847 from Moulmein.

NOTES AND QUESTIONS.—ORCHIDS.

Maxillaria luteo-alba.—A well-grown example of this with two fine spikes of its parti-coloured flowers is among the Orchid attractions at Kew at the present time. It is a native of Colombia.

Aerides Vandarum, attached to an oblong piece of wood 3 feet or more in length, is producing a nice lot of its nearly pure white blossoms in the Kew collection. It is a chaste and beautiful species when in flower, though possessing a habit peculiarly its own.

Masdevallia Pourbaixi.—A nice plant of this distinct hybrid is now flowering at Kew. The plant is bearing a dozen or so of the rich orange and brown shaded blossoms. It is a cross between *M. Veitchiana* and *M. Shuttleworthii*, and is undoubtedly an acquisition to this group.

Lycaste brevispatha.—Among dwarf species this is probably one of the most interesting. Not only is it dwarf in habit, but the rose-coloured and somewhat heavily hooded flowers are equally dwarf and generally wanting in that fine vigour so well known and so characteristic of *L. Skinneri*. This somewhat rare and curious species is now in flower at Kew.

Cymbidium Lowianum.—Of this handsome and well-known kind there are many fine spikes in the Orchid house at Kew at the present time. The plants are large, and in some instances not at their best, as several spikes were only developing a few days since. The plants occupying as they do a raised position spread their half circular sprays of blossom over many things not now in flower.

Dendrobium Kingianum album.—This is a distinct and pretty form of this species; the sepals and petals pure white, the lip bright rose, streaked and lined with white. The flowers are produced on spikes 9 inches in length. The habit of the plant is more robust than in the typical form, many of the bulbs being upwards of 6 inches in length. Two fine plants are in flower at the present time in Messrs. J. Veitch and Sons' nurseries at Chelsea.—H. J. C.

Odontoglossum miniatum.—Though probably a variety only of *O. coronarium*, this differs a good deal from it, being of a closer habit and producing dense spikes of deeper coloured smaller blooms. The colour is dark brown with a few very faint yellow markings on the sepals and petals, the lip bright yellow, with a large brown blotch. *O. miniatum* does well in rather large pots, baskets, or pans, the roots being fairly large and disposed to ramble. It may be grown close to the glass in the coolest house, and kept moist the whole year round. It is more free-flowering than the typical *O. coronarium*.

Cymbidium Lowio-eburneum.—This lovely hybrid is the reverse cross of the *C. eburneo-Lowianum*, which originated in the nurseries of Messrs. J. Veitch and Sons, and is quite distinct, the sepals being nearly white, slightly suffused with purple, the petals creamy white, the upper half having a slightly darker shade. The front lobe of the lip is creamy white, with a broad rich purple band covering two-thirds of its area. It has a fine constitution and grows freely in the cool intermediate house. The potting compost should consist of rough fibrous peat and a little Sphagnum, with a free sprinkling of rough sand.—C.

Cymbidium Devonianum.—This interesting and pretty species was recently flowering in the Cambridge Lodge collection. One of the plants had eight and another seven flower-spikes, while several others had as many as four and five spikes

each. The flowers are produced from the base of the last-made growths on racemes 12 inches to 15 inches in length; the sepals and petals pale green, streaked and suffused with purple, the front lobe of the lip green, with a purple suffusion, which becomes rich plum-purple in the centre, mottled with white at the base. It seems to require confinement at the roots. The treatment given the plants in the above collection is the same as that for *Miltonia vexillaria*, free ventilation and a liberal amount of moisture in the atmosphere being allowed.—C.

Dendrobium Rolfeæ (*D. nobile* × *D. primulinum*).—In this the sepals are white, suffused with rose, the petals white, slightly suffused and tipped with deep rose, the lip creamy white, tipped with rose in front, with numerous bright purple lines and slight suffusions of purple at the base. It was first described from a plant that flowered in Messrs. Sanders' nursery in 1892. Since that time it has flowered from imported plants of *D. nobile* in several collections, and, as is the case with most hybrids, in considerable variety. *D. Pitcherianum*, the reverse cross, had previously flowered in the nurseries of Messrs. Pitcher and Manda, in America, being similar in every respect to *D. Rolfeæ*. It is an interesting and desirable form, and worthy of every consideration.—H. J. C.

Cypripedium Argo-Arthurianum.—This secondary and pretty hybrid was raised from the species and hybrid indicated in the name. The dorsal sepal, 2½ inches long, 1½ inches broad, is white at the top and veined with a dark shade of green, the whole thickly covered with large purple blotches. The petals are each nearly 3 inches in length, the ground colour greenish white, suffused with brown towards the apex and veined with bright green, the whole thickly covered with large blotches of purple. The twisting and deflexed characteristics of the *C. Fairrieanum* blood are very prominent here. The lip is pale green, suffused with bright purple and thickly veined with bright green. It is a distinct and desirable variety, and has recently flowered in the Cambridge Lodge collection of Mr. R. I. Measures, where it was raised.—S.

Cypripedium Salis.—This beautiful hybrid is the result of a cross between *C. concolor* and *C. Dayanum*. It has in many respects a marked resemblance to *C. tessellatum*, but the colouring is totally distinct. The ground colour of the dorsal sepal is creamy white, with a suffusion of green in the centre, the whole being suffused with a soft rose, streaked and spotted with purple at the base. The petals are each upwards of 2½ inches in length, the ground colour pale yellow, brightly suffused with rose and covered with numerous small purple spots, the lip bright yellow, heavily suffused with purple in front. The foliage is beautifully tessellated with light and dark green. The general characteristics are intermediate between those of the species used in its production. A plant of this was exhibited at the Drill Hall meeting on April 12 from the collection of Mr. R. I. Measures.

Dendrobium crassinode.—Among many fine Orchids flowering in the collection at Kew at the present moment none can equal the numerous examples of this species, all of which are well laden with blossoms. Quite a number of plants has been in flower for some three weeks past, and when we saw them recently they showed no sign of fading. The plants suspended in small baskets near the glass make a rich display, the white sepals and petals more or less heavily tipped with purple, and white lip with a base of orange, producing a diversity of colouring difficult to surpass. Another species, *D. Brymerianum*, is also in bloom, though it cannot compare with the above from a free-flowering point of view; at the same time the intense golden orange hue of both the sepals and petals renders it very conspicuous. A similar shade of deep yellow is found in the lip, which is furnished with a deeply-cut and occasionally forked fringe, the segments of the latter 1½ inches in length in some instances.

HOLLAND HOUSE.

As privileged ramblers we pass through the iron gates facing Kensington Road and up the avenue of lofty Elms, and so arrive in front of Holland House. The garden being our object, we pass through on the right the Ivy-covered gateway (designed by Inigo Jones), which forms the entrance to the pleasure grounds. This brings us on to the beautiful lawn on the north side of the house, which in the last seven years has been much enlarged; here there are a Catalpa, a Cedar of

Herb, *Alstrœmerias*, &c. The delightful mass of colour provided by the Lilies is well sustained when the Larkspurs send up their brilliant blue spikes. These beds are divided by a grass walk from beds of Hybrid Perpetual and Tea Roses, *Mme. Van Houtte*, *Laurette Messimy*, *Princesse de Sagan*, *Caroline Testout*, and *Mme. Lambard* being noted. From here we go into the wild garden, which until the last few years was completely neglected. It has now become one of the most charming features of this garden, with

the late Lady Holland. Turning to the left, we enter the arboretum, and stop to admire the fine beds of *Rhododendrons*, *Azaleas* and *Andromedas* growing luxuriantly, and one of the most charming effects we have ever seen was a bed of *Hydrangea paniculata*, which was at the height of its beauty when we saw it in August. Many varieties of Chestnut, Oak, Poplar, Alder and *Pyrus* have been successfully planted here, Vines and Brambles growing equally well. Here are three fountain basins for Water Lilies, bordered with varieties of *Campanulas*, *Saxifrages* and *Dianthus*, from which the water flows in a continuous stream through the



Wistaria sinensis in Holland House Gardens. From a photograph sent by Mr. T. Dixon.

Lebanon and two Beech trees, all unusually fine. Beyond the lawn, what used to be a complete wilderness has in later years been transformed into a lawn garden, planted with groups of flowering shrubs, Hawthorn, Lilac, Laburnum, Privet, Dogwood, Magnolias, *M. conspicua*, *M. grandiflora* and others. We were particularly struck with the magnificent effect which a bed of golden Alder, *Prunus Pissardi*, and *Spiræa palmata* gave between beds filled with Lilies (*Lilium croceum*, and *L. davuricum*), *Montbretias*, Larkspurs, Willow

its grass walks bordered with *Weigelas*, *Syringas*, and *Rosa rugosa*, carpeted with masses of Shirley Poppies, red Campions, Foxgloves, Sunflowers, Canterbury Bells, Paeonies, Asters and many others. A continuous succession of annuals gives a blaze of colour from June to far into October. Passing on, we skirt an orchard with two avenues of crimson Chestnuts and scarlet Thorns planted alternately. Passing through the wood we come on another avenue of Limes, planted to form an arch. This was planted by

ALPINE GARDEN,

which we now enter by descending some rough stone steps. This rock garden has only been finished just over a year, but by the vigorous growth of all we see, the alpines seem to thrive well in spite of the London smoke. The background of the rock garden is formed by a charming group of Birches on the south, and on the west by a variety of rare shrubs, deciduous and evergreen, including the tree Lupin, *Caryopteris mastacanthus*, varieties of Broom, Gorse, and other shrubs of newer introduction. Following the course of the stream, which now meets another from the dripping well, we come to a large pond planted with Indian Rice, Flags, Rushes, and Lyme Grass. From here the stream forms a waterfall, and, passing down the edge of the wood, it runs into another pond full of different aquatics, on to a third full of Cape Pond-flower, and ends in another, so making a chain of lakes over 600 yards long, all artificial. Standing here we are much struck with the beauty of a fine old Cedar, one of the finest now remaining in the neighbourhood of London. Retracing our steps, we come on the sub-tropical garden, with its fine collection of Bamboos and Yuccas; here also is a rock garden of *Mesembryanthemums*, over sixty varieties; these are grown through the summer months mixed with *Opuntias*, and flower very well. Then, crossing the west lawn, which was originally an orchard, some of the old trees still remaining covered with Mistletoe, we come on a fine clump of *Bambusa Simoni*, seven years' growth, and, passing under some fine old Walnut trees, we are much amused to see two squirrels, and on inquiring we find they have been imported from the country, and have now been here for some years.

We now enter the green lane, a glade over half a mile long, with its beautiful Elms, Horse Chestnuts, Foxgloves and Bluebells; it is indeed hard to imagine we are still in the centre of London. We now come to the kitchen garden, with its broad herbaceous borders full of Roses, Hollyhocks, Lilies, *Michaelmas Daisies*, &c., its beds of Carnations, Stocks, Sweet Peas, Wallflower, *Mignonette* and *Malva lateritia*, all grown in great quantities for cutting. We just glance at the vineries, plant-houses, pits for growing plants for the flower garden, frames full of alpines, a new aquatic house just

finished, the tank being planted with tropical Water Lilies now making a start. On our return we cross the green lane and enter the Dutch garden through an arcade covered with Ivy and Virginia Creeper. We come first on a small garden devoted to the Dahlia, which was first brought to England by the third Lady Holland in 1804, she having brought the seed of it from Spain. The Dutch garden is laid out in the old-fashioned style—flower beds in different devices surrounded with Box edgings, gravel walks between. A small garden on the right is laid out in the Italian manner with a white marble fountain in the centre, in which Water Lilies are floating.

The old red-brick south wall, which is on the left of the Dutch garden and was formerly devoted to fruit trees, is now covered with a most interesting collection of hardy and half-hardy climbers, Jessamine, Honeysuckle, *Akebia quinata*, *Olearia Haasti*, *Physianthus albens*, *Bignonia caprifolia*, *Solanum jasminoides*, *Abelia rupestris*, *Vitis Coignetiae*, *Pittosporum Tobira*, *Muhlenbeckia complexa*, *Photinia serrulata*, *Passiflora cœrulea*, *Pomegranate*, *Choisya*, and *Wistaria*, all equally happy. Facing us at the top of the garden are festoons of *Clematis*. These seen running through the Vine covered trellis are among the most pleasing features of this part of the garden. We feel we have not half exhausted the many treasures of this lovely garden, and we can hardly persuade ourselves we are still within three miles of Hyde Park Corner.

CAROLINE ROCHE.

FLOWER GARDEN.

NORTH AMERICAN PLANTS.

I BELIEVE I have heard or read somewhere that the North American flora is characterised generally by subdued and sombre colours. Whether this is really the case I do not know. Such a criticism is certainly not applicable to Californian annuals, nor to certain well-known genera such as *Phloxes* (which owe their name to the brilliancy of their colours) or *Penstemons*, both of which are exclusively indigenous to the western hemisphere.

It may be, however, that the great masses of yellow Furze (*Ulex europæus*), which are said to have so affected the feelings of the great Linnaeus himself, and of Bluebells (*Scilla nutans*) are absent from the unbroken ground and wood-clearings in America, and that the Buttercups, which make our meadows golden, and the Poppies, which turn the worst of our corn land into a blaze of scarlet, are less conspicuous in the cultivated lands on the other side of the Atlantic. Be that as it may, however, there is a class of plants indigenous to North America to which the term "characteristic" is sometimes applied, which are either white, or in which the colours are noticeably subdued, but which are nevertheless beautiful and exceptionally interesting, and as to some of which the cultivation appears to present some of the most difficult problems in hardy gardening; and it is to these that the following notes for the most part apply.

I add at the end a list of those that succeed and those that fail more or less or entirely in

this garden. The latter, however, must not be mistaken for an "Index Expurgatorius," for in the first place every plant named in it is extremely desirable, and many of them are successfully grown in gardens in this country, and, in the second, I desire to avoid wounding just susceptibilities. Moreover, I see my good friend Mr. Purdy is already beginning to regard me as a sort of Schopenhauer among gardening philosophers, and I must regain a character for a decent amount of helpfulness.

The Trilliums are perhaps the best known among the class of plants to which I allude. Of these the best, *T. grandiflorum*, is fortunately of easy cultivation, and it seems second only in vigour of constitution to *T. sessile* var. *californicum*, a taller-growing plant, also with white flowers, which I should place at the head of the list in point of ease of culture. There are other tall-growing species, such as *T. stylosum*, which I have not tried, but which are probably equally easy to grow. *T. erythrocarpum*, and even the commoner *T. erectum*, I have never succeeded in establishing here, though I have bought "established" plants in pots and tried to start them in that way. Closely allied to the Trilliums is *Scoliopus Bigelovi*, an interesting plant coming into bloom early in February; it grows slowly but vigorously here, has something the colour and marking of the zebra, and a scent which is as redolent of the he-goat as *Gorgonius* himself. Two other plants of a totally different order, but growing equally well under the same conditions, are *Jeffersonia diphylla*, a curious plant with the young leaves of a purple-pink colour, belonging to the order *Berberaceae*, and the lovely and better-known *Sanguinaria canadensis*, which belongs to the Poppies and has all the fugacity of that order. *Dodecatheons* (the North American equivalent of the *Cyclamen*) grow well enough in the same soil and situation, though I have never, I believe, had more than two or three species of these. Along with them is the well-known *Mertensia virginica*, one of the most beautiful of all the *Boraginaceae*, and also *M. alpina*, a more vigorous species than the former, with green and not glaucous purple leaves, and flowers of a brighter but harder blue—not by any means so desirable a plant. As is well known, *Cypripediums* are difficult to establish or keep, and though I have had most of them and flowered several, they have all disappeared except *C. spectabile*. There is, however, a curious Californian *Epipactis* which has maintained itself here, growing in peaty stuff among Lilies, for many years, and this is, I believe, with the exception of the *Cypripediums*, the only American *Orchidaceae* plant I have ever tried. *Uvularia* (*U. sessifolia*, I believe), given me a year or two ago by Mr. Wolley-Dod, is a pretty plant of easy culture enough, though it grows slowly. It is allied to *Convallaria*. *Galax aphylla* maintains a doubtful existence in an artificial bog, but it neither flourishes nor flowers, and even less can, I regret to say, be said for *Shortia galacifolia*, which I cannot boast of ever having really got to live at all. *Aletris farinosa* and *area*, *Rhexia virginica*, *Pyxidantha barbulata*, *Viola pedata* and its varieties (the one American Violet that is especially worth cultivating), and that most desirable and most heart-breaking plant *Clintonia Andrewsiana*, have hitherto proved absolute failures under all conditions. *Epigæa repens* I have never even tried. With regard to some of these latter, however, they have, as is well known, been successfully established and grown elsewhere. Anyone who has ever visited Mr. Wilson's famous wood-garden near Weybridge (and the hospitality of its owner has

enabled very many to do so) must have noticed that his success with some of the choicest of these American plants is as remarkable as that with Lilies. He was, I believe, the first to obtain any real success with *Epigæa repens*, while *Shortia galacifolia* and *Rhexia virginica* grow with him with a luxuriance that I have never seen equalled. There is not, so far as I know, anything peculiar in the soil of Wisley, which is simply rich in the ordinary humus found in all woods. One is, therefore, forced to the conclusion that it is the wood itself—the arrest of rapid evaporation—which is the great secret of success. I do not know whether Mr. Wilson has ever established *Clintonia Andrewsiana*, and, as far as I can recollect, the only place in which it has been successfully established in these islands is in the Edinburgh Botanic Gardens, though whether it is still growing there I cannot say. With regard, however, to my own failures with some of these things, I cannot help suspecting that, apart from the evaporation mischief—which nothing can cure here—"there is lime in the sack," as Falstaff said, and that, even when artificial soil is supplied, the insidious poison carried in the water destroys the vigour and ultimately the life of the plant. *Helonias bullata* has died out in a bog here, and one or two peat-loving plants such as *Cornus canadensis* and *Mitchella* I have never tried. *Claytonia Caroliniana* is a bright little plant, which I fancy must be an annual. It seeds freely when it is happy. It belongs to *Portulacaceae*. *Amsonia ciliata* (belonging to *Apocynaceae*) is a curious herbaceous plant with dull grey (the nurserymen call it "blue") flowers. It is distinct and worth growing. Its Eastern congener and representative is *Rhazza orientalis*, which is, I think, still better worth growing.

Mr. Smith, of Newry, tells me he has established the False Foxglove (*Gerardia quercifolia*), now, for some reason, called *Dasyotema*, but he doubts its ability to stand our climate. It has never succeeded in Europe, I believe. *Polemonium confertum* I have tried over and over again, but can never grow it or bloom it. There is, I see, a variety now offered, *P. c. mellitum*, which may prove more tractable. The beautiful *Lewisia rediviva* flowered here once or twice, but it is so long ago since I had it that I forget even how or where I grew it. I thought I had successfully established the two beautiful North American *Lithospermums*, *L. canescens* and *L. hirtum*, but they have both disappeared. I suspect them of disliking the dryness of my soil in summer or its composition, or both. *L. hirtum* is the somewhat more vigorous plant of the two. There are a good many N. American *Gentians*, but few of them seem to lend themselves to cultivation. The commonest of them, *G. saponaria* or *Andrewsi*, I have never got to grow, though the white variety of the same thing sold as *G. alba* has existed here for some years. It has little beauty. *G. linearis* appears to be growing, but I have not seen it in flower. *G. scaptrum*, the most remarkable *Gentian* ever introduced from North America, appears to have disappeared from cultivation. *Spigelia marylandica*, which I suppose is more or less allied to this order, though it is properly a *Loganiad*, does well in moist, light soil. Unluckily, very few of the dwarf *Penstemons* are thoroughly hardy, nor will the blue species produce blue flowers in my soil—they run to purples and pinks. The only species fit for a rock garden which will seemingly survive our winters is *P. Menziesi* var. *Scouleri*, a plant with an abundance of lavender-blue flowers. The answer to Mr. D. Guinéneuf's question (p. 301), "Why is *Asclepias tuberosa* so much neglected?" is that

it is difficult or impossible to grow it, and still more to keep it. *Romneya Coulteri*, one of the finest plants ever introduced, has grown here for some years outside a greenhouse in a sheltered place. I believe I could keep it through a bad winter, but it is not altogether satisfactory, for the number of perfect blooms produced in summer is very few compared to the size and vigour of the plant and the room it requires.

Other North American genera may be "closed in compartments." Nobody can want to know anything more about *Phloxes*, *Aquilegias* (the best *Columbines* in the world come from the Rocky Mountains), *Eranthis*, *Asters*, *Rudbeckias* or *Helianthus*, and the only composite I have to note is a Colorado Daisy, which came to me, I believe, under the name of *Trimorphaea*. It is a neat little plant, with glaucous cut foliage, something in the way of a *Matricaria*; it has pale purple flowers and blooms late in September.

I do not propose to say anything of the *Irises*, nor of bulbous plants, except to remark that *Camassia Cusicki* is a very good thing, nor of *Lilies*, except to make the admission that the one American *Lily* which is easy to grow (*L. pardalinum*) comes from the west, the eastern representative (*L. canadense*) being, in many gardens at any rate, a difficult or hopeless subject. I make Mr. Purdy a present of this argument the next time he holds a brief for the flora of the west side of the Continent.

AMERICAN PLANTS.

<i>Succed.</i>	<i>Fail.</i>
<i>Trillium grandiflorum</i>	<i>Trillium erectum</i>
sessile californicum	erythrocarpum
<i>Jeffersonia diphylla</i>	<i>Clintonia Andrewsiana</i>
<i>Scelopopus Bigelowi</i>	<i>Galax aphylla</i>
<i>Dodecatheon</i> (sorts)	<i>Shortia galacifolia</i>
<i>Mertensia virginica</i>	<i>Helonias bullata</i>
alpina	<i>Pyxidantha barbulatora</i>
<i>Spigelia marylandica</i>	<i>Polemonium confertum</i>
<i>Sanguinaria canadensis</i> .	

J. C. L.

HARDY FLOWERS AT COED EFA.

COED EFA is near Wrexham, and in the midst of the North Wales colliery district. Here, however, there is a little hillside garden where a rich store of herbaceous and alpine has been brought together by Mr. Sturge. The small but pretty piece of rockwork is well furnished with choice alpine; it has the protection of a tall hedge from the harsh winds, but otherwise well exposed—that is, to sunshine; and a point to be noted is that its position on the hillside is such that its upper part is not above the natural surface, and therefore less liable to such drought as follows in cases where rockwork has elevations on all sides. I think it must be due to this favourable condition that *Anemone ranunculoides* flourished so well at the very top. This had grown into a big, dense mass and was flowering freely. Most often one meets with this in thin patches and making but slow progress. Moreover, the soil was of a loose or gritty nature. *Androsace lanuginosa*, *A. sarmentosa*, and the smaller European species, *carnea*, were as happy as could well be, the last-named forming a bright object, being covered with flowers.

The two Himalayan kinds were in big pieces, falling over the barren faces of the large stones, promising well for a more advanced season. I was all the more struck with the vigour of the silky *lanuginosa*, because it is a kind I cannot grow at Kirkstall. At the lower, moister parts were healthy specimens of *Morisia coccinea* and *Primulas* in many species. Of the latter, *viscosa*, with its telling highly-coloured masses of bloom, especially attracted notice. On a small piece of grass just by, *Anemone apennina*, with its sheeny deep flowers, was of more than ordinary vigour.

The same is to be said of the Dog's-tooth Violets; flowers nearly 3 inches across denote that culture in the grass suits them. On a flat piece of black soil kept moist from its near vicinity to the water tank there was a large piece of *Andromeda tetragona* of a deep green colour, and just coming into flower. On a lower and sheltered piece of lawn is *Arundinaria falcata*. Mr. Sturge has long been justly proud of this fine specimen, and he protects this every winter—doubtless a wise precaution, though it may not be absolutely needful with a Bamboo so long established. It is free from bare rods and throughout well furnished with bright foliage as seen in a more advanced season. A very pleasing effect was got by planting (some time ago) the common white *Arabis* on the southern side of the hedgerow, on a sloping bank of 2 feet to 3 feet. On Good Friday this plant was white over for a depth of 3 feet or more, the upper part of the *Arabis* having actually climbed into the lower twigs of the Thorn hedge. The fact that in a suitable sunny place the common *Arabis* could hold its own among the grass and wildlings of the hedge-side suggested to my mind a wider use for this early flower. J. WOOD.

Woodville, Kirkstall.

LILIUM AURATUM.

"H. P." in his note on the above *Lily* (p. 233) has accurately described its character by the one word "untrustworthy." In a few cases the plants remain healthy year after year and increase in number and vigour, but in the majority, as far as my experience goes, they dwindle after their first year's blooming and eventually disappear. This disappearance is sometimes gradual, extending over some few years, sometimes rapid, but the end is the same. At my first attempt to grow this *Lily* I had the natural soil removed and a bed of fibrous loam and peat, 2 feet 6 inches deep, prepared for its reception, with which compost were mixed silver sand and broken charcoal. Three dozen bulbs were planted, each being surrounded by silver sand, enough of this being used to prevent the soil from coming into contact with the scales. The bulbs were in good condition and fairly heavy. The first year they flowered well, and in the following year I was delighted to find that the growths that were pushing up from the soil were considerably stronger than in the preceding year. Only about a dozen spikes, however, appeared, and all but one of these died before flowering, the solitary exception half-heartedly expanding a few poor blooms and then following its companions. These *Lilies* collapsed at heights varying from 6 inches to 3 feet. Their appearance was perfectly healthy until slight symptoms of flagging manifested themselves in the closed leaves at the apex of the shoot, which leaves seemed inclined to reflex instead of remain tightly pressed together. The next day both these leaves and those lower on the stem were limp and drooping, and very shortly the stem itself followed suit and lay prone upon the ground. I have since tried several batches of this *Lily*, both home-grown and imported, and have experimented with several soils for their culture, but failure followed peat as surely as it did loam and leaf-mould, or the varying mixtures employed. About five years ago I was given half-a-dozen imported bulbs, not very prepossessing in appearance, and, not caring to take any trouble with them, planted them in the ordinary garden soil, a heavy loam inclining to clay, within 6 feet of running water. These, curiously enough, have proved the most satisfactory of the hundred or so that I have planted during the past fifteen years, and are as good after being planted for four years as they were their first season, though they have not materially increased in size. In the garden adjoining mine, however, I saw, lately, some exceptionally vigorous *L. auratum* shooting up from the ground, the stems of which were nearly as thick as spade handles, and appeared likely to develop into flower-spikes 7 feet or more in height. The bulbs in question were planted in January, 1897,

and flowered well last year. I noticed that one small shoot was flagging and shall watch the subsequent behaviour of these *Lilies* with interest. I have proved that signs of increased vigour in the spring are no guarantee of a successful flowering season, but I hope that in this case my unfortunate experience will not be repeated.

Some of the finest examples of *L. auratum* that I have ever seen were growing in shallow, moorland soil about 10 inches in depth and containing a quantity of water-worn pebbles, in East Devon. These plants were nearly 8 feet high, had evidently increased considerably in number, and were profusely flowered. These bulbs had not been disturbed for some years.

Another *Lily* that refuses to become naturalised in the garden is *L. longiflorum* and its varieties. These do not hold out delusive hopes by strong spring growth as did the *L. auratum* of which I wrote, but generally refuse to appear after the first or second year, though one bulb flowered for three consecutive years. I have obtained the bulbs from various sources, and imported some direct from Bermuda, but the final results have been identical. S. W. F.

Torquay.

DOUBLE PRIMROSES.

THESE are doing well with me planted on the north side of a fence 6 feet or so in height; the soil of a fairly heavy sandy nature. They require moisture and a deep, free root run, and in such a position it does not matter if the soil is fairly light. When planted in full exposure to the sun, a heavier soil is requisite, but as the double *Primrose* loves shade during a good part of the day, it should be afforded as far as possible. My plantation gets the sun in the morning and evening, and but little during mid-day. Double *Primroses* are a delightful group of plants, but many failures occur through want of attention to moisture and coolness during the summer months. If the plants get dry at the roots, they often become a prey to red spider, and speedily lose their leaves, and it is then difficult to induce them to put forth others. During the drought of last spring and early summer I found the plants were helped by loosening the soil round them, and then placing about them some moist leaf-mould, and on this a layer of heavy clay broken up as finely as possible. This economises moisture, and keeps the roots cool. They are certain to do well if the plants have this attention and a free root run. Many die from defective planting. For anyone to obtain some plants of the old Double White or Double Lilac, then merely to dig out a hole large enough to take the ball, is to court failure. But this is how many are planted, and it is not surprising they fail. It is possible to purchase plants with long roots, but these are sometimes of but little service. The aim of the cultivator should be to induce the plants to put forth fresh roots above the old ones, and, when they do that, there is hope of success. I have obtained plants from Scotland with long, Carrot-like roots, full of rootlets. I make a point of cutting back the long roots to within 1 inch or 1½ inches of the leaves, taking care to leave a few roots with young fibres, and this induces root action near the leaves. They should be planted in nicely moist soil, and no water should be given until the plants show signs of becoming active. Incautious watering induces rot.

Some persons who attempt to grow double *Primroses* in pots fail from two or three causes. One is because they use improper soil, light and open, instead of loamy and fairly heavy, with an admixture of leaf-soil and a little sand; or they pot indifferently, and instead of spreading out the roots laterally, so that they can reach the sides of the pots as quickly as pos-

sible, crowd them in the centre. No water should be given until there are signs of growth, but sprinklings overhead will be found advantageous. The pots should be placed in a cool, shady place until active growth commences.

The commonest varieties are the Early Sulphur, the lilac, and the white, though the two last-named are among the prettiest and most useful. *Platypetala plena* (Arthur Dumollin) is practically a double Polyanthus, as it throws up stout scapes with a truss of flowers at the top. *Croussi*, a pale rosy lilac variety, will sometimes do the same, but it is much nearer the type of Primrose than the other. There is a variety known as the Scotch Red, which will sometimes send up Polyanthus stems. *Croussi* is one of the finest when in its best character, the flowers large and double. The crimson, known also as *Mme. de Pompadour*, is a very handsome variety, always scarce, and needing care in cultivation, being of a somewhat delicate constitution, though when it does well it will grow quite strongly. The purple or amarantina is also very fine, the flowers large and full. One of the largest is the rose or salmon, the flowers very fine, but it is shy blooming. Then there is the late or giant yellow, also very fine indeed, and a good free bloomer. The blush is a sport from the white, very pretty when true, but apt to run back to the type. I have met with three or four varieties of Double Red, but I have named the two best. In all my experience as a raiser of Primroses from seed I have never yet obtained a full double type. Last year I had a white semi-double, but it produced seeds which germinated, and I am looking with some interest to see if any double forms will result. I have this season noticed a tendency on the part of some of the single coloured varieties to throw extra petals issuing from the tube or throat of the flower, and I am marking these with a view to experimenting with the seeds.

Occasionally a double form will appear among the gold-laced Polyanthuses, but scarcely ever among the show or fancy varieties. I have been much more successful with the alpine varieties of the Auricula, and have now a dozen or so varieties. Seed saved from semi-double varieties will yield a very small percentage of double flowers. I have not seen the old double yellow and the old double black Auriculas for years. Have they quite disappeared?

R. DEAN.

YELLOW AURICULAS.

It is not my intention to treat of the show varieties, of which there are a very few, and of which Horner's Buttercup is the highest development, but a number of others which are to be met with about the country, all more or less highly fragrant and free blooming. Let me commence with one grown on some parts of the Continent under the name of *Sulphurea*, a pale yellow variety, not, of course, claiming much refinement from the florist's point of view, but yet of good quality, pale in colour and very sweet. I think it must have some weakness of constitution, as, though giving it considerable care, I have not been able to grow it into anything like size. Buttercup, which I obtained from Scotland, is a small-flowered, bright yellow variety, singularly fragrant, and with the foliage slightly mealed. A few years ago, when visiting Normanhurst, Lord Brassey's seat, near Battle, I saw a very good single variety with fair-sized, deep yellow flowers, quite distinct from anything I had previously seen, with very handsome mealep foliage; this, for the sake of identification, I have named Norman Yellow. I should like to know the origin of this. Then there is Golden Queen, with slightly mealed foliage and large, rounded leaves. The flowers are buff coloured rather than

yellow, but it is a good grower. This does well in the open ground, being of a hardy constitution, and it is to be met with in the midland districts under several names. Yellow-coloured varieties are not uncommon among ordinary alpine Auriculas raised from seeds, but they are not often so pure in colour as one could desire, though occasionally a very good one can be met with.

Seed from carefully fertilised flowers will produce but a mixed progeny, and seed from Hetty Dean, one of the yellow self show varieties, has never given me a single yellow form, though I have raised several seedlings from it. They revert to poor self forms of some kind. A good single yellow, if the flowers be fertilised with their own pollen, will yield yellow-flowered seedlings, and from such I have obtained very good results. As I am very fond of the class, I am endeavouring to obtain as many distinct forms as possible. No doubt the best results would flow if one could grow nothing but yellows, thus isolating them from contact with anything else. It is worthy of notice that in the case of seedlings from fertilised show varieties of the best character pure yellows are seldom produced, but occasionally nondescripts, sometimes of singular beauty, in which yellow largely abounds, with pips of fine quality and smoothness, which have to be classed under the general head of fancy Auriculas. Those who care for this type will find them very interesting to cultivate.

R. D.

SOILS AND CULTIVATION IN THE FLOWER GARDEN: WATER, DRAINAGE, WEEDS, ROTATION, EVAPORATION, SHELTER.

MOST garden lovers strive for an ideal soil, but this does not always lead to happy results, and, even if we could have it, would only lead to monotony in vegetation. No doubt many will seek at all costs for the soil called the best, but the wisest way is rather to rejoice in and improve the soil fate has planted us on. In a limestone soil people often take much trouble to get peat in the vain hope of growing a few Rhododendrons, labour which would be better bestowed on improving the staple of the natural soil of the place. A good deep and free loam is best for many things, and from the view of high cultivation or market work, deep valley soils are almost essential, but we often see poor peats giving excellent results, from a flower gardening point of view, in enabling us to grow with ease many more kinds of plants than could be grown on heavy soil. How fertile sands may become with good cultivation is shown by the fact that some of the very best soils for hardy plants are those that have been poor sea sand, but improved by cultivation, and sometimes such soils are drought-resisting, as on reclaimed seashore lands. Yet now and then we see certain sandy soils absolutely refuse to grow Roses, Carnations, and in such case it is often better to give up the struggle. Chalky hills are wretched for trees and some shrubs, but there are few soils more congenial to garden vegetation than some chalky soils, and chalk tumbling into a valley soil is often excellent.

The most hopeless soils are the true clays, but the word "clay" is used in a loose way by many who have never seen a real clay. In the east of England and in Ireland, for example, the term is often used for dark free soil. The true clay which occurs in northern suburbs of London and near Horsham, Sussex, is not a soil on which a man could get a living, or if he does so he will get one anywhere! With such a soil our only hope is to cart good earth on to the ground. Whatever the nature of the soil in a given garden, it should to a large extent govern what we grow. If happy enough to have a sandy peat,

how easy it is to grow all the lovely evergreens of the northern mountains, which rejoice in such soil—things which, if they live on loamy and heavy soils, never come to fresh health thereon. On such soil, too, all the most beautiful kinds of hardy shrubs may be grown without trouble, and planted among these shrubs the Lilies and hardy bulbous flowers of Japan and America. If a deep and at the same time poor sea sand comes in our way, we can make perfect bulb gardens on it, and also grow trees and flowering shrubs very well after a time.

Soil must not always be blamed for failure with certain plants, because rainfall, elevation and, very often, nearness to the sea will affect plants very much. Thus things that do well near the sea will, on the same kind of soil, perish on it far inland. It is essential to study the secret of the soil and find out the plants that enjoy it—often not a difficult thing to do. Once free from the limits and needs of the flower garden proper, the right way is to take advantage of any local peculiarities of soil instead of doing away with them. Thus, if we have a bog, instead of draining it let us keep it and adorn it with some of the often beautiful things that grow naturally in bogs; if we have a sandy knoll, plant it with Rosemary or Rock Roses; if a peaty, sheltered hollow, make it into a beautiful Rhododendron glade, and so get variety of plant life in various conditions.

Then, as regards the natural habitats of plants, which we may usually ascertain, there is no doubt that it is useful to know where they come from, whether plains, valleys, or rocks, and what soil they grow on; but it is a knowledge that may sometimes mislead, because rainfall and elevation and other causes may lead us to suppose results due to soil which are really owing to accident of position. Many of the beautiful plants of the mountains of the East, such as *Aubrietia*, and a number of rock plants which grow in almost any soil with the greatest ease, would do no better if we tried to imitate their actual conditions of life in their native habitats, which are often absolutely different from the soils of our lowland gardens in which many rock plants thrive and endure for years.

CULTIVATION AND WATER.—Many think that heavy watering is necessary in seasons of drought, and it may be worth while showing how such heavy labour may be avoided. There are soils which are so thirsty, like the hot sandy soils of Surrey, that watering is essential, and some chalky soils, too, are almost hopeless without heavy watering, while water is often extremely difficult to get enough of on dry hills. But under general conditions there is not much trouble in getting rid of this labour and its attendant ugliness. The essential thing is to make the beds deep enough. Even with the best intentions, many people fail to do this, and workmen employed in forming gardens often neglect to make the beds deep enough, and are sometimes misled as to the depth of soil in beds, made when gardens are being laid out, the soil when it settles being really much less than it seems in the making. The only safe way for those who care for their flowers is to dig the beds right out to a depth of 30 inches below the surface before any of the good soil is put in. Then, if for general garden use such beds are filled in with good, rich, loamy soil and are gently raised, as all beds should be in cool countries, 4 inches or 6 inches above the surface, they will rarely be found to fail in any drought. Much depends on the size of the bed; the little, angular, frivolous beds which have too often been the rule in gardens cannot resist drought so long as broad simple beds.

With these precautions, and also autumn and winter planting, we ought, in the British Isles, to free ourselves almost entirely of the heavy labour of watering, and it would be better to have half the space for flowers well done than always be labouring with the water barrel. To be busy planting in autumn and early winter is a great gain too, because the plants get rooted before the hot time comes.

The source of success in flower gardening is to be always busy sowing or planting; there is scarcely a day or a week that some things have not to be planted or attended to if we want a succession of beauty. For instance, many bulbs have to be taken up in summer and very soon planted again; but when the men are from morn to night busy hoeing and watering and other routine work, it is difficult to get time for securing the successions of plants of various kinds on which the lasting beauty of a flower garden, beautiful at all seasons, depends. What kinds of plants we grow is important as

the country generally, there is no doubt that such deep culture well repays the doing.

At the same time what is needed in this way is often a question of soil. In some soils plants may be almost dead from want of water, when a few miles away in the weald the same kinds will be proud with food and moisture; but in all cases deep culture will tell in the flower garden. The farmer is often unable to alter the staple of his ground owing to its extent, but the flower gardener, dealing with a much smaller area, should never rest until he has got a deep as well as a good soil. This is given to many by Nature in rich valley lands, and on such happy soil the flower gardener's main work as regards the labours of the soil is changing the crop now and then with some modification of the soil to suit certain plants.

SOFT WATER BEST.—Where, owing to the dryness of the soil or subsoil or to shortness of the rainfall, we have to resort to much artificial water-

and as in the course of years the ground round most houses has been made dry enough for use, and hence elaborate work in drains, bottoming with brick-rubbish or concrete, is often wasted labour. In some years even in the moist west country we may see plants lying half dead on the ground from want of water, and the same plants in deep soil, and no thought given to drainage, in perfect health at the same time. There are places where, owing to excessive rainfall and the wet nature of the soil, we may have to drain, but it is often overdone.

Apart from the over-draining for ordinary garden things, it may be well to remember that flower garden plants in our country are often half starved through drainage (Phlox and scarlet Lobelia), which in their own country are marsh plants, or inhabit the edges of pools. In the southern country they simply refuse to show their true character where the ground is drained in the usual way. The men who began



Holland House (south front). From a photograph by Mr. H. N. King, Goldhawk Road, W. (See p. 335.)

regards the water question. If it is merely the mass of bedding plants with which many places are adorned in summer, these being all put out in early June, in the event of a hot summer there is nothing else to do but water all the time, or we lose them, as of course the roots are all at the surface in June. But where we have deep beds filled with Roses, Lilies, Carnations, Irises, Delphiniums, and all the noble flowers that can be planted in autumn or winter, we may save ourselves the labour of watering often. Thus it will be seen how much we gain in this way alone by the use of right open-air gardening.

What is here said, although true of the south of England and dry soils generally, is not so as to soil on cool hills and in the west country where the rainfall is heavier. In such cases it is not nearly so important to have the soil so deep, and a good fertile soil half the depth, with copious rain, may do. But, taking

ing, it is a great point to save the rain water as the best of all waters, not only for household uses, but for plants. Next to it comes river water, but to the very places that want most water, rivers, unfortunately, do not come, so that for garden use it would often be very wise to do what people do more in other countries than ours, and that is, save all the rain water we can instead of letting it run to waste, as it does so often.

DRAINAGE.—In our country too much thought and labour are given to drainage in the flower garden, to the neglect of change of plants and deep cultivation, and during our hot summers some way to keep water in the beds is more important than getting rid of it. Some soils, too, are in little need of artificial drainage, such as free sands, sandy loams, chalky and limestone soils, and much ground lying high, and much alluvial land. Houses are not usually built on bogs or marshy land,

the crusade about draining land in this country found its effects so good on sour, peaty clay and saturated land, and talked so well and so much about it, that some harm has been done—draining where it does more harm than good not being uncommon.

Gardeners' land and farmers' land are very different. Drainage is the simplest and best way for the farmer to alter the tilth and texture of saturated and cold or sour land, whereas the flower gardener, dealing with a small space for his beds, has the power of altering the tilth and texture of his land in a thorough way, and so making it open to the influence of rain and air. The position of the flower garden also is usually wholly different from that of agricultural land. The flower garden itself is frequently raised, and in a terraced, or at all events often healthy position, so that little thought need be given to the main drainage. Then again, the plan of gently raising the surfaces of flower beds to a

height say of 4 inches to 6 inches enables us to get rid in our flower gardens of the surface water, which very often troubles the farmer, and which he can best get rid of by drainage. By raising our beds gently—not in the ugly way practised in the London parks—we free the surface of any water lying on it, and this is a plan we much like, except in hot and shallow soils, where it would be better not to raise the surface above the level.

ROTATION IN THE FLOWER GARDEN.—Flower gardeners do not think enough of change of crop or what in farming is called rotation. A farmer soon comes to grief if he does not consider this, but in gardens one may see the same plants grown in the same beds for many years. A cause of the poor growth of hardy flowers is want of change of soil, and in addition the border in which they grow may be robbed by a network of hungry tree roots. There are botanic gardens in Europe where the same wretched plants have been starving in the same soil for fifty years, and little ever done to help them. So, again, there are favourite borders in gardens which are almost as much in want of a change, but, owing to their position sometimes being a favourite one, people hesitate to give it them. In such cases we should prepare a new border for the plants and remove them, and trench, renew and improve the soil of the old beds or borders, afterwards changing the crop for a year or two. If we take a crop of annual flowers, the annuals rejoice in the fresh ground, and they might be followed by a year of Carnations, after which a return might be made to a really good mixed border. When, however, we do change a border or bed, the staple of the soil ought to be thoroughly improved and made deep enough—changed if need be. In dealing with a soil which is too rich in humus, an addition of lime will improve it, but generally in such cases the soils are too poor and require renewing and deepening. Bedding plants have the advantage of fresh soil and often a total change every year, and hence the bright vigour they show when the seasons are fair. A little of the same generous care would help Roses, Lilies, and all the finer things in an equal degree, though many of these will be quite happy in the same soil for years if it be well prepared at first.

WEEDS AND RUBBISH HEAPS.—There is no institution of our land more firmly established than the ancient one of the garden rubbish heap, and certainly none which is more in want of abolition. Often disfiguring spots that might be pretty with Ferns or other plants, in addition they encourage vermin, filth, evil odours, and everything that we do not want in or near a flower or pleasure ground garden. In connection with the flower garden especially it is wrong, and yet we see it even where labour is scarce and the gardener is over-weighted with work, he adding to his labour by removing weeds and earth which might be better buried where he found them. The rubbish heap is less necessary in the flower garden than in any other, yet we find it established too often near it and in pleasure grounds.

But it may be asked, when we have weeds, what are we to do with them? The best way is not to have weeds if we can help it, but if we have them in the flower garden, let us not cart them and the best of the surface away at the same time, but bury them where they are, or use them over the roots of trees and shrubs. In most gardens there is some yearly planting, or there are young trees which we wish to save from the drought, and, instead of removing the precious mixture of rich earth and fat weeds, it is better far to bury them in the beds, or use them as a mulch to cover the

ground for 3 feet or 4 feet around young trees, or orchard trees if near at hand. To keep the ground clean is the first need, and that is only done by prompt and frequent work, that is to say, attacking the weeds when small regularly during the growing season, say every second week.

The old labour of grubbing up walks, which was so constant and dreadful in the very heat of summer, is got rid of by weed-killers, of which one dressing a year will sometimes suffice to keep the walks clean, and, better still, prevent us from having to rip up the surfaces of the walks, which was common in every garden until quite recently, and is no doubt carried on still in many places. The great gain of abolishing ignoble routine work in all ways we can is that we have time for the real work of the garden in adding to its beauty with new or beautiful things and improved ways of growing and arranging them. One excuse for the rubbish heaps is that they enable us to burn refuse, and of this we too often see evidence in the smoke round country houses; but we lose, not gain in a garden by destroying such organic matter. Certainly we have the ash, but much else is lost which is useful, and burning therefore should be kept to a few essential uses.

FIRE AS A CLEANSER.—A fire is a good aid in the garden when active changes have to be made and foul borders or shrubberies renovated or replanted. Where, in stiff soils, Twitch and other vigorous weeds take possession, with perhaps a number of worn-out shrubs among them, the simplest way is often to get rid of all by fire, not trying to disentangle weeds from the soil in the usual way, but simply skinning the surface 2 inches, or more if need be, and burning it and the vital parts of the weeds, first removing any plants that are worth saving. In light soils the labour of cleaning foul ground is less than in heavy, adhesive soils, but fire is a great aid in all such cases. If we are removing ugly and heavy masses of Laurels or other evergreens, which have never given grace or flower to the scene, we should burn them root and branch at the same time, the result being that we get rid of our worst weeds, and turn enemies like Goutweed into good ashes. Nothing is more wasteful than the common way of cleaning the surface of foul ground by wheeling soil to some other place. This weedy surface of old garden ground is often the best of the soil, and it is much better to burn it on the ground. Regular cleaning will keep down all young weeds, but it is a struggle to get the old and bad weeds out of the soil, owing to the broken roots of Bindweed, Twitch, and Goutweed which escape the closest forking and sharpest eyes. Next there is barrowing or carting to take the weeds to some rotting heap, while, on the other hand, the friendly fire eats up and kills at once the whole of the weeds, and converts them and the burnt surface they infested into good earth, and all this is gained at once without barrow or horse labour. So that, whatever we may think of cremation for ourselves, it is a good friend in fighting weeds and in helping us to thoroughly cleanse foul garden ground. We have not even the trouble that they had with Don Quixote's books—to carry them into the yard to burn them—as we can so often burn the weeds on the spot, insects and grubs included.

EVAPORATION.—Mulching or covering the surface with various kinds of light materials, such as leaf mould, cocoa fibre, decayed manure, and sand, or anything, in fact, which gives an inch or two of loose surface to the earth and prevents evaporation, is a great aid on many soils, but may be not so im-

portant where the beds have been thoroughly prepared, at least not for Roses, Carnations, and many of the best flowers, because if the roots can go down and find good soil as far as they go they really do not want mulching, save on very hot soils.

Mulching of various kinds or loosening the surface of the ground is, however, much easier to carry out in the kitchen and fruit gardens or orchard than in the flower garden, the surface of which we wish to be quite covered during the fine season. This is the prettiest way and is not difficult to carry out, as we often see it in cottage gardens and in Nature itself, where the health of the forest and other fertile lands depends to a certain extent on the ground being covered with vegetation, which of itself prevents direct evaporation. We see the same thing occur in cultivation where the ground is covered with the leaves of plants, as in a well-cropped market garden. Taking a hint from this, we are very fond of covering the surface with living plants of a fragile dwarf nature, which cannot exhaust the soil, and which in very hot weather may even help to keep it moist. This is done in the case of Roses and other plants which, being rather small and bare at first, want some help to cover the ground, and a great number of very pretty plants may be used for this purpose, which will give us bloom in spring and good colour on the ground. This, of course, prevents the use of manure, hitherto a very common way of dealing with the flower bed, for Roses especially. It is very much better that the assistance of manure should be given at the root instead of the surface. If we give plenty of manure and rich soil, there is no need for surface mulching. Covering the surface with living plants is worth doing for the sake of the effect alone even if we have to pay for it in other ways. One result of it is that we may have a beautiful spring garden in addition to the summer garden—that is to say, if our garden is planted for summer and autumn with Roses and the like, by the use of Tufted Pansies and other dwarf plants in the beds we get a graceful effect in spring, and through this living carpet may come up many pretty bulbs. Thus we may have in the same beds with a little care and thought two or three different types of flower life.

SHELTER AND WIND SCREENS.—Shelter of some kind is important, and few countries are so well provided with the means of shelter as our own, owing to the numbers of evergreens that grow freely with us and thrive in seashore and wind-swept districts. Shelter from trees is of two kinds, *i.e.*, lines near flower beds and more distant shelter, which might be called wind-breaks, across the line of prevailing winds, and also against the north and east winds. Here evergreen trees, Yew, Ilex, Cedar of Lebanon (never Deodar), Fir, native, and a few other hardy Firs, but no other single tree better than the Ilex or European Evergreen Oak from its close evergreen habit and storm-resisting ways, as we may see at Waltham, Killerton, St. Anne's, Goodwood, and many places in the coast districts of England and Ireland. But happily, even in the most exposed places, a good many hardy flowers may be grown with success, such as Carnations, Pinks, and many of the rock plants, which in a sense clasp the ground, and are therefore little exposed to the action of the wind, and in any case may be seen thriving in the most exposed soils, where soil and cultivation are not against them. English gardens are often well sheltered by the house itself and by old walls and enclosures, so that frequently in older places it is easy to secure shelter for favourite kinds of plants. In

old times shelter was often obtained from clipped hedges of Yew and Lime, but the many evergreen shrubs we now possess make the getting of shelter much more easy and effective, as naturally grown shrubs soften the wind better than clipped lines, and it is often easy to get effective shelter by using such shrubs, which are themselves beautiful in leaf and bloom. There is, indeed, in English gardens the danger of overplanting and planting too densely at first, so that after some years the place becomes dank and the very house itself is made cheerless. The pretty little conifers that people plant they do not think of as forest trees, and parts which should be in the sun are dark and overshadowed—a great mistake in a climate like ours where sun is wanted as well as shelter.

Among the kinds of shelter, walls, thickly clad with climbers, evergreen and others, are the best for close garden work, because they do not rob the ground, as almost any evergreen tree will. Among the best evergreens are the native ones, Holly, Yew, Box, and Fir. The largest of these are most effective when they shelter the garden without encroaching too much. Half-hardy evergreens, like the Cherry and Portugal Laurel, should never be planted to shelter the garden, because they may get cut down in severe winters.

NOTES AND QUESTIONS.—FLOWER.

Carpeting plants.—Some time back I recommended covering beds with the evergreen Sedum (a bit of which I enclose) and dotting bulbs singly about it. I have now carried this out on a large raised bed at Oakwood, using bulbs having blue flowers, such as *Chionodoxa gigantea*, *C. Lucilia*, *C. sardensis*, and different *Muscari*. This has been much admired, and is, I think, worthy of a note. I propose trying another Sedum bed with the best of the smaller and lower growing species of *Narcissus*. Another quite different bed is now in beauty, and a tree of Weeping Cherry (*Cerasus pendula*) now in full bloom had thickly planted under it *Primroses* of many different colours. The effect of the flowers above and below is, I think, good.—GEORGE F. WILSON.

Notes from Newry.—I send you flowers of *Azalea ledifolium* var. *narcissiflora*. This is valuable on account of its earliness. It is scarcely suited for the open air here, but in a cold house or a matted screen it is quite safe. Its large semi-double rosy-lilac blossoms are quite unlike anything else that we have. *Mertensia oblongifolia* is now in flower here; it grows only 3 inches or 4 inches high and bears quite freely nodding flowers of the brightest blue. *Anemone syriaca*, flowers of which I send, is quite the most brilliantly coloured of the whole race. *A. fulgens* looks pale beside it. A mass of it in flower here is indescribably brilliant. *Anemone fulgens bicolor* is an uncommon plant. The flowers are really white, freely striped, flaked and mottled with scarlet.—T. SMITH.

Notes from Baden-Baden.—The Scythian variety of *Anemone blanda* is in unusual beauty; it is a fortnight later than the type, but it is larger, and better of shape and colour. Its flowers are each fully 2 inches across, the blue a pure cobalt, and the white a fine snow-white. *Fritillaria imperialis cebatanensis* is in full flower, being a fortnight earlier than the other varieties and of a very much brighter red colour. The white and rose varieties of *Hepatica angulosa* are desirable, and *H. a. nivea* is better than *alba*, its growth more robust, the flowers larger and more showy. The deeply-cut dark green and white marbled leaves of *Delphinium tuberosum* from Persia mark a very distinct and striking species. I have not yet seen its flowers, but am told they are deep blue. *Tulipa Kaufmanniana pulcherrima* shows well its gaudy colours, and there is also a splendid species from the Black

Mountains in India. This is a charming white, with a very faint shade of rose and violet anthers, good and showy in form.—MAX LEICHTLIN, *Baden-Baden*.

Cyclamen (cilicium or cilicium?).—With due deference to Mr. Wolley-Dod's judgment in this case (see p. 235), permit me to observe that Latin adjectives derived from proper names of countries ending in "ia" are almost invariably formed by changing the final 'a' of the name of the country into "cus." Thus, from Germania we have *germanicus*; from Hispania, *hispanicus*; from Bithynia, *bithynicus*; from Persia, *persicus*; from Illyria, *illyricus*; from Gallia, *gallicus*; from Italia, *italicus*; from India, *indicus*; from Dalmatia, *dalmaticus*; from Helvetia, *helveticus*; from Iberia, *ibericus*; from Numidia, *numidicus*; from Anglia, *anglicus*; from Scotia, *scoticus*; from Hibernia, *hibernicus*. Why then object to "cilicium," from Cilicia? The foregoing numerous examples appear to furnish overwhelming evidence that it is the right word.—W. M.

ORCHARD AND FRUIT GARDEN.

MULCHING FRUIT QUARTERS.

THE value of annual mulching of all quarters devoted to fruit is not fully appreciated. I have lately been through a good many villages and hamlets in this county, and it is sad to see the way plantations of fruit are managed by those who do other parts of their gardens well. A common sight at this time of year among cottagers and even gardeners in places of some pretensions is a quantity of loose manure laid on the ground to be dug in with the spade. There is, so to speak, a double disadvantage in this; in the first place the upper tiers of roots are badly cut about by the spade, and whoever has had much experience with Raspberries, for instance, with their upper feeding roots and lower thong-like ones—evidently designed by Nature principally as a mechanical support—knows well what harm is done thereby. Then the fact of turning up the soil at this time of year to bury the manure is bound to let the sun in more freely than is desirable during a dry summer. But, all unconcerned about this, the work goes on, and the cultivator views with satisfaction the smart appearance of the plot when the digging is completed. I have mentioned Raspberries as a class of fruit easily injured in this way, but of course Currants of sorts, Gooseberries, and other fruit trees are more or less damaged. Had the soil been lightly hoed and the manure spread as far as it would go over the surface, far more good would have been done. The roots, instead of being injured, would be encouraged to the surface, most of the feeding properties of the manure would be washed down to them by the rains, while the loose material on the surface forms the best protection possible from the rays of the sun. A little strength may, of course, be lost by evaporation, but the loss is infinitesimal as compared with the damage done the other way.

It is not everywhere that enough manure for an annual mulch of all the fruit quarters is at command, but a very useful material for the purpose may be produced by laying up through the season all turf edgings, leaves, refuse from the potting bench, and, in fact, almost any kind of garden rubbish not of an offensive character when decaying. Everything of the latter class, and all material as hedge or tree prunings, twitch or perennial weeds, should be slowly burnt in a smother and will form a welcome addition. Equal parts of these materials and good stable or farmyard manure are the best possible dressing for fruit quarters. Where

lime is deficient in the soil, a little of this—about a bushel to every two cartloads—may be added, but in many soils this element is already quite enough in evidence. Useful as it is, used in due ratio with other substances, it is easy enough to get too much lime in many composts and soils. For stone fruits of all kinds it is especially valuable, and if Peach borders and the soil around Plum and Apricot trees had a little more of it, and less humus, there would be often more fruitful growth and less fruit-dropping at stoning time.

Two years ago I planted a lot of Apple and Pear trees on the grass here, and, not knowing much of the soil, no manure of any kind has been given until this spring. In spite of all that may be said in favour of closely heading back, these trees have had practically no pruning since they were planted. Growth has not been particularly free, for we have had two dry summers running; still, I am perfectly satisfied with their appearance, and this season all have been given a mulch of about 6 inches of good farmyard manure. As almost every tree is well set with fruit-buds, this dressing—except in the event of late frosts cutting the bloom—should have its effect upon the fruit, and will not be thrown away in any case. It is the same with old-established trees in grass orchards. In many cases hay is made every season, and perhaps a few sheep may be turned loose on the after-grass. The product of the soil is taken away, and nothing given in return. A mulch, then, of good material to trees growing in such positions is of the greatest possible benefit—in fact, quite essential if good fruit is looked for. Where sheep are folded and fed in an orchard it is a different thing, but this is seldom done. Where plantations of Apple, Pear, or Plum trees are under-cropped with smaller fruits, the need of these annual dressings is felt even more than where the trees have all the soil to themselves, and a mixture as advised above is better and more lasting in its effect than a mulch of manure only. Without a knowledge of chemistry, such as some hold is necessary for a cultivator, it is usually an easy matter to tell in what direction a certain soil falls short, and additions to these surface-dressings may be made accordingly. H.

Suffolk.

Peach Princess of Wales.—Like several other of the later Peaches, this is not of good flavour unless it is given the highest culture. The fruit, in fact, is not worth eating, being soft and woolly. I have a very fine young tree in a cool house, and though a few of the fruits at the top were of fair flavour, the rest, though highly coloured—for the variety—and of full size, were not good enough for dessert, and small fruits of Elruge Nectarine from an old tree outside were preferred for table. It is a pity, for it is a nice-looking fruit and comes in at a useful time.—H.

Peach Waterloo.—This is one of the most valuable of early Peaches, and trees started at the middle of January have the fruits as large as a small Walnut and are stoning quickly. It is perhaps a little more prone to bud-dropping than some other kinds, but I have found it singularly free from the troublesome habit of losing the fruits after setting that is so noticeable in the Noblesse and Grosse Mignonne types. The flavour is good—as good, in fact, as that of Hale's Early and other American kinds—and though my experience may not accord with that of some other growers, I find it not far behind the early type of Grosse Mignonne in this respect.—H.

Orange culture.—"Hortus," in the fruit calendar for April 9, strikes a very suggestive note in his remarks upon Oranges. In many places in the past the Orangery was a dark, dismal place, large enough to suit the most

exacting in this way, but far from suitable for the trees that were expected to grow there. In light conservatories and houses of more modest dimensions than were formerly thought necessary, much more suitable quarters can be given, and there are few more ornamental subjects. Certainly none will be attractive over such a long season, for there is not a month in the year in which a well-kept lot of plants will not repay a visit. The blossoms are in request, and the fruit is useful and beautiful on the trees, if not exactly suitable for first place in the dessert. This being so, Oranges should be more grown, for there is nothing difficult about their culture, as witness the many fine specimens that have been produced under the unsuitable conditions noted above. This week I noticed some very fine old specimens in a neighbouring garden, but so hemmed in with Palms and various other plants that their beauty and symmetry were entirely lost, though their fragrance was perceptible enough.—H. R.

Forcing Strawberries.—Can any considerable number of private gardeners come to anything like unanimity in selecting the best Strawberries for forcing, and which is the best method of storing during the winter pot Strawberries that are waiting to be forced? The other day I saw Royal Sovereign fruiting and also blooming most abundantly. The fruits were fine, richly-coloured, and presenting all that can be desired in forced fruit, each plant in a 6-inch pot carrying from ten to twelve fruits. Royal Sovereign is worthy of the greatest possible praise, and is regarded as the very best accession to forcing Strawberries that has cropped up for many years. The latest for cooler culture is Sir Joseph Paxton. How many other growers, I wonder, would select these as the best? At Hackwood Park, Mr. Bowerman stands the pots on a hard ash floor quite out in the open, the pots being plunged to their rims in ashes. So treated any loss is very rare, and the plants always have their crowns plump and in capital condition. The fine fruits and crops the plants produce are largely attributed to this exposure to air and rain all the winter. There are many gardeners who adhere to the old fashion of clamping their pot plants on their sides. How dry the soil of such plants must have become, and how the roots must have suffered from lack of moisture during the past dry winter, it is easy to understand. All growers get fairly good results, but still it would be interesting to learn which method is, after all, the best.—A. D.

Apple French Crab.—At Westonbirt this Apple, which is also known as Winter Greening, is highly thought of. It is one of the few sorts that succeed well at Westonbirt, and, according to my experience, a more reliable variety could not well be named. To all appearance Tasmanian growers think more highly of it than we do, and they are to be congratulated upon their sound judgment. It is true a few trees are to be found in west of England orchards, and those who were not in a hurry to gather their fruit and store it properly have recently experienced no difficulty in obtaining 12s. per pot (72 lb.). Those who are in a position to do so ought to re-graft some of their trees of valueless varieties with French Crab, for it is very certain there are few more easily grown or more profitable varieties to be preferred to it. The tree is of a free yet remarkably productive habit of growth, flowering somewhat late, and rarely failing to set good crops of fruit. This on the trees presents a grass-green appearance, and is late in maturing. If gathered late and stored in a cool, dark, and somewhat moist place, the fruit will keep fresh and plump till Apples come again, and, if need be, could be kept very much longer. At the present time fruits moved to warmer—not hot—quarters are fast changing to a deep yellow colour, a flush of colour showing on some of them comparing favourably with foreign produce. They are somewhat acid in taste, pleasantly so if eaten raw, but cook admirably. Trees may be grown as large bushes, pyramids, or standards.—I.

Strawberries.—One of the results of the latter-day system of only allowing the plants to remain

on the ground long enough to bear one or two full crops, and keeping up always a supply of young plants, is that they recover quickly from checks, however caused. The drought last year tried the plants severely, but they have made a wonderful recovery, and are now looking in excellent condition, the plump crowns promising well for a full crop. The fine dry March and early April gave an excellent opportunity for cleaning the beds, so that they should now be in excellent trim for mulching, and the present is quite the best time of the year to apply it, as the feeding roots are becoming active, and will soon require a great stimulus from a coating of well-decayed manure to be applied previous to surfacing with the longer litter provided for keeping the fruits clean. I never practise autumn mulching, as I find that the plants winter much better with a clean surface to the soil, and they certainly require no feeding through the winter; but the same thing applied in spring makes them throw their scapes and leaves up boldly and feeds the roots to their fullest when the fruits are swelling: it also acts better as a conservator of moisture in the soil at the time it is most needed when applied at this season. The varieties which promise best here are President, Royal Sovereign, Noble, Leader, Monarch, Cumberland, Triomphe, Dr. Hogg, Latest of All, Countess, and the good old Vicomtesse Héricart de Thury, while those not so promising include Laxton's No. 1, Frogmore and Baron Brisse. Among the above are some few which have not yet fruited here, so the test for quality has yet to come.—J. C. TALLACK.

NOTES AND QUESTIONS.—FRUIT.

Apple Annie Elizabeth.—Mr. Chapman, the gardener at Westonbirt, has formed a high opinion of this Apple. He finds it succeeds admirably where many other varieties have failed, the soil, principally collected or made, not suiting Apple trees as a rule in the gardens under his charge. Fine, well-developed, carefully and sensibly thinned out trees were shown me all in a most promising condition as far as fruit-buds are concerned—this in spite of having produced heavy crops of fruit last season. The fruits of Annie Elizabeth are rather large, heavy, and fairly attractive in appearance. It cooks admirably, and is one of the best for mid-winter use, but when kept till February or March is quite good enough for dessert. This variety is an old favourite in the south-western counties.

Strawberry Royal Sovereign in small pots.—I agree with "G. W." (p. 297) as to this Strawberry. Like him, I too have found it good for early forcing this year. But it is to its value as a kind for growing in small pots that I wish to draw attention. Last autumn having some four or five dozen plants of this kind left over when I had finished potting and planting out, I thought I would try how they would force in these pots. Accordingly I had them set out in the full sun and well supplied with manure water. In December these were removed into a frame and stood on an old spent hotbed. Early in January they were removed to a house where the temperature was kept at about 50° by night. The fruit set well, and about March 20 I was able to gather nice highly-coloured fruit. Many of the plants gave from five to eight good-sized fruits.—DORSET.

Apple Gloria Mundi.—There is a very general opinion, which has found expression lately in these columns, that Gloria Mundi is a very poor bearer. This conclusion is doubtless correct in the main, although there exist exceptions to this rule of unfruitfulness. Mr. Wythes writes that, grafted on the Paradise stock and growing in light soil, it rarely fails to crop, and my experience with a single specimen growing in bush form in heavy soil has been satisfactory. For each of the five past years, with one exception, when it carried but a few fruits, this tree has borne well, and has compared favourably with Warner's King growing by its side. The fruits

are very handsome, and being exhibited in the "any variety" class on one occasion, easily won first prize. I mention this fact, as I was told by a large fruit grower that if the tree was a good cropper it could not be Gloria Mundi. I notice that this year the shoots of the subject of this note are well set with fruit-buds.—S. W. F.

Which is the best Fig?—In asking this question consideration has to be given not to merely size or flavour of fruits, but to general or average excellence, easy culture, and freedom to crop. Mr. Bowerman, of Hackwood Gardens, recently gave as his opinion that, after trying the best of other recommended varieties, none was so satisfactory as Brown Turkey. Probably that is the opinion of most gardeners. Where, however, collections of Figs are grown in pots as at Chiswick, there may be some others entitled to high consideration. At the last Drill Hall meeting a box of superb fruits was shown by Mr. Beckett, of Aldenham House Gardens, that had been gathered from a tree carrying a very heavy crop. At Hackwood there is in a lean-to house a single tree that covers a width under the roof of 22 feet, and from base to top of branches 11 feet. The wood is not at all thickly laid in, but the fruits are disposed all over it evenly, and so abundantly that the gardener estimates there are 1200.—A. D.

GARDEN FLORA.

PLATE 1167.

DARK-FLOWERED CHRYSANTHEMUMS.

(WITH A COLOURED PLATE OF 1, JULIE LAGRÈRE; 2, JOHN SHRIMPTON.*)

PROBABLY no colour is so much sought after in Chrysanthemums as the true crimsons without any shades of maroon, and none other are so generally admired. Progress is, however, slower with such varieties than with those of any other colour; first, because the true crimsons raised are in a very small minority in comparison to the vast army of whites, yellows and lilacs we get year by year; secondly, many of those which are raised and sent out have some inherent defects of habit or liability to damping that prevent them from being quite satisfactory.

The two varieties in the accompanying plate have taken a lasting position as being among the best decorative varieties in the colour. Julie Lagravère belongs to the reflexed class and is one of the oldest varieties; its flowers are small and it should always be grown without any disbudding, as it never looks better than when in spray form as shown here. In habit the plant is dwarf, bushy and very free flowering, and the flowers have a rich velvety appearance which enhances the charming colour. A certain proof of its value is that it has held its place for so many years in all collections where decorative, as distinct from show, Chrysanthemums are valued. John Shrimpton, the companion variety shown in the plate, is a newer introduction, but still old enough to be looked upon as a standard variety; it is often used as a show flower when grown to its fullest size by disbudding, but it also is most attractive in sprays. In general form and appearance it much resembles a still older variety, Cullingfordi, but is bigger and fuller as a flower and the plant is more robust.

In cultivating Chrysanthemums to produce sprays of flowers it is necessary to stop the young plants two or three times before the end of June; this will force the development of a sufficient number of breaks to form the basis of

* Drawn for THE GARDEN in Mr. Howard's garden at St. Albans by H. G. Moon. Lithographed and printed by J. L. Goffart.



FW. SCHUBERT. ANTI. YOUNG. 1. JUNE. LA. PAVFRE. W. JOHN. BURIME. DON.

a dwarf and bushy plant. The early striking indulged in by growers of big blooms is neither necessary nor wise for bush plants, as such a long season of growth leads to the loss of the lower leaves and a straggling-looking plant. My practice is to strike the cuttings at the end of March or early in April, putting three cuttings into a 3½-inch pot, and all except the stronger growers (which are struck singly) are potted on intact, so that a sufficient number of shoots is formed earlier than they would be by single plants. The growths are staked out as they advance, so that each is allowed sufficient room to enable it to become well ripened, which is an essential point, as, unless the stems attain a certain amount of hardness, the flowers will hang their heads instead of holding them erect, this being a defect common to many dark-flowered varieties. Early housing of bush plants is a mistake, for every day that can be spent in the open air helps to strengthen the flower-stems, and it is better to afford a little protection outdoors on cold nights than to house the plants on the very first approach of frost. After housing, ventilate freely, and only use sufficient heat to keep out frost and to dry the atmosphere, for any forcing of the growth tends to produce weakness of stem and peduncle.

A selection of good crimsons suitable for the growth of sprays will be found in the following list, which is not exhaustive and consists only of proved varieties, which are arranged in accordance to their season of flowering.

CRIMSON PRECOCITE.—Small-flowered, dark crimson a very free-flowering October variety.

WM. HOLMES.—Rich crimson in early stages, getting lighter as the flowers develop; a very free-flowering good variety with massive and erect sprays.

G. W. CHILDS.—One of the richest in colour and good form. It cannot be recommended for long sprays, as the terminal breaks do not develop freely.

TOKIO.—This a most beautiful rather small-flowered variety, its flowers bright crimson and gold. The growth is erect and the flowers very long-lasting when cut.

CULLINGFORDI.—Rich deep velvety crimson; a charming old variety.

CRIMSON GEM.—Small, single-flowered, crimson, with yellow eye; excellent for small sprays.

Of other good crimson varieties suitable for show blooms especially, but among which there are some which also make nice sprays, are: William Seward, very dark; Jeanne Délaux, crimson-brown; Charles Shrimpton, similar in colour, but a fuller flower, extra good; Edwin Molyneux, rich velvety crimson when seen at its best; Mr. A. G. Hubbuck, a large and charming variety, bright crimson; Matthew Hodgson, very similar in colour to the preceding; and Richard Dean, crimson and gold. The foregoing are all Japanese varieties; crimson being a badly represented colour in incurveds, only one of which, Owen's Crimson, is worthy of mention here, and this is a very uncertain variety both as to colour and form.

J. C. TALLACK.

Plant names.—The protests that have been recently made in THE GARDEN against the continual changing of names by many botanists will be upheld by every lover of plants, for nothing is more confusing and aggravating to the practical man than the system, or rather want of a system, adopted in the naming of plants. The worst of all is the bestowing of new names on old favourites, and on this point no better advice could be given than in the concluding sentence of the remarks of your correspondent "H. O'M." (p. 233), viz., "The only thing to do is to ignore the whole thing and use our old names." This advice will

certainly be followed by many, and it will, I think, be a long time before the charming St. Dabeoc's Heath (*Dabeocia polifolia*), which was illustrated last October in THE GARDEN, is generally known by its latest generic name—*Boretta*. In the same way *Azalea* is scarcely likely to be discarded for *Rhododendron*, or *Combretum* for *Poivreia*, while *Lasiandra* and *Pleroma* will hold their own against *Tibouchina*, which is the latest generic name for this beautiful plant. Though the genus *Amaryllis* is swallowed up by *Hippeastrum*, *Ampelopsis* by *Vitis*, *Poinsettia* by *Euphorbia*, *Eulalia* by *Miscanthus*, *Weigela* by *Diervilla*, *Rhynchospermum* by *Trachelospermum*, the older names are not likely to be discarded by cultivators in general.—H. P.

THE WEEK'S WORK.

KITCHEN GARDEN.

SEAKALE.—Seakale well repays good cultivation. Though it will grow on the coast in poor sand, the produce is inferior in size and flavour to that of roots grown in good land. Roots that have been forced are at times replanted for another season's crop, but to get first-rate heads I do not advise using old roots, as excellent produce may be grown in one season from root-cuttings. In planting with a dibber, it is well to place the sets below the surface, as there is a tendency to grow out of the soil, and it is necessary that each set should rest on the soil to encourage downward root action. Roots or sets secured from late cuttings may be forwarded by placing in cold frames. They soon form crowns treated thus, and at planting it is well to reduce crown growth to the strongest. Many leave the roots for years in one place. Grown thus the roots get divided, and do not produce such good crowns. Plants from root-cuttings may be grown in rows 2 feet apart and 18 inches between the plants if they are to be lifted for forcing. If for permanent work more room is required; quite 3 feet between the rows is none too much.

NATURALLY-GROWN SEAKALE.—Seakale grown in the open and not lifted is far superior to that grown otherwise, and now is a good time to make permanent beds in well-cultivated land, giving even more space than advised above if the plants are covered with soil to blanch the growths. The strongest sets or root-cuttings should be got for this purpose. Any weak roots of last season that were too small to force will do well to plant now. These should be cut over, as it is useless to leave the growth just showing, as this will be a flower-stem and of no value. In planting small roots of last season's growth, it will be well to trim the roots previously and make them as firm as possible at planting if the soil is porous. Plants grown thus will give a supply from April to the end of May, and at a season other vegetables are none too plentiful. Many use boards or frame coverings for the supply in the open ground if in light soil. I merely cover the crowns with fine coal ashes to ward off slugs, and then bank up in ridges 18 inches high with soil from between the rows. If growers wish, they may use pots or covers, but, needing large quantities, I rely upon the simple and cheap method advised. Naturally-grown Kale may be forwarded or retarded as desired. If the former, some warm litter between the rows after earthing up will soon produce a crop; if the latter, some dry, long litter placed over the ridges will retard it, as it prevents the sun warming the earth, keeping the roots cooler.

SEAKALE THAT HAS BEEN CUT OVER.—Plants that were grown in the open in warm localities and covered will now have been cut over, and if at all old I would advise new roots in preference to growing on for another season. If this advice is followed the culture given above will be advisable. I never leave Seakale roots more than two seasons, that is, after two crops have been secured, as the roots split up badly and make smaller crowns no matter how well treated. I do

not advise raising Seakale from seed. Forced plants just cropped, having been covered with pots or boards and left to produce a crop next season, will need food. Fish manure or any quick-acting fertiliser such as salt, soot, and guano will promote new growth, forking the manure between the rows. As soon as new top growth is large enough the crown growths should be reduced to the strongest. It is not too late to fill up gaps in the rows and make the quarters tidy for the season.

FORCED ASPARAGUS BEDS.—My note refers to permanent beds forced in the open. At the end of this month it will be well to cease cutting, as in my case the beds have been bearing for three months, quite long enough if next season's crop is considered. Few vegetables are more valuable than Asparagus grown in the open. To be a success, now is the time to feed and build up for next season's crop. Liquid manure is a splendid fertiliser if given from May to July, salt also being used during that period. I find a top-dressing of cow manure after cutting ceases is of great assistance in a light soil. It is difficult to give animal manures to beds forced at any season other than the period advised, as they are of little use when the plants are resting. If the plants need food, manure and soil mixed with soot and bone-meal will be of great value, and later beds will benefit if treated similarly. I find two lots of beds grown thus of great value, as in late seasons the beds keep up a good supply till there is plenty of Asparagus from beds given ordinary culture in the open.

CHICORY.—This is mostly used as a salad, but if grown specially for forcing during the winter, it should be sown early in May to produce large roots. Though deeply-dug soil is advised, avoid rank manures, as these tend to produce forked roots and the plants run badly. The Witloef is the best. This placed in a dark house at a temperature of 50° during the winter months will produce shapely growths not unlike Seakale, but of a peculiar flavour and much liked by many. As a salad plant Chicory is one of our most useful roots, as it may be had in quantity from November to May and is a great help when Lettuce is scarce. I winter the roots in the open where grown till the land is needed for other crops, and then place close together under a north wall, covering with soil to prevent the roots drying. These plants make a large top growth, needing 2 feet apart in the rows, and thinning to 15 inches between the plants.

CARDOONS.—Now is the time to make a start, and in well-drained, rich soil the seeds may be sown in lines 3 feet to 4 feet apart, and 18 inches in the row. It is not necessary to sow in deep drills. Time will be saved at the start by sowing a few seeds in 4½-inch pots and thinning to a strong plant when above the soil. If placed in frames and near the light, the plants will be strong for planting out in a month's time. If sown under glass the growth is much stronger. It is well to prepare trenches for the plants and grow similar to Celery. Excellent produce may be obtained by ordinary culture if the soil is good, and a medium-sized plant is less inclined to run to seed during the late summer. Plants raised under glass need more space, as in the autumn a good lot of soil is needed to bank up the plants for blanching. There are not many varieties; the one mostly grown is the Spanish variety.

CELERIAC is another vegetable often overlooked by growers, but one worthy of attention, as it may be used either as a salad or as a vegetable. Sown like Celery it will give supplies all through the winter months, and lovers of Celery in a boiled state should not omit to grow Celeriac. A box or pan of seed sown now in heat and treated like Celery in its earlier stages will suffice. Like Celery, it likes good soil, well enriched, and ample supplies of moisture during growth. It need not be grown in trenches provided the soil is good. I plant in rows 3 feet apart with 18 inches between the plants, and give liberal supplies of liquid during growth. In cold clay soils it may be necessary to lift in the autumn and store like

other roots, but I have never done so. It keeps sound into April and is much liked for salads when cut up like Beetroot. There are excellent Continental varieties, such as the Early Erfurt, a very good one for sowing in the open ground. The Large Smooth Prague is a very large excellent root, as is also the Apple-shaped, a favourite in the Paris market. Any of the above superior to the ordinary variety grown for flavouring.

SALSIFY AND SCORZONERA.—These are valuable in winter when the choice of vegetables is limited. Many will do well to defer sowing in very light soil, as Salsify sown too early runs to seed. In good land from now to the middle of May is the best time to sow. Avoid recently manured land, as in this the roots are liable to come forked, whereas a straight long root is needed. Both need the same culture. Of late there have been some improved varieties introduced. The Mammoth or Giant Salsify is a great improvement on the old form, and the new large Russian Scorzonera is a larger root, thicker and more hardy. These should be sown very thinly in shallow drills in an open position, allowing 2 feet between the rows and 18 inches between the plants, thinning early. The plants run in very dry soils, so that a cool border is most suitable. To get fine roots liquid manure during the growing season may be given freely. To prevent loss of roots by running I have for some years sown later and in deep drills and obtained excellent produce.

S. M.

FRUIT CULTURE UNDER GLASS.

FIGS.—The earliest plants in pots are now almost past. These in my case have been divided into two batches in order to further extend the season. The varieties grown for the earliest crops have already been given, but it may be as well to repeat them here. They are St. John's and Pingo de Mel, both of which are most reliable as regards the carrying of the first crop under hard forcing during the very duldest season of the year. On the other hand, I do not find them carry a good second crop. The planted-out trees will now take up the succession, and for this purpose Brown Turkey and White Marseilles are the chosen kinds; thus a variety is afforded, whilst the quality, too, is improved. Trees the fruit on which is now on the point of ripening should be kept somewhat drier at the roots, so as to avoid cracking; thus with a modified temperature as regards moisture, but not to any excessive degree, this evil may be overcome where hitherto it has been prevalent. It is of course assumed that rather more ventilation is given than previously, and also that no shoots are pinched just prior to the ripening. It will no doubt be necessary to thin the crops on trees that are now rapidly swelling off their fruits, as in all probability a greater number will at this season under more favourable conditions be, as it were, racing each other for supremacy. It is hardly possible to set any fixed limits as to the crop to be carried in any case, but if the shoots be not trained too thickly it may be taken as a guide to allow strong shoots to carry three fruits, medium ones two, and weaker ones only a fruit each. There is oftentimes a tendency to lay in an excess of wood, but it must not be carried too far, nor should the lateral or side shoots be allowed to extend beyond the fourth or fifth leaf at the most. The strong or leading shoots may extend farther, but not to a great extent, otherwise the strength of the trees will not be equally distributed. Where it is seen that any overcrowding is imminent, some of the weaker or worst placed shoots can be cut back after the first crop has ripened. The latest Figs are oftentimes amongst the most valuable and useful; these should not be pushed on too fast, nor with the less need of fire-heat be damped down or syringed so freely, otherwise the foliage will expand too much, and this is not at all desirable. For instance, such a vigorous grower as Negro Largo requires care in this respect, otherwise the embryo fruits will be back-

ward. Should any experience the non-fertile character which sometimes obtains in the case of this fine Fig, they are advised to pinch at the fourth or fifth joint, and if the fruits do not then push up to pinch again (*i.e.*, the second shoot) at the second eye. By this persistent pinching it will not often occur that the tree is non fertile. It is assumed in the case of trees that are more vigorous than is desirable that they are not manured or mulched or in any other way encouraged in this direction. The latest stock of all for greater convenience may be advantageously grown in pots, and for this purpose Negro Largo is one of the best kinds to rely upon, although Nebian or Grosse Verte may be included. The latter is really a grand Fig, but it has a tendency to crack when just on the point of ripening. My own stock for late crops is thus grown in two or more batches for still greater convenience. The earliest of these late ones are only just started in cold frames, whilst the rest are still kept absolutely quiet by being retained in the coolest possible place and by keeping them dry at the roots. Thus they may be kept dormant another month or six weeks. Should the earliest stock of St. John's or Pingo de Mel in pots need to be potted, it may be done during the next month or so when most convenient. I have found this plan to answer well, considering it preferable to potting at the fall of the leaf or prior to starting afresh. It must, of course, be borne in mind that any tendency towards overpotting is an evil that should be guarded against. My stock was thus treated last year, being stood outside to ripen during the latter part of July. Pot firmly, use pots only one size larger at the time, and employ good fibrous loam as the staple soil, with either mortar rubble or bone-meal in addition as the soil may require it. After potting, a rather closer atmosphere should be kept up for a time until the plants are re-established and can withstand bright sunshine. Any young stock of Figs, such as those struck last year, should have every attention paid them, so as to obtain as good a growth as possible during the summer. The early kinds should be pushed on first, and the later kinds follow as room may be at disposal. These young plants will need persistent pinching to form good bushy plants. If potted soon, so as to afford a good shift (say from 6-inch into 8½-inch), they will be well rooted by the autumn. Some eyes should be put in from the late kinds. They will be found to strike kindly now; oftentimes more so than early in the year. So far I have not tried the plan of raising a stock from seed, but I hope to experiment in this direction.

MELONS.—The first early crop of Melons in my own case is doing much more satisfactorily this spring than usual. The plan adopted was that recommended in the earlier calendars, save that instead of putting two plants into each Seakale pot I could only, perforce of circumstances, allow one, and thus far the results are good. The plants are sturdy and short-jointed, some of the more precocious showing fruit really too early. These were pinched off to allow the plants to get greater vigour and more roots. The earliest are now set, and will with favourable weather ripen towards the end of May. It would, I am aware, have been possible to have forced the growth more, but it would have been unwise to have done so when the days were shorter and with a greater element of uncertainty in the weather than can now possibly obtain. Hence the plan that is now adopted is that of pushing them along faster; this the plants will respond to freely, and the fruits thus swell away kindly from the very first. Noting that the bottom-heat material was sinking, some more leaves and stable manure (not too rank so as to endanger scalding) were mixed together, and after being turned a few times were added around the pots and made quite firm. This, as a further safeguard, was surfaced with leaves only, to assist in absorbing any escaping ammonia. The bottom-heat has run up to just over 90°, but this will quite meet the case with the increased day and night temperatures now

recommended. These may now range to 90° with sunshine, closing early so as to run up the thermometer to 95°; when the weather is dull 10° less will be safer, whilst at night, when the fires are banked up, 75° will not be any too much. A close watch ought to be kept against an attack of red spider. My early crop was somewhat too close to the hot-water pipes; hence some large panes of glass were placed between the pipes and the plants, and in this manner the atmosphere was not so parching near to them as it would have otherwise been. So far there has not been any appearance of this pest, but even if there were, the soft-water tank would immediately be resorted to as the initial remedy, and, failing that, the sulphur duster would be called into requisition. Do not denude the plants too freely of side shoots, but allow the foliage to extend so that all the trellis is covered, but not crowded. Pinching with the thumb and finger is far better than using the knife in any case. If not already done, give a fresh surface dressing, and in doing this make the surface firm. Do not, however, employ too great an amount at one time; half an inch in thickness will be sufficient, another such application as recommended being of far greater service a fortnight hence, to assist in the final swelling of the fruits. Second-crop plants to follow the foregoing are also doing very well; these have reached the trellis, but will not be stopped, as each plant will be treated on the single cordon system, with two fruits to each plant, if they happen to swell away together, or if two can be chosen that are likely to do this. The best plan is to set all the flowers that open for a few days. Bear in mind, however, that it will be wise to carry one fruit only rather than lose too much time in trying to secure a couple. As these plants are planted out they should carry a couple easily, as in like manner later crops of three or four may be securely ventured upon. This second lot should be top-dressed as soon as the roots have taken well hold of the soil in which they were planted. Look also to sowing seed again, so as to keep up a regular supply. In doing this it is well to calculate as nearly as possible when the place chosen for this crop will be at liberty, thus a serious but frequent source of failure may be avoided. The evil referred to is that of allowing the plants to become potbound before they can be planted out. Rather than this should occur, it will be better to throw them away and sow another lot. Three weeks prior to the time when they can be planted out will be soon enough. Sow each seed separately in a 3-inch pot now and shift into a 6-inch pot when two rough leaves have formed. Do not in any case allow the plants to become potbound. Where frames are brought into requisition for this, the summer crop, it will be well to sow at once. Thus the plants will be fit to put out about the third week of May, when that bugbear of many gardens—the bedding-out plants of tender constitution—can be placed in their summer quarters. For frame culture it will be safer to depend upon well recognised hardy and free-setting kinds, such as Hero of Lockinge, Sutton's Scarlet and Blenheim Orange. Melons liable to crack should not be grown in frames.

HORTUS.

Sprays for ladies.—The size of such sprays is advancing by leaps and bounds year after year at a rate that is quite alarming. The first prize one at the recent spring show in Edinburgh was a mass of *Dendrobium nobile* and *Lily of the Valley*, fringed with Ferns. It was 20 inches long and 11 inches broad, with a semi-spherical sky-line of corresponding magnitude. The second was over a foot long and 6 inches wide; the third 18 inches long and 9 inches wide. Unless the present mania for size can be checked societies will have to judge these sprays by scale, or area of cubic feet. Judges and the ladies themselves may do much to check this growing evil through awarding the prizes to the smallest sprays, distinguished by the most refined taste.—D. T. F.

KITCHEN GARDEN.

BROCCOLI.

THE past winter has been an exceptional one for this vegetable, there having been very little frost to interfere with the growth, and with the exception of about Christmas time fine heads could have been cut from the open ground all the season. Here in mid-winter Christmas White and Superb Early White did good service, as they succeeded the autumn varieties, leaving no blanks. These two fine varieties should be grown in all gardens where a continuous supply of this delicate vegetable has to be kept up. If two sowings are made—one about the middle of April and the other in the early part of May—and the plants got out in good time, giving them plenty of room to grow, they will not fail to give satisfaction. To succeed these, Vanguard is a fine variety. The heads are close and compact, being well protected with leaves. Snow's is also a fine variety, particularly if a true stock can be procured. There are, however, so many that are said to be Snow's that it is not always the true variety is grown. The foliage is ample to cover the hearts, and grows in a peculiarly twisted manner so as to prevent the snow and frost exposing the hearts. This season most varieties have turned in earlier than usual, but Snow-white has with me behaved in the opposite way, being grand at the present time. This fine variety is of close texture, delicate both in colour and flavour, more resembling a Cauliflower than a Broccoli. Leamington is also a good old kind, of compact growth, and one deserving of cultivation. It is not every year that we have an opportunity of testing the qualities of the different varieties, as many are frequently killed through the severity of the frost, or are crippled to such an extent that their true character cannot be estimated. There is now such a great variety of Broccoli that one is puzzled to know what to grow, but when those of such sterling merit as the above, together with Main-crop and Veitch's Spring White, are grown, there is little doubt that in all ordinary seasons satisfactory results may be obtained.

The late varieties are looking well this year, and will, no doubt, be very useful in the next month. Amongst these should be included Model, Standwell, Late Queen and Continuity. The last-named is a new variety of great promise. A mistake often made in the cultivation of Broccoli is sowing the seed too early, and crowding the plants in a young state. Better by far defer sowing the Main-crop and late varieties until the end of April or early in May than sow at an earlier date and allow the plants to stand in the seed bed until they become drawn. Though Broccoli requires good cultivation it is a mistake to feed the plants too much in their early stages, as this makes them too sappy. All the late varieties are much improved by having a dressing of either artificial manure, such as guano, to be washed into the soil by liberal waterings during April and May, or a soaking of liquid manure from a farmyard. This will not only help to develop the hearts, but will enable them to resist the hot weather and prevent them becoming over-grown too soon, for during hot, dry weather the soil becomes deficient in moisture and the hearts become over-grown very quickly.

H. C. P.

Autumn-sown Cauliflowers.—I sow Early London early in September on a sheltered border, leaving the seedlings alone until March, when they are planted out in the ordinary manner.

Should cold weather threaten, some dry leaves are spread rather thickly among the plants, and these are augmented by branches of evergreens stuck in amongst them as the cold increases. Except in very severe winters they come through the ordeal very well thus treated, and the frame room which they would otherwise occupy can be devoted to something else. I have not tried the Walcheren, but on the recommendation of "A. W." (p. 280) I hope to do so another season. No doubt there are some inferior stocks of this Cauliflower, and, presumably, I have been unfortunate enough to get them, for I have never formed a good opinion of the variety. Autumn sowing, if one can rely on getting strong plants, affords a good relief where Cauliflowers are much in demand and the convenience for raising plants indoors is restricted. In any case it is necessary to choose a sheltered spot for this outdoor sowing, and it cannot be denied that many such exist in gardens that are not always utilised. The same remark applies also to early outdoor sowings of Cauliflowers. A narrow strip against a forcing house affords a valuable site for autumn or spring sowing, and plants thus raised can be permanently planted in the open without the hardening off which indoor-sown plants require. Early Cauliflowers are such an indispensable crop that a little trouble in forwarding them inside or on outdoor borders is well repaid.—W. S., *Wills*.

PLANTING POTATOES.

WITH many gardeners this is an all-important operation, especially where they have to provide the winter supplies for a large family. Many will not take heed of past experience, but go on from year to year in the orthodox way and put in the sets at a certain date in March. Many in this neighbourhood had finished planting before that month was far advanced. Now, I maintain this is as great a mistake as very late planting, though in some seasons both early and late-planted crops may be a success, but in the generality of cases the former suffer from late spring frosts, while the latter have not time to mature their growths before bad weather sets in. There are but very few districts in this country where it is safe for the Potato growth to be through the soil before the end of May or early in June. This being so, what advantage can there be in planting so early in the season? We all know that where a number of acres are cultivated planting takes some time, but even in such cases when the ground has once been got ready it does not take long to put in the sets. As a rule, planting should not be commenced before the middle of April, and any time between then and the second week in May will be found most suitable. The disadvantages of early planting are manifold. In the first place, the soil where heavy becomes beaten down by the rains until it is so hard that growth has some difficulty in finding its way through, and when in this condition fine samples and heavy crops are seldom obtained. The soil cannot be too fine for the growth of this crop, for the looser it is the more even the size of the tubers. Another most important point is the preparation of the sets. Where these are of an even size and have not been allowed to make any growth previous to planting, the result will be far more satisfactory than when a shoot has been rubbed off to prevent it being too forward. Potato sets for planting should be selected at the time the crop is lifted, and none less than 1½ oz. or more than 2 oz. saved. Sets of this size will always produce a stout growth from the terminal eye, which will be ample. Whole sets will usually give a greater produce per acre than cut ones, though often the latter give some of the finest shaped tubers. The distance, too, allowed between the rows and plants plays an important part in the cultivation of this crop, for where the ground is in good heart it is not advisable to stick to the regulation distance of 27 inches, but allow a greater width between the rows that the haulm may have plenty of room to develop. With some varieties, where the ground is in good

heart, from 30 inches to 3 feet between the rows will be found none too much. Better err on the side of allowing too much room than have the foliage so crowded as to prevent light and air penetrating. We hear of very fine crops being grown in some places when the season is favourable, and much more might be accomplished if only due care were taken both in selecting the sets and planting. All soil is not alike suitable for the growth of this crop, for on cold, stiff land the tubers do not grow to that perfection as on light, sandy soil, or on that which has been well cultivated for a number of years. I am no advocate for using a quantity of farmyard manure for this crop, for, when the ground is in good heart, this does more harm than good, but where the ground is poor a liberal dressing should be given in the autumn previous to planting. H. C. P.

BORECOLES OR KALES.

AMONGST our winter and spring vegetables there are but few to equal these either in point of flavour or productiveness. When the winter is severe and destroys the Broccoli, the gardener may usually rely on these to give a supply until other vegetables are ready in the spring. There are now so many good varieties, that it is needless to mention them, but there is one of special merit that should be grown in all gardens, both large and small. I here allude to an Asparagus Kale named Favourite. It is of dwarf, compact habit, and produces an enormous number of sprouts, which, if kept gathered close, will continue to form till near midsummer before going to seed. The flavour is excellent and the colour all that can be desired. The cultivation of the Borecoles is very simple, but, like all other of the Brassica tribe, they delight in a rich, well-cultivated soil. The seed should be sown some time during the month of April, and the plants put out as soon as they are large enough, that they may not receive any check. The one point to be considered is to let them have a free growth from the commencement and in no way to either crowd or starve them. They are far hardier than the Brussels Sprouts, and by many are preferred to that vegetable, but their season of usefulness is not until the greater portion of the Brussels Sprouts is past. During mild winters the Kales will keep on growing and produce an abundance of greens from March onwards till the hot weather comes. The Cottager's and Asparagus varieties, though not so handsome in appearance when growing as the curled forms, are much more delicate in flavour when cooked, and will remain in condition longer before bolting. To keep up a good supply it is essential that the sprouts be gathered before they have grown too long, for if allowed to show the flower-buds the growth becomes hard and will not so readily start again. For a late supply a patch on a north border should be planted, and during an ordinary season good sprouts may be gathered till the time Peas are ready. If a piece is planted in an exposed situation growth should be encouraged before autumn sets in, as in such positions Borecoles usually make but slow progress.

H. C. P.

Open-air Mushroom beds.—Mushrooms are most successfully grown on ridge-shaped, open-air beds at Westonbirt, and that, too, at a time of year when they are of better quality than those produced on beds in heated structures. The site selected for the beds is a well-sheltered corner with a south-east aspect, to which only it is open. Manure from hard-fed horses, or those in full work and fed on dry food, is used, and with this a good proportion of short straw is mixed. It is well prepared by being thrown into a heap to ferment, turning it every second day or so till the rank heat is got rid of, a point of the highest importance as far as ridge-shaped Mushroom beds are concerned. The beds are put together solidly, neither the width nor height at the ridge exceeding 3 feet. Mr. Chapman departs from the usual practice when it comes to spawning the beds.

The bricks of spawn are first soaked in water and then broken into about six pieces. Instead of disposing these lumps of spawn about 8 inches apart each way, they are inserted in the surface of the beds about 3 inches apart, and results evidently enough justify the practice. On removing first well-thatched burdles and then a heavy covering of dry, strawy litter, a bed was discovered nearly white with Mushrooms in all stages of growth, surpassing even those attractive illustrations to be seen in seedsmen's catalogues. The first bed was spawned about the middle of February, and on April 7 when I examined it gathering was just commencing. Other beds are following, and failures rarely, if ever, occur. The work is done in a thorough, methodical, painstaking manner, and the returns are most satisfactory to all concerned. I was informed that when a bed became exhausted it is watered with tepid liquid manure and then covered with a good thickness of moderately hot manure, which has the effect of starting the mycelium running afresh, a second crop of Mushrooms appearing in due course.—W. I.

NOTES AND QUESTIONS.—KITCHEN.

Early Cabbages.—It is difficult to write too highly of Ellam's Early where a good stock of it is seen. How these small precocious varieties are elbowing the old large late ones out of cultivation in gardens! Flower of Spring is another first-rate variety, and Main-crop comes as a capital succession. I saw a fine breadth of these three varieties, a total of over 2000 plants, a few days since, many of the heads having been cut, but out of the entire number only two plants had run to seed.—A. D.

Planting dwarf Beans.—Plants raised early in April, either for frames or planting in the open with protection, should be hardened off and placed near the glass. Those who have frames at their disposal will secure a good return by planting out at this date. A restricted root run is necessary when manure is used for bottom-heat, as often plants on rich manure make a rank leaf-growth. The quarters should be prepared for the plants in the open. A sowing may now be made in the open to give a succession. A warm soil not too heavy will be needed, as it is well to get rapid germination. A sowing of Tender and True, the dwarf climbing variety, will prove a useful addition. This is a splendid cropper, and very early.—W.

Potting up Cauliflowers.—The growing of Cauliflowers in pots has much to recommend it, as when they are potted into 4-inch pots and just sheltered from severe frost through the winter they can be planted out early, and only need a little shelter. When they are not disturbed at the root they do not receive any check. I remember seeing this method adopted in a Norfolk garden twenty-five years ago, and this with the very best results. In this garden they were able to cut good heads early in June, and this without any glass shelter after being planted out. During the last twenty-five years I have tried many methods and seen a good deal written on early Cauliflowers, but from autumn sowing I have always had the best results. Nothing that I have ever grown or seen can surpass a good stock of Early Erfurt for early work, and this, too, from sowing in the autumn.—DORSET.

Savoy Ormskirk Late Green.—In severe winters Savoys are certainly amongst the most valuable green vegetables. I prefer the small kinds, such as Tom Thumb and Universal, as I consider them by far the best flavoured. Another recommendation to this type is that they can be planted later, as they grow more quickly. In some cases it is advantageous to grow large kinds, and in such instances I strongly recommend Ormskirk. I consider it a far better Savoy than Drumhead. I have grown it three years. At the present time (April 6) I have a dozen large white, sound heads. These have been in the open garden right through the winter. So abundant were green vegetables through the

winter, that in a neighbouring town it was not possible to sell Savoys or other Cabbages. I plant this kind after early Potatoes, in July, and in lines 2 feet by 18 inches.—DORSET.

Stachys tuberifera.—I am glad to see a note in praise of this palatable vegetable (p. 300), and am quite at one with "E. B. C." as to its merits. As your correspondent hints, the cleaning requisite for the small tubers makes it an unpopular vegetable in the kitchen, but when this and the subsequent cooking are carefully attended to, it is generally appreciated on the dinner-table. The method of cooking usually employed is that of boiling, but frying is productive of far more satisfactory results. There is no necessity for peeling the tubers; they should first be washed thoroughly in cold water, then dried on a cloth, then dropped into boiling fat in a whitebait basket, and, when cooked, drained on white paper. Prepared in this manner the tubers are golden brown in colour, and may be served with game or as a vegetable course. When cooked in this manner the tubers are sometimes eaten, like whitebait, with brown bread and butter and lemon juice, and this latter mode of consumption is, to my mind, best calculated to impress partakers with the excellence of this vegetable, which, from its worth, should command a wider vogue than it does at the present day.—S. W. F.

MARCH IN SOUTH DEVON.

DURING the past month the rainfall has amounted to 1.87 inches on 12 days, against 5.89 inches on 18 days during the corresponding month of last year, and an average for the month of 2.58 inches. The records for the first 3 months of the present year show 3.99 inches of rain on 33 days, against 11.35 inch on 49 days for the same period in 1897, the average for the 3 months being 8.33 inches, so that we are already 4.34 inches behind the average rainfall. During the past month the sun has shone for 132 hours 40 minutes, against 136 hours 50 minutes in March, 1897, the average for the month being 144 hours 25 minutes. For the first three months of the year the records are 266 hours 15 minutes in 1898, and 248 hours 45 minutes in 1897, while the average duration of sunshine for the period is 286 hours 45 minutes. The mean temperature of the month has been low, being 42.1°, against an average of 44.0°, while last year the mean temperature of March was 46.7°. The highest sun temperature of the month was 103.8° on the 23rd, the highest screen temperature 56.1° on the 16th, the lowest screen temperature 29.6° on the 25th, and the lowest readings of the grass thermometer 26.3°, or 5.7° of frost, on the same date. In March, 1897, the lowest screen reading was 33.5°, and the lowest on the grass 29.5°. During the past month the temperature in the screen has fallen to 32° or below on 5 days, and on the grass on 22 days out of the 31. The total horizontal movement of the wind has been 7195 miles, against 11,759 miles in March, 1897. For the first three months of the present year the movement of the wind has been 21,720 miles, while for the corresponding period of 1897 the record is 25,301 miles. The highest daily run was 545 miles on the 1st, and the highest hourly velocity of 35 miles was recorded between the hours of 11 and noon on the same date. On 16 days the direction of the wind has been from south to west. The average of ozone in the air has been 60 per cent., and the humidity of the air 77 per cent., against 80 per cent. in March, 1897.

In the garden the ungenial weather of the past month has to a great extent kept vegetation at a standstill. This appeared to be particularly exemplified in the case of the Poppy Anemones, whose half-expanded blossoms seemed to remain in practically the same stage of development for days together. The Apennine Windflower has continued in bloom throughout the month, and the blue *A. blanda* has also been in flower, as have the Star Anemone (*A. fulgens*) and the Pasque Flower (*A. Pulsatilla*). The lovely *A. Robinsoniana*, with its silvery blue blossoms, has

been a charming sight in sheltered nooks, while *A. ranunculoides*, in a fairly open situation, has spread the bright gold of its numerous Buttercup-like flowers over its green foliage. The fragile blossoms of *Thalictrum anemonoides*, sometimes known as *Anemone thalictroides*, much resembling the Wood Sorrel of our hedgerows, have appeared above the delicate green leafage, and here and there *Adonis vernalis* has produced a bloom in weather certainly the reverse of vernal. The bright yellow of *Alyssum saxatile* is conspicuous on some sunny rockeries, and *Arabis albidia* in a sheet of white has apparently suffered but little diminution from the climatic eccentricities of March, while the *Aubrietias* have been slowly but surely extending their veils of purple and of pink over Moss-grown walls and rockwork. A few blooms of the Christmas Roses have been obtainable during the month, and the blue blossoms of the Glory of the Snow were in evidence at its commencement, *Chionodoxa sardensis* being the first to depart, being followed in its retreat by *C. Lucilia*, whose bloom-spikes faded towards the middle of the month. I noticed in one garden a fine clump of *C. Alleni*, which, undisturbed for the past three years, had perfected many spikes of large flowers. The Crocuses, golden, purple, and white, under the influences of inclement weather, soon lost the brightness with which they ushered in the opening days of March, a stray bloom or two on *Crocus Imperati* scarcely sufficing to merit its inclusion in the list of March flowers in 1898, but the Crown Imperials, yellow and red, held bravely on and have extended their flowering period into the month of April. The double Daisies have been blossoming freely in cottage gardens, and I saw the other day a bloom-scape of the Lyre Flower (*Dicentra spectabilis*), which had shot up from the ground in advance of the leafage. *Dondia epipactis* has covered a space of the rockery with its inconspicuous flowers of greenish yellow, and, though by no means showy, is a plant not without a modest charm of its own. *Doronicum plantagineum excelsum* Harpur-Crewe, undismayed by the weather, continued to produce frequent flowers, some of which were, however, sadly marred by the cutting winds, sleet, and morning frosts. In some gardens *Epimedium pinnatum* produced its golden blossom-spires during the month, their effect being set off to advantage by the bronzy hue of the leafage. The Dog's-tooth Violets (*Erythronium dens-canis*), which were blossoming freely at the commencement of March, did not continue their floral display far into the month, but before its conclusion the Snake's-head Fritillary (*F. Meleagris*) and its white variety were in bloom, and in a favoured spot not far distant the pale yellow flowers of *F. aurea* were to be seen, while the not particularly attractive *F. persica* had developed strong many-flowered bloom-spikes of dark purple. Close to the *Dondia* a little clump of the yellow *Gagea lutea* showed its flower-heads, much similar in appearance to those of the Star of Bethlehem (*Ornithogalum*), while a few spots of the richest blue marked the resting-place of a colony of *Gentianella*, and the double scarlet *Geum* (*G. coccineum fl.-pl.*) had expanded the first of its bright blossoms ere the close of March. The Grape Hyacinths (*Muscari*), azure blue, white, and pale blue, grew strongly on bank and border, and Musk Hyacinths bore spires of bloom, which, if not particularly attractive to the eye, make up for their somewhat dingy appearance by the delicious perfume which they distil. The Lenten Roses have continued to bloom, but flowers and foliage alike have felt the effects of the weather. *Hepaticas* have been bright with blossom, and the purple *Honesty* (*Lunaria biennis*) has shown its flowers in out-of-the-way corners. Its reddish purple is an unpleasing tint, and for effect the white variety should always be grown in preference to the type. Spring bedding has been well to the fore, and the Hyacinths and Tulips are making a brilliant display. Among the latter, the well-named Vermilion Brilliant is one of the most effective, while the yellow *Potte-*

hakker is good of its colour and the rose-pink of Cottage Maid is especially tender in colouring. *Iberis corifolia* has commenced its blooming period, and the Violet Cress (*Ionopsidium acaule*) has already begun to spangle a sheltered nook with its countless minute blossoms. In many places this charming little flower reproduces itself from seed, but probably a damp and heavy soil militates against this desirable habit, as in my garden I have rarely discovered self-sown seedlings, while on a certain partially-shaded rock garden of porous soil that I know of it seeds itself everywhere. I have seen this *Ionopsidium* grown as a pot plant with excellent results. The Flag Irises, which I noted as being in bloom in February, have flowered in many gardens during March. In most cases this early blooming has been confined to the old purple Flag, but I have seen some expanded blossoms of *I. florentina*. The purple Flag appears to be the most irregular flowerer of any Iris in this district, and in this

rightful tint of clear azure, and is spreading breadths of lovely colour over spaces of the wild garden.

THE NARCISSI,

as is their wont during "the roaring moon of Daffodil and Crocus," have provided a delightful floral display. Some varieties have not flowered so freely as in former seasons, Sir Watkin, for instance, affording but a poor crop of bloom. Others of the incomparabilis section have, however, flowered well—Beauty, Cynosure, Figaro, Frank Miles, Leedsi, Princess Mary and Stella being very free. Of the golden Trumpet Daffodils, Emperor and rugilobus have been good, while Queen of Spain, the simple form of whose clear yellow flowers is very pleasing, blossomed at the close of the month. This variety is excellently adapted for naturalising on the grass, where its blooms are displayed to the best advantage. Of the bicolor trumpets, Dean Herbert and Horsfieldi are telling varieties, and

in many localities in the neighbourhood, but their haunts are industriously pillaged by the flower hawkers, and it is rare to find any mead or orchard, however remote from high roads, that does not exhibit traces of despoliation. The creeping Forget-me-not (*Omphalodes verna*) and its white variety have flowered throughout the month, and *Orobus vernus* has produced its purple-blue blooms. Pansies and Paris Daisies in sheltered situations have afforded a certain amount of blossom, and it appears certain that some large bushes of the latter will survive the winter, as will many Ivy-leaved Pelargoniums that were not taken up in the autumn. Tree Peonies in exposed situations have been hardly dealt with by the weather, and show many drooping leaves and blackened buds, though in sheltered nooks these have escaped harm. *Primula denticulata*, *P. Sieboldi*, and *P. marginata* came into bloom during the month, while Primroses, Polyanthi, and the Vincas, large and

small, single and double, blue and white, have been blooming freely. *Romulea pylea* opened its fragile Crocus-like blossoms and *Saxifraga Burseriana* commenced its season of bloom, while *Scilla bifolia*, with its white variety and *S. sibirica*, have both been at their best during March. The Satin Flower (*Sisyrinchium grandiflorum*) and its white form have produced their transparent flowers amid the Rush-like foliage, and in some gardens Stocks have commenced to bloom. *Triteleia uniflora* blossomed during the greater portion of the month, and the Violets, although the weather was against a profuse display, bore a fair quantity of flowers, the large singles, California and Princess of Wales, blossoming almost as freely as their less showy sisters, while the Wallflower's gold and brown showed from bank and bed and was murmurous with bees during sunny mid-day hours. The high banks of the lanes have been yellow with Primroses, with which, in some parts of South Devon, the blue of the lesser Periwinkle is mingled, forming a charming colour-scheme. Where this Periwinkle has become naturalised it increases with great rapidity, and the other day I found large spaces in a wood of deciduous trees thickly carpeted with the foliage of the Vinca, which was bountifully besprinkled with pale blue flowers, an effective setting for the grey trunks. The Wood Sorrel (*Oxalis*) shows its dainty white chalcices above its Trefoil leaves, and here and there in moist meadows the Marsh Marigold shines like fire, but the Blackthorn is but just becoming white with blossom and the rosy plumelets have not yet begun to tuft the Larches, whose boughs show from afar a faint haze of green. The Elms seem scarcely more advanced than they were a month ago, but in spite of sleet and fierce north-eastern blasts, the thrush has been sitting sedulously on her nest in the high Laurel hedge, and her neighbour, the blackbird, has completed his architectural undertaking in which his dusky spouse has already deposited the first of her many-speckled eggs. Fruit trees look promising, and the young Apple trees are so thickly furnished with fruit-buds that, if a tithe of the blossoms set, rigorous thinning will be necessary. A proof of the lateness of the present season compared with that of the spring of 1897 is afforded by the fact that in a neighbouring market garden, where considerably over 2000 heads of Asparagus were cut from the open beds during March, 1897, not a single head has up to the present time been secured, and the first cutting will probably not take place until the third week of April. Of

SHRUBS

there has been a fair quantity in bloom. A large plant of *Abutilon vexillarum* growing against a house began to expand its earliest crimson and yellow blossoms during the first week of the month. This particular specimen, when severe frost does not supervene, blooms for nine



Part of the rock garden at Holland House. From a photograph sent by Mr. T. Dixon. (See p. 335.)

immediate neighbourhood I have seen it in bloom in January, February, March, April and May. Plants that flowered in the January of one year did not commence to expand their blooms until the normal period in the following year, in which year other plants that usually produced their flowers towards the end of April blossomed early in March. The Violet-scented *I. persica* flowered early in the month, while towards its close the Snake's-head Iris (*I. tuberosa*) produced its purple-black blooms. The latter Iris can scarcely be called beautiful, but its quaintness renders it interesting. The Spring Snowflake (*Leucojum vernum*) was in flower in the early days of the month, *L. aestivum* following towards its close. In my garden the latter is practically flowerless, only two scapes being produced from some dozens of bulbs. In other gardens, however, I have seen this Snowflake flowering well. *Megasea cordifolia* has produced its pink flower-heads in quantity, and *Myosotis dissitiflora* is assuming its

the white tortuosus and cernuus are very lovely as is pallidus præcox, which, however, does not succeed in all soils. Among the double Daffodils, the old *Telamonius plenus* has flowered well, and the sulphur Phoenix has produced a fair quantity of light yellow blossoms. Queen Anne's Daffodil (*N. capax plenus*) bloomed before the close of March, but, in company with the other double forms, lacks the simple grace of the singles. *Barri conspicuus*, now so largely grown, is a variety of great merit, as is *Barri Sensation*, with white perianth and orange-yellow cup, while in the *Burbidgei* section, *Agnes Barr* and *John Bain* have expanded a few flowers, although these and some of the varieties already mentioned will not reveal their true value until April. The *Campernelle Jonquil* (*N. odorus*) has borne a host of bright yellow blossoms, and the early Pheasant's-eye (*N. poeticus ornatus*) commenced to bloom ere March had ceased its reign. The Lent Lilies (*N. pseudo-Narcissus*) grow wild

or ten months out of the twelve. *Andromeda* and *Azara microphylla* have also flowered, while in sheltered positions, protected from the north and east winds, *Choisya ternata*, *Cytisus racemosus*, and *Olearia stellulata* have blossomed sparingly. *Cornus mas* retained its minute yellow flower-clusters through the first half of the month, while *Berberis Darwini* and *B. Mahonia* increased their tints of orange and yellow. The bare sprays of *Daphne Mezereum* were thickly clustered with fragrant blossoms, the *Forsythias* perfected their golden veil before the close of March, and the double *Kerria* made a spot of brightness on cottage walls. The *Laurestinus* has bloomed throughout the month, and the beautiful *Yulan* (*Magnolia conspicua*), perhaps the most striking of the flowering trees of early spring, bore its countless white blossoms on its leafless branches. *Nuttalia cerasiformis* produced its pendent racemes of snowy blooms, and *Pittosporum Tobira* was still in flower early in the month. The double flesh-pink *Prunus*, with its pale rosettes, and *Pyrus* (*Cydonia*) *japonica*, with its vivid scarlet flower-sprays, have been very ornamental, while *Ribes sanguineum*, *R. album*, and *R. speciosum* have all contributed their quota of bloom to the month, as have the early *Rhododendrons* and the shrubby *Veronicas*, while the double *Spirea prunifolia* has expanded the first of its small white blossoms. S. W. F.

DESTROYERS.

MOLES.

MOLES are lauded by entomologists for the service which they render to agriculture by daily destroying a large number of cockchafer grubs, wire-worms, and earth-worms. This, however, does not prevent them from being regarded as formidable enemies to the gardener, with whose work they interfere, not by cutting the roots of his plants, but by lifting them out of their position when they are excavating their underground runs. If they confined themselves to burrowing only in the quarters in which large vegetables are grown, I think many gardeners would say nothing against them. But they follow the gardener whenever he sows any seed or sets out any valuable, carefully-grown plants. When he begins to water his seed-beds, flower-beds, and decorative plots of bedding-out subjects, immediately the moles tunnel their runs in all directions in the soil. And yet, they are only in search of earth-worms, which form the principal part of their food, and which are found in large numbers in any part of the soil which has been watered.

It is impossible for a gardener who cares anything about his work to regard with indifference the displacing of his plants and the frustration of his labour. He sets traps, and when a mole is caught he is well pleased. Often, indeed, owners of gardens will pay 25 centimes (2½d.) to professional mole-catchers for every mole they catch, to encourage them in their work of destroying them. What is needed, then, is some means of keeping away moles from select parts of the garden and banishing them to wooded parts where they might burrow undisturbed and be useful without injuring anything. Last year I made use of an insecticide which proved very serviceable in banishing moles. Early in July we had a tennis-ground made in a moist meadow, close to a river. Every day this ground, which was naturally very flat, was made perfectly level, but every succeeding morning we found it literally turned up into mole-hills. One would have said that all the moles in the neighbourhood had made the place their rendezvous. After two days' cogitation on the subject, I resolved to pour some petroleum into their runs, which I effected by opening the runs under the mole-hills and pouring in about one-third of a pint of petroleum at each opening. I then levelled the mole-hills over the openings. A second application of petroleum was necessary, after which we had no more molehills, and to this day the tennis-ground has been quite free

from them. If gardeners try this plan, they will certainly be well pleased with the results.—GIRON, in *Revue Horticole*.

GARDEN DESIGN.

THE help to be got from most books is slight, and they are generally misleading in the way of emphasising the error of one general idea for the garden in relation to the house. When Mr. Milner gave a lecture at the Royal Institution of British Architects on this subject, the view of all the speakers was the usual one of mixing up the building and the landscape, the central idea of nearly every modern book on the subject.

But this is only saying what nearly every book on the subject has said, and the idea is the main cause of the monotonous look of gardens generally. Once we make a rule and say this is the best and only way, it is not only the good architect and that still rarer being, the good landscape gardener, who will carry it out, but anybody who has any influence in building or gardening will do the same thing in all sorts of positions with any kind of material, including the "young man in the office" and many other persons who have never even given the slightest thought to any kind of artistic planting, let alone garden design from an artistic point of view. The expression of this inartistic idea we see painful evidence of everywhere in the railway bank terraces out of place and rampant through the land. On this bastard Italian garden idea is based another leading to greater evil, which is that, once you have got your patterned plateau, you cannot have your flowers in natural or picturesque ways on it, and so the poor gardener has to go on trying to adapt his unhappy flowers to the ugly plan that is given him. The second idea is false too, as flowers may be arranged in right and natural ways in any garden, but that fact has not yet killed the common error that we cannot throw formality overboard in arranging flowers.

The really artistic and right way would be to have no preconceived idea of any style, but in all cases be led by the ground itself and by the many things upon it. Why should we in the plains or gentle meadows of England not give effect to the beautiful lines of the landscape and make our gardens harmonise with them? Why, if an architect chooses to put a house on a rocky bluff, should he be hampered by the consideration that he must turn it into a stereotyped terrace, or be told that he must put walls where walls would cut off beautiful prospects? The right way is the opposite, viz., to carry no style in one's head or pocket, and then, before saying much, beat over the ground and see it from every point of view. If the idea of the bastard Italian garden were the truest that could be expressed by man, it must inevitably lead to monotony and to stereotyping of the garden: but it is not true, and it is only by respecting the site itself and letting the plan grow out of it that we can get gardens free from monotony, and suggestive also, as they should often be, of the country in which they occur. If all our efforts only go to stereotyping the home landscape, it is hardly worth while going for a change from the Midlands into Devon. Why should we not in these islands of ours, where there are so many different kinds of landscape and characteristics of soil and climate, have gardens in harmony, as it were, with their surroundings? Also the taste of the owner (or in any case his leanings) ought to count. Why should he be bound to any conventional style and not free to take his own way? No one is so likely to know the conditions of soil and

climate and the associations and capabilities of a district as one who has lived amidst them; and if we come to the aid of such an owner with an open mind as to style, we shall be much better able to give effect to his views in the shape of artistic and distinct result, and not merely stamp down for him the same conventional plateau we see too often.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS FOR THE CONSERVATORY.

I AM a novice at *Chrysanthemum* growing. I do not want to go in for large single or show blooms, but those for conservatory decoration and for cutting. I am bewildered over first and second crown buds, terminals, stopping, dates to take buds, and so on. If I had a concise cultural note, from preparing plants from which to take cuttings right on to blooming period, I should be deeply indebted to you. Will you also kindly give me the names of the freest-flowering and best varieties for my purpose, as also a list of the best early-flowering varieties?—A. E.

* * * To grow nice bushy plants for conservatory decoration, or for the supply of a quantity of cut bloom, it is not necessary to propagate very early. One may begin (early April) with rooted plants. These should be potted singly into small pots and placed in a cool frame or greenhouse without fire-heat. Use a compost of loam, rotted turf (which may form a third of the whole), and leaf-mould or thoroughly rotted manure, adding a little sharp sand or road grit. After being potted, give a good soaking and shade the plants for a couple of days, also keep the structure closed. In about a fortnight another shift will be needed. This time 5-inch pots may be used, as well as a similar compost, only that the latter need not be sifted. It is better to break up the turf, so that all the fibre remains in it. Press the earth firmly into the pots, which have been previously prepared by placing crocks over the drainage holes. When each plant is about 6 inches high, cut off the points a couple of inches in length. These may be struck to furnish useful little plants to bloom in small pots. The cuttings make roots readily if dibbled into shallow boxes filled with any ordinary potting soil. The boxes may be stood out of doors, but in the shade, and the leaves sprinkled occasionally. As the older plants will require another topping later, still another batch can be rooted. Cuttings struck as late as June will grow into sturdy little bushes and give half-a-dozen or more flowers. Such plants are convenient to stand on stages or to furnish vases in the house. It is advisable to give some protection at night in case of frost, otherwise *Chrysanthemums* succeed best when abundance of air reaches them. About the middle of May they can be stood in the open air. Select an open spot in the garden and allow each plant plenty of room. This is important. I would put each pot a foot or over from its neighbour; and later, when the specimens have reached considerable dimensions, give yet more room. Meantime, watering must be carefully attended to. After potting, when a good soaking is given, little will be required until new roots take to the soil. Then, as the pots become full, almost daily supplies are needed. Of course one must be guided very much by the weather. Early in June the forwardest plants should be fit for the final shift. The 9-inch size should be used for the strongest plants only; a size

I inch less in diameter will do for the bulk of sorts. This time some care must be taken in the matter of drainage, as the plants are to stop in these pots until they have borne a crop of bloom. Place one piece of crock over the hole, and over this just a covering of pieces broken small. Turfy loam may still form two-thirds of the potting soil. The rougher it is—that is, the more fibre it contains—the better, as then there is little danger of its forming into a heavy mass. Use rotted manure instead of leaf-mould. This should be in such a condition that it may be passed through a sieve. Grit should be added, also mortar rubble, the latter to keep the earth porous. If the loam is particularly fibrous a small proportion is advised. By the time the final potting stage is reached the plants will have made three or more shoots. These, as has been noted, may be cut back when about 6 inches long, the points being saved for propagation. As firm potting is essential, a stick is used for this purpose, so that the earth may be rammed into the large pots. Firm potting assists a solid growth and well-ripened wood. Tying the shoots to sticks may be done early, thus preventing the loss of some by wind and other causes. This will also bring the plants into shape.

Manures, that is, concentrated forms, are not advised as a mixture in the soil. It is far better to use such later. It is so easy to overdo them, and thus prevent roots forming, in which case they positively do harm. About six weeks after potting the plants will need feeding. Liquid from cow manure placed in a tub of water is excellent, and the well-known fertilisers which are advertised are capital, too. In this form the manures are not unpleasant, and may be sprinkled on the surface of the soil twice a week. It is well to remember, however, that two weak doses are better than one strong one.

The matter which puzzles you, namely, the different crown buds, dates of topping and so on, need not concern you because those terms are used in the growth of Chrysanthemums for exhibition blooms only. You have simply to top your plants (which may not be done after June) to induce a bushy growth, and let the bloom-buds come at will. The sorts will not all develop the buds at the same time. If you desire a few flowers of good size—not huge specimens—the buds may be thinned. The plants should not be left outside after September. When under glass, air should be admitted in abundance, and at that time, the pots being filled with roots, copious supplies of water are necessary. The later-struck plants may have subsequent shifts, and the last sizes should not be over 6 inches in diameter. After flowering, cut the plants down almost close to the pots. Keep them in a cool house to provide a stock of cuttings for another year. Cuttings at all times may be rooted in shallow boxes in preference to other plans. They do so in winter and early spring readily in a temperature of about 45°.

USEFUL FREE-FLOWERING VARIETIES: A. H. Fawkes, Boule d'Or, Australian Gold, Clinton Chalfont, Charles Davis, G. J. Warren (rather tall), Hairy Wonder, John Shrimpton, Lady Byron, Lady Hanham, Lady Saunders, Louise, Master H. Tucker, Mme. Ad. Chatin, Mme. Carnot (rather tall), Mme. E. Roger, Mme. Ferlat, Mme. Gustave Henry, Mme. P. Rivoire, Mme. L. Zédé, Mlle. Lucie Faure, M. Ch. Molin, M. Chenon de Leché, M. Ed. André, Mrs. J. Lewis, Miss Elsie Teichman, Modesto, Mutual Friend, N.C.S. Jubilee, Niveum, Phœbus, Oceana, Pride of Madford, Souvenir de Petite Amie, Vivand Morel, W. H. Lincoln, and Western King.

GOOD OUT-OF-DOOR VARIETIES: Ambrose Thomas, Comtesse F. de Cariel, Coral Queen, Flora, G. Wernig, Harvest Home, Ivy Stark, Lady Fitzwygram, Mme. E. Morel, Mme. Marie Masse, Mme. Desgrange, Mytchett White, M. Dupuis, M. G. Grunerwald, Roi des Precoces, and Rycroft Glory (late). H. S.

CHRYSANTHEMUMS WORTH GROWING.

MRS. G. W. PALMER.—This no doubt will become popular for exhibition. It was a sport from Mrs. C. H. Payne, and is of a bronzy rose colour. Late buds may be retained, this taking away its coarseness somewhat.

MRS. H. WEEKS.—Although this variety has been in general cultivation two seasons, it has not proved a great success. I mean but few have grown it well because of its late habit of flowering. It is a magnificent flower, bluish-white, of incurving form, with superb quality. I would recommend late-struck cuttings (February or March). Grow it with one stem in an 8-inch pot. Secure the first flower-bud that appears, or put a couple of plants in a pot of larger size and have one bloom to each.

MRS. J. LEWIS.—This is a very fine pure white variety of excellent quality. It bears recurving flowers of massive proportions. Second-crown buds may be retained, as early ones do not open properly. It is a first-rate grower after the early stages.

MRS. S. C. PROBIN gives blooms of a charming pink shade and full, incurving form. It is doubtful if this will prove large enough to become popular for exhibition, but the habit of the plant and time of flowering are likely to render it useful for a late supply of cut bloom.

MRS. W. H. LEES.—This is often seen in first-rate form at shows; the blooms of large size, especially in the north. It is not, however, likely to advance in esteem because of a rather tall habit and its uncertainty. Early buds must be retained in this case.

NIVEUM.—This well-known sort is gradually replacing other white varieties for late flowers, but it is hardly large enough for exhibition.

NYANZA.—This is an excellent crimson variety to produce blooms late in the season.

N.C.S. JUBILEE is a new sort which is certain to find favour, the heliotrope shade of its blossoms being very distinct. The shape is incurving. The plant is dwarf and sturdy. Second-crown buds may be selected.

OCEANA.—This appears to me to be one of the finest Chrysanthemums yet raised. It has sturdy growth, and full, deep, handsome incurving blooms of a clear yellow colour. Its striking characteristic is the great length of time the flowers last. To obtain the best blooms I would root the cuttings in February and retain crown buds.

PHÆBUS.—This sort was exhibited in perfect form as often as any last autumn. In fact, it repeatedly obtained the award as the premier bloom in a show. Its full, reflexing flowers and clear yellow colour appeal to most people, and it is one of the choicest for general culture. The growth is short and sturdy. Any buds seem to open, and fine flowers are seen in October as well as November.

PRIDE OF MADFORD.—This is a first-rate kind of capital growth. The inside of the florets is a crimson-purple, the outside deep rosy lilac. From early selected buds the blooms incurve, and therefore are not over-attractive. I would root cuttings at the end of February and retain the crown buds for well-coloured blooms.

PRESIDENT NONIN seems likely to be a variety of rare beauty. It is large, slightly incurving, of excellent quality, and the colour a decided amber. Add to these qualities a sturdy growth. Second-crown buds may be selected.

ROBERT POWELL.—This gives full, handsome show blooms of a bronzy yellow shade and incurved in form. As seen last year, this is quite

one of the best of recent varieties. It is rather tall in habit, and crown buds should be retained.

ROYAL STANDARD should be noted because of its rich crimson colouring. The one or two fine blooms seen last autumn exhibited first-rate qualities. Of full, graceful form and a sturdy habit, it should be a distinct gain.

SIMPLICITY.—This is a nice flower, but I fancy it will not be popular long, as so many blooms come badly finished, that is, the centre looked flat, whilst the bulk of the bloom recurved in a graceful form. It has flowers of large size, and the white is pure. Second-crown buds may be retained for show, and the sort should be tried for the supply of a quantity of cut bloom.

SOUVENIR DE PETITE AMIE is well-known as a good white sort of dwarf habit, which flowers late in October.

SOLEIL D'OCTOBRE is a new yellow likely to prove a capital companion to the last-named. The colour is especially rich and pleasing.

SUNSTONE has flowers of an apricot-yellow tint. It is late flowering, and for that purpose most useful.

THOMAS WILKINS.—This produces very full, deep, reflexed flowers; colour, a tawny shade of yellow. It is a very good show sort, and also useful for general culture.

VIVAND MOREL.—This is a very fine type of bloom, large and splendidly formed; colour a distinct shade of mauve-pink. Good blossoms are not so common as they were a couple of seasons back, owing, perhaps, to a difficulty in getting the plant to grow freely without showing flower-buds. Late-rooted cuttings are advised, retaining the flower-buds that appear late in August. It is a first-class sort for any system of growth.

W. H. LINCOLN.—An old variety, but still among the best for the supply of late yellow blooms. Its excellent dwarf habit renders it useful to form a bush plant.

WESTERN KING is a new kind likely to be widely grown for market when known. It is white, and has blooms of lovely incurving form. The petals are of stiff, waxy substance, and last a long time. It is not, perhaps, large enough for show, yet telling on a stand and excellent in growth. Second-crown buds give the better-formed blooms.

WILLIAM SEWARD.—This rich dark crimson variety is not often exhibited in good form, as it loses its freshness so quickly. Being liable to scorch, the sun should not reach the blooms when opening. Flowers from late buds are the most satisfactory. H. S.

THE CHRYSANTHEMUM IN AMERICA.

WHEN the Chrysanthemum craze began in America in 1888 there were complaints from those florists who thought that there would be no great permanent popularity after the first fever was passed. Up to this time only Roses, Carnations, and Violets were grown for market. More Chrysanthemums are flowered now than ever, but the fever is nearly gone and the time for high prices is past. The Chrysanthemum has become distinctly a flower of the people. The only possible objection to Japanese Chrysanthemums is that the people of the north cannot cultivate them in their gardens; that is, they cannot produce large exhibition flowers or even typical ones in satisfactory quantity out of doors. Until twenty-five years ago it would have been a fatal objection. Never until the development of the peculiar forcing-house industry of America was it possible for a flower to win its way into the hearts of the masses. It is the greater general use of cut flowers that makes American gardening unique. This American trait, combined with the universal demand for long-stemmed flowers, and for the favourites in every month of the year, has changed the methods of cultivation. The keeping qualities of Chrysanthemums are extraordinary, and this happy circumstance is one great reason why this flower has become so popular. Hundreds of varieties of Chrysanthemums are dis-

carded because they are too tall, or require too much staking or disbudding. Others cannot be planted close enough together in the modern method of growing them. The amateur can afford to keep varieties with drooping necks if he likes the flowers. He may be willing to stake and tie such flowers, but the florist cannot sell them. The amateurs must be relied upon to preserve from oblivion the loose, free, and fantastic forms. As a rule only compact and globular *Chrysanthemums* can be depended upon to stand a long railway journey.

WILHELM MILLER.

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TREES AND SHRUBS.

BUDDLEIA VARIABILIS.

THE interesting plant, of the natural family Loganiaceae, which forms the subject of the present note was described in the year 1894 by Mr. Hensley in the *Journal of the Linnean Society*, London, from some specimens sent to the herbarium at Kew by Dr. Henry, of the Customs Department, China, and which had been collected in the province of Ou-Pe, in the mountainous region north of I-Chang and Mount Oney in Se-Tchuen. The plant was introduced into Europe at the same time by the authorities of the Muséum and myself. Seeds which were sent us in the spring of 1893 by M. l'Abbé Soulié, a priest of the foreign missions, produced plants which were exhibited in flower at the summer and autumn meetings of the National Horticultural Society in 1894. The habitat of the plant, as indicated by the Abbé Soulié, was Ta-tchien-lou, in the principality of Kiala, Eastern Thibet.

In the year 1896 Mr. George Boucher discovered a fine violet-flowered variety amongst some seedlings raised from seed gathered by him from plants which I had sent to him, and we may hope that the specific name of "variabilis" will be as fully justified by the colouring of the flowers as it is by the habit and villous foliage of this singular *Buddleia*. The flowers, which have a rather agreeable perfume (tastes, however, differ in this respect), commence to expand about the middle of June and continue in bloom till September. The differences in earliness, and especially in the duration of the flowering period, are great, some plants continuing to flower for a month after the others have gone out of bloom.

In addition to the seeds sent me by the Abbé Soulié, I have twice received *Buddleia* seeds collected in Eastern Se-Tchuen from M. l'Abbé Farges, of the foreign missions. From a parcel of these, received in the beginning of 1896, I have raised and planted out a certain number of plants, some of which exactly resemble the plants raised at the Muséum and at the Ecole d'Arboriculture by M. Changueraud. Most of these plants flowered in 1897. Amongst them was found a specimen with large leaves (10 inches long) covered on both sides with a very dense white down. The smaller ramifications, which are equally downy, have wood as strong as that of the main branches, but do not seem inclined to produce any flowering shoots. The singular appearance of this plant and its refusal to flower have determined me to plant some cuttings of it in Provence as an experiment.

Buddleia variabilis forms a strong and very spreading bush if left without any pruning, and it is generally better not to leave it to itself. A rather vigorous-growing plant of it, near a walk at Barres, was cut back to within a foot from the ground in 1896. In the following spring it produced five or six vertical shoots

about 8 feet high, on which grew numerous branches, erect at first, but eventually arching over and terminating in more or less drooping flower-clusters. On the strong branches were produced secondary axillary ramifications which prolonged the period of blooming in a notable manner. Other plants of the same species which were not cut back produced numerous flowering branches which trailed along the ground—an undesirable result. *Buddleia variabilis* does not produce closely imbricated or scaly leaf-buds, but in autumn a very downy bud is formed in the axil of each leaf, constituting the attraction of the young shoots when they begin to push in spring, when the contrast of their colour with the green hue of the old leaves is very peculiar. It might be advantageous to prune away three-fourths of the length of the flowering branches of the preceding year and half the length of the main branches, thus giving the plant a winter pruning similar to that of Rose trees. Whether the

particular about the kind of soil in which it is grown. It seems to be pretty hardy, as it passed the winter of 1893-94 at Saint-Mandé without any protection, and withstood 15° of frost on January 5, 1894, without receiving any injury. It can always be protected by wrapping straw round the lower part of the cut-back branches in the beginning of winter.

Buddleia variabilis is very easily reproduced from seed, which is contained in small two-valved capsules. The individual seed is very small, generally of a light brown colour, and in shape like a small tip-cat, being swollen in the middle by the kernel. Distributed in March or April over the well-levelled surface of the soil in a seed-pan, and then lightly covered with a sprinkling of charcoal dust, the seed quickly germinates and the seedlings are very easily pricked out. The young plants may attain a height of from 20 inches to 24 inches in the same year, and will flower in the autumn or in the following



An Iris border in the gardens at Holland House. From a photograph sent by Mr. T. Dixon. (See p. 335.)

grace of the natural habit of the plant, however, should be preferred to an increased number of flower-clusters depends upon the object in view, and is a matter of circumstances and individual taste.

This *Buddleia* is pretty easily grown in pots, but, being a very greedy feeder, it then requires to be repotted or manured rather frequently. It may also be grown as a standard with a stem, say, about a yard or more high and a roundish head. It would be hazardous to try to force it, as the flower-buds are not formed at the commencement of the annual growth, but the flowering time might be hastened by some months if plants properly pruned are brought into growth at an early period. It appears to me, however, that the proper way to flower it is in the open ground, either by itself or in a group of other shrubs. It does not appear to be

year. Propagation by seed-sowing is practised for the purpose of obtaining distinct new varieties, and these are propagated by means of cuttings, which are put in during the summer months under cloches (bell-glasses) or frames, occasionally even in the open ground in a shady place. The cuttings are taken from herbaceous or half-woody branches. When placed in good-sized pots in autumn, and kept in an Orangery or conservatory if one wishes to be very careful of them, these cuttings will flower in the following year.—MAURICE L. DE VILMORIN, in *Revue Horticole*.

Pterocaryas.—In connection with Mr. Bean's interesting notes on the above trees, if he is at any time in this neighbourhood he might like to see what is perhaps the finest specimen of *P. caucasicum* or *fraxinifolia* in the country—at least,

I have not seen or heard of anything like it; height, 43 feet; trunk girth, 15 feet; spread of branch, rather over 100 yards—a well furnished specimen throughout. I am sorry to say that once again the tree is not likely to be seen at its best, the frost having crippled the whole of the eatkins. This is the first time in my experience that they have been cut at so early a stage. They are not more than three-fourths of an inch long; the frost, however, has gone through them and they are black throughout. The leaf, fortunately, is still in the bud stage and is uninjured. It is very tender in a young state, and a frost of 8° or 9° will cut it back to the wood. It breaks again by the side of the first formed leaf, but the foliage under such circumstances does not attain the size the first formed leaves would assume. The result of observations during the last fifteen years shows that the proportion of seasons when foliage and eatkins come through uninjured would be about three in five.—E. BURRELL, *Claremont*.

Buddleia japonica.—I have received from the Royal Horticultural Society a plant of *Buddleia japonica*, but I cannot find any reference to it in recent vols. of *THE GARDEN*, which I have consecutively since 1883. Can you kindly tell me of any work in which it is referred to? If you cannot, is it asking too much to give me as much information as you can?—B. BLENKINSOP.

* * This is a Japanese shrub of semi-woody habit, growing 4 feet to 5 feet high. The young stems are square and the leaves each 4 inches to 6 inches long. It commences to bloom about the middle or end of July, producing its flowers on a terminal raceme 8 inches or more long. The blossoms are very closely packed and of a pale lilac colour. Not many are open at one time, and they commence to expand at the base of the raceme first. The flowers are followed by heavy clusters of seeds. The species is perfectly hardy, although the herbaceous tips of the shoots are cut back in winter. It likes a rich soil and can be easily propagated either by cuttings or seed. It is an interesting shrub, but of no particular value regarded as an ornament in gardens. We shall publish an article on the hardy *Buddleias* in an ensuing number, when you will be able to study the genus more fully.—ED.

THE MARKET GARDEN.

RATING OF FARM BUILDINGS AND GLASSHOUSES.

We have already had an Amendment Act to the Agricultural Rates Relief Act, with the object of clearing up doubts and misunderstandings, and of ensuring to market gardeners the intended benefits of the original statute, and yet, no sooner has the supplementary Act come into force than we find another difficulty arising, upon the question whether the large glasshouses which are to be found upon some of the more extensive market gardening establishments are to be interpreted as "buildings" or as agricultural land within the meaning of the Act. At present the Superior Courts, upon a rating appeal, have found themselves compelled to hold that such glasshouses are "buildings," and to refuse to their occupiers the relief which the spirit of the new statute obviously intended them to enjoy. This is unfortunate, but the fault must be ascribed to the drafting of the text of the Act, and not to the Bench who had to interpret the grammar of it. If the judges of the Superior Courts had been in the habit of visiting the Channel Islands, they might there have had opportunities of observing incidents of market gardening which might perhaps have caused them to hesitate before they finally committed themselves to the principle that all glass structures in gardens ought to rank as buildings, or—alternatively—that all arable land which is

glass roofed thereby forfeits its right to relief under the new rating Act. In the Channel Islands there are ranges of glass the exact area of which we hesitate to define. We can hardly bring ourselves to believe that the legislators seriously intended that a professional cultivator of arable land should, simply because he goes to the expense of sheltering the surface of the soil from winds, rains, and frosts, be thereby obliged to forego the relief which would accrue to him if he were to unroof his ground. On the other hand, we can also understand that a court might hold that Jersey customs and practices of agriculture need not be held to be binding as representative of English culture, or to be relevant to an Act that has no force in the Channel Islands. We only mention the Jersey incident as tending to illustrate the special hardship of the late ruling of the courts.

The complication and misunderstanding arise out of the unfortunate concession to wanton obstruction of the main Bill which was made when it was agreed that the proposed rating relief should apply only to agricultural surface, and not to "buildings" of a farm. *Prima facie*, farm buildings are part and parcel of a farm as much as the buttons of a coat are part of the garment. They would not exist as farm buildings but for the prior existence of the cultivated soil. Cowsheds on a holding only exist for cows, and the cows would not be there unless the holdings provided keep for the cattle. The same may be said of fold yards, and of farms which exist only to contain produce of the soil of the holding. The like may be said of cart sheds, and even of the farmer's own residence, for he, as a farmer, would not be there to occupy it unless he had the use of soil attached to the premises. However, the concession was made in order to save time and to obviate wilful obstruction; and as the Act itself is only probationary and on a three years' trial, we fear that no further attempt to annul the misunderstanding in this respect will be made until the date shall arrive for the Act to be reconsidered with the view of renewing, and at the same time of remodelling, it for future service. But we think that a question of so much importance as that which is raised by this exemption of farm buildings from relief in rating, and which further leads to this unintended injustice to market gardeners, is one which should be carefully considered meantime by the various chambers of agriculture in the United Kingdom, so that they may have time to formulate resolutions upon the subject and to forward them to the Minister of Agriculture and to the Chancellor of the Exchequer well in advance of the future session which will once more take in hand the question of Agricultural Rating Relief. Any expression of opinion on this point from such sources, and illustrations of the unequal effects of the present interpretation of the term "buildings" under the Act, will naturally go far to strengthen Ministerial hands when the time shall come for reconsideration of the temporary Act.

It cannot be denied that a more official definition of the meaning of "buildings" ought to be appended to any new statute on the subject. Those edifices which are used solely for housing the occupier, or his stock, or his implements, cannot be said to be agricultural land, for no farm produce is grown under their roofs. Their claim for exemption is based upon mere equity, and on the commonsense aspect of their *raison d'être*, as existing solely for the object of culture of lands to which they are attached. But soil which bears crops by the ton is in the spirit of the Act agricultural land, whether it is exposed to the elements or roofed in. Erections

over soil of this sort are "edifices" and "structures" perhaps, but are absolutely different from ordinary farm buildings, which are appurtenances of agriculture, but which are not agricultural in themselves, in that they rear no produce, and the surface under their roofs is neither sown nor reaped. We have dealt with this quandary and hardship betimes, so as to give ample leisure for the due consideration of it by all chambers of agriculture. Statutable changes of importance cannot be promoted in a Jay. We now take time by the forelock upon this new difficulty in its twofold aspect of buildings in general and glass-covered market gardens in particular, and hope in due time to obtain support and co-operation from our leading champions of agriculture.—*The Field*.

RASPBERRY GROWING IN HEREFORDSHIRE.

THE Raspberry is quite at home on the Herefordshire soil, as it both grows and fruits remarkably well. Field culture differs in many respects from the methods which obtain in gardens. The stools are planted in long rows about 18 inches apart, with a distance of 3 feet between the rows. No wires or stakes are used, the canes receiving no support whatever. The latter, instead of being left from 4 feet to 5 feet long, are shortened back to 3 feet, which renders them quite self-supporting. One grower of my acquaintance has the canes drawn together and fastened with a single strand of twine, but I do not know of any others who take this trouble. There is one advantage gained by thus tying the canes together in the manner mentioned, and that is they are out of harm's way when the horse-hoe is being used between the rows for the purpose of cultivating and cleaning the soil. The number of canes left to a stool varies from three to five—generally the latter number—all the weakest and badly-ripened ones being cut away. Manure is given early in the spring months, and varies, but as a rule artificial preponderate. These are sown on either side of the rows after the land has been loosened, and they are then covered with soil by a single turn of the plough.

The two principal varieties cultivated are *Semper Fidelis* and *Victoria*, both of which are excellent croppers, the flavour of the fruit meeting with the approval of jam factors. When that excellent variety *Superlative* becomes more generally known, it will no doubt be also largely cultivated. It is a grand cropper; the individual fruits are large and firm, and not so liable to become a pulpy mass as soon as gathered as some of the more tender kinds. The fruit when ripe is gathered without stalks and placed in juice-tight barrels, which hold from 50 lb. to 60 lb. of fruit apiece, and are at once despatched to the jam factories.

Growers are, I believe, well satisfied with the results of the sales in general, one cultivator intimating that he realised from £25 to £27 per ton last season. The returns, as a matter of course, vary according to the quality of the fruit and the condition of the Raspberry crop in general, whether heavy or light. In a season when the crop is below the average, the price per ton is considerably in excess of the above quoted figures. On the contrary, when the crop is a heavy one the price falls to £16 or £18 per ton. A good average price, therefore, is from £18 to £20. The average yield per acre is from one and a half to two tons. Compared with Strawberries, the expenses attached to Raspberry growing are not so great; but as a set-off against this the crop suffers and is more quickly damaged during showery weather, while a few days of heavy rain practically ruin it. Happily, such a disaster but seldom occurs, and, taking it on the whole, Raspberry growing for profit, though rather more speculative than that of Strawberries, may be said to pay well. The industry, wherever it is carried

on, also exercises a beneficial effect on the locality, as it affords a great deal of labour during the summer months.—A. W., in *Field*.

SOCIETIES AND EXHIBITIONS.

THE GREAT FLOWER SHOW AT GHEENT.

APRIL 16—24.

ONCE again the great quinquennial show at Ghent has delighted thousands of visitors. At 9 a.m. I paid my five francs, and with a friend entered the great casino in the city of flowers, and saw an exhibition before which even Manchester and York in their best days must pale, an exhibition far finer than our own Temple shows, if we except the classes for Orchids and one or two other things. Palms, Aroids, and Cycads were superb, and English visitors were delighted to see the once popular plants of New Holland and the Cape again to the fore. The best and most distinct new plant of the show was undoubtedly *Acalypha Sanderi*, from New Guinea, a green-leaved species forming an upright stem, and having spikes of crimson velvet-like flowers hanging from every node. Since the introduction of *Poinsettia pulcherrima* perhaps no flowering plant has created so much interest, or has promised to yield so much beauty under hothouse culture. If you imagine a thick, light green stem set with petiolate green leaves somewhat like those of *Populus balsamifera* you have some idea of this noble plant, but the flower spikes remind one of these of *Love Lies Bleeding* (*Amarantus*) and are 2 feet or 3 feet in length, one or more depending gracefully from each axil or node. Nothing but a painting or coloured figure could give more than a mere suggestion of the unique grace and effect this plant is capable of producing, either singly or in groups. The plants at Ghent were superbly grown, and varied from a foot to about 5 feet or so in height. I shall be much mistaken if such a free-growing, profuse-flowering, and long-enduring plant does not mark an epoch in the introduction to and culture of New Guinea plants in our gardens. Mr. Thompson's *Odontogloss*, from Stone, were much admired for their freshness and perfection, and quite a block was caused by the admiring plant-lovers who crowded around the superb *Amaryllises* of Messrs. Kerr, of Liverpool, and Messrs. Veitch. A group of the new *Cyclamen Papilio* varieties in all shades of purple, rose and white, also attracted much admiration. To say that *Azaleas* were superb in culture and in richness and variety of colouring gives but a poor notion of the extent and beauty of the numerous collections shown; but what appeared even more remarkable and novel to English visitors were the grace and variety shown in the seedling *Anthuriums* of both the *A. Scherzerianum* and the *A. Andreanum* sections of the genus. These plants bid fair to rival even the *Cannas* and *Tuberous Begonias* in variety of colour, size, and general brilliancy. The same, only in a less degree, may be said of the seedling *Imantophyllums*, which were superbly shown by several specialists in their culture. It is not easy to improve such plants as the *Lilac* and the snowy *Deutzia gracilis*, but M. Lemoine's seedlings almost caused a doubt in my mind. He exhibited a collection of *Lilacs* that showed great variety in colour and in size of spike, both single and double, all redolent of their ever-grateful perfume. France and Belgium seem to be the home of well-grown *Lilacs* so far as

their garden culture is concerned, and these new forms will be welcomed by those who have facilities for their open air or greenhouse culture, as well as for forced winter bloom. Another special feature of the show were the fine-leaved Aroids and the numerous species and well-grown collections of *Bromeliads*—plants that have never received due attention in our private or nursery gardens here at home. In permanence of beautifully curved form and in variety of colouring and markings of both leaves and inflorescences we have but few plants that can rival these epiphytes of the New World. Many can be grown in cool houses or even in rooms and in windows, and no class of plants has quite such an ever-varying permanence as these possess. On the continent we find their popularity increasing year by year, as they doubtless are sure to do in London in the time to come.

Though Orchids generally were not so well represented as is usual at our best London shows, yet an exception must be made in the case of the *Anectochilus* and allied genera, remarkable for their exquisite leafage. A pan of *Anectochilus petala*, about 2 feet in diameter, was superb in health and vigour, and there were several well-grown collections as well that attracted the attention of connoisseurs and visitors generally. Amongst the rare plants of peculiar interest was a large-leaved *Aralia leptophylla*, with long spikes of green Ivy-like flowers. *Restio Moorei* (F. W. Moore) rivals the finest *Asparagus* in lightness, and *Dracena Brookfieldi* bids fair to rival *D. Sanderiana*, having much longer white-edged leaves. *Anectochilus Roi Leopold* (= *A. Sanderi*) is a very noble species from New Guinea, quite worthy of its new name. *Pandanus Sanderianus*, from Timor, is a fine pale golden variegated kind that may prove a welcome and distinct companion to the already well-known *P. Veitchi variegatus*. Several noble specimens of the now rare *Phoenix Roehelini* were shown, a Palm that rivals *Cocos Weddelliana* in graceful contour. It is certainly the most elegant in port of all its allies of the genus *Phoenix*. A very distinct species of *Miconia* named *M. vesicaria* having inflated stipules or petioles was shown by the Society Anonyma of Brussels, who also set up a most remarkable collection of the plants introduced by the late M. Linden. The same exhibitors had *Adiantum lineatum* and *A. Clavianum*, both new varieties of the *A. macrophyllum* group. Of new Orchids, especially notable were *Odontoglossum Roi Leopold*, profusely spotted and dotted with red on a creamy ground, and *Lycaste Baroness Schreder*, a finely-formed variety of a rosy flesh colour. *Encolirion cardinale*, with a scarlet crown of bracts, *Tillandsia (Caraguata) Zahni*, *T. Wartelli*, *Nidularium amazonicum*, *N. Treyeroini*, and the gigantic *Vriesia Bloki* were noteworthy amongst the many *Bromeliads* shown. Noble examples of *Kentias*, *Phoenix canariensis* and other Palms occupied suitable positions, and there was an example of the giant Aroid *Anthurium Gustavi* shown in one of the groups. A new Palm from the Pacific named *Areca Islemanni*, with purple mid-ribs to its pinnate leaves, is a noteworthy addition to the genus, as also is the swallow-tailed *Geonoma Pynaerti*. A collection of *Nepenthes*, *Sarracenias*, *Darlingtonias*, *Cephalotes* and *Heliophora* from Chelsea attracted much attention, as they deserved to do.

The whole country around Ghent is a flat and sandy alluvial plain, dotted with towns and red-roofed farm-houses. There are few fences, and lines of gaunt bare-stemmed *Poplars* line the roads, streams and canals everywhere.

Here and there is a windmill or a tall spire amongst the *Poplars*, just now putting on their first tinge of green. All over this widely-extended plain, ribbon-like strips of cultivated crops or newly-ploughed soil prevail. The whole land looks like, and really is, one enormous area of allotment gardens, and on all sides you see the thrifty peasantry engaged in manuring or cultivating the plots of precious soil. The fruit trees are everywhere bursting into bloom. Snowy Pears and Plums, rosy Apples, and still more rosy Peach trees bloom near to the little villages and farms. The golden *Caltha* and the pale *Oxlips* shine in the low-lying little meadows, and the wild Wood *Anemone* jewels every copse and spinney wherever a bit of wood still remains. But the main interest just now centres in the gardens of the locality around Ghent. What bulbs are to the Dutch, that and more even is decorative plant culture to the hospitable Belgians, or Flemish people as they still love to be called. All around Bruges, Ghent, and Brussels, to say naught of other towns, nurseries, many and varied in size, exist for the culture and sale of the most long-enduring and popular of evergreen decorative plants. Sweet Bays, *Araucarias* (principally *A. excelsa*), Palms (especially *Kentias*), *Aspidistras*, and flowering plants, such as *Acacias*, *Azaleas* of all kinds, and *Rhododendrons*, are grown by the million, and yet there always seems room for more. It is an industry that largely appeals to the highest instincts of all, and it is one that deserves to increase and prosper. The great flower and plant show at Ghent every five years, and the personal influence of His Majesty King Leopold II., help to foster and increase one of the great national industries in a way one could wish were done nearer home. There is only one word for the Ghent show. It is a great national success, and it is an education to all visitors who see it for the first time.

F. W. BURRIDGE.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL DINNER.

THE annual dinner of this excellent institution took place on Wednesday evening last at the *Hôtel Métropole*, when upwards of 100 subscribers and friends were present. The chair was occupied by Mr. C. E. Keyser, High Sheriff of Buckingham, and amongst those present were Sir Trevor Lawrence, Bt., Messrs. N. Sherwood, Martin J. Sutton, Leonard Sutton, John Gould Veitch, Donald Smith, R. Barr, G. Barr, Geo. Wythes, G. Reynolds, H. B. May, W. J. Nating, G. Baker, G. Munro, H. Cuthush, B. Wynne, M. Gleeson, H. Weeks, W. Assbee, H. Turner, S. M. Segar, R. Cannell, G. Ingram, R. Dean, G. Gordon, G. Nicholson, H. J. Jones and W. Marshall.

After the usual loyal toasts had been proposed, special reference being made to the fact that H.R.H. the Princess of Wales is patroness of the fund, the chairman proposed success to the "Fund," and in an excellent speech remarked that the fund was started eleven years ago and had made substantial progress, so much so that the invested funds amounted to something like £10,000, and during the past years help had been given to 100 poor orphans. There are many more children who require and deserve help, but with an annual income of less than £1000 it was not possible to do more. He thought it was an institution that was not known so much as it should be. Mr. Keyser appealed earnestly to employers of gardeners, gardeners, and everyone interested in flowers to support this fund, which had such a deserving object in view. This was responded to by Mr. Sherwood, who has taken such marked interest in the fund since its inauguration. As treasurer he thanked all on behalf of the committee and the secretary for the sup-

port given to the fund during the past year, but he was sorry to mention one fact, that there was a slight falling off in the annual subscriptions. Surely, Mr. Sherwood said, this should not be, and he hoped the time was not far distant when every child will be put on the fund and none rejected. It is a children's fund, and he thought employers might help more in the way of collecting boxes to increase the annual income.

The list of subscriptions for the evening was then announced as follows:—Collected and subscribed by the chairman, £116 16s.; through Mr. Asbee, of Covent Garden, £63 6s.; Mr. A. W. Weeks, £16 15s.; Martin and Leonard Sutton, £25 each; W. Robinson, 10gs.; S. M. Segar, 10gs.; and various other amounts, bringing up the total to £515.

The toast of "Gardeners and Gardening" was proposed by Mr. Martin J. Sutton and responded to by Mr. A. W. Weeks. The toast of "The Chairman" was proposed by Mr. W. Marshall. "The Press" was proposed by Mr. Dean, and responded to by Mr. G. Gordon.

We have been at few more pleasant gatherings than this. The tables were for the most part decorated with Daffodil flowers kindly sent by Messrs. Barr and Sons, and the greatest interest was shown in the proceedings by all present. Mr. A. F. Barron, the secretary, who has devoted so much time to promoting the success of the fund, must have felt his efforts rewarded with such a company assembled as on Wednesday last. Praise is due to the committee and the secretary, and we hope it will not be said next year that there is any deficiency whatever in the total of annual subscriptions.

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, April 26, in the Drill Hall, James Street, Westminster, 1 to 5 p.m. In addition to the society's ordinary show, the National Auricula and Primula Society will hold its annual show. At 3 o'clock a lecture will be given on "Sweet-scented Leaves *versus* Fragrant Flowers," by Mr. F. W. Burbidge, Trinity College Gardens, Dublin.

NOTES OF THE WEEK.

Narcissus Lady Helen Vincent.—This is a very fine form, the flowers of good substance. Fine as were the flowers shown by Messrs. Barr at the meeting on the 12th inst., they are infinitely superior when seen growing in the open ground.

Polyanthus Orangefield.—Though not possessing either great size or rotundity of flowers, the colour of this variety is so very distinct as to attract at some distance. The flowers are of a reddish orange hue, freely produced on stems 8 inches long.

Camellia Pride of Waltham.—This is one of the recently certificated kinds, and certainly one of the most exquisite of this fine race of flowering shrubs. The colour is a charming shade of flesh pink, very delicate and beautiful; the flowers also of large size and excellent in form.

A white Violet from Maidstone.—I send you a plant of Ransom's White Violet. It is not new, but is little known. Our nursery lines of it are like snowdrifts. It is very dwarf and free-flowering. A large group of California edged with this has a fine effect.—GEORGE BUNYARD.

Tulipa Leichtlini.—This is one of the most remarkable of the Tulip species. The slender, erect stems are some 9 inches high, with comparatively small, tapering perianth, that externally embraces scarlet and a creamy buff shade, which is at once striking and exceptional among these plants.

Narcissus cyclamineus.—In the rock garden of the Royal Botanic Gardens, Edinburgh, a few clumps of the Cyclamen-flowered Daffodil were in full bloom at the end of last week. The bright yellow flowers looked well on the rockwork, and the plants showed every sign of being grown in congenial quarters.—S. ARNOTT.

Narcissus Lady Margaret Boscawen.—This may be described as the finest novelty of the present year. It contains so much of the Sir Watkin

blood as to give every promise of making as good a garden plant as the latter has done. It is a true bicolor Sir Watkin, and as such absolutely unique in this endless tribe of spring flowers.

Narcissus Weardale Perfection.—As seen in the Daffodil grounds at Ditton, this noble kind surpasses all else by its noble proportions. That fine self yellow kind—Monarch—is also in splendid condition. The flowers of both are produced on giant stems and are conspicuous in the multitude of handsome things to be seen in these nurseries.

Rhododendron racemoseum.—Some well-flowered plants of this, from Messrs. Veitch and Sons, were noted among the shrubs exhibited at the Royal Horticultural Society recently. The bushes were the largest the firm have yet exhibited of this species, which promises to be a most useful addition to the early-flowering section of this genus.

Rose Royal Scarlet.—This new Rose among single kinds stands out conspicuously. It was freely shown at the Drill Hall a week ago by Messrs. Paul and Son, The Old Nurseries, Cheshunt, and is the result of a cross between Marie Rady and Cheshunt Scarlet. The flowers are large and of a rich crimson-scarlet shade that does not quickly fade.

Chysis bracteocens.—Last year I forwarded to you a raceme of *Chysis bracteocens* on which were eight flowers. Afterwards I saw a note in THE GARDEN to say one had been forwarded with twelve blooms. I now send you a raceme with fourteen flowers. Last year's pseudo-bulb is 17 inches long.—T. HEYWOOD, *Wellfield, Bury, Lancashire.*

A curious Daffodil.—I enclose with this a twin-flowered bicolor Empress. The stem is almost normal, as you will see, and shows no sign of fasciation except that, as compared with a single-flowered stem, it is slightly more flattened. The bud sheath is single and the flowers perfect, but the seed-capsules were at first slightly joined at the sides.—J. C. TALLACK.

Three fine Dendrobiums.—I enclose a photograph of three *Dendrobiums*, two plants of *D. thyrsiflorum*, with twenty-five and twenty-six spikes respectively, and one plant of *D. nobile*, with 350 blooms on it. All three plants are grown in baskets suspended from the roof of our warmest house—the propagating pit.—CHARLES COLE, *Ross Hall Gardens, Purley.*

Primula denticulata alba.—Good forms of the white variety of the Toothed Primrose are none too plentiful, and one of the best I have ever seen is growing in the rock garden at Rockville, Murrayfield, Edinburgh. The flowers are pure white and of good size, while the truss is large and of perfectly globular form. Mr. Neill-Fraser is to be congratulated on the possession of this fine variety.—S. ARNOTT.

Deutzia Lemoinel.—Free and good as is the old *D. gracilis*, the latter must sooner or later give place to the above beautiful hybrid, which is indeed even now rapidly growing in favour. The newer kind has all the merits of a good plant, being free and compact, the trusses arranged in a slightly pyramidal manner and the flowers possessed of a snowy whiteness that will do much to make it universally popular.

Aubrietia deltoidea grandiflora.—The spreading tufts of this are now covered with blossoms, and in many places where the patches are of good size showy in the extreme. For planting freely on rough pieces of rockwork where not much soil is at hand *Aubrietias* are well suited, spreading and flowering freely. Rocky banks near grassy slopes can scarcely be occupied with more suitable subjects than these.

Ranunculus amplexicaulis.—This valuable species is now flowering freely in the open garden, though giving its strongest growth and best flowers in positions somewhat sheltered from the hottest sun. Few are better suited for planting freely than this, for the reason perhaps that it is generally reliable when once planted, gaining strength each year and flowering more profusely. Where a deep moist bed of peat and loam can be given there need be little fear of a good crop of its pure white flowers.

Campanula isophylla alba.—This beautiful trailing *Campanula* is so well suited to flowering in window boxes and the like, that a reminder concerning its propagation may not be in vain. It is now a good time to start the plants. Those that have been in boxes all the winter may be pulled to pieces with impunity now that the growth is starting afresh, and replanted without delay. Better still if a frame is at hand to give the plants the benefit of it if small divisions have been made. In this way it quickly establishes itself.

Narcissus maximus (College Garden variety).—*Maximus* is one of the best of the yellow Trum-

pet Daffodils, and few fail to admire its deep golden-yellow flowers with their elegantly twisted perianth segments. The College Garden variety surpasses the type, and were it not for its higher price would be likely to supersede it. The stock in cultivation came from Trinity College Gardens, Dublin. I saw it doing well in the garden of Mr. John Maxwell, Maxwelltown, Dumfries.—S. ARNOTT.

Pteris arguta.—This species was among the most noticeable of Ferns shown at the Drill Hall on the 12th inst., and is obviously well suited for decoration generally. The plant is remarkable for the size and spread of fronds that may be secured in a pot 8 inches or 9 inches across, these being sufficiently dense and well furnished to quite hide the pot from view. The slightly arching fronds possess a somewhat hard texture, and being of a dark green, and otherwise distinct and attractive, should be in demand for furnishing generally.

Primula viscosa nivalis.—A number of plants of the Snowy Primrose crowning a peak in the rock garden of the Edinburgh Botanic Gardens are at present very beautiful. The fine trusses of pure white flowers show how well the plants have been cultivated. They did not appear to have been long in position, and it will be interesting to observe if they will continue to do well. A moist soil is that generally given this dwarf alpine *Primula*. It is a charming flower, and good plants such as those at Edinburgh elicit much admiration.—S. ARNOTT.

Muscari conicum.—Thousands of pyramidal spikes of this bright blue flower gladden the eye of the visitor to Messrs. Barr's nursery at Ditton. The plants are growing in the long, narrow beds characteristic of the place, and the effect of so much colour is very startling. Though somewhat formal, the spikes are singularly pretty and attractive in small vases, and quite apart from its form, the colour, and not least the unique fragrance, render it welcome. This pretty plant will grow apace in almost any soil, and besides, it is one of the cheapest of all bulbous plants.

Narcissus Apricot.—This distinct Trumpet Daffodil obtained an award of merit at the last meeting of the Narcissus committee of the Royal Horticultural Society because of the new shade of colour in the trumpet. It is by no means a first-rate flower, inasmuch as the perianth is decidedly weak, and the crown, as, indeed, the whole flower, quite small in comparison with that of bicolor Daffodils generally, to which section it belongs. But as the progenitor of a new race possessing this shade the new-comer may be useful. The colour is buff, with orange rather than apricot, as implied in its distinctive name.

Helonias bullata.—This *Helonias* is rarely seen in such fine condition as in the Edinburgh Botanic Gardens, where its wants are evidently well provided for. Whether it is the climate or soil at Edinburgh that suits it, it is a pleasure to see it so healthy and showing such fine spikes of its rosy purple flowers. The way in which it grows there has been observed by others. In light, dry soil it is not a success, but in the artificial bog, or rather stiff clay, it is generally more satisfactory. The spiked *Helonias* is not an expensive plant, but is pretty enough to deserve to be more frequently grown.—S. ARNOTT.

Crown Imperials.—These spring-flowering bulbs are among the showiest of garden plants. Only the other day a very fine display of a rich golden yellow kind was seen in a Gloucestershire garden, where a border, fully 100 yards long, was at the moment gay with great quantities of bloom. It was no long, straight line that caught the eye, but rather the irregular grouping that told of things to come. The soil of this border is quite heavy, and only strong-growing subjects have been planted. In the grass the majority of these strong-growing kinds thrive quite well, and with extra care in planting increase in beauty with years.

Begonia Gloire de Lorraine.—Plants of this exhibited by Mr. H. B. May at the last

meeting of the Royal Horticultural Society further illustrate what may be done with this remarkable variety. The plants in question, after flowering profusely throughout the autumn, had been stopped, and then allowed to grow their own way in a temperate house. The great difficulty with this *Begonia* is to get stock, as it flowers so persistently that it is very difficult to get good cuttings. The plants referred to above were about 7 inches or 8 inches high and a perfect mass of bright pink bloom, almost entirely hiding the foliage.

Jeffersonia diphylla.—Several clumps of the "Twin-leaf" are growing well in the rock garden of Mr. P. Neill-Fraser at Rockville, Murrayfield, Edinburgh. The only fault of this *Jeffersonia* is that the flowers last a very short time. It is a very interesting plant, and one worthy of a place in the rock garden, the drier parts of the bog, or in moist, half-shady borders. It varies from 4 inches to 10 inches in height, and has white flowers each about an inch across, with yellow stamens. The leaves are very distinctly divided into two lobes, and are of a pretty green. They look very attractive when a little above the soil. Although not a rare plant the Twin-leaf cannot be called common. It comes from Tennessee and Virginia.—S. ARNOTT.

The Water Hyacinth (*Eichornia* (*Pontederia*) *crassipes*), originally introduced as an ornamental plant from S. America, has (as we learn from *Harper's Weekly*) now increased to such an enormous extent in the St. John's River, Florida, as to seriously impede the passage of steamboats for a considerable distance below Jacksonville. It is also destroying the timber industry, as it is impossible to float logs down stream through the dense, entangling masses of vegetation. The obstruction has been so loudly complained of that the Agricultural Department of the United States has sent an agent to Florida to ascertain what can be done to free the river from this pretty-flowered plant, which, by growing superabundantly in the wrong place, has become an intolerable nuisance.—W. M.

Tulipa Greigi.—From time to time many lovely species of this genus have been introduced to our gardens, the majority of which side by side with this one when in good form pale considerably. It is perhaps of all the species the most beautiful. A mass of it is certainly among the finest things to be found in any garden. At the last meeting of the Royal Horticultural Society Messrs. Wallace, of Colchester, had one or two very distinct forms showing its variability, some of which were approaching to a yellow shade with the orange-scarlet interspersed. Since then we have seen a bed of it at Ditton, and here also the same thing prevails. Yet in all its forms it possesses the same intense brilliancy of tone which, combined with the great size of the unopened flowers, stamps it as the best of the genus. Many of the buds are fully 4 inches long, the colour very rich, and the foliage the most beautiful of all.

Anemone nemorosa Robinsoniana.—In a very shady and quiet corner where the sun does not reach the plants till past mid-day, the earliest fully expanded flower appeared on the 15th inst. Even in the bud state the dove-like shade is very pleasing, though this cannot at all compare with the lovely though delicate colour the flowers assume when the sun reaches them. In sunny positions the blossoms open quite early in the forenoon, while in very shady places they do not expand before noon. Where a good stock exists it is well to plant in several positions and thus enjoy the wondrous beauty as long as it is possible to do so. All the varieties of this species put on their greatest vigour in deep rich soil of loam and leaf-mould. At the same time such is by no means essential, seeing the acres of the white form now in flower in woods near Gloucester and other parts where but little summer moisture can reach the roots. In such places, however, shade is of the highest importance.

Saxifraga Boydi.—Among the yellow-flowered members of this family the above kind is un-

doubtedly one of the choicest. In some instances—near London, at least—the growth is not all that can be desired, as occasional rosettes now and then perish without any obvious reason. The failing referred to is more frequent with *S. Burseriana* and *S. juniperifolia*, the latter frequently becoming very much disfigured in consequence whether in pots or planted out. In the above beautiful plant the growth is so slow that any loss as above suggested becomes a disfigurement for some time. Just now in the open the little tufts are covered with the bright yellow blossoms, perhaps the most highly coloured of all those that may be included in this interesting section of the genus. Considering the dwarf habit of the plant, it may be regarded as free-flowering, every tiny spike producing three blooms, each of which in turn renders it attractive for some time.

Anemone nemorosa purpurea, about which my friend Mr. Arnott has a note in last week's GARDEN (page 329), is not one of my seedlings. I found it in 1887 on one of the low hills about three miles to the south of Pau. It was growing on a steep, shady bank, and its rich colour at once attracted my attention, and I secured a few roots of it. The bud is brilliant red and the expanded flowers rich purple, quite different in colour and darker than in *A. Robinsoniana*. I find that it should be grown in a somewhat shady place, as the colour quickly fades in the full sunshine. Two patches in my garden look like distinct varieties, one being on the north side of a rock garden and the other fully exposed to the sun. In the neighbourhood of Pau *A. nemorosa* is much given to sporting into delicate shades of blue, but this is the only form which I found worth keeping. The leaf differs somewhat from that of the type. *A. Alleni*, a seedling from *A. Robinsoniana*, is, in Mr. Ewbank's opinion, quite the best of this class. It bears flowers each 2½ inches in diameter, the colour being superior to that of the parent.—JAMES ALLEN, *Park House, Shepton Mallet*.

TREE PEONIES FAILING.

Will any reader tell me the cause of my Tree Peonies rotting off in the spring? When the shoots get about 6 inches long they suddenly droop, and, on examination, they are found to be rotten just where they break from the old wood. They have done the same thing for three successive seasons, and I find they are the same this season. I enclose one for your inspection. They are planted in a round bed sheltered all around with shrubs, with the exception of the front, which faces south-west. No frost gets there to hurt them, and no wind, or only what gets through the back-ground of shrubs, which are rather thin near the ground. I trenched 18 inches wide around the bed between shrubs and peonies to check roots in the autumn, and gave a good covering of half-rotten stable manure. As I have only had charge of them for twelve months I do not know how the bed was made, but am told it was taken a lot of trouble with. It looks to be chiefly loam, not very good, and is very close.—S. JAMES.

* * We were not able to trace any disease on the shoot submitted for our inspection, and, in the absence of fuller details, should attribute the failure of the shoots to either frost or a keen wind piercing through the back-ground. You do not say whether any of the strong flowering shoots are affected in a similar way, or whether the failing shoots are all of the same size and character as the one sent. In the best possible positions, these plants are subject to loss of shoots by spring frosts, but usually where frost is responsible for the mischief the tips of the shoots also have suffered, and this was not so apparent in your case as in some that have come under our notice. The trouble appears to be at the junction of the shoot, then it extends in an upward direction. Assuming the failing shoots to be only a very small percentage of the plant, and usually at the lower level, it would appear rather an instance of the survival of the fittest, that is to say, that sufficient succour for the whole plant is not forth-

coming, consequent upon the roots of the adjacent shrubs entering the bed and drawing nourishment therefrom, with the result that the strongest shoots survive and the others fail. It is, however, no uncommon occurrence in these Peonies for the more subordinate branches to fail even when the culture is of the best. In the present instance much depends on the way the bed has been made, and particularly as to depth of soil. So far as position is concerned, you have a good one, and you did well to discourage the encroachment of roots from other plants near. So far as the present season is concerned you can do but little, beyond seeing the plants do not suffer from want of moisture. In this connection, however, you may render the plants very considerable help by affording them a weekly watering of liquid manure, say one bushel of horse manure to 40 gallons of water, adding half a peck of soot in a loose bag and stirring thoroughly. Give the bed a good watering with this every week or ten days during June, July, and August, with the object of securing more ample leafage, and in turn better-developed buds. Too frequently these plants are much too dry at the root during summer, which of all seasons is the best for laying the foundation of the next season's flowering. With deciduous subjects such as these, the autumn and winter mulching comes all too late to be of service to the plant.—ED.

WILD FLOWERS.

"... champs d'Anémones sénéés par Dieu."—*Renan*.

Without a cloud, the sky is blue,
And blue the Violets that strew
The copse, as if between the trees
The April sky had fallen through
And stained the earth with azure hue.

Anemones, so thick they grow
Around the field, are white like snow;
And in the shelter of the wood
Marsh Marigolds begin to glow,
And Bluebell buds already show.

April, 1898.

M. C. D.

Flora of Norfolk.—Can any reader tell me what is the best book on the flora of Norfolk, and where it is to be obtained?—W. S. TILLET.

Is *Andromeda floribunda* poisonous?—Would you be kind enough to let me know if *Andromeda floribunda* is poisonous? Some flowering shoots were used in Easter decorations, and during the last few days two sheep have died, in their stomachs leaves of *Andromeda* being found. If you will tell of any other case where such a thing has occurred, or if it is poisonous, I would feel much obliged.—ENQUIRER.

The weather in West Herts.—There has been as yet only one unseasonably cold day this month, but on eight nights low readings have been registered. Four of these cold nights occurred during the past week, when the exposed thermometer on each of them showed 4° of frost. Both at 1 foot and 2 feet deep the ground is at the present time about 2° warmer than the April averages for these depths. About a quarter of an inch of rain fell on the 14th, but there has been none since. During the last three days the air has been very dry, and on the 16th the difference between the dry-bulb thermometer and one with its bulb kept constantly moist amounted to 13° at 3 p.m. There has again been a good record of sunshine, the average duration for the last five days being nearly 8½ hours a day. A Wild Cherry tree growing in my garden came first into blossom on the 15th inst., or six days in advance of its average date for the previous twelve years, but a week later than last year.—E. M., *Berkhamsted*.

Names of plants.—*E. Mansell*.—1, Double Daffodil Princess; 2, *N. incomparabilis*, Eggs and Bacon.

THE GARDEN.

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FERNS.

GYMNOGRAMMAS.

THESE are among the most beautiful of all stove Ferns, especially those belonging to the calomelanos group. Most of those having the gold or silver farina (or powder) on their fronds are now considered as varieties of calomelanos, and although, if you take the most widely distinct, viz., peruviana, argyrophylla, and chrysophylla, they appear to be sufficiently distinct to constitute separate species, yet, when one examines all the intermediate forms, it would be difficult to say where the division should be made, for where large numbers of seedlings are grown all the various shades may be found, from almost pure silvery white to rich golden yellow. I find the new authorities give pulchella as a separate species, and Wettenhalliana and Mayi as its varieties. G. Mayi is certainly more nearly allied to G. peruviana, and I think the same may be said of G. Wettenhalliana. G. sulphurea is also given as a separate species, though distinct in its way. It is difficult to understand why it is not included with others, some of which are certainly more widely distinct from the type than this. All of these Gymnogrammas may be raised from spores, and usually the varieties come fairly true in character. Yet sometimes it happens that in a batch of seedlings a great variety will be found. By careful selection each type may be improved.

The following are the most distinct of the named varieties, and, as I have previously remarked, numerous intermediate forms exist which serve to connect the silver and golden varieties together. Of the silver Ferns, peruviana may be taken as the type. Argyrophylla is the most distinctly white-powdered, and may be regarded as the best silver Fern. Mayi comes near it, but the powder has a slight sulphury tinge; it is a vigorous grower and makes

much larger fronds. Sulphurea is of slender growth, usually forms a number of crowns, and carries a dense mass of small fronds. Wettenhalliana is the best type of the crested silver kinds, but among seedlings this varies considerably; a variety named argentea cristata being an improvement. In this the farina is very white, and almost entirely covers both the under and upper surfaces of the fronds. Grandiceps has a more decided sulphur hue, and the terminal crests are very heavy. Tartarea is a fine form, having large fronds, quite silvery white beneath, and a rich, bright surface. Pulchella comes near to this, but has long, slender fronds, and the under surface is not so well covered with white, especially in the fertile fronds.

Of the gold Ferns, chrysophylla is perhaps the best type, the rather long, narrow fronds densely covered with golden yellow powder. There are some good crested forms of this. I believe Parsonsi is the oldest, and still one of the best, being heavily branched and crested. In grandiceps the terminal crest is not quite so heavy, and each of the side pinnae terminates in a light crest; grandiceps superba grows rather more erect, and the bright yellow farina entirely covers the surface as well as under side of the fronds. It is certainly one of the most beautiful of the genus. Lauchema has nearly triangular fronds, richly covered underneath, and a bright green surface. Alstoni differs in having the pinnae curled inwards, thus showing off the golden under surface to advantage. At first sight one might think this had been caused through some neglect, but it is a freak of Nature which is shown quite early in young seedlings, but becomes more distinctly characteristic as the plants age. Martensi is a distinct and useful variety; the surface of the fronds is deep green, with a slight covering of pale yellow beneath. I lately saw a fine batch of this in a market nursery. It is, perhaps, the only one that is found in quantity among ordinary market Ferns. G. decomposita is another distinct form with very finely-cut, erect-growing fronds. In

G. schizophylla gloriosa, the long, drooping, finely-cut lace-like fronds are very beautiful. A young plant is formed at the extremity of each frond, and sometimes at the extremities of the side pinnae. It is best to propagate this by rooting these, as, although spores germinate freely, seedlings vary considerably, and are often inferior to the type. Elegantissima is a variety of this, with irregular pinnae, and the silvery-white farina partially covers the upper surface. Trifoliata is a distinct species in which the narrow fronds grow erect, and attain to a height of over 6 feet—in fact, it would be difficult to say how tall it might be grown, for when kept in a healthy state the fronds continue to lengthen indefinitely.

CULTURE.

All of those referred to above should be grown in a stove temperature, or an exception might be made in the case of Martensi, which does well in a greenhouse. They should be potted in a rough, open compost, fibrous loam, peat, and leaf-mould, with a liberal addition of sand; good drainage should be given and care taken not to over-pot. When growing freely they require a considerable quantity of water, and soon shrivel up if they get a little too dry. Over-watering will prove very disastrous; once get the soil wet and sour before the pots are well filled with roots, and the plants will never get away freely again. By potting on as they require it, most of those referred to above may be grown into large specimens, but fresh, healthy plants in 5-inch or 6-inch pots are the most attractive, and, as there is no difficulty in raising seedlings, it is not worth while keeping old plants. Gymnogrammas should never be wetted over the fronds, though they like a fairly moist atmosphere. Schizophylla gloriosa should be grown in a suspended basket or suspended pot, to give the long drooping fronds a chance of full development. Most of the others noted will do well suspended, or stood on inverted pots.

A. H.

ROSE GARDEN.

ROSES ON IRON AND WIRE SUPPORTS.

THERE still seems a great difference of opinion among rosarians respecting the evil effects of growing Roses upon iron or galvanised wire supports. Although many leading Rose growers do not advise this means of supporting and forming arches for Roses to grow upon, and point to the effect frost has upon plants grown close to and upon such materials, I still fail to see that they do worse upon iron than upon wooden supports. My neighbour has a screen of Roses at the bottom of his garden, designed to hide a bare wall on the adjoining premises. One part of this is composed of wood in the form of lattice-work, and the remainder of galvanised wire stretched from pole to pole. I have taken especial note of this lot of Roses, and not once have the plants growing on the wires been more affected by frost than those on the lattice-work. The very brown and frosted appearance that Roses often have when growing over any supports seems to me to be quite as general when cultivated over iron as wood. I also notice it upon wall trees that had no iron or wires near them; but this is always when the plants are growing in an exposed situation—such, for instance, as where keen winds from the north or east can gain direct access to them. When Roses are trained over arches they are far more exposed to frost and wind. It is also the general rule to plant them in this form to break the flat appearance of some open piece of ground.

My experience points to frost and keen winds as being the main cause of the Roses failing upon such supports. If it were from any other cause, why are they not always affected? When plants are grown upon iron or wire supports in a sheltered situation I have never known them to be affected similarly to those growing in exposed positions, while at the same time plants upon wooden supports and in the exposed situation have been equally as much affected as their neighbours growing upon iron or any other metal. Even Roses that have no support and are growing in the same position as those on iron are similarly affected. I think the real reason lies in the greater exposure to frosty winds and to the sudden thawing of the wood when the sun peeps through for an hour or two.

S.

Some recent climbing sports among Tea and Hybrid Tea Roses.—It is rather early to pass judgment upon these, but if they turn out to be thoroughly fixed sports their value will be very considerable. The Roses I allude to are climbing forms of Bridesmaid, Kaiserin Augusta Victoria, The Meteor, Rubens and Souvenir de Wootton. We really require a pink climber of the refined character of such a Rose as Bridesmaid. I have seen that grand old Rose Souvenir d'un Ami, also President, covering quite a large wall space, but the growth was not equal to that of such Roses as Climbing Perle des Jardins or Climbing Niphetos. Therefore, really fixed climbing sports of Bridesmaid and the others named will be most valuable acquisitions. It is very singular that a climbing Kaiserin Augusta Victoria was announced last season in Great Britain, and this year another one appears in the United States under the name of Mrs. R. Peary. This is said to make shoots 10 feet to 15 feet long in one season. The great advantage of climbing forms of these Roses lies in their capability to yield large quantities of blossom. Climbing Meteor will be most valuable for a house where a night temperature of 60° is maintained, for this Rose requires strong heat to bring it out to perfection; then its A. K. Williams-like blossoms are most lovely, and appear doubly so

in the winter months. I do not expect it to prove of much value with us for outdoor culture. Climbing Rubens will perhaps eclipse the old favourite Climbing Devoniensis for indoor work, for this latter sweetly-fragrant Rose is none too free-flowering under glass. It really requires a large amount of space and little or no pruning, and these conditions are not always practicable in ordinary greenhouses. Climbing Souvenir de Wootton must be very effective when well established, for the dwarf form is a profuse bloomer, albeit the colour is not one that commends itself to all.—P.

NOTES AND QUESTIONS.—ROSES.

Rose Emilie Gonin (Tea).—This is another of M. Guillot's productions, and promises to be a valuable acquisition. Of course, one cannot determine what a Rose will be like in our fickle climate, even if it be good with us under glass, but from what I have seen of this variety I fancy it will be a first-rate exhibition kind, coming somewhere between Mme. de Watteville and Princess of Wales. The colour is white tinted with orange-yellow, each petal heavily edged with carmine. I am rather doubtful as to its vigour, and must suspend judgment pending a better acquaintance with it outdoors.—P.

Rose Souvenir de Jeanne Cabaud (Tea).—The high reputation which M. Guillot has attained as the raiser of some of our best Tea Roses will be yet further increased when Rose growers become more fully acquainted with the above lovely variety. The flower, which is of good size and double, has in its half-expanded stage a resemblance to Comtesse de Nadaillac, but fully blown it reveals a centre of rich apricot and carmine, a distinct and very beautiful combination of tints. The growth is vigorous, and I believe this variety will take a prominent position among Tea Roses of exhibition standard.—P.

Roses and the weather.—In a recent issue Mr. Tallaek gave us his experience of the effect of the weather on Roses. On looking over the Roses on April 2, I found them as badly injured as those of Mr. Tallaek. The Hybrid Teas and Noisettes suffer most. I have a Rève d'Or on an east wall of the abbey in a warm sheltered corner. The shoots were showing bud, and every growth is destroyed. A Cheshunt Hybrid, growing against a chimney-stack, is just as bad. Bank-sian Roses on south walls have shared the same fate. The same thing happened to a fine Mar'chal Niel on a warm wall on a cottage in the village. This all goes to show how dangerous it is to induce very early growth. Far better try and retard growth, as is clearly seen by Roses of this type growing on exposed sites. On low stone walls here facing east, where no growth had taken place, all is right.—DORSET.

Rose Crimson Rambler.—This has now become a general favourite with our London florists. One of its greatest recommendations is that the flowers last so well. Under the most adverse conditions the blooms will last quite a week, and with good treatment and genial surroundings even much longer. Among Roses I do not know another on which the petals hold on so well. The trusses of rich crimson flowers are always well set off with a wealth of bright green foliage, and it is surprising what large plants may be grown in small pots—in fact, it seems to be an advantage to confine the roots, as the plants do not then make quite such vigorous growth, but flower better. From notes which have recently appeared in the *American Florist* this Rose would appear to be as much appreciated in America as in this country. If we could get flowers of the same quality in other colours they would, no doubt, be equally valuable.

Rose Mme. Cadeau-Ramey (H.T.).—This is a novelty of remarkable beauty, and one that will be valuable to exhibitors. The form of the flower is globular with good high centre, and as large as Souv. d'Elise Vardon; indeed, the full-blown blossom appears to come midway between this

latter Rose and Lady Mary Fitzwilliam in point of size. The colour is rosy flesh, and a very distinct feature of this beautiful novelty is the rich saffron-yellow freely displayed at the base of the petals and even more intensely in the lovely buds. The growth seems good, although not extra vigorous, and it is certainly a near relation of Antoine Rivoire. M. Pernet-Ducher has been very successful in utilising Mr. Bennet's grand seedling Lady Mary Fitzwilliam as seed or pollen-parent, for not only is it manifest in these varieties, but also in Souv. du President Carnot and Souv. de Mme. Eugene Verdier. It is a great pity that fragrance in this lovely tribe is very faint; indeed, I think that at least one of the parents of a Rose should possess this desirable quality, for however beautiful a Rose may be its beauty is heavily discounted by the absence of perfume.—P.

Rose Niphetos on Manetti stock.—I was recently informed by the manager of a large nursery, where Roses are grown for market, that he could obtain Niphetos of a much purer white when grafted upon the Manetti than he could from plants upon the Brier. The system of culture adopted by market growers quickly exhausts Rose plants, but their durability is of little moment to them provided they obtain good and quick returns. It is quite true that the seedling Brier is much slower in root action than the Manetti. When planted out and only moderately forced it is undoubtedly the most enduring stock for Tea Roses. But this much can be said in favour of the Manetti, that some few varieties grafted upon it, such as Niphetos, Catherine Mermet, The Bride, Bridesmaid, Mme. Hoste, Kaiserin Auguste Victoria, Duchess of Albany, La France, and Belle Siebrecht, if planted out under glass, will make enormous plants in a very short time, and will also give large flowers with good long stems—a most essential point at the present day. I would not recommend the Manetti for Perle des Jardins or Sunset, and several others absolutely refuse to grow upon this stock, and it is only for the reasons given that I venture to commend it.—G.

Gold medal Roses.—In your issue for April 2 (page 274), "P." asks if the award of a gold medal implies that the Rose to which this award is given is superior to all others. Most certainly so, otherwise why give such a medal? If the award were given simply because the variety was new, where could we stop? I believe about a dozen lots were staged last year at the Crystal Palace; and, as one of the judges, I can testify to the very high standard set, before a gold medal can be awarded. None of the varieties that have gained this high honour are indifferent. Let me quote from the schedule. "Three single trusses of any new seedling Rose or distinct sport (either not yet in commerce, or not first distributed earlier than November, 1896, a ground plant of the variety must also be shown). The award is a gold medal or card of commendation." This latter meets "P.'s" suggestion that a certificate be awarded to those considered worthy. In the first place it must be a new Rose of exceptional merit; and if in commerce, cannot compete should it have been introduced before November of the preceding year. The Bride is an American production, and was never exhibited for a medal. It is quite different in the case of Muriel Grahame. Margaret Dickson is hard to beat in most Rose gardens, and I venture to say is quite as consistent as Her Majesty. The sole idea of this class was to give due prominence to a Rose of extra quality. Nor can any Rose having once won the gold medal compete for it again. Not only flowers are shown, but a plant from the open ground, so that no one can be deceived. Two cards of commendation were awarded last year at the Crystal Palace Show, and only one gold medal out of the eleven exhibits. The medal was given to Messrs. A. Dickson and Sons, Newtownards, Ireland, and the cards to Messrs. G. Paul and Son, and one other firm whose name I cannot call to mind. I do not call to mind that any of the foreign-raised Roses have competed for the medal.—A. PIPER, *Uckfield*.

FLOWER GARDEN.

GROWING DAFFODILS IN JARS.

THE Narcissi here illustrated are growing in nothing but cocoa-nut fibre and shell shingle, about four parts of fibre and one part of ground shell. Coarse sand may answer as well as the shell. At the bottom of each jar are small pieces of charcoal about the size of small nuts. The bulbs are kept in a cellar until fairly started and then brought out into one of my cool green-

POTTING YOUNG STOCK OF AURICULAS.

THIS is a good time to repot such young plants as have been raised from offsets taken at potting time, last May or June, or later. The offsets having been placed in small pots have well filled them with roots, and they can now have a shift with advantage, not reducing the balls very much and giving them a pot not more than two sizes larger, and only one size larger if enough. Young stock should be grown on as quickly as possible to get the plants into size for blooming well next spring. Some of the plants raised from last year's offsets may show for bloom this spring,

for anything in the way of growth until its roots have made their way through to the sides of the pot. There is always a risk of rot setting in in such plants, and choice varieties of Auriculas are too expensive to permit of their being trifled with. Some sorts of show Auriculas—Acme, white edge, and Mrs. Potts, self—throw out a great many offsets when the plants are in robust health, while others are very slow of increase, and there is necessity for the greatest care being exercised in the culture of such. I have heard of a particular variety not giving any offsets for three years. There should be perfect drainage to the pots and a little of the fibre should be laid over the drainage to prevent the soil falling down among the drainage and choking it. So long as the water will pass readily through the soil the plants may be expected to keep in health. Should they show signs of standing still, it may be assumed there is something wrong with the roots, and then it is wise to turn the plant out and examine it as to the cause of lack of growth, repotting as required.

R. D.



Double Daffodils growing in a vase in cocoa-nut fibre. From a photograph sent by Mr. R. Sydenham, Tenby Street, Birmingham.

houses and developed. There is no drainage whatever, and when they appear to be dry I fill the jars with water and then turn on one side and let any surplus water drain away. I have had the most charming results with the different varieties of single Narcissi, Trumpet Narcissi, and, more particularly, the Polyanthus Narcissi. In the pot of double Daffodils were eight bulbs, and these, as you see, threw twelve fully-developed blooms, and there is another bud at the back not fully developed.

ROBERT SYDENHAM.

Tenby Street, Birmingham.

but if it is desired to get them into size as soon as possible it is well to deprive them of their flowers. If potted now they will grow away freely at that time of the year—soon after mid-summer—when the Auricula makes its chief growth. There should be the avoidance of anything like a compost that is likely to become close and soddened. A compost made of fibrous yellow loam pulled to pieces by hand, some good leaf-soil, well decomposed manure and silver sand will just suit them, but with adequate drainage. It is better to repot a young plant two or three times, giving it a bare shift, than to place a small plant in a large pot, where it has to wait

Aubrietias.—A. violacea, which is the largest and deepest-coloured of all I know, and the rose-coloured *Leichtlini* are now in fine character, large clumps over a foot in diameter each way being dense cushions of bloom. The plants, more than 100 in number, occupy a low and rather damp position in a sunny exposure. I think the *Aubrietias* are fonder of moisture than is generally supposed. They are often planted on rockwork and to form sloping edgings, and in such positions the plants are subject to the action of drought and suffer in consequence, and never bloom so finely as when they are in cooler and moister quarters. But if they are growing where they can be top-dressed occasionally and have water supplied to them when necessary, the growth and blossoms are seen to the best advantage. Seedlings from both of these *Aubrietias* show but little variation; a few may be a shade darker in both cases and a few paler, but the difference of tint is not great. A good supply of plants can be maintained by sowing each year some seeds from the best varieties, as soon as ripe pricking the seedlings off into boxes, and then planting out as soon as large enough.—R. D.

Hardy Cyclamens.—As I have for many years grown these successfully, my experience may be of some use to those who are troubled with the question whether they are to plant the corms deeply or not. I had tried *C. coum* and *C. Atkinsi* in various places, but had not succeeded with them; but having been told they did best in a sunny situation and did not object to have trees near them, I placed three or four bulbs in a part of a rock garden bordering the drive up to my house, with a shrubbery and some tall trees at the back. It is, I should think, the hottest corner in my garden, and my choice of a spot was fully justified. I planted the original corms just below the surface, and I have never done anything to them since. Not only have they grown and flowered abundantly every year, but they have scattered their seeds all around them and even into the shrubbery behind. I have just looked at many of these seedlings, which vary in size from the dimensions of a florin to those of a good-sized tumbler, and I find that all of them are just barely beneath the surface. I have never top-dressed them and they have been severely

left alone. As they are surrounded by such dwarf plants as Aconite, *Omphalodes verna*, Snowdrops, *Triteleia*, &c., it is just possible that the decaying growth of these has afforded them some slight top-dressing. I therefore think that shallow planting is best for them, but the great point is to have them in some dry, sheltered place where they will be thoroughly baked in the summer. It must, however, be borne in mind that, like many plants, they will probably accommodate themselves to very different circumstances.—DELTA.

The flowering of bulbs.—When the different bulbs such as Hyacinths and Tulips are planted to form a certain design it is very important that varieties should be selected that bloom at the same period, for if one variety is over before another is at its best, the whole arrangement suffers thereby. An instance of this is very noticeable at Kew, where on a square of turf close to No. 4 greenhouse there are several beds of Hyacinths, which have flowered beautifully, and with one exception at just about the same time. The varieties in question are *Mme. Hodson*, pale red; *Ida*, white; *Gigantea*, bluish; *Siam*, intense blackish-purple; and *Grand Maitre*, blue. While these were all at their best at the same period, two beds forming part of the group had not a flower left, the variety with which they were planted being the single white *Grand Vedette*, a very beautiful Hyacinth, and one from its early-flowering qualities well adapted for forcing. It flowered too soon to form part of a design with the others above enumerated.—H. P.

THE CLIMATE OF CALIFORNIA.

The climate of Southern Oregon from the Cascades to the Pacific is about the same as that of a similar belt in Northern California, and many plants are common to both regions. East of the Cascades it is cold in winter and rainfall is light. It is probably much colder there than in England. In Eastern Nevada, much farther south in the same belt, the thermometer went to 40° below zero a few years back. But the aridity brings in a new set of conditions, and I very much doubt if the flora of that region would be as well suited to your climate as that of the Willamette Valley, the great valley of Northern Oregon west of the Cascades. The Willamette Valley is a region of great humidity. Summer rains are common there, and the winter precipitation heavy. They have some pretty cold weather there. A year ago the Columbia river, a stream several miles wide and of immense volume, was nearly frozen over. It strikes me that that would be considered rather cool in England. Most of the *Erythroniums* and quite a variety of the *Lilies*, *Calochorti* and *Brodieas* that I list come from that region, and I cannot understand why either your summer rains or winter cold in England should harm them. Farther north is the State of Washington, with as much cold and a higher degree of humidity in the western part than are to be found anywhere in Europe. Eastern Washington is an extension of the same region as Eastern Oregon, but colder. Take again California, and you find plants growing under conditions certainly more rigorous than a sheltered situation in England would afford. I do not refer to true alpenes, for on those high mountains, say like those about Donner Lake, the first snows in September or October cover them, and the 10 feet to 20 feet of snow which follows does not melt until June or July, but take, for instance, a little valley called Lyons Valley, where I now grow my *Lilies*. It lies at about 2000 feet altitude. For two months the bare ground was frozen solidly in the shade to as much as 9 inches in depth (below the roots of many of these plants which you consider of doubtful hardness), while in sunnier spots the top thawed and froze alternately for the same time. A year ago snow lay there for fully six weeks. A plant cannot more than freeze, and I certainly cannot understand why a plant which will endure these conditions unhurt will not with slight protection winter with you. *Calochorti* are reputed tender, yet both C.

venustus oculatus and *C. Maweanus* are found in this and colder valleys. Flowers there open in late May to July, fully six weeks after those here in the valley. I may be wrong in my deductions, but I certainly think that the failures of English growers with many Californian plants are not due to climatic causes. CARL PURDY.

STOVE AND GREENHOUSE.

DOUBLE PRIMULAS.

The true double forms of the Chinese *Primula* must not be confused with the semi-doubles, of which there is now such a great variety, and which may be raised from seed, as they seed almost as freely as the singles. The really double forms, however, do not seed, and can only be propagated from cuttings or divisions. I have frequently tried to fertilise the old Double White with pollen from singles, but have always failed. It would seem that it is only by accident that we get any new varieties, and, as far as I am aware, this has not occurred within the last few years. I have known instances of full double flowers coming among the singles, but this has always been confined to one form, viz., the dark leaf-stalked, with white flowers striped with red, similar to the varieties raised by the late Mr. Gilbert some years ago. I have also known the doubles to sport. On one occasion I had a plant of Lord Beaconsfield with two crowns. From one the flowers were cerise-pink (the ordinary colour of the variety), and the other produced almost pure white flowers. To make sure it was not two plants accidentally put together, I cleared the stem to where they joined together.

The great value of the double *Primulas* is that the flowers do not drop and the plants keep up a succession of bloom through the winter, especially the old Double White, which is one of the most useful plants we have for cut bloom. Some growers pot their plants on and grow them into large specimens, but it is more satisfactory to propagate annually, the present being the best time to deal with them. The one-year-old plants will have made several crowns, and when the old leaves are cleaned off there will be a portion of stem at the base. Each crown may be cut off and put in as a cutting, but as there is some risk with cuttings even with the best accommodation, I prefer to earth up the plants with leaf-mould and sand. The portion of stem which has been formed during the year's growth will root into this, and later on may be cut off. The young plant, being practically established, if taken off at the right time, potted, and kept close for a few days, will soon get established.

Before earthing-up it is important that all the old leaf-stalks should be cleaned off close to the stem, and the soil pressed close to the base of the lower leaves. Even if these are partly covered, so long as the crown is quite clear it will do no harm. I mention this as many are of the opinion that to cover the base of the leaf-stalks will cause damping. It is natural for new roots to come from the stem as it advances in growth, and it is only when partially decayed leaf-stalks are buried that there will be any risk of damping. These *Primulas* like a cool, moist bottom and a dry atmosphere above. During the summer they will do well in a cool pit or frame. Potted in a fairly rich compost consisting chiefly of fibrous loam, with careful attention to watering, they give little trouble, and there will be no danger of damping unless in a wet, stagnant atmosphere. I find,

however, when premature decay does set in it is very difficult to prevent its spreading. A.

AZALEAS—SMALL GROWING.

Among the greenhouse Azaleas there are several small-flowering forms, many of which are just now at their best, in which stage they form a pleasing change from the large blossoms of the Indian section. Of these little Azaleas we have *A. calyciflora*, *A. obtusa* and its white variety, as well as *A. amœna* and numerous hybrids raised between this last and various forms of the Indian section. The first hybrids were raised by Mr. Carmichael when at Sandringham, and some of them are still among the best that we have. A much more recent form is *Illuminator*, which was awarded a first-class certificate by the Royal Horticultural Society in 1885. This is exceedingly free-blooming and very bright and effective, the colour being a kind of deep rosy magenta, shaded in the centre with vermilion. One of this class of hybrids has been figured in *THE GARDEN*, viz., *Hexe*, of which a coloured plate appeared August 6, 1892. This, which was raised by Mr. Otto Forster, retains the hose-in-hose character of *A. amœna*, and taken altogether is a very desirable variety. *A. obtusa* is a pretty little free-flowering form with orange-red blossoms. There is a variety of this with white flowers, some of which, however, are occasionally striped with red. A good deal in the way of *A. obtusa* is *A. calyciflora*, but in this last the calyx segments are enlarged as in the ordinary *A. amœna*. This (*A. amœna*) has a variety—*Caldwelli*—which is a stronger grower and has larger flowers than the type. All these little Azaleas form far more pleasing specimens on their own roots than they do when grafted, though grafting is so universally employed in the propagation of Azaleas. There is no reason why this should be, as cuttings strike root readily enough and grow away freely afterwards. The best cuttings are furnished by the young, growing shoots taken just as they have lost their succulent character and before they become firm. They should without delay be dibbled into well-drained pots of very sandy peat and kept close in a temperature above that of an ordinary greenhouse till they are rooted, which will not be long. The young plants thus obtained should be stopped freely during their earlier stages, in order to lay the foundation of a good bushy specimen.—T.

Mackaya bella.—A few years ago this was regarded as a somewhat difficult subject to flower in a satisfactory manner, but now it does not seem to give any trouble in this respect, for I have several times of late met with it in good condition, and a large bush of it some 6 feet high and as much through, planted out in the new Mexican house at Kew, has been profusely laden with its delicately-tinted blossoms. These flowers are somewhat bell-shaped, each nearly a couple of inches in diameter, and in colour a deep mauve, beautifully veined with purple. They are borne in racemes, each consisting of a dozen or more flowers, so that when in full bloom a plant of this *Mackaya* is really handsome. It needs a structure somewhat warmer than an ordinary greenhouse, but if in too high a temperature, though it will grow freely enough, flowers are seldom seen. Like several other subjects it has been renamed of late years, and it is now *Aystasia bella*.—H. P.

Epacris miniata splendens.—*Epacris miniata* and the varieties belonging to that group differ in two marked respects from the numerous forms of *Epacris* that—in some establishments, a least—are largely grown for winter flowering. The first point of difference is the season of blooming, as *E. miniata* does not bloom till all the other forms are over. The second feature is the marked difference in habit, for all the other garden varieties of *Epacris* are characterised by a more or less upright style of growth, while *E. miniata* is, on

the other hand, loose and spreading. This last feature is more particularly noticeable if the plants are not tied or trained in any way, but simply allowed to grow naturally. By this means the wide-spreading shoots are studded with long, pendulous, bright-coloured blossoms for a considerable distance. It is certainly a very ornamental plant for greenhouse decoration at this season, and, with ordinary care, will remain fresh and bright for some time. Though the specific name of *miniata* has been long applied to this *Epacris*, it is now called *E. longiflora*, which is certainly an expressive name, as the blossoms are a good deal longer than in the others.—H. P.

BOMAREAS.

BOMAREA FRONDEA, now in bloom, is a very distinct and free-flowering member of the genus, and where these pretty South American climbing *Alstromeriads* are grown a place should be found for it. About fifteen or sixteen years ago a good deal of attention was directed towards these *Bomareas*, owing to several species having at that period been introduced, principally by Mr. Shuttleworth, then of Clapham. *B. frondea*, which flowered first in 1882, was one of them, others being *B. conferta*, *B. Shuttleworthii*, and *B. Williamsi*. The first mentioned, *B. frondea*, is a somewhat slender, yet free-growing kind, whose flowers, which are borne in closely-packed heads, are yellow, spotted more or less in the interior with brownish crimson. The individual blooms are a good deal in the way of those of *Alstromeria aurantiaca*. A characteristic coloured plate of *B. frondea* was given in *THE GARDEN*, vol. xli. Previous to that, viz., January 27, 1883, the bright-coloured *B. conferta* was so illustrated. This is a vigorous grower, and when once established will soon cover a considerable space. The blossoms, which are borne, as in most of the others, in a many-flowered umbel, are of a bright glowing crimson, paling somewhat after they have been opened a few days. This is also known as *B. patacensis*. *B. oligantha*, one of the older kinds, will not cover so great a space as the preceding, but for all this it is of vigorous growth, and pushes up a great number of shoots, most of which in time flower. This is the most continuous blooming of all the *Bomareas*, as a succession is kept up for months together, and then the seed capsule when ripe splits open and the segments curl back, thus exposing the bright coral-red seeds, which are very pretty, and remain attractive some time. *B. Carderi* is the largest-flowered of all the *Bomareas*, the blooms being in shape a good deal like those of *Lapageria rosea*, but the colour is pink, spotted with brown. The flowers are not borne so closely together as in some of the others, for a strong shoot will produce an umbel over a couple of feet across. This seems to vary a good deal, as some individuals are greatly superior to others. Whether some of the species which were introduced in the early '80's are still in cultivation I cannot say, as I have not met with them of late.

The *Bomareas* do best when planted out in a well-drained border. In the succulent house at Kew they thrive remarkably well, and form one of the most attractive features of that interesting structure. Conditions such as exist at Kew suit these *Bomareas* well, for though spoken of as greenhouse plants, the generally accepted idea of a greenhouse—that is, a structure from which frost is just excluded during the winter—is too cold for them, and is, I think, the cause of their being so seldom seen. H. P.

Bauera rubioides.—This pretty little greenhouse shrub, recently noted in *THE GARDEN* as being in flower is both an ornamental and interesting subject, while a succession of blossoms is kept up for a long time. It is a native of New South Wales, from whence it was introduced a little over a century ago, and is classed with what are generally known as New Holland plants. It is, however, widely removed in its affinities from

most of the plants to which the term is applied, as it is a member of the Saxifrage family, though its general appearance does not suggest any relationship thereto. This *Bauera* forms a small, much-branched bush, whose somewhat spreading shoots are clothed with narrow leaves and studded with saucer-shaped blossoms, each about three-quarters of an inch in diameter, and mauve pink in colour. Given ordinary greenhouse treatment it can be depended upon to form an attractive feature therein for some time during the spring and early summer months. That such a neat, unassuming little plant should be in any way dangerous is certainly unexpected, yet a few years ago a correspondent of *THE GARDEN* pointed out that in the moist climate of Tasmania it forms a veritable man-trap. The danger arises from the fact that this *Bauera* takes complete possession of the ground, and forms a tangled mass of thin wiry shoots, too tall to see over, and far too flexible for an axe to be of any use. As the shoots are not readily broken, escape when once entangled is a very difficult matter, the fact that the mass is too tall to see over adding greatly to the troubles of the victim. Though this *Bauera* occurs in many parts of Australia, it is only in the moister districts of Tasmania that it is sufficiently vigorous to be a source of danger. Its cultural requirements are much the same as those of many other Australian plants, that is, given greenhouse treatment throughout the greater part of the year, it may be placed out of doors during the summer months. Sandy peat with a slight admixture of good yellow loam will suit it well. Cuttings of the young shoots, put into sandy peat and covered with a bell glass, are not at all difficult to root.—H. P.

SMALL VERSUS LARGE POTS.

WITHIN the last few years there has been a decided tendency towards the use of small pots for many plants that are grown in greenhouse or stove. In nine cases out of ten it is an improvement, for the usual run of plants grown for decoration is much more useful when grown in small pots. The size of pot generally used for market plants is less than that used in private places. The reason for this is obvious, for large pots would be far more difficult of transit. But there is another side to the question. Market growers, when they have grown a plant—say of a regal or show *Pelargonium*, a *Genista*, *Cyclamen*, or what not—have done with it when it leaves their hands as a full-grown specimen, and they naturally feed somewhat freely with chemical and other manures to get the very most possible out of any sized pot. Wisely, too, but this would not always be advisable for private growers, who have to perhaps grow on the same plants the next season, or, at all events, have to take their stock from them. Highly-fed plants are not suitable for propagating from, and in many cases are almost useless for growing on another season. Take a plant, say, of the white *Marguerites* that are now being sold so freely in London and other large towns. If a market grower depended entirely for stock upon plants that had been highly fed he would find—as many have found—his stock getting weaker every year, but turn an old rough plant or two out for a few weeks in summer and let it take its chance after cutting back, and a lot of hard wiry shoots that are unsurpassed for propagating will be the result. In many private gardens nowadays the old style of keeping plants year after year has almost died out, and all decorative stuff is struck, grown on rapidly and used for a season, then thrown away. It is a capital plan, too, for young clean stock of almost everything is best, and it is in such cases that the advantage of small pots is seen. In furnishing it is a very decided gain to have plants of all kinds in small pots. They are much easier to hide, they can

be placed easily in vases, and even when placed singly have a much lighter and prettier effect. It will be easily seen then that all quickly grown things of what may be termed a temporary character may be grown in as small pots as possible, feeding in order to get the best out of them and throwing the plants away afterwards. Anything of a more lasting kind that improves year by year should have pots sufficiently large that undue feeding will not be necessary. The pots used for growing *Chrysanthemums* for specimen blooms are now much smaller, as a rule, than was thought necessary only a decade since. Chinese *Primulas*, *Cinerarias*, *Calceolarias*, *Begonias*, in fact, almost every description of florist's flower, are grown in smaller pots than formerly, and no one can say that they are not as well grown. Such beautiful plants of *Cineraria* as those exhibited by Mr. James at a recent Drill Hall meeting would be a perfect refutation of such a charge, to say nothing of the hundreds of thousands of really beautiful plants that find their way from large nurseries to the florists' shops or the more humble costers' barrows. Gardeners in far too many instances are badly handicapped, because of the variety of things they are expected to turn out of a very limited space; having, for instance, to grow by far the greater portion of their decorative plants for the house in vinerias, Peach houses, or some structure principally devoted to fruit. But even here the small-pot system is a help in the right direction, and many nice batches of *Panicum*, *Isolepis*, small Ferns, and various other things are grown in houses devoted to Melons or Cucumbers, coming out of the way before the latter require the whole space.

Hydrangea Thomas Hogg.—For Easter decoration this is an invaluable plant. A few days before Easter I saw at the Hassock's Nurseries of Messrs. W. Balchin and Son a number of two-year-old specimens, most of which had eight and nine heads of bloom, and some as many as twelve and thirteen; the trusses of bloom come pure white, and are of great value for wreath-making. The shoots of these specimens had been bent down, twisted, and tied into shape, the result being the production of a perfect specimen 18 inches or so in height. The shoots will bear twisting even when a yard in length. With them was a number of plants of the common *H. hortensis*, growing like those of *Thomas Hogg* in 7-inch pots, each with four and five enormous heads of flower. It is not generally known what an excellent indoor plant the *Hydrangea* is. With attention in the matter of watering and necessary light it will last in good condition for two months.—R. D.

Glonera jasminiflora.—Whether known by the above name or that of *Psychotria jasminiflora* this is an exceedingly beautiful stove shrub that is just now in full flower. It forms a neat-growing evergreen clothed with ovate leaves, glabrous above, and whitish underneath. The flowers, which are borne in terminal panicles, are, as implied by the specific name, Jasmine-like, or perhaps they are in shape and size more like *Bouvardia President Cleveland*, but of an exceedingly pure white tint. The plant needs much the same treatment as an *Ixora*, and the watering should be carefully done. There is another species of *Psychotria* which used to be met with more frequently a few years ago than it is now. This is *P. cyanococca*, in which singularly enough the flowers are not at all showy, but they are succeeded by dense clusters of berries, which when ripe are of a beautiful blue colour, and remain fresh and bright for a long time. This is a native of Nicaragua, and is consequently also a stove plant.—H. P.

Three new greenhouse *Rhododendrons*.—Two of these which received first-class certifi-

dates at the spring show of the Royal Caledonian Horticultural Society, Waverley Market, on April 6, were raised by Mr. McMillan, gardener to Mr. James Currie, Trinity College, Edinburgh. Such exquisite fragrance as we get in most of the greenhouse Rhododendrons is always welcome, and makes a brilliant blend with the æsthetic colour of *Azalea mollis*, and higher coloured hardy Rhododendrons that may readily be forced to bloom abreast of the greenhouse variety. Nathaniel Bryson, named after the assistant secretary of the Caledonian Horticultural Society, has a soft pink or salmon blotch on its finer white flowers. The other new variety, Mrs. McMillan, is pure white, and is likely to have a great future. The third novelty certificated, Hercules, was shown at the meeting of the Scottish Horticultural Association on the evening before the show. It was raised by Mr. Calder, of Calder Bank, Trinity, and is a fine, specially fragrant, pure white variety of great excellence. I had every opportunity of closely examining it. I may add that while several other varieties were exhibited these seedlings well deserved the first-class certificate.—D. T. F.

THE CAMELLIA.

THIS splendid flowering evergreen shrub has been very aptly called the "Queen of Winter," and it is gratifying to notice a revival of its former popularity. For fine foliage and blossom there is no shrub to equal Camellias save the Rhododendron. Mistakes have doubtless been made in their treatment, for, instead of giving them abundance of air, they have been relegated to the mixed greenhouse, where too free ventilation would have been detrimental to the other occupants.

To grow Camellias to perfection they require the coolest treatment possible. They will even stand as much as 7° or 8° of frost, and sufficient artificial heat should only be used to keep out severe frosts and to ward off dampness on dull days. They should be grown in a house entirely for their use from September to June. It is preferable to keep them in pots or tubs, as they can then be removed outdoors in June as soon as their young growths have become partly hard and the next year's buds are set, placing them upon a bed of coal-ashes and shaded from all but the early morning sun by a line of trees or evergreens. The trees must not overhang the Camellias, as the drip would be injurious to them. About the end of August the plants should be potted or top-dressed, and the drainage put in good order. The best compost for the Camellia is three parts best yellow loam, of a fibrous nature, and one part peat, adding to this a little sand and charcoal and a few quarter-inch bones. Remove the plants to the greenhouse about the end of September before they are injured by frosts or heavy autumnal rains. Give all the air possible after removing them to their winter quarters. As the buds swell the plants will be greatly benefited by weak doses of liquid manure applied at intervals. A very safe stimulant is about 5 gallons of stable drainings to 50 gallons of rain water. Camellias require sufficient water to prevent the ball from getting dry, as this is a frequent cause of their buds dropping. It is better to give good soakings of water at long intervals rather than sprinklings at short intervals. When the flowering season is over, which will be about April, the house must be heavily shaded and kept moderately close, syringing the plants twice a day, and giving plenty of moisture at the roots, in addition to liquid manure, as advised above. It would appear that from the accounts of travellers who have seen *Camellia japonica* growing in its native habitat the treatment detailed above is very

similar to that in which the shrub naturally revels.

If pruning is required to keep the plants bushy, it should be done just after flowering, before the young growths commence to start. It is best to remove useless shoots when they are in a soft condition; then it is very easy to obtain a well-balanced plant. With the Rhododendron we can cut it back hard, and it will break from any part provided the plant be well established; but with the Camellia it is somewhat different, and it is best not to risk the life of the plant by a too severe system of pruning. Much mischief is often wrought when cutting the blossoms by removing a long piece of growth with them. This practice should be discouraged if we desire good, vigorous, shapely bushes. Disbudding must be attended to during the summer months when a too heavy crop of buds has appeared. The enemies of the Camellia are the aphid and scale. Ordinary

crimson kinds are *C. M. Hovey*, *Rafia*, *Beali*, *Corallina*, *Chandleri*, *Mme. Lebois*, *Manara*, and *Reine des Fleurs*. Among pinks, ranging from delicate blush to deep pink or rose, the best are *Beauty of Waltham*, *Baron de Vriere*, *Augustina superba*, *Camello Aureliano*, *Comendatore Betti*, *Comtessa d'Hainaut*, *Elegans*, *L'Avenir*, *Lady Hume's Blush*, *Marchioness of Exeter*, and *The Duchess*. In pure whites, *Alba plena*, *Fimbriata*, *Mathotiana alba*, *Montironi*, and *Ninfa Egeria* are the best. P.

Spiræa astilboides floribunda.—Among recent additions to plants for early forcing, this is one of the most valuable. Probably no plant has had a longer run of popular favour than *Spiræa japonica*, but it will find a dangerous rival in the above, which is similar in habit, but has foliage of greater substance and larger panicles of bloom, the individual flowers also larger. I do not know that it can be considered a new plant,



Camellia Conspicua (scarlet blotched). From a photograph by Mr. Bowden, Dulwich.

fumigation will quickly disperse the former, and cleansing the foliage and wood with a soapy mixture, such as Gishurst Compound, will soon clear off the latter.

As with many other genera, there are too many varieties, and we could well dispense with seventy out of every 100 kinds. The illustrations depict three very beautiful varieties. *Mme. A. Verschaffel* is white, shaded with blush, flaked and spotted with red. Its form is very elegant, and foliage bold and massive. It is much addicted to sporting, a very common occurrence with Camellias. *Conspicua* is one of the loveliest of all. We should gladly receive some additions in other colours to this most beautiful of all forms—the semi-double. The petals are very deep, broad and massive, and of a rich bright rose colour. *Mathotiana* has immense flowers of a very rich dark crimson colour, and is, perhaps, the most attractive of all for conservatory decoration. Good red and

but it is only within the last three or four years that it has become known among market growers. The only drawback to its culture is that it requires a considerable space for its broad spreading foliage. Yet, as this is compensated for by the more showy appearance of the plant, it will always command a higher price. *Spiræa japonica multiflora compacta* has finer heads of bloom than the older form and is now grown to a great extent, but for early forcing it is not so serviceable, as the foliage is very tender and at any time it requires care to keep it in good condition. For early work it is almost impossible to have it good.—A.

Plumbago capensis.—This is a capital plant for large conservatories and corridors where ample space can be afforded it. Young plants in 6-inch pots when transplanted into a border of light loam and leaf-mould soon cover a large area, and present an attractive appearance when in bloom towards autumn. When the plants attain a large size they should be well cut back in spring; in fact, only three or four eyes on the preceding

year's growth should be left. All weak growths should be cut clean out and portions of the stoutest shoots only left, otherwise such a dense thicket is formed that sun and air cannot penetrate, and the plants in consequence sometimes die off altogether. It is extremely hardy, succeeding well in any structure if frost is merely excluded. No tying-in should be practised with the Plumbago, but a free and untrammelled growth encouraged.

Begonia Paul Bruant.—This Begonia, which has been several times referred to in THE GARDEN and was the subject of a coloured plate therein August 25, 1894, has thoroughly borne out its earlier anticipations, and proves to be a very desirable variety for winter blooming. As it gets more distributed it will doubtless be largely grown for this purpose. For winter blooming it needs the temperature of an intermediate house or cool end of the stove. B. Paul Bruant is presumably of hybrid origin, but some twenty years ago or so

be laid on one side for a little time in order to allow the poisonous sap to exude. This Euphorbia is a native of Benben, from whence it was introduced in 1826, and it was at one time more popular than it now is. In the older days when glass structures were heated by flues, a plant that would flourish in a hot, dry atmosphere would be more appreciated than at the present day, when plant houses are arranged so differently to what they were then. Nowadays Euphorbia jacquiniiflora or fulgens is generally grown, almost to the exclusion of the older kind.—H. P.

PERSIAN CYCLAMEN.*

THE Persian Cyclamens rank among the most beautiful, the most serviceable, and the most popular of winter-flowering plants. It is doubtful if they have a rival, and they ought to be

the various growers' skill in the cultivation of Cyclamens?

Persian Cyclamens cannot be grown to any thing approaching perfection in the same haphazard fashion that answers fairly well in the case of Cinerarias and Chinese Primulas. From first to last they must have every attention, and ought really to be made quite as much a speciality as are Chrysanthemums with so many growers. Private gardeners, with their multifarious duties and manifold worries, are at a serious disadvantage, especially when we compare their conveniences with those at the disposal of our most successful trade growers. All the same, some of them grow Cyclamens remarkably well, and so might many more if only they went the right way to work. My advice to gardeners generally is either to do them well, or else not to attempt their cultivation at all.

SOWING THE SEED.

When the rage for Cyclamens first set in—this following quickly upon the commencement of the wonderful improvement effected by florists in the strains—most of us erred in sowing the seed too late and too thickly. February and March are too late to sow seed, though I have succeeded well with plants resulting from sowing seed early in January. Rather than have the seedlings starving in pans, or, worse still, in small pots in positions not good for them (notably dry shelves in a forcing house, owing to want of a better place), I would prefer raising them in January. Of late years I have sown the seed at least two months earlier, or in October, while noted trade growers not infrequently sow some of their seed as early as August or September, and the rest nearer mid-winter. In each and every case new seed is to be preferred to old, as it germinates more quickly and strongly. From first to last no check ought to be given to the growth of the young plants. If once the roots are badly broken or injured in any way, or if the tiny corns harden prematurely, subsequent progress will inevitably prove most unsatisfactory. Instead, therefore, of raising the plants Mustard and Cress fashion as of old, the more modern plan of sowing thinly, thereby obviating the necessity for pricking out, is much the best. Fill well-drained pans with a mixture of equal parts of fresh loam and good natural leaf soil, with silver sand added. Make this firm and level, press the seed singly into it about $1\frac{1}{2}$ inches apart each way, and cover with a quarter of an inch or so of fine soil. Arrange these pans on a slate-covered staging in a house where the temperature will range from 60° to 70°, give a gentle watering, cover with squares of glass, and darken this with brown paper or Moss. Good seed will germinate, if the soil is kept uniformly moist, in five or six weeks. When this has taken place, remove the shading, and gradually inure the seedlings to the air and light, eventually raising them up near to the glass. Keep them growing in the same temperature they were raised in, but carefully screened from either cold currents of air or extra dry heat, till sturdy little plants are formed, when rather less heat is desirable. Spray them with tepid water at least once a day, and keep the soil in the pans uniformly moist, but not saturated.

POTTING AND OTHER CULTURAL DETAILS.

Before the roots become interlaced with each other the young seedlings ought to be placed singly into $2\frac{1}{2}$ -inch pots. Seeing that they are well apart in the seed pan, every plant can be lifted out with the point of a label, with a small portion of soil about the roots, and if properly



Camellia Mathotiana (crimson). From a photograph by Mr. Bowden, Dulwich.

there was a Begonia occasionally to be met with in the London nurseries under the name of *B. valida*, which, as far as my memory serves me, bore a great general resemblance to this newer form. I have, however, not seen *B. valida* for some years.—H.

Euphorbia splendens.—Sometimes there is a hot, dry corner of the stove which gives a certain amount of trouble to furnish in a satisfactory manner, especially on the roof or near the glass. In such a case this Euphorbia is a first-rate subject for the purpose, as it will flower all the better for full exposure to the sunshine. Out of bloom it is by no means of prepossessing appearance, the stout, rambling stems being sparsely furnished with foliage, but they are plentifully supplied with long and sharp spines. The flowers are bright red, and when the treatment has been suitable they are at this time of the year freely borne. By some they are when cut, used for button-holes and similar purposes, but before this is done they should after cutting

considered invaluable alike to private gardeners as well as to trade or market growers. No other plant that I am acquainted with—at any rate, that may be raised so cheaply—can claim to be so profitable. Well-grown Cyclamens are capable of producing flowers freely from October to March inclusive, and there is much to admire in the foliage of the best strains, as well as in the flowers and in their scent. But there is a flaw in the character of this gem of the winter. All appreciate their merits, but how many among us can truthfully say they invariably succeed in growing Cyclamens satisfactorily? There are far more failures than successes. What gardener of an observant turn of mind has not seen batch after batch of miserably stunted plants, with a few leaves and still fewer flowers, that represent the sum total of

* Paper read by Mr. W. Iggulden before the Royal Horticultural Society.

potted no serious check to the plant's progress will be given. For this first potting, soil similar to that in which the seeds were sown may be used. This should not be pressed hard, and the tiny corms ought to show just above the level of the soil. It is now when the private gardener's difficulties become apparent, especially when the first potting takes place in the autumn rather than in March, as would be the case if the seed were sown in December or January. Young Cyclamens, as before hinted, will not thrive in dry surroundings, and soon become stunted and dirty on dry, hot shelves. Where they succeed best is on an ash-covered staging in low span-roofed houses such as trade growers favour; but failing these, plunge the pots closely together in large shallow boxes filled with either fresh Moss or cocoa-nut fibre refuse, and block these well up to the light. The soil must be kept on the moist side, and on clear days lightly spray the plants overhead in the morning and afternoon, also shading them from strong sunshine. The temperature may range from 55° to 65°, and the atmosphere of the house should be kept moist. It is at this stage of their career that many plants are crippled by an attack of a small species of aphid, this happening most often in mixed plant houses. In former years we have been obliged to dip the infested plants in soapy tobacco-water, syringing this off the leaves next day, but nicotine fumes are the present-day remedy. If necessary to save the foliage from becoming drawn, replunge or rearrange the plants, giving them rather more room than previously. Before they become badly root-bound or weakened by being kept too long in small pots, all worth the trouble should have a shift, this time into 5-inch pots. A rather richer compost is now desirable. To two parts of sweet, sound loam, add one part each of good leaf-soil and powdered dry cow manure with sand, and, if the loam is devoid of fibre, "burn-bake" added. Pot moderately firmly, taking care not to damage the leaves or to unduly bury the corms. Return them to either an ash-covered staging, standing them close together at first, or, if shelves only are available, stand the pots on green Moss, and keep this moist. In the case of late-raised plants it will be advisable to transfer them direct from the potting bench to shallow frames on a mild or nearly exhausted hotbed, placing abundance of ashes or else boards under them to keep worms out of the pots. In either case gentle heat, plenty of light, but no strong sunshine on the plants, a moist atmosphere, and the usual round of spraying are details that must be observed. During the hottest part of the summer all the plants ought to be thinly arranged in shallow pits or frames sloping away from the south. With me they thrive well in a shallow pit against the west wall of a long span-roofedinery. Wherever located, the plants must be carefully shaded from strong sunshine, ought not to be exposed to drying winds, and should be sprayed twice on clear days. Be careful not to leave the shading on when it can very well be dispensed with, and avoid crowding the plants, as they are much more ornamental when the leaf-stalks are not unduly lengthened out. In August, not later, some of the strongest plants may be shifted into 7-inch pots, and if everything has gone on satisfactorily, this size will be found none too large. Any flowers that show colour on the plants much before October should be pulled off.

TREATMENT DURING THE FLOWERING PERIOD.

As a rule late in September is soon enough to house Cyclamens; and this brings us to

another difficulty which trade growers do not share with private gardeners. The majority of the latter have no light span-roofed houses with a central pathway and convenient side-stages for their plants during the winter. But this is what is wanted, especially if large batches are grown. But because they cannot have just what they want is no reason why gardeners should muddle their Cyclamens among a variety of other greenhouse plants. They must be kept clear of everything else. Let them share a side-stage in a warm greenhouse with Cinerarias and Primulas, if need be, at the coolest end. All of these plants are better kept together in groups. If the stagings are low or the sides of the house high, raise the Cyclamens on inverted pots, keeping every plant clear of its neighbour. In any case keep a close look-out for greenfly, and subject these to nicotine fumes on the slightest signs of an attack. I have seen hundreds of good plants spoiled, ruined in fact, owing to a fortnight's too long delay in dipping or fumigating them. Water the plants carefully and always round the sides of the pots, not right in the centre of the corms. Plants with their pots well filled with roots will be benefited by occasional supplies of clear soot water or other weak liquid manure, taking care to keep it off the foliage. All flowers and any leaves to go with them should be drawn clean away from the corms, never cut. When stumps are left, they rot down to the corms, and decay quickly spreads all round. Remove all old flower-stalks in the same way, early seed-saving weakening the plants and being otherwise undesirable. No forcing ought to be attempted, the plants flowering grandly in a temperature of 45° by night to 50° or 55° by day, accompanied by a gentle circulation of warm, dry air.

THE SECOND SEASON.

For several summers I tried the plan of only partially resting the crowns, and planting them with many of their old leaves intact in frames on mild or nearly exhausted hotbeds. Some were also planted in well-prepared soil in both sunny and shady places, with the result in each case of only a limited number of plants succeeding sufficiently well to pay for carefully lifting and repotting. These experiments, then, were not satisfactory. It was subsequently proved to my satisfaction that completely drying off the plants, restarting and repotting, was the best practice, and since adopting it a failure has never taken place. As a matter of fact, my two-year-old plants are frequently of more value to me than well-grown younger ones. Old Cyclamens should never be turned out of doors, but after flowering ought to have water gradually withheld from them prior to literally baking them in the full sunshine. It is the half-hearted drying-off that is most likely to end badly. Lay them on their sides if they cannot be kept dry in any other way; and I might add that the best hit I ever made was when several plants were laid on their sides on a shelf in a Melon house. They had a thorough roasting. When they are thus thoroughly ripened, a cool frame suits them for a time. In June or early in July clean off all dead leaves and dried leaf-stalks, set the pots up closely together and water repeatedly, or till enough has been given to thoroughly moisten the soil. Then, if the frame or pit is kept close and the corms syringed morning and evening, they will break into growth over the greater part of their surface. Before this growth is far advanced, all the plants should be overhauled. Turn them out of their pots, pick away as much of the old soil as possible without breaking the old and already active roots, and return to pots

a size or so larger than they were in previously. If returned to the frames or shallow pits, arranged thinly on a bed of ashes, watered, sprayed, and shaded as advised in the case of the young plants, progress will be rapid and highly satisfactory. Instead of old plants being later in flowering than the younger ones, they are, if treated as I have advised, more likely to be earlier. These old plants should have more liquid manure than the young plants, and of course require more room in their flowering quarters. Seed-saving has a weakening effect upon the young corms, and also interferes with their preparation for flowering again.

Allusion has already been made to the injurious effects aphides have upon Cyclamens, and the remedy for them answers equally well for thrips. Eel-worms sometimes attack the roots of Cyclamens, causing them to swell abnormally, and having the effect of completely paralysing their action. For this reason the pans containing the seed, and the young plants later on, ought never to be placed in near proximity to Cucumbers, Tomatoes, or other plants the roots of which are very liable to be infested by this nematode. The remedy is Little's Soluble Phenyl diluted freely, a wineglassful, or 2 oz. as measured by an 8 oz. medicine bottle, proving sufficient for three gallons of water. This applied occasionally instead of clear water proves destructive to the eel-worm, and stimulates rather than retards the growth of the plants.

Not only are the modern flowers very much larger than the type and the colours beautifully varied, but the plants are also much stronger in constitution than of old, and the foliage so handsome that the present-day Cyclamens might well be cultivated for the beauty of their leaves alone.

NOTES AND QUESTIONS.—STOVE.

Celsia cretica.—This old-fashioned plant is admirably grown and flowered at Westonbirt. The plants as I saw them in a greenhouse had developed extra long and strong spikes of rich yellow flowers, marked with reddish spots at the base of the upper petals. So strikingly effective were they, that I remarked at the time how surprising it is so few well-grown plants of this species of *Celsia* are to be met with nowadays. The cultural requirements of this plant are of the simplest description. It is a half-hardy biennial, and if raised from seed sown in gentle heat or a cold frame in May or June, plants strongly established in 5-inch pots may be had by the autumn. Winter them in a light position, keep well supplied with water, applying liquid manure after the flower-spikes commence forming, and a grand display of flowers will be had in March, April, and May.—I.

Solanum Wendlandi.—This Central American species of *Solanum*, which has been the subject of notes from time to time in *THE GARDEN*, and of which a coloured plate was published in vol. xxxvii., has, judging by a letter in the *Gardeners' Chronicle*, proved to be of high ornamental value in Cape Colony. The writer says: "I obtained a small plant from Kew about two years ago, from which a large batch of plants has been raised, cuttings rooting freely. Three of these young plants were planted against a wire trellis in the open ground in November, 1897, and they are now (February, 1898) about 5 feet high and in full bloom, with about nine trusses on each, some of the trusses being 14 inches across. The plants on this trellis make a splendid sight. It is, I think, likely to become a market plant at the Cape, being well adapted to the climate." Judging by its behaviour in this country one may reasonably expect that when it becomes thoroughly established there the opinion of our South African

friends as to its merits will be even more emphatic.—H. P.

Abutilon vexillarium.—This Abutilon, an illustration of which appeared on page 301, grows well against a wall in the south-west and flowers, unless cut by frost, nearly the whole year through. Its long, arching sprays, from which the crimson, yellow and maroon flowers depend at intervals, are very graceful, and the individual blossoms, though not particularly striking from a distance, gain by a closer inspection. A specimen of *A. vexillarium variegatum* planted not many years ago in a sunny situation against a house is now over 10 feet in width, and would probably have exceeded that height had it not been limited to 8 feet in that direction. As "H. P." points out, this variegated variety of *A. vexillarium* is apt, when planted out, to revert to the normal form, and, in the case in point, there are now but few signs of variegation on the leaves.—S. W. F.

Zephyranthes coronata.—I should like to call attention to this. My excuse for doing so is because one sees it so seldom. This cannot be because it is a difficult plant to manage. On the contrary, it is one of the simplest. It requires much the same treatment as Nerines, Vallotas, and such like, viz., after it has finished its growth it should be placed on a shelf in the sun and kept fairly dry at the root. I do not go so far as to say it must be scorched, but it should be kept in a fairly dry state until it shows signs of growth, when it should receive sufficient water to moisten the whole of the soil. A temperature of 50° is sufficient for it at all times. The flowers are of a beautiful pink colour and borne on stiff stems 10 inches in length, and will last on the plant from ten days to a fortnight. It is most useful for cutting and very free flowering. I have plants in 5-inch pots with six and seven flowers each.—A.

KITCHEN GARDEN.

POTATOES.

THE notes on different varieties of Potatoes from several correspondents are both interesting and appropriate at this season, especially to those who are expected to furnish a supply for the greater part of the year from a somewhat limited area. I was sorry to note that "A. D." chronicled a considerable amount of disease last year and a scarcity at the present time of home-grown tubers. As he has opportunities for observation over a wide area, it would be interesting if he could tell us if many instances of spraying with the mixture of sulphate of copper and lime came under his notice, and, if so, what the results were. Personally, I came through last year very successfully, the sorts mainly relied on, viz., Duke of Albany, Windsor Castle, and The Saxon, turning out remarkably well, with a very small percentage of diseased tubers. So far as the two first-named are concerned, I am obliged to differ from "A. D." as to late planting—that is, at any rate, in the matter of the garden supply as opposed to field planting—at the same time admitting that we are favourably situated and seldom get frosts after the middle of April of sufficient severity to cut down the haulm. Precautions are naturally taken, and if there are indications of frost, a man goes through the quarters, if the growth is not sufficiently advanced for general earthing, and draws a bit of soil to pushing foliage. By planting early, both Duke of Albany and Windsor Castle are approaching the ripening stage when disease makes its appearance, and the haulm can at once be removed. The Saxon, which, taking all points into consideration, is my best late Potato, was quite green in the haulm when the disease struck it last year. All the haulm was, however, cleared away before much mischief was done, and the crop, although somewhat deficient in size, turned out clean and sound and kept well. I can hardly understand why "A. Suffolk Grower" finds it necessary to grow both Sharpe's Victor and Ashleaf, as these varie-

ties are just about contemporary in point of earliness and very similar in cropping qualities, that is, if a good type of Ashleaf is secured. The heavy-cropping early varieties, of which Duke of Albany and Early Puritan may be taken as types, are ready quite as soon as Ashleaf and give more than twice the weight from a given area. Failing the ability on some soils to get these varieties up to the necessary quality standpoint, I should plant a border of Windsor Castle when Sharpe's Victor was planted. It would not be far behind. For small gardens, to furnish a supply during nine or ten months of the year, I should recommend Star of Reading and Windsor Castle.

E. BURRELL.

Early Potatoes.—Many besides "S. M." would like to know of a method of culture that would ensure an early crop of Potatoes, even from underneath sheltered walls, by the second week in April. On page 202 Mr. Richard Nisbet says he has frequently done so, and he certainly would confer a great favour by giving particulars of the ways and means whereby such satisfactory results are obtained. I have grown Sharpe's Victor for several years, but have not found it superior to Ringleader, Carter's First Crop, or the old Ashleaf in point of crop, earliness, or market quality. I have grown them on a warm border under a forcing house, sheltered them with evergreen boughs from the time when they appeared above ground until they were safe from late spring frosts, but I have never yet had the satisfaction of digging the crop in April, nor within a month later than the time stated by Mr. Nisbet. Like "S. M.," I find Victor very tender in the foliage when exposed to frost. Of this I had ample testimony last spring, and more particularly in the spring of 1896. Then I had a border planted with three sorts, including the one named, and while the old Ashleaf had only a leaf or a top here and there blackened by a late frost, the whole batch of Sharpe's was cut down. I find, too, that when injured by such late frosts the crop is scarcely worth waiting for. Mr. Nisbet must indeed be favoured by some extraordinary shelter and warm borders to be able to dig so early. Wiltshire certainly cannot claim many such spots. These gardens are particularly unfortunate in the visitation of spring frosts, early crops suffering badly in some seasons. It would be quite impossible for me to predict that a Potato crop would be ready for use at any given date—that is, the earliest batches—particularly in the open away from shelter. Has not Mr. Nisbet made some mistake in his dates?—W. S., *Rood Ashton Gardens, Wilts.*

—The reference to first early Potatoes in recent numbers of THE GARDEN reminds me to say a good word for Star of Reading. It may not be suitable for all soils, as no hard-and-fast rule can be laid down in that respect. It certainly, however, is the best I have tried here, doing its work as quickly as any, a long way the best cropper—not, perhaps, in point of numbers, but most decidedly so far as weight per root is concerned, and this is an important feature where a large early supply is required and space is limited. The first outdoor supply is taken from a narrow south border, care being taken to earth up as soon as the tops show through the soil, and when these again make their appearance a few bent rods are placed in position and a piece of tiffany run along if there are any signs of frost.—E. B., *Cluremont.*

Early Cabbages.—It is worthy of notice that the bolting which characterised early Cabbages so materially a year or two since has not been repeated this spring. In every direction stock is seen to be good, and the percentage of bolters infinitely small. It is gratifying to find that what was recently so marked a feature, either of stocks or of the season, has not been perpetuated. Judging by what has been seen of late, our stocks of small early Cabbages never were better than now. But it does seem as if the varieties grown in gardens will be limited to a few, and those

chiefly of the dwarf, compact Ellam's type. That valuable variety in its best form produces some early heads, some later ones, and slight divergencies in other respects. When a gardener from a breadth of, perhaps, 1800 to 2000 plants is able to say that he has been cutting constantly for the past month, and will continue to do so for a month longer, he is paying his stock a very high compliment indeed. Whilst no absolute unanimity of turning in is desirable, retention of character is essential. Through the agency of these small early Cabbages it is possible to get such sweet, tender Brassicae on to tables where hitherto larger Cabbages had been tabooed. Gardeners differ as to the merit attached to retaining till the autumn a breadth of these early Cabbage stumps. One able grower of vegetables recently said that he did so, and always found the breadth to be invaluable in producing small sprouts during the summer that were far sweeter than ordinary Cabbages were. Presumably the practice is not universally followed.—A. D.

Early Celery.—Were it not for the requirements of competitions at late summer shows, we should probably see very little of early Celery. Generally it is a product that seems to present the best flavour and highest degree of crispness in cold weather. But the presentation of from three to six, fine, well-blanching heads in a collection of nine or twelve kinds of vegetables in August and September is held to furnish a strong feature. To have these plants in fine form undoubtedly skill enters. Many things, such as Peas, Beans, Potatoes, Carrots, &c., if there is a good soil, are with ordinary skill not hard to obtain, but good solid, blanched Celery requires trouble and ability, whilst so early in the year it can hardly be regarded as in season; yet the fact that only the best possible culture has produced it, added to its imposing appearance, makes such Celery a strong feature. For the making up of six dishes only, in August especially, I should regard it best if absent. We are then right into the natural season of Peas, Runner or Dwarf Beans, Cauliflowers, Nantes Carrots, autumn-sown Onions and Tomatoes, with still Potatoes and white Turnips in reserve; when more kinds have to be selected, then there are Celery, Turnip-rooted Beet, Peas, and early-blanching Leeks, so that the range of selection is very good. Some exhibitors even have Brussels Sprouts in very early, but these, again, seem out of season. Then there are also Cucumbers and Vegetable Marrows. But amidst them all none commands greater admiration for cultural skill than does first-rate Celery. But even the best of plants when so presented early sometimes prove weak; the centre stems are much elongated, and the value of the product for table greatly deteriorated. It is not at all easy to have fine Celery for show in August, and yet prevent bolting to flower.—A. D.

NOTES AND QUESTIONS.—KITCHEN.

White fly on Kale.—I have sent two or three leaves of Kale which are infested with a little white fly. I should be glad if you could give me the name of same, also if you know any remedy for getting rid of it. I find them mostly on the Kales, Cabbage and Brussel Sprouts, which are sometimes quite white with them on the bottom side of the leaves.—E. P. N.

* * The leaves of Kale which you sent are infested with an insect known as the "snowy fly" (*Aleyrodes* sp.). Almost any of the ordinary insecticides would kill it. The question is, which is the least likely to impart a flavour to the Kale? This little insect is nearly allied to the aphid.—G. S. S.

Early dwarf Peas.—Three rows, each 25 yards in length, of William Hurst, Chelsea Gem, and St. Osyth Gem were sown on a warm south border the third week in November, and have each opened their earliest flowers in the week ending April 23. All have come through the winter well, the growth being vigorous, and the colour the deep healthy green one likes to see. The rows are

30 inches apart, and I gave them a good surface mulching of half-rotten manure early in the winter to act alike as a slight protection from severe frost (which has not troubled us), and as a stimulant after heavy rains (which are yet to come). Failing the rain the mulch will prevent drying out on the warm, rather loose border. The simultaneous flowering of the three varieties will cause the after performances to be watched with additional interest, and I hope under such favourable starting conditions to report later as to the earliest and best.—E. BURRELL.

TREES AND SHRUBS.

SHELTERED NOOKS AND CORNERS.

Now that the winter is past it is a pleasure to look over the tender shrubs and find that so little injury has been done by the frost. The winter, though exceptionally mild, has been followed by a cold spring, which, though somewhat retarding growth, has done but little damage to shrubs, and many have produced a wealth of flowers that would well repay for any little trouble that might be required in affording protection. When paying a visit to Battle Abbey the other day I was struck with the healthy appearance of many of the plants. The old abbey walls are covered with choice creepers not often seen growing in the open even in the south. The buttresses afforded a protection against the wind and frost, which no doubt had a very beneficial effect in preserving the foliage, for many of the plants looked far more healthy than those often seen cultivated under glass. *Habrothamnus elegans* was flowering most profusely against a wall facing south. *Physianthus albens* covered a goodly space and had bloomed freely, as one could see by the peculiar seed-pods still hanging. *Rhynchospermum jasminoides* was a picture of health, the dark green foliage presenting that pleasing hue so much appreciated by plant growers in general. Mr. Camm informed me this was a sheet of bloom during the latter part of the summer. *Solanum jasminoides* seemed at home, its long rambling growths being already furnished with flower-buds, as also did *Swainsonia galegeifolia*, *Bignonia*s, *Stauntonias*, *Aloysia citriodora*, *Clianthus*, *Tropeolums*, and many others.

Turning to those in the open, I must not omit to mention some fine clumps of Bamboo, particularly *B. Simoni*, *Azaleas*, *Camellias*, *Agapanthus umbellatus*, *Myrtles*, *Bays*, &c. The dry nature of the soil has undoubtedly much to do with the preservation of these plants, for during the summer the ground must get parched, and, as most of it has been made, it is well drained. The situation itself is a sheltered one; though commanding fine views to the south, it is well wooded to the north-east, and on the north is a fine New hedge. There are many other places quite as favourably situated where no attempt has been made to plant choice shrubs, and I mention the above as showing what might be accomplished if more care were bestowed on some of these interesting subjects of our gardens. Battle Abbey is a place of some interest from an historical point of view, therefore it is well that some of the old associations of our gardens should be found there also. It is in places like this that one unexpectedly meets with some old plant that has almost been forgotten preserved with the greatest care, for more is thought of old-fashioned flowers than of those of recent introduction, and here at the foot of the old ruins may be seen many of those interesting curiosities. H. C. P.

Spiræa Van Houttei.—The illustration of this shrub which appeared on p. 251 will probably induce many readers to obtain the plant for their own gardens. Where it succeeds (and it evidently does so to perfection in the United States) no *Spiræa* is more beautiful. Yet my experience of it in the London district is that it is one of the most uncertain and disappointing of early-flower-

ing shrubs. It falls a victim to our treacherous English springs two seasons out of three, or has done so, at any rate, during the last six or seven years. During the genial weather of January and February it commenced to push into growth, every bud disclosing its tiny raceme, but now, after the bitter days of March, the edges of the young leaves are brown and the racemes that ought soon to have wreathed every shoot in white are black and dead. Many of the early-flowering trees and shrubs whose blossoms are so liable to be spoiled by frost—such, for instance, as the early *Magnolias* and *Rhododendrons*, are, as a rule, safe in the bud state, but in this *Spiræa* they are killed almost before they are in evidence at all. The moral of all this is that it ought to be tried before being planted extensively. It is not a hard winter that injures it, it is the reversal in order of winter and spring. In New Jersey I suspect that when once winter has gone it does not come back till its proper time. The flowers are thus kept back till they are safe. A *Spiræa* superior to the vagaries of an English spring is *S. arguta*. It is quite as beautiful as *S. Van Houttei*, and although a comparatively new and rare plant at present, it is getting into the nurseries, and will no doubt in time become as popular as it deserves to be. I have never known it fail.—W. J. B.

Wild gardening with Furzes and Brooms.

—This is an excellent time of the year to lay in a little store of seeds of certain plants that look very pretty in the landscape, such as Furze and Broom. The readiest way to raise these plants is from seed, and we like at this time of the year to take a bag of seed of one of these and lightly scatter it here and there, without any further attention, in any broken ground and bare place not too much frequented by rabbits. In new plantations, where we wire for the sake of keeping out rabbits, and the ground is often broken, it is an excellent plan to scatter the seed of Furze, giving, as it does, such a pretty cover, and, as we find, not in the least interfering with the progress of young trees, such as Larch and Pines. Fields treated in this way have been very pretty through the late winter, and will be so for some time to come. It is not only the common Furze which is attractive in so many places throughout the United Kingdom when treated in this way, but we may use three kinds of Furze, namely, the little autumn-flowering Furze, and what the French call the Foxbrush Furze—a fine tall Furze, making an excellent growth, and, being of a plummy habit, is easily made into good faggots where these are wanted, and they are often most useful both in farm and garden. The little Furze (*Ulex Galli*), again, is quite distinct from either of the above, flowering in autumn. The common Broom is one of the best of all shrubs treated in this way, and little need be said about it. An excellent plant also is the Spanish Broom, which flowers later than any of them, and is a very handsome shrub, with the peculiar quality of growing (no doubt from long habit in the arid mountains of its native country) in any dry bank of rubbish, on hot, sandy slopes, raw railway banks, and in quarries, where in the hottest summers it will flower handsomely. The seed is easily got, and not dear, and the best way to establish it is to scatter the seed in such places any time during the coming month or six weeks—not the only, but the best season for sowing, as giving the plants a start before the winter comes. We have thus at least five kinds of Furze and Broom which lend themselves admirably, not only to the beauty of the landscape in the early part of the year, but help very well as low covert and foregrounds near drives and grass rides, and many other positions about a country place.—*The Field*.

NOTES & QUESTIONS.—TREES & SHRUBS.

Berberis buxifolia.—This South American Barberry, though scarcely so showy as *B. Darwini* or the charming hybrid *B. stenophylla*, is for all that a very handsome shrub, and possesses

several characteristics essentially its own. In the first place the flowers expand before those of either of those just mentioned, and in colour they are quite distinct, being of a clear bright yellow. The Box-leaved Barberry forms a free-growing bush that reaches a height of 6 feet to 8 feet, and the flowers, which are produced in great profusion, are solitary and borne on unusually long stalks, this latter forming a noticeable feature. Beside the specific name of *buxifolia*, this is also known by that of *B. dulcis*; indeed, one name is, as a rule, used as frequently as the other. There is a variety—*nana*—which forms quite a miniature plant, and to those fond of such things it may be commended. With this species in full flower, *B. Darwini* and *B. stenophylla* rapidly approaching that stage, and others to follow, we have no lack of flowering Barberries.—T.

Magnolia stellata.—The pleasure grounds at Westonbirt are famous for the collection of admirably grouped conifers, shrubs and hardy plants to be found in them. Just now a bush about 4 feet high of *Magnolia stellata* on the grass is an object of great beauty, this being covered with scores of white, sweetly-scented, star-shaped flowers. It is a perfectly hardy deciduous species from Japan. Mr. Chapman stated that it thrives best in a retentive soil, and further that the finest specimen of the *Magnolia* he has yet seen is in the pleasure grounds at Easton Castle, the bush having attained a height of 6 feet.—W. I.

—Each recurring season this little *Magnolia* adds to its circle of admirers, and this year it will by no means lose ground, as it has been a perfect picture everywhere. At Kew there are two or three beds planted with bushes of this *Magnolia*, which at a little distance form quite a mass of white, as the blossoms can be counted by hundreds. The effect is heightened by carpeting the surface of the bed with some low-growing subject, such as the beautiful blue-flowered *Scilla sibirica*, that blooms at about the same time as the *Magnolia*, and with whose pure white blossoms the azure-tinted ones of the *Scilla* contrast well. *Magnolia stellata* is just the thing for a small garden, and it is thoroughly hardy.—T.

GARDEN FLORA.

PLATE 1168.

THE DORSET HEATH.

(*ERICA CILIARIS*)

(WITH A COLOURED PLATE.)*

It is a common thing among gardening people to talk of plants being neglected or not grown so much as they deserve, &c., and perhaps of all the plants in Britain there is none to which these phrases might be applied with as much justice as the various Heaths of Britain and Europe. We would rather have them, as far as the open garden is concerned, than any family of plants from other countries. The way they grow in any situation or soil—it is quite a mistake to suppose that peaty soils are necessary for them, though they may grow very well in such—their constancy and profusion of flowers in charming colours and fine variety, make them among the most effective aids the picturesque gardener can ever find. Like many other plants they suffer from the common way of doiting. Although almost all of them are as easily increased as the grass, few people take the trouble to group and mass them picturesquely.

* Drawn for THE GARDEN by H. G. MOOR at Gravetye Manor, Sussex. Lithographed and printed by J. L. Goffart.



THE DORSET HEATH (*ERICA CILIARIS*)

Even in places where there may be no room in the flower garden for these plants there is usually some ground near in which they would give good effects, especially as they are evergreen or almost so. The finest kinds, however, are worthy of a place in any garden, and some of our native Heaths break into most beautiful varieties and colours.

Among hardy Heaths there is none more neglected than the species which is here figured, *E. ciliaris*, called the Dorset Heath, and which with us is quite free in dry sandy loam. The habit is rather dwarf—about a foot high—with pale red flowers which are very pretty in colour, and generally continue to the end of the summer and into late autumn. The flowers die off into a russet brown, and the mixture of fresh bloom and the brown of the past flowers is quite distinct and charming.

THE WEEK'S WORK.

KITCHEN GARDEN.

LATE BROCCOLI.—This is an important crop, as often the earlier kinds are destroyed by severe frosts. If a hardy late kind be grown this may escape and prove valuable. Many sow their Broccoli in March, but it is too early, as frequently the plants are left starving in the seed-beds and get weakened. What is needed is a sturdy growth from the start, as a short-legged plant is better able to resist frost. In fact, such plants are often protected by snow. Much the same advice as regards sowing applies to earlier and mid-season supplies, but by all means select an open quarter, as free exposure is essential to get a dwarf plant. For Broccoli good soil is needed at the start, with plenty of moisture. Sloping banks are not suitable for the seedlings, as the soil is too much drained. A flat surface, free of trees, and if possible a holding soil, are necessary. There is no lack of mid-season kinds, but there is only a limited number of really good late reliable sorts, and these I will note. For many years I have grown Cattell's Eclipse for April supplies, and so far have had no reason to complain. It is an old variety, but I have had it good at the season named when all others have failed. Many would object to the colour of the heads, but the quality is excellent, and its hardiness goes a long way in its favour. Late Queen cannot be beaten as a succession to the one named. This is rarely affected by frost, and in severe winters its dwarf stem is uninjured, and it turns in early in May, when it is invaluable. It may be grown in two different positions, thus securing a succession. For some years my best late Broccoli for use at the end of May and early in June has been Model, and no one who has once grown this variety will discard it, as, owing to its dwarf growth and dense foliage, the centre or heart being quite obscured, it is of great value. This variety stood the severe winter of 1894, and planted at different times there is no difficulty in keeping up a regular supply till the spring Cauliflowers turn in. A variety much liked in the north for late use is Methven's June. This is not unlike the last two named as regards hardiness and good quality. I plant the Broccoli in firm land not recently manured; indeed, it often follows Strawberries, the ground not being dug. Grown thus the plants are not so large as in better soil, but being sturdy are better able to battle against our variable climate.

LATE KALE.—There is no better time to sow Kales for the spring supply than early in May, as by doing the work now a good plant is secured. My remarks concerning the soil for the seedlings of Broccoli are applicable here. In my case, late Kale often follows early Potatoes or Spinach, and,

though I am a great advocate for a firm root-run to secure a dwarf, hard plant, it is well to give food in poor land to obtain good heads. For present sowing there are some very fine varieties of the Scotch Kales, a good early spring sort being the Dwarf Green Curled. There is a taller variety, but this is often injured by frost. The Arctic Kales are of great value in cold localities. There are two kinds, the Purple and Green, both being noted for their hardiness and excellent flavour when cooked. For April cutting Read's Hearting is a superb variety, and one of the last of the Scotch section to run to seed. For use from the middle of April to the middle of May the Asparagus and Cottager's Kale should find a place. The shoots of these form a good dish when others are running to seed. I usually plant these in out-of-the-way places or on a north border, so as to prolong the supply. These, being gross growers, need less food than the Green Curled varieties noted above.

LATE PARSNIPS.—I advised a sowing in February if large roots were needed, but for use from Christmas to May I would advise a small sowing at this date in an open position, leaving the roots in the ground all the winter. Seed sown now produces medium-sized roots of excellent quality. Roots of the size named are more useful in private gardens than large ones, and they have other advantages over the coarse roots. The flesh is more tender, having been grown in a shorter time, and, what is so important to many, there is no trouble with disease. It is a good plan previous to sowing to dress the quarter with lime freely, or, what is better, wood-ashes and soot. This will clear the soil of pests that prey upon the roots in winter. Recently-manured land is not advised. My Parsnips will follow late Celery, the deep cultivation for the Celery just suiting the Parsnip. Student has been a favourite for many years owing to its size and quality. I regret there are some very coarse varieties sold under this name. Last year I grew Tender and True. It is superior to the true Student; not quite so large, but of first-rate quality.

SPINACH.—There will be no lack of this vegetable for the next few weeks from the autumn-sown plants. To keep up a regular supply during the summer months the best cultivator, as in hot, dry weather the plants run to seed badly before they form much leafage. To guard against failures, it will be advisable to sow on cooler sites from this date. I advise a small sowing fortnightly. From the end of May through June and July it will be well to grow this crop on a north border, and to sow thinly. Even then in light soils it will be necessary to mulch the plants. I find spent Mushroom manure excellent. By placing this between the rows and giving a thorough watering twice a week the supplies may be kept up. I find there is always a demand if the leaves are fleshy and green. For present sowing up to the end of May, Victoria is a good variety, and the Carter Spinach is excellent for hot weather. I am not very much in favour of sowing between rows of Peas. Spinach to be good requires an open position, well-manured soil, and room for the leaves to develop. It is often sown too thickly, this causing running and weak growth.

PEAS.—Some time ago I advised as to the preparation of the soil for the July crop and later supplies. In poor soils there is a difficulty in getting full crops in hot, dry weather. Now and onwards by sowing the seed in trenches prepared in advance a better supply may be looked for. There is no lack of good kinds for present sowing, and to keep up a succession the most important point is culture. In light land, or on sloping, dry banks, it is well to make trenches 1 foot deep, placing in these 6 inches of good manure well decayed, and over the manure 3 inches of soil. Sow the seeds upon this, and by placing the seeds 2 inches to 3 inches apart there will be much better results, as then each plant is able to expand and is not starved owing to want of root room. Crops just ready for sticking if at all thick will repay thinning. There is plenty of

excuse for sowing thickly early in the season, as one cannot depend upon the weather, but with good seed there is no fear now—and we rarely have to complain of bad seed in these days.

TURNIPS.—A good breadth of this vegetable may be sown now for the June and later supply. I am not in favour of large roots, so that it will be well to reserve a cool border for a later summer crop if ground can be spared. At the same time, with a good lot of roots at command in June and July, it is an easy matter to lift fully-grown roots, lay in the soil under a north wall, and thus prevent them losing flavour. For present sowing I know of no better kind than Snowball. It is a quick grower and of excellent quality. If the roots are required for keeping it will be well to sow Red Globe, this remaining solid a long time. Some persons prefer the yellow-fleshed roots. Such kinds as Golden Ball and Yellow Perfection are of delicious flavour. The latter matures very quickly and is a first-rate late summer variety. Those who need small roots will do well to reserve a piece of ground slightly shaded by trees, as grown thus there will be less trouble, should the summer be hot and dry. For sowing, Criterion is one of the best in light soils. This roots deeply and resists drought.

TOMATOES.—Plants raised for early supplies will ere now have been potted on. The early plants will now be ready to place in cold frames or in cool houses. It is important they be placed near the light, to get them as dwarf as possible. I have found it much better to give a shift than to starve them in the pots if the plants are root-bound, as if in the latter condition they often cast their first fruits. In potting use good loam, but no manure. Such aids as bone-meal, wood ashes, or spent Mushroom manure may be used with poor soil. Firm potting is a necessity to get sturdy growth; small seedlings potted on now will make nice plants for later supplies if they can be given glass protection for the next month. Failing this, it is useless to sow late and expect a full crop. Plants that are sheltered under walls or copings may be given plenty of air daily. Those sown specially for early fruiting will now be showing their first flower-trusses, and may be fertilised at mid-day in bright weather. The quarters may be prepared for the outdoor plants. S. M.

FRUIT UNDER GLASS.

VINES IN POTS, &c.—Grapes, under the culture detailed from time to time in these columns, have been ripe for a fortnight, but, owing to other circumstances, were only commenced upon a week since. Now I am cutting daily, and have every reason to be satisfied with the results. The bunches are larger than usual for first earlies, the berries, too, being all that one could expect from pot Vines, whilst the all-important item of good colour and finish is in evidence. There is—and I am pleased to note the fact—no symptom of rust, a serious drawback at any time, but more prevalent under early forcing. For a few seasons past this latter subject had occasioned no small degree of annoyance, and try as I would and take every precaution, it still exhibited itself here and there, even with the pipes well cleaned and painted. I have the impression that there is a small but imperceptible escape of sulphureous fumes from the furnaces at the back; hence I have decided to shift the quarters for first early pot Vines. Figs in the same house have come to no harm at all. Just now there is a thin coating of dust on the roof, otherwise if the glass were quite clean I should have to shade temporarily during very bright sunshine, some small amount of scalding having occurred. This can easily be done with a thin wash of whiting and water applied with a syringe. Whilst on this subject of shading, it will be opportune to give a reminder that some Grapes really stand in need of shade in a small degree at this season and until the foliage is thoroughly well hardened. The Muscat of Alexandria and Lady Hutt are two cases in point. Whilst I am no advocate of shading

for Vines as a general practice, the fact that scalding does at times prevail, even when the ventilation is carefully attended to, cannot be ignored; therefore, if by a slight amount of shading it can be prevented, it is only a common-sense application. A thickness of 1 inch netting is in some cases ample for the purpose, and it should not give much trouble to draw this up the roof in cases of need. Now that the early pot Vines, and in some instances the first early permanent ones also, are ripe and ripening, the ventilation must be modified, an increase being made day by day in a gradual manner, and at the same time a sensible diminution in the amount of atmospheric moisture. Thus the fruit will keep in better condition and be at the same time improved in flavour. If during the colouring, ventilation be freely given (some growers reach this point and then fail), the colouring will be facilitated, and, what is more, it will not afterwards go off so soon as it does in some instances in such Grapes as the Black Hamburgh. A night temperature of from 60° to 65° when the fruit is ripe will be ample, the day temperature being modified in like manner. As soon as the fruit from pot Vines is cut the rods should be cut down and all be cleared away to make room for the next crop, whatever it may be. It is a good plan to clear one Vine at the time, making an exception where the crop is above the average, in which instance taking off one or more bunches may assist in the final ripening of those remaining.

PACKING EARLY GRAPES.—As in most instances the bunches are smaller, the boxes or baskets for packing should be smaller too, as well as for the additional reason of not having to cut so much of the crop at one time. The best method of packing is that of fixing each bunch around the sides of either basket or box, so that the weight is borne by the stem when tied around the topmost edge. Then with reasonable care the fruit should not come to any harm in transit. To roll each bunch in paper and then pack flatwise is not such a good method, even if it be done ever so carefully.

LATE HOUSES OF GRAPES.—In these it is a matter of routine work, but let each detail receive attention in due time. For a case in point, it does not take so long to thin a bunch of Grapes when no larger than the seed of Sweet Peas (which is quite small enough to take as an example of first thinning) as it will do later on when the berries are as large as Green Peas. The scissors in the former case can be manipulated so much more readily and with less apprehension of injury. In thinning, more allowance will have to be made with some varieties than with others for stoneless berries. As cases in point, such Grapes as West's St. Peters, Alwrick Seedling, Muscats in variety and Dr. Hogg all have a tendency at times to produce these imperfect berries; therefore, to thin too freely at first is not a good plan. When Vines are somewhat impoverished this failing is more likely to occur, unless in cases where it proceeds directly from imperfect fertilisation. The advice already given with regard to obviating the recurrence of these small berries by manurial applications should be noted where necessary. Attend to the stopping (pinching is perhaps a better word to use, as to pinch with the thumb and finger is much better than to stop with the knife) in good time and guard against all overcrowding of the foliage. An exception might be made by allowing a greater run of leaf-growth when the Vines show signs of weakness. Roots will thereby be encouraged in proportion to the top growth. To be unduly severe in the stopping and thinning of the shoots when colouring has commenced is bad in practice and principle. White Grapes, it is true, will put on colour better with more light than black ones, but this can be accomplished by moving the leaves on one side just for the time much more efficaciously than by depriving the Vines of any foliage. The advice given more than a month back anent the red spider will still hold good. We have better remedies in pure rain water than in anything else, whether it be applied cool during the growing season or hot

during the resting period. If the case be a really bad one before any measures had been adopted, then it may be needful to syringe with rain water containing a thin solution of sulphur. This will reach the red spider directly upon the under surface of the leaves, where, generally speaking, it congregates the most. To allow any case to become a bad one is, however, most reprehensible; it affords no excuse for those who should see the state of the case in due time.

MILDEW ON VINES.—I have often said that if one wants to get an attack of mildew it is very easy to do so. All that has to be done is to be careless with the ventilation for a few days when the weather is rather chilly after a warmer period. For instance, suppose early in May we have a week or ten days of fine warm weather, with the wind in a genial quarter, the ventilation then has to be somewhat free, with possibly a small amount of side or front air put on. So far all may be well, but if the wind veers round to the east and a colder, chilly time ensue, with little or no sunshine, these tactics must be abolished, or the mildew will soon appear. It is still further engendered by neglect of the night temperatures at such times. The fires may possibly have been going easily with a milder spell, and the same state of things still be allowed to prevail without a due regard to the change of weather. Thus a chill is given, and if there be the very slightest tendency to mildew it will soon spread rapidly. To sum up the case as regards mildew, it is this: given careful attention to temperatures and ventilation, it is rarely apparent, but given the reverse, it must cause surprise if it soon does irreparable injury. With changes in the weather whilst the berries are about the size of early Green Peas, it behoves everyone to be careful and vigilant too.

LATE VINES.—These will now be growing apace, so fast, in fact, as to need an extra effort to keep up with the work. Get the disbudbing done as soon as the best-placed and best-bunched shoots can be chosen, but do not afterwards be in a hurry to tie down, but merely relieve the shoots as they touch the glass, or tie them temporarily down for the time until the base of the shoot is rendered more firm, for, owing to the rapid growth, it takes but a slight effort to force them out at the junction with the old wood. Alicante is liable to do this, and so is West's St. Peters to a serious degree. Late vineries will, in all probability, be still crowded with plants, bedding and otherwise. Endeavour, however, to work these out as soon as possible. It is bad for the Vines, and bad for the plants too, to remain much longer now under these conditions. Should we, perchance, have a change from the present dry weather to a wet period, give attention to atmospheric moisture more especially. Scarcely any damping down will be required, whilst in addition even then it may be necessary to gently tap the Vines both by night and by day to remove any superabundant moisture on the leaves. **HORTUS.**

THE MARKET GARDEN.

STRAWBERRIES FOR HEREFORD.

STRAWBERRY growing for profit in this county has sprung into existence within the past twenty years, and as a commercial undertaking has been attended with great success. It was taken up with great enthusiasm in the first instance, and according to present appearances Strawberry growing will be more largely embarked upon than ever. Last year several hundreds of acres of land were utilised for this purpose, and during the past few months other plantations have been formed, which have materially increased the total acreage. These latter and the foregoing plantations consist principally of large fields several acres in extent, quite open and unshaded, so that both plants and fruit experience all the sunlight and

air possible. Generally speaking, most of these fields slope gently towards the sun, but there are a few acres where the opposite is the case. The aspects vary and are any point of the compass between due east and that of due west. The sites chosen possess, as a rule, a good depth of soil, and this in the generality of cases is the deep, rich, red loamy soil peculiar to the county. On this soil the Strawberry flourishes to a remarkable degree, and bears very heavy crops of fruit. So well does the soil suit the Strawberry, that, unless done for convenience sake, the plants will continue bearing for several years before it becomes necessary to break them up and replant. There is a plantation not far from here, some five years old, which yielded over 1½ tons of fruit per acre last season, and, judging by the appearance of the plants, they look likely to do the same again this year. The plants are grown in rows about 30 inches apart, and are from 12 inches to 18 inches apart in the rows. In some few cases the plants are set out beneath or between fruit trees and bushes, but the most popular plan is to plant them quite in the open, in the manner already indicated.

PLANTING

is usually done late in the autumn and continued on through the winter, weather permitting. When planting is, however, stopped by adverse climatic conditions in winter, it has then to be deferred until spring-time. This late planting causes a whole season to be lost, as the young plants have not time to become sufficiently established to enable them to bear fruit. This is really the only serious fault that can be found with field culture of Strawberries, as, if planting were only done as soon as good strong runners could be secured, the grower would reap some return for his outlay the first season. When talking to a large grower recently I pointed this out to him, and after the matter was explained he could plainly see that early planting would be greatly to his advantage. The first season after planting the principal thing is to keep down weeds and runners between the rows, which is done by means of horse hoes. The following spring the soil, after being lightly scuffed up and cleaned, is then ready for moulding the plants with, which is done by a single turn of the plough on either side of each row, which serves a double purpose. This moulding supplies the necessary quantity of soil for the support of the new roots emitted round the collars of the plants, thus taking the place of the mulching generally practised in gardens, while it has the advantage of keeping the plants cool during a dry time. The plants bear a full crop the second year, and the following autumn, and sometimes during the winter, the cutting away of runners and the cleaning of the plantation are then carried out. Sometimes this operation is left over until the spring, but, as a rule, it is generally done at the time indicated.

MANURING

is invariably left over until spring-time, or just before moulding is done. The manures used vary in their composition; sometimes it is farm-yard manure, and sometimes artificial. The latter are the more extensively employed on account of their easier application. Among the artificial manures, quarter-inch bones, bone meal, and fish guano are a few which find favour, while shoddy is also used with good effect by some growers. The manures are sprinkled on either side the rows just before moulding is done, to ensure their being buried, so as to become the more quickly available for the use of the plants. Soot would prove a valuable

stimulant for this purpose, as in addition to its fertilising properties, it keeps down slugs, especially if applied in the spring or when the ground is being worked. Some growers apply the quarter-inch bones in the months of January and February, and the bone-meal just before the plants come into blossom. After the second year the plantation must be manured each season if the plants are to be maintained in a healthy, free bearing condition, otherwise both the quantity and quality of the fruit will be less. It should have been stated that when planting on low-lying or damp ground, it is the rule to set out the plants on ridges. The latter are prepared in precisely the same manner as for the sowing of Mangolds and Swedes. In fact, I know of one instance in which the Swedes were pulled early and the Strawberry plants set out immediately afterwards. In this case the ridges had been extra well manured as a preparatory measure. Coming now to the question of

VARIETIES,

the most extensively-grown sort is Sir J. Paxton. Royal Sovereign has also been largely planted during the last few years, and this will eventually become extensively cultivated for early supply. I know of a large grower who used, if he does not do so now, to grow the Stirling Castle Pine for market work. There may also be some other varieties grown, but the two mentioned are the leading sorts. Both Royal Sovereign and Sir J. Paxton are enormous croppers and yield a long succession of fruit. The fruits of the first-named are not quite so firm as those of the latter, but this drawback is more than compensated for by the earlier ripening of the berries, while both are very remunerative from a pecuniary point of view.

GATHERING.

When the berries begin to ripen a busy and anxious time is at hand for the grower, and a good deal of extra labour has to be imported to enable the gathering to be done expeditiously. Fine weather is also an important factor, as this means not only a full yield, but the fruit ripens more perfectly, the flesh is firmer, while the flavour is considerably enhanced. Wet, showery weather, on the contrary, leads to a considerable loss through much of the fruit being spoilt. The past few seasons have been all in favour of the Strawberry grower, as there has been little or no rainy weather to occasion any loss from this cause. Gathering is commenced early in the morning, when the hands pick the best of the berries only. These are put into punnets, which latter are packed in cases or old Orange boxes and despatched by early train for the markets in the large towns. These punnets are not the ordinary round ones, but are oblong in shape, each one having a handle which, when folded down, keeps the one above it from pressing unduly on the fruit when packed. Thin strips of wood are placed between each layer as an additional precaution, and one grower of my acquaintance uses Rye-straw, cut to the exact length of each packing-case for this purpose, and pronounces it to be a superior and cheaper method than employing wooden strips. In these packages the fruits travel well, and the punnets and contents, when lifted out, are at once ready for sale without any further preparation. The "seconds" are gathered and packed in baskets called "pecks," which hold from 10lb. to 14lb. each. These baskets are made of wicker, and are of a peculiar shape, much resembling a pickle jar in appearance. They are quite round, the sides are upright to about three fourths of their height where they be-

come much narrower and the remaining portion forms a kind of neck. Each basket is lined with paper before the fruit is put in, and when filled are packed in the railway trucks, one on top of the other, when the neck portion of each basket forms a support for the one above it and prevents the fruit from becoming damaged. The thirds or all the smaller fruits are gathered for preserving, and these are put direct into tubs which are supplied by the proprietors of the jam factories. These tubs hold from 50 lb. to 60 lb., but, as a rule, the average weight is about 56 lb. each.

With regard to prices, the first gatherings or the best quality fruit realise from 10d. to 1s. per lb., and the seconds 4d. to 6d. per lb., according to the season. After Strawberries become plentiful, prices naturally come down in value, and then much greater quantities are despatched in the peck baskets already alluded to. The prices for the preserving fruit average about 2½d. per lb. Great quantities of Strawberries are disposed of in the county, but the major portion of the yield is sent to the large towns, a good deal of it going to Manchester. It is, of course, the prime quality fruit which secures for the grower a handsome profit, and even when the whole of the crop is lumped together the results are very satisfactory and prove that Strawberry growing for market is a profitable undertaking. A. W.

NOTES ON TOMATO CULTURE.

GROWING Tomatoes for the market is not quite such a simple matter as at first sight appears. Not a few have made a mistake in their choice of sites. A poor, thin soil may be made to produce good crops for two or three seasons, as in the case alluded to on page 316, but after that either a rest has to be given or else a considerable amount of fresh soil has to be added. I am able to add about 3 inches of fresh soil—poor, sandy clay, it is true, but yet good enough for the purpose—to the cultivated depth each season. This is done by bastard trenching, certainly the best and cheapest form of renovating stale soil. If the only alternative consisted of adding fresh earth, each winter well mixing this with the old soil, that would be expensive and laborious and not invariably successful. Mr. T. Rochford's way out of the difficulty (see p. 316) is a good one, and one which I have put into practice for three years past.

POT CULTURE

I hold to be much the most expensive method of all, but properly carried out it pays well. With me the plants start much better and produce earlier crops than is the case with plants of the same age planted out, presumably owing to the soil in the pots not being so cold as that forming a border. Each season, therefore, pots are used for the two houses to be started early in the new year, and which are not the same as have been devoted to pot plants during the two preceding years. Small sizes, or anything under 12-inch pots, are not recommended, the strongest and most profitable plants being invariably found in the larger sizes. This is a case of not less than 1200 pots. The outlay on pots is a serious item to beginners. Fresh soil, if it has to be purchased, is another expense that has to be reckoned with by those who, unfortunately, are not in a position to dig all they require each season from good land connected with their venture. In my small way it means carting two great heaps to a convenient spot for wheeling into the houses, and in Mr. Rochford's case it must mean a mountain of fresh soil for his many thousands of plants.

Where only a few plants are grown in pots, room for one or more top-dressings may well be allowed, but latterly I have had the pots nearly filled with soil at the outset, allowing good space for watering only. The work of top dressing

with rich compost occupies too much time, is not unfrequently attended by damage to the foliage, and the new soil misleads inexperienced or careless assistants, who when waxing judge of the state of the soil by the appearance of the new soil, and not that crowded with roots below. Occasional surfacings with special manures, with abundance of liquid manure, commencing with these before the plants present a starved appearance, are applied, or otherwise light crops only will set. Nor is this all. Those who depend upon what can be done with plants having their roots wholly confined to pots are likely to have light crops for their pains. On a large scale they could not possibly pay well. It is bad enough having to water so many plants twice a day, but that would not be often enough for any arranged on a dry, hard base. I have tried arranging the pots on undug ground, not preventing the roots from spreading out into this, but they succeed better either on loose or dug ground or a bed of ashes. My forwardest have sent their roots out into borders in all directions, and the ground has to be watered occasionally, a mulching of straw litter about the pots also doing good service. It will thus be seen that only a partial rest is given the borders, but the change does undoubtedly act most beneficially.

ROOF CULTURE.

This season I am trying another method of training in two long houses, and this, again, ought to give a partial rest to the soil. The plan of arranging the plants in rows across a house, supporting each with either stakes or strings, answers well when the structures are both wide and high, but is not always a success in the case of span-roofed houses 12 feet to 14 feet wide. This style of arrangement has been overdone, and in many instances far better crops would have been had if the roof had been covered with plants, put out on each side of the house at a distance of 1 foot apart and confined to a single stem. In addition to these outside rows, I have put out two lines of plants 1 foot apart each way through the centre of the house, and altogether about the same number of plants are grown in a house arranged in this way as would have been required if they were spread over the borders. Tomatoes trained up the roof crop so heavily that it is quite possible the crops produced by the central double row will be so much gain. Anyway, this arrangement obviated the necessity for moving a bank of Arums running through the centre of one of the houses till they had given a valuable lot of flowers for Easter. The outside rows of plants are already nearly up to the glass. A somewhat similar arrangement is carried out in what I term my Carnation house, only in this case the central rows are planted out and the outside rows were well established in 12-inch pots before they were arranged among the Carnations.

OVERCROWDING.

In our anxiety to produce as many fruits as possible we are apt to err in the direction of growing too many plants. What I mean by close planting is when the plants are arranged 1 foot apart in rows 2 feet apart. After repeated experiments, I find that the best crops are produced by plants about 15 inches apart in rows 3 feet apart. Grown more thickly the plants smother each other above ground and starve each other at the roots. Given more room they would individually produce much heavier crops, and the fruit would be of superior quality, realising better prices accordingly. Planting thickly with a view to having enough in the event of losses from the "drooping" disease is but a poor reason, and instead of being a way out of the difficulty is more likely to lead to severe losses from this dreaded evil. When the plants are arranged thinly, one side shoot developed low down may be saved on each, either topping this beyond the first bunch of flowers showing or else laying it in to take the place of a neighbouring plant affected by the "black stripe" or other diseases. Plants with soft, sappy stems and large leaves are undoubtedly the most liable to disease,

but rank growth may be checked by applying less water and manure than formerly, and an abundance of sunshine—which Tomatoes revel in—coupled with a free circulation of warm air, ought to complete the hardening process.

DEFOLIATING.

Removing the foliage from about the lower part of the stems, so as to completely bare the clusters of fruit during the ripening, often amounts to wholesale mutilation. It ought to be remembered that only fully-developed, healthy leaves can properly assist in swelling and maturing the fruit. Of these there are none too many if left entire, and removing them recklessly injuriously affects both the weight and quality of the fruit. Those who would grow Tomatoes profitably ought to supply fruit of superior quality, this meaning not unfrequently one penny a pound more than is obtained for inferior produce. Even if the gain is only a halfpenny per pound this should amount to a fairly heavy gain on the year's working. Those light-weighting—because somewhat hollow—soft fruits produced by either much crowded or severely defoliated plants travel badly, and do not sell well, especially when Tomatoes are abundant. Coarse, heavy Tomatoes are not in demand, but they are frequently of better quality than the bulk of medium-sized to small Tomatoes gathered from either crowded or defoliated plants. It does not follow that because I am writing against reckless defoliation it ought not to be practised at all. It is the abuse of the operation that is objected to. I sometimes find it advisable to remove portions of leaves unduly shading the flowers, and later on it is frequently necessary, especially in the case of varieties dense in growth, to reduce the size of the leaves when these exclude sun and light from the ripening fruit—a very different matter to wholesale defoliation.

SETTING THE FRUIT.

I believe in exposing the flowers to all the light and sun possible. Strong, well-fertilised flowers are usually followed by fruit containing abundance of seed, and which, other conditions being favourable, swell rapidly to their full size, form and quality also proving satisfactory. Those who are anxious to grow fruit good enough to win prizes ought to select their flowers, early removing all with malformed or fasciated centres, this strengthening those reserved, as it is very certain no large, perfectly-formed fruit ever resulted from either puny or imperfectly fertilised flowers. Nothing should be left to chance. I prefer to go over all the plants daily towards mid-day, or after the houses have been opened long enough for the pollen to become dry, distributing this by smartly tapping either the wires or stakes supporting the plants or else the stems. Later in the season, or after the houses are set wide open every day, no assistance is needed, the fruit setting as freely as on plants quite in the open. Failures occur in spite of these attentions, and this is most noticeable during very hot weather in the case of plants already heavily cropped. The hot sun and heavy crops take all the life out of the plants, and not till some kind of relief, including liberal supplies of water and liquid manure, to the roots is given will many more fruit set. Topping shoots or leading growths beyond a bunch of flower-buds has a strengthening effect, favouring the development of the latter, and a better set than would have otherwise been the case if no topping had been resorted to. Fresh leaders can be laid in. Excessive grossness is also prejudicial to a good set of fruit, but this rarely occurs in market growers' houses after the first season. When it is seen that plants are failing to set fruit, owing to their gross habit of growth, cease watering for a few days, or say a fortnight, and, if flagging becomes very pronounced, on bright days that will do more good than harm. Reducing the size of the leaves also tends to check grossness.

WATERING AND FEEDING.

The ground for Tomatoes should be deeply cultivated, heavily dressed with solid manure, and

further dressed with a mixture of chemical manures, notably those abounding in phosphoric acid and potash. This is what I consider a good dressing for the poor, sandy, clayey soil I have to deal with: Solid manure, trenched in, one cart-load, weighing from 15cwt. to 17cwt. to the square rod; kainit (crude potash) 4oz., superphosphate 4oz., (basic slag 8oz. substituted in some cases), and soot 8oz. per square yard, forking this into the surface well ahead of planting. The kainit and superphosphate are slow in dissolving, and the basic slag still more so, and only one dressing is given, but during the season soot-water varied with nitrate of soda dissolved and applied at the rate of 4oz. to the gallon of water is frequently applied. We have been repeatedly warned against mulching with straw manure, as this is supposed to favour the spread of slime fungus, or other diseases of a fungoid nature, but personally I would rather lose a few plants than dispense with the mulching. Before these lines are in print all the borders will have been mulched with fresh straw manure applied in a cool state as a precaution against injury to foliage from an excess of ammonia. These mulchings are a great saving as far as the watering-pot or hose is concerned, and the roots like them, keeping well up to the surface accordingly. Without a mulching of some kind to prevent rapid evaporation of moisture we should be unable to keep the borders so constantly moist as they ought to be, without drenching them with water almost daily, and the dry straw is better than exposed soil, the latter keeping the atmosphere moister than desirable at times. If plants are "going wrong," look to the roots. The chances are not nearly enough water has been given. If they present a starved appearance give soot-water or other quick-acting liquid manures, or otherwise the crops will be neither heavy nor continuous.

DISEASES.

If all who are growing Tomatoes for market succeeded in obtaining full crops of sound fruit from their plants, it is doubtful if the majority would not find it a most unprofitable speculation. So much fruit would be forthcoming that the prices would, early in the summer, drop so low that the average would not exceed 3d. per lb.—a very poor return for so heavy an outlay. Tomato plants would appear to be more liable to injury from diseases than any other kind of fruit or vegetable in cultivation. If one disease weakens or nearly dies out, another one, equally or more destructive, takes its place, and it is doubtful if ever a complete mastery will be gained over the various diseases by which the plants are attacked. I have no faith whatever in any of the nostrums recommended for "outward application only." All that I have tried did more harm than good, injuring either the foliage or flowers, and those in which lime is included are the greatest nuisance of all. My advice to market growers is to leave all such doubtful remedies alone or to those who have more leisure time and can afford to run risks. The aim should be to build up the plants strongly and to make them as disease-resisting as possible. Theorists and so-called experts condemn certain manures as being conducive to the spread of diseases, and recommend others that are supposed to prevent diseases, if they do not wholly exterminate them. Unfortunately, there is no unanimity about anything that is recommended. Good culture is the best preventive of most kinds of disease. If my plants have stout yet hard stems, strong, dark green leaves, and flower freely, they may yet become diseased, the black stripe invariably showing on some of them; but the majority have grown out of it in previous years, and I have good hopes they will do so again this season. The drooping disease is supposed to be a phase of the same complaint that assumes the form of black stripe, but to me it seems merely a paralysis of the plant consequent upon having too few roots, and these not kept sufficiently well supplied with moisture and plant-food to meet the requirements of plants with comparatively few

worst cases I have met with the plants were leaves and heavily laden with fruit. In the rooting in a poor, lumpy soil and did not get nearly enough water.

Last season Cladisporium or yellow spot once more re-asserted itself, and was responsible for many partial failures. It must be atmospheric, or how else are we to account for its outbreak in all parts of the country? Spraying with the Bordeaux mixture and other preparations only cripples the plants and causes much extra labour in the way of wiping all the fruit before it can be sold. It might be I had become a little careless in the matter of ventilation. If one could keep the foliage and atmosphere constantly dry there would be little to fear from diseases of a mildew-like nature. Fire-heat judiciously applied is of great service, not only in ripening the fruit, but also in keeping the air moving. That moisture in the air we look for on entering a Cucumber house must never be felt in a Tomato house. It can be prevented by opening the top ventilators slightly all through still, warm nights, and by opening earlier than usual in many cases, or before the sun has had an opportunity of running up the heat considerably, opening the ventilators still wider as the heat increases. The closing should also be gradual, not finishing early enough to unduly raise the temperature of the houses, as this is invariably accompanied by the moist feeling objected to. Chills are sometimes followed by mildew, and why not Cladisporium too? Anyway, I object to admitting much side or front air before May, treating Tomatoes similarly to Grape Vines in this respect. A high temperature, ranging, say, from 80° to 90°, and brought about by sun-heat, is not injurious, always provided it is accompanied by a good circulation of warm, dry air; in fact, great heat will kill the disease germs, and is a remedy well worthy of a trial. Whenever we experience tropical heat for a few days much fruit is spoilt by being attacked at the nipple with a disease, or else by scalding, in the same way that Grapes are sometimes lost. Spraying with fungicides has been recommended as a remedy, but I have my doubts about its efficacy. The mischief is done in the morning. During the nights, which are often cold, the fruit also becomes cold, especially if no fire-heat is turned on, and if the ventilation is deferred to 6.30 or 7 o'clock in the morning the rapidly warming air condenses on the fruit, to be even more suddenly evaporated when the ventilators are set wide open. While the fruit is moist, disease germs may, and doubtless do, effect a lodgment on them, and the scalding—which can be detected at once, soft patches showing—is brought about by a too rapid loss of moisture by evaporation. Warmth in the hot-water pipes, extra early ventilation, with abundance of air, or all possible, admitted not later than 10 o'clock, is the best method of prevention I have yet tried, and lightly spraying the roof with thin lime-water is the next best preventive. The more advanced fruit does not suffer below the skins, but if scarred fetches low prices when ripe. It is false economy, therefore, to wholly dispense with fire-heat during hot weather, and at least one responsible person ought to be attending to the ventilation an hour earlier than the orthodox time, viz., 6 a.m.

W. IGGULDEN.

Cheiranthus Harpur Crewe.—This excellent plant has many points of importance that should commend it. Fully as fragrant as the old yellow Wallflower and very free, it possesses much greater hardiness, that the older kind in many districts completely lacked. The spikes are neither so large nor the flowers of that deep orange-yellow that rendered the old yellow so conspicuous in those gardens where it was wont to thrive and grow into bushes 2½ feet to 3½ feet across, with perhaps a couple of hundred of its rich yellow spikes. Such as these I have seen in cottage gardens quite near to Birmingham, and in similar positions on raised ground the above would doubtless prove equally free and profuse,

and, what is still more important, more strictly perennial. The above may be freely raised from cuttings in the usual way.

ORCHIDS.

PHAIUS NORMAN.

THE subject of the accompanying illustration is reproduced from a photograph taken at the Drill Hall meeting of the Royal Horticultural Society on March 8 last, when it was exhibited by Messrs. J. Charlesworth and Co., Heaton, Bradford, on which occasion it was given a first-class certificate. Two other forms from the same batch of seedlings were also shown, the variety *P. N. roseus* gaining a first-class certificate and *P. N. aureus* an award of merit. These were fully referred to in the report of the meeting in our issue of March 12 last. They were raised by Mr. N. Cookson, who disposed of the whole stock to Messrs. Charlesworth for distribution. A plant was exhibited by Messrs. B. S. Williams and Son at the spring meeting of the Royal Botanic Society, on March 30. S.

Eulophiella Elizabethæ.—This is perhaps one of the handsomest of the many beautiful Orchids now in bloom in the collection at Kew, where a moderately-sized plant is producing four flower-spikes. The dark green foliage is some 2 feet in height and inclined to arch for a third of its length from the tip, the flower-spikes appearing from the base of the pseudo-bulbs, and almost emerging as it were from the soil. One of the bulbs is producing two spikes of flowers, and, compared with the nearly erect habit of the leaves, the rigid horizontal spread of the flower-spike is conspicuous, this being again enhanced by the crimson-brown hue that pervades the bracts, as also the entire scape with its numerous pure white flowers. The plant, it should be stated, has been grown in the Nepenthes house adjoining, where great heat and a considerable amount of moisture are constantly kept up.

Trichopilia suavis.—The forms of this pretty species vary considerably, though not many perhaps have received varietal names. In habit it is also variable, but, as a rule, the bulbs do not exceed 3 inches in height. The blossoms are large and fragrant, the pretty open lip being whitish with rosy purple spots and a yellow centre. In a variety that I have before me from a correspondent, the outer segments are very broad, and instead of the usual self white tint these have blotches of purple. It is distinct, but not more beautiful than the typical form. *T. suavis* should be grown in a good light in the warmest part of an intermediate house as with the *Cattleya*, and owing to the pendent direction taken by the spikes they look much better in baskets suspended from the roof than in pots. The usual peat and Moss mixture over good drainage suits it well, and water must be provided in accordance with the state of growth. Too much in winter leads to the destruction of the roots, and once lost it is difficult to get the plants to root again freely, simply because they cannot be properly fixed in position and the rocking prevents the roots taking proper hold of the compost. *T. suavis* is a native of Costa Rica, and was first discovered growing on Oak trees by the Polish collector, M. Warszewicz.—H.

Miltonia Warszewiczii.—This is quite distinct from all other *Miltonias*, and a quaint yet fairly showy plant. The flowers occur on large panicles and have reddish-brown sepals and petals tipped with white or pale yellow; the lip is purplish, brown and white. *M. Warszewiczii* thrives best in a hot, moist and shady house, more heat being necessary than for any other species of its class. The plants may be grown in medium-sized pots in a free open mixture that moisture enters

and leaves freely. The amount of water required while the plants are growing is very large, and if at all stunted the pseudo-bulbs fail to swell properly. When repotting it is therefore necessary to drain the pots thoroughly and to see that nothing of a sour nature remains about the roots. Frequent light dampings overhead are very refreshing to the plants in bright weather, but must not be persisted in if dull days ensue. Insects are not more than ordinarily troublesome, but a soft brownish scale sometimes appears, and soon spreads if not quickly eradicated. A fine plant of this species now in flower has over forty flowers open on three spikes, making a pretty show. *M. Warszewiczii* varies a good deal in its colour-markings and the width and substance of the segments. It is a native of the mountains of Peru and New Grenada, and was introduced in 1868.

Cattleya citrina.—Few Orchids have given more trouble to cultivators than this *Cattleya*, but it is worth going to a little trouble to obtain success with it. The most difficult part of its culture is to maintain a suitable atmosphere for



Phaius Norman. From a photograph by Mr. Bowden, Dulwich.

it while at rest, and keep it as far as possible to its proper annual routine. The usual growing season of *Cattleyas* is from early spring through the summer months, but this is reversed with *C. citrina*, and the trouble is to get it to rest at all. Not being a vigorous-rooting plant, the specimens should be wired to rough blocks in their natural position, i.e., head downwards, and very little is needed in the way of dressing. A little fresh green Moss does no harm, but helps to conserve the moisture about the roots. Whatever water is needed should be given by dipping the plants in a pail or tub, not syringing them overhead, and if possible keep the leaves quite dry, especially at this time of year. Shade from sunshine, and suspend the plants in the coolest, most airy part of the *Cattleya* house in winter, and in summer in any light, airy, and comparatively dry structure where they are well in sight and can have immediate attention should shrivelling take place. *C. citrina* is a native of high mountain ranges in Mexico. It has long been known, and was introduced in 1823.

NOTES ON CATTLEYAS.

THE *Cattleya* house is very interesting now, many plants of various species being in flower, and others are interesting as just beginning to grow. In many instances the plants will have recently been potted, and the roots of *C. Triana* and *C. Percivaliana* have already made considerable progress. It is not too late by any means to re-pot any that need this assistance, and for many of the summer-flowering kinds it is the best season of the year. There is no harm in allowing a few roots to ramble over the outside of the pots; in fact, I like to see them do so, for they form excellent auxiliaries to those in the compost. It must, however, not be forgotten that the compost is the proper place for them, and to let the leads grow far out over the rims is to weaken the plants. When potting, the best class of material only should be used and the plants disturbed as little as possible. Where a large and varied collection is grown in one house, the arrangement of the plants has a lot to do with success or the reverse, and if all the newly-potted specimens are kept together it will be easier to give them suitable treatment. Moisten the roots only moderately, but keep the syringe going very freely about the pots and stage, shade rather earlier than for established plants, and if there is any difference let the warmest end of the house be chosen for them. The cooler and drier part of the house may be reserved for plants in flower, and if there are any small Ferns or other fine-foliaged plants at command these may be sparingly arranged among them. The foliage of *Cattleyas* is not very ornamental and is heavy, so anything light like the smaller leaved *Aralias*, *Grevillea robusta* (small plants) or healthy little bits of *Cocos Weddelliana* looks much nicer than such things as the broader-leaved *Crotons*, *Coleuses* or *Dieffenbachia*.

One of the showiest and most beautiful *Cattleyas* in bloom is *C. Lawrenceana*, and the bright crimson-purple blossom of this species shows up beautifully among the fronds of some of the finer *Adiantums* or *Gleichenias*. It is important that this *Cattleya* be not placed in cold draughty rooms or houses while in flower, for its growing season commences directly the flowers are past and many plants have been badly checked in this way. Other *Cattleyas* of course, that are now in flower begin to grow at the same time, but many are hardier than this, though even they may easily be injured as indicated. The same may be said of the somewhat delicate *C. Schilleriana* and its varieties, and some of the dwarfer kinds, as *C. Aelandrie*. Where sponging and cleaning were neglected during winter the effect will now be too apparent, for with the increasing temperature insects of all kinds, especially scale and thrips, will become very active. It is of no use trying to grow the plants properly until these are destroyed; they will cripple the best and strongest growths, and if only a few insects are present they increase just now at an alarming rate. Established plants are now taking a fair supply of moisture, but not quite so much as will be necessary a little later when root and top-growth are active. Watchfulness is the thing both for these and the foregoing, especially for plants growing close to the light in pans, baskets, or on rafts or blocks. Never allow them to remain dry for long, but always let the

them to remain dry for long, but always let the

roots be on the dry side before water is again applied.

The weather just now is usually fickle, and judicious shading is a great help. Those growers who have the lath-roller blinds are in a far better position as regards this detail than others who have to depend on the older style. Those of a suitable width to take one light are most convenient and useful, for often there are plants in certain parts of the house that require more shade than others, plants in flower or newly-potted, or plants that are found to thrive in a dense shade better than in a clear light. These and the improved fumigating methods are two of the greatest boons to Orchid cultivators, and the inventors deserve the warmest support. The next best thing for shading is the garden-net, now so much used. For Cattleyas a fairly open mesh may be used. The numbers given by different firms are misleading, but a net that one can push a lead pencil through is quite close enough. Lower the blinds before the foliage gets hot; just as the warmth can be felt by pressing it lightly in the hand. On ventilation there is little to add to what has already been said in previous notes. The earlier the lights are opened the longer the shading may be left off the roof, as the current of air playing over the foliage keeps it cool. Damp freely on every possible occasion, the bright sun and drying winds at this time of year soon taking up the moisture from floors and stages. Considerable latitude must be allowed in the temperatures, the weather being so changeable. Anything between 50° and 55° will be suitable for a night minimum, rising 10° by fire-heat by day, and, when fine, to 80° by sun.

Masdevallia Shuttleworthi xanthocorys. The blossoms of this pretty variety differ from those of the typical form in being smaller and having more yellow about them. The upper sepals are pale yellow, the lower ones rather deeper in colour, and very faintly tinted with mauve. It is similar in habit to the type, and thrives under similar conditions of culture. The plants may be well grown in small teak baskets suspended from the roof in a house kept as cool as possible by shading and free ventilation in summer, and in winter the night temperature must not fall much below 60°. The roots must be kept moist all the year round.

Odontoglossum crispum Sanderianum.—This is by no means a novelty, but it is very doubtful if there are many to beat it in its class. Not only are the blossoms large and finely shaped, but the plant is a good grower and flowers freely. The sepals and petals are white with very fine large blotches of the vinous red tint that is so attractive in the best forms of *O. crispum*. These blotches are not quite so regular as in some few kinds, but this does not detract from its beauty. There are many fine things now constantly turning up among the importations of this beautiful *Odontoglossum*, and it is very interesting to watch the development of the spikes on plants flowering for the first time.

Odontoglossum triumphans.—A fine spike of a beautiful form of this species is now open, the clear-cut blotches on the segments showing up grandly on the golden yellow ground. I consider it one of the very finest of the yellow-flowered section, and it is, perhaps, the most free-blooming of all. It is more easily grown than *O. crispum*, and thrives in a cool, moist house under the treatment often recommended for the New Grenadan kinds. Plenty of air at all seasons gives the foliage and bulbs of *O. triumphans* a russet appearance that indicates good health. The species was found growing at considerable elevation in the forests of New Grenada in 1843, but does not appear to have been cultivated in this country until some twenty-five years after-

wards, the earliest record of it being about 1867.—H.

LÆLIA SUPERBIENS.

I AM quite at one with "H. J. C." respecting the culture of this *Lælia*, and his treatment is practically the same as I have followed for years. But it does not explain the fact of the flower-spikes not appearing this season, though the plant is in the same place in the same house as it has been the last three years, and has not before failed to flower. Last season there were four spikes upon it—fine, healthy spikes, with immense clusters of flowers at the apex—but this time, though as strong and vigorous as ever, there are no flowers. Side-breaks from this species are easily induced by notching the rhizome about half-way through at about the same time that roots are produced from the base of the young bulb. This is usually in autumn, and, if left until spring, there is not the same chance of obtaining breaks. By this means I have formed fine, shapely specimens from the ungainly-looking masses that come to us from their native habitat. So troublesome are some of these that in the days of the old large perforated pots I have often taken stiff galvanised wire and tied down the rhizomes by passing this over them and through the perforated sides. Notwithstanding "H. J. C.'s" success in a shady house with this species, I would never grow it in dense shade had I a house where plenty of light could reach it from all sides. I should certainly shade it before the sun had sufficient power to harm the foliage, but, this point conceded, *Lælia superbiens* cannot have too much light; neither, for that matter, can *Vandas*. Both *Vandas* and the *Lælia* in question—indeed, all large, vigorous-growing Orchids—delight in spacious roomy structures as distinct from small narrow ones. The atmosphere can be made more congenial to them, ventilation can be more freely used, and by the same token less shading will be necessary than when, owing to being placed in small houses, the plants have their heads within a few inches of the roof-glass. H. R.

NOTES ON TRICHOPILIAS.

THE number of really distinct species in this genus is not large, but they comprise some very pretty plants that because of their graceful appearance when in bloom may be largely grown with advantage. All are evergreen, pseudo-bulbous plants with the habit of *Oncidiums*. Many of them produce their flowers upon semi-pendent racemes, and this makes them very suitable for growing in baskets or pans suspended from the roof, the blossoms showing to good effect. But there is an additional advantage in the amount of light obtained by the plants when grown in this way. In winter, when for days on end the sun never shows and daylight only lasts a few hours, the Orchids such as these that hail from high latitudes are much incommoded, and unless very carefully and judiciously treated are bound to suffer. Temperature is an important point, the most suitable minimum being as near 50° as possible. This will not encourage growth in the dull months on the one hand, or cause any harm to the plants in other ways by checking them. Ventilation requires a lot of care, for without plenty of air the plants will not long be satisfactory, and it is impossible to open the ventilators much when cold winds prevail. Root-moisture is very easily overdone in winter. They need, in fact, as little as any evergreen kinds, and if in the least overdone the roots often decay right back to the base of the bulbs, and this means a very severe check to the plants. The greatest difficulty will be found in inducing new root formation, especially if the plants have been long under cultivation. The likeliest plan is to pot the plants in clean crocks and Sphagnum Moss, placing them in rather warmer quarters than usual, and keeping the atmosphere very moist. The varieties of *T. fragrans* (*Pilumna*) are most likely to be affected in this way, and are the

worst to recover. The growing quarters may be with the Cattleyas, the large light houses often used for these suiting their requirements exactly, especially during the autumn. The amount of water required in summer makes good drainage essential, and the peat and Moss used as compost should be kept well apart by the addition of a liberal amount of charcoal and crocks. In the majority of cases the Cattleya house temperature is most suitable, but a few kinds, notably the varieties of *T. fragrans*, do best in the cool house. The genus is rather widely distributed naturally, the type species, *T. tortilis*, being found in Mexico, others occurring at various altitudes in Costa Rica, Panama, and southwards to the equatorial line.

NOTES AND QUESTIONS.—ORCHIDS.

Masdevallia Geleniuma.—This is a lovely little plant, almost perfect in its delicate gradation of colour, and the quaint shape is just that to appeal to lovers of this class. The sepals are broad at the base, the ends of each being prolonged into a fine yellow tail, the lower part being variously spotted and tinged with crimson. The spots on the upper part of the sepals are purple, and, as they occur chiefly on the veins of the segment, appear to be lines of colour. *M. Geleniuma* is a cross between *M. Shuttleworthi* and a variety of *M. Estradae*.

Dendrobium Pierardi.—Although a very beautiful species, I was rather disappointed at this flowering out of a batch of plants sent some two years ago from Ceylon. Several plants of *D. Macartheae* were included, but I had never heard of the above coming from the island, so probably the plant is cultivated there. It was evidently not *D. Macartheae* by the growth and manner of the flowering, but I hardly expected *D. Pierardi*, though it is a very widely distributed species. Has any reader had a similar experience or has it been recorded as a native of Ceylon?—H. R.

Sobralia leucoxantha.—The blossoms of this species are extremely beautiful and chaste, the outer segments of the purest white. The lip is white, deepening to a lovely golden yellow in the throat. Like the others in the genus, the flowers only last a few days, but quite a large number of them is produced from each stem in quick succession. The plants like a gentle warmth, or, failing this, a position at the cool end of the Cattleya house. The best compost is equal parts of peat, loam fibre and chopped Sphagnum Moss, and the pots must be thoroughly drained, a lot of water being needed while growing.

Cattleya Schroderæ alba.—This beautiful albino is one of the later additions to the list, but not so rare as some others of the "labiata" group. It occasionally turns up among imported plants, and I have noted an instance during the present week of a plant purchased very cheaply a couple of years ago. The prettily crisped lip is of the purest white except a pale orange blotch in the centre, and the outer segments are likewise devoid of colour. It may be noted that there are often the first season whitish forms of this and other Cattleyas that afterwards take on more colour, but in these there is usually a faint shade of pink or rose in either the sepals or lip.—H.

Cyrtopodium Amesianum.—I have received a very fine form of this pretty and free-flowering hybrid from a correspondent, who asks if it is worth naming. It has been already named as above, though the flower sent having been raised from *C. villosum aurcum* shows an improvement on the older form, which is the progeny of *C. villosum* type and *C. venustum*. The dorsal sepal is white, with a golden yellow margin and brown base. The petals and pouch come nearer *C. villosum* than *C. venustum*, though the greenish venation as seen in the latter may be faintly discerned. This should prove a very useful free-flowering variety.—H.

Masdevallia Peristeria.—This is a very pretty species with rather small flowers of a dull

greenish-yellow tint closely covered with minute crimson-purple dots on the sepals, and the column and lip are an exact counterpart except in colour of those of *Peristeria elata*. The tails of the sepals about 1½ inches in length are bright golden yellow. It is not a very strong grower and does well in the closest part of the cool house where the atmosphere is not liable to much fluctuation. It will thrive in pots or baskets, and either must be well drained, the compost consisting of peat fibre and Sphagnum Moss. It is a native of New Grenada, and was introduced by Messrs. Veitch in 1873.

Goodyera discolor.—Grown in a warm, moist, and shady house, this is a very lovely little plant, the delightful velvety green of the foliage being relieved by the silvery white of the midrib. Unlike many of the Orchids grown for their foliage, this is of very easy culture given the above conditions and a free and fairly open root-run. In a dry house it is far from pleasing, the foliage taking on a rusty hue quite different from its proper form. Water overhead is harmful and should never be allowed. The present is a capital time for making up fresh specimens, lopping off small pieces with a few roots to each, putting as many as are required into each pan, and encouraging the old plant to break freely again.

ORCHARD AND FRUIT GARDEN.

GAS-LIME IN THE GARDEN.

From the wide difference to be found in samples of gas-lime and also in the capacity of various plants to utilise it, it is difficult to give any exact proportion that may be safely used in all cases, and I notice that "R. S. C." (p. 303), who professes a belief in the virtues of gas-lime, but who only gives one instance of its use, and that one in which its effects were decidedly injurious, avoids also any explicit directions of his own as to the quantity which may be safely used. It was just because of this difficulty that I advised those not already intimate with its uses to experiment in a small way at first, and then to act on the results. Soils vary so much, that a dressing which would be most beneficial in one case would be absolutely harmful in another. Probably the field of which "R. S. C." writes was one in which lime was already present in quantity, and its application in that case was injudicious. Your correspondent will have seen that I laid special emphasis on its utility in old gardens with soil rich in humus, and deprecated its use on soils of an opposite nature, viz., those which may be described as "poor," or those which are already fully charged with lime. "R. S. C." raises the point of there being two kinds of gas-lime. I may say that quicklime only is used for purifying the gas made here, so that the resulting substance would probably be the same as given in "Voelcker's Analysis," published in THE GARDEN (p. 303), and which, I conclude, is always meant by those who speak or write of gas-lime. If the produce of other methods of purifying differs from this and is poisonous to plant life, the fact cannot be too widely known, and "R. S. C." will deserve the thanks of all interested by telling us more about it, its exact composition, the harm which may be looked for from its use, and whether the poisonous elements it contains will be dispersed or converted into plant food by exposure to the air, as is the case with the poisonous matter contained in the gas-lime of which I write. Dr. Griffiths, in his "Treatise on Manures," which was published but nine years ago, though he gives no very flattering account of gas-lime as a manure, writes of it without any seeming knowledge of more than

one kind, though he notes, as everyone who is accustomed to its use or appearance must note, that it varies considerably in composition. He also recommends its application in the autumn at the rate of from 2 tons to 5 tons per acre.

My own practice in the use of gas-lime being among garden crops in what would be, as compared to field culture, considered small plots, and containing a large number of widely differing subjects, varies much as regards both quantity and quality of the lime applied, for having charge of it from the first I can prevent the mixing of the strongly impregnated with that which is only slightly tainted, therefore I have no average quality to deal with, and this suits me best. To explain my meaning as to the different qualities, it may be necessary to say that in the process of purification the gas passes through a series of eight shallow, perforated trays, each of which contains a layer of lime some 2 inches in depth. The trays are all emptied and refilled weekly, and it is found that the lime in that one nearest the point first reached by the gas is completely saturated with the impurities and discoloured, and by gentle gradation this discoloration is lessened in each tray, though the disagreeable smell goes through all, and the lime in the last trays reached is just in that condition which I prefer for application, mixed, as I stated in my first notes, with fresh lime to the branches of the trees, &c. This is put on one side under cover and kept dry until wanted. It will thus be seen that it is possible to get eight grades of the lime, but such a rigid selection is not necessary for practical purposes, and I make three qualities in all, the least impregnated, as said before, for application to fruit branches, the medium for general application, and the third or strongest for surface dressings to plots which are not to be dug for some two or three months, and for mixing with wood ashes, &c., to apply as a mulch to orchard trees. The two stronger qualities are thrown into separate heaps out-doors, each heap being added to weekly at the rate of one and a half bushels. In using, the oldest lime in hand is chosen, but, except for a little held back as a reserve stock in case of emergency during the few months when no gas is being made, all is applied to some purpose or other within six months, and most within three months, of its being made. I have used of the strongest quality a dressing which would work out at over ten tons to the acre for land that was not to be dug or cropped for four months after the application, and the result in that case, on Carrots, worked out well. I have also used almost as great a quantity for many other things, when circumstances admitted that several weeks might elapse before cropping took place, and have always found that when the result has not been immediately beneficial, it has, at least, done no harm, and much ultimate good. It must not be held, however, that I advocate such quantities for universal application. I do not; and prefer to leave the question of safe quantities an open one, rather than to fix arbitrarily upon a quantity as the best in all cases, as I know very well the fatal results of attempting to treat various soils as though all were composed alike. Let each grower test the gas-lime on his own soil. It is only by doing so that its value will be found with certainty, and the test need not be a wide one to begin with, though I feel sure it would be increased in the majority of cases in future, if once tested, unless the soil already has a superabundance of lime in its composition, in which case it would be useless beginning with it. For an ordinary garden soil which has been freely manured and in cultivation for many years, I would suggest

as a very safe quantity to commence with, 1 bushel to the rod, which is over 4 tons to the acre, apply it to the surface, and dig in only after several weeks' exposure to the air.

J. C. TALLACK.

RASPBERRIES.

If Raspberries are not the most serviceable of all hardy kinds, at least they rank amongst the most reliable ones. Rarely indeed do we have a failure from any cause. Now and then an excessively cold, wet summer—happily, a rare visitation—may fail to develop ripened canes, and these probably die back in the succeeding winter, or an exceptionally hot, arid summer may create such poor growths that the next season's fruit produce is poor also. This latter difficulty can, with the aid of mulchings and waterings, be more easily overcome than can the former one. If not one of the most important of fruits, at least the Raspberry is universally grown, and often exceedingly well. At the latter end of the nineteenth century we have some excellent varieties, and a wide range of selection. In the earlier years of the century some half-dozen distinct varieties were in cultivation, the best of these being the Old Red and the Old White or Yellow Antwerp. These are still largely grown, but in no case where a knowledge of superior varieties exists. Now it would not be difficult to make up a list of twenty varieties, yet some half-dozen comprise the best and most generally grown, and these seem to be more than enough to satisfy ordinary requirements. Of red varieties, Superlative, the great variety of the day, Baumforth's Seedling, and perhaps Carter's Prolific rank amongst the best for garden culture; and in the market fields, Norwich Wonder, Hornet, and Northumberland Filbasket are probably the best. The White Magnum Bonum is the finest white so far, but when the new White Superlative, a really white form of that superb variety, becomes plentiful, that will without doubt become the leading white. Occasionally one meets with what seems to be a little known, or perhaps a seedling, variety, as, for instance, there is in the gardens at Round Oak, Egham, a strong-growing variety that throws out unusually long side shoots, in this respect quite excelling Superlative, and because the laterals are thus extended the bearing goes on some time longer than is the case with others. The fruits are red, fine, and of excellent quality. To have such a prolonged fruiter is no doubt a distinct advantage. Not many care to grow the autumn fruiters, as the fruits then seem rather out of season, and are also then rather acid. But most varieties, if their previous season's canes be cut away, will carry fruits in the autumn on their summer shoots. This is, however, practice hardly worth following. Few fruits of their dwarf nature endure longer on the ground than will Raspberries, if well cared for. It does not follow that allowing breadths to remain under such conditions for many years is good practice, but cases have been known where on deep, rich, retentive soil plantations have continued to be profitable for half a century. Ordinarily it is well to limit the age of a plantation to ten or twelve years, except where very favourable conditions prevail; and where extensive breadths are grown it is wise to plant more or less every year, as in that way a fine profitable stock is maintained. In planting, a primary consideration should be to select a naturally deep, retentive soil, and where not previously well worked, then it should be so by trenching and manuring. There can be no doubt but that, costly as the labour of trenching may be at the first, it is amply repaid and with interest when planted with Raspberry canes, as the better the ground is done at first, the longer will the breadth profitably endure. Very strong suckers are not the best for this purpose, especially if lifted from near the stool, for these are seldom so well rooted as are those suckers that come up, if allowed, more remote from the stools. These, as a rule, are abundantly rooted, and as in the ordinary course of treatment after being

planted they are cut hard back to the ground, it is of far more importance to have a good cluster of fibrous roots in the soil than a cane ever so big that has been cut away. Planting of these young suckers may be done quite early in the autumn if desirable, provided the weather be fairly moist, as the leafage helps all the more quickly to promote root-action, and that is a matter of primary importance. If the weather and soil be very dry it may be wise to defer the transplanting until November. When done, however, some ordinary care should be taken not to unduly expose the roots to harsh drying winds. A very little trouble taken to keep them protected is later well repaid. For

FIELD CULTURE

planting in clumps seems to be the best method, whilst in gardens there can be no doubt but that planted in rows singly, the plants being 12 inches apart and the rows 4 feet apart, is good practice. For this plan it is needful to have a rough trellis of two or three stout wires or strips of wood fixed along each row of canes, as then tying is rapidly done, and the canes standing singly get much more space and light than is the case when, planted in clumps, the canes, some five or six in number, are closely tied up to wooden stakes. Practice in this respect varies very much. Some allow their canes to remain fully 6 feet in height, and are bunched to the stakes as closely as rods in a bundle of sticks. Others cut back to 4 feet or 5 feet, and either also bunch the canes tightly or are content to tie the tops only rather loosely, thus enabling the stems lower down to bulge outwards and get more room. But the great aim in all cases should be to encourage free breaking towards the tops of the canes, as the more the fruiting branches are kept above the ground the better for the fruit, which is finer, richer-flavoured and sweeter, and less liable to harm from birds than is the case where breaking low down is encouraged. For that reason especially, the single row of canes tied to trellises is so much the best. The market grower of necessity must cut his canes hard back to at least 3 feet in height, because he cannot afford to furnish trellises or stakes to support them. They have to support themselves. But, then, his soil is rarely trenched—perhaps, at the most, has been deeply ploughed only—and although he does not fail to manure freely, yet he seldom gets canes so tall and stout as the deeply-worked soil of gardens produces. If, however, he gets a fairly remunerative crop, he is very well content, and rare is it, where culture is at all fair, that such is not the case. The marketing of the fruits gives some trouble, as, because of the very soft, juicy nature, they cannot be sent in bulk in ordinary baskets; hence they go to the markets and dealers usually in tubs or pails. As a dessert fruit the Raspberry is entitled to a good position. It has much less sugar than many fruits, yet those fully ripe and of the best quality are pleasantly sub-acid, and prove a welcome change on the table to many other fruits. Gathered carefully with stems attached, the fruits being thus untouched, and going direct to the table in the baskets in which gathered, they merit warm appreciation at any meal. A. D.

Peaches and Nectarines on open walls.—

During the severe weather at the end of March, when sleet, rain and hail prevailed for three days, these trees, if at all forward, had a very bad time, and will, I fear, give a poor crop of fruit. Fortunately, Apricots were set and appear to have weathered the storm, but Peaches and Nectarines now show that they experienced the force of the gale, as the fruits are dropping wholesale, and I fear many of the early kinds of Peaches are cut badly. Nectarines such as Early Rivers are well furnished with fruits, but trees ten days later, such as Lord Napier and others, have lost a great proportion of their fruits. On open walls the loss of the Nectarine crop is to be deplored. Fortunately, the later kinds have a better crop. Late Peaches will, I think, be very good, though many trees are badly infested with fly and other

pests at this early stage, and will need attention earlier than usual.—W. B. M.

Cherry Early Rivers.—Early Rivers is certainly one of the best, either forced or otherwise, as the fruits are large, rich, and very early. The peculiarity of this variety is its small stone. The fruits of this variety when ripe are black and shining, very handsome and specially well flavoured. On the open wall it is one of the earliest to mature, but it soon shrivels if allowed to hang when fully ripe. On a south-west aspect last year I gathered this variety in the middle of June. With me it is not a gross grower, but very prolific, and does not canker like the stronger growers. It never fails to crop, and is one of the best under glass, either as a pot tree or planted out. In a cool house it is splendid, and a valuable addition to the dessert in the early summer months.—W. B. M.

Early Figs in pots.—Many persons can grow pot Figs who have no room for plant-out trees.

freely even under pot culture. My favourite varieties for early supplies are St. John's, a large white-fleshed fruit, and a variety that does not readily cast its crop, as it may be grown in strong heat, and Pingo de Mel, a variety of great excellence. There are others that force well, but these are very early, and the trees soon grow to a fruiting size. Trees raised from cuttings can be fruited in two years. I have not included the popular Brown Turkey. Its value for forcing is well known, and few are superior to it as regards quality.—G. W. S.

BROWN TURKEY FIG.

The really magnificent Fig tree at Livermere Park is just now an object lesson to those interested in high-class fruit culture. Those who have only back walls of vineries or other houses to devote to this luscious fruit are, of course, at a great disadvantage compared with others like



Camellia Mme. A. Verschaffelt (white striped). From a photograph by Mr. Bowden, Dulwich. (See p. 360.)

I think that Fig trees in pots have of late years received more attention, as they may now be seen in many gardens, and well grown also. With houses of limited size there is one serious drawback to pot trees, and that is the size the trees attain to in a short time. Of course, with hard stopping the trees can be kept dwarf, but I find we are far too liberal with trees at the start, as much may be done to get sturdy plants, not allowing them to run to wood. It is an easy matter to stop large trees when showing fruit, but no matter how hard stopped, they must increase in size, and this is the thing one tries to avoid. Many would advise severe pruning when at rest to prevent overgrowing, but so doing means loss of fruit for a year, as the best fruits are produced on last season's wood. It may be asked how can overgrowth be avoided. I find the best plan is to grow a few trees yearly from cuttings, destroying those that need severe cutting back or that have become too large for forcing. I am aware some kinds grow more freely than others. Most kinds are inclined to grow too

Mr. Tallack, who has the greater part of the roof of a large house at command. But even so, the result is remarkable. Judging by the enormous number on the tree, the fruit has been thinned very little, if at all, but this evidently makes no difference to the tree, for the growth now being made is just of the class one likes to see—short-jointed, with the healthy, robust look that is the sure forerunner of good fruit and plenty of it in autumn. I do not know the exact dimensions of the tree, but should say at a low estimate there are 400 square feet of the roof covered, while the stem is quite 6 inches in diameter. Over the whole of this space fruit hangs very thickly, and the forwardest were just ripening. To the grower for market, a few houses clothed as this is with fruiting Figs would prove a veritable gold mine thus early in the season, but, of course, this means skilful culture in the earliest and subsequent stages of growth. Brown Turkey is one of the most popular of Figs and also one of the best and most easily grown. The most frequent error in

culture is doubtless rich borders at the start. The result is strong, long-jointed and sappy growths, and pinching the same leads to a thicket of shoots for which there is not room, and which if laid in would not ripen. There need be no fear about growth being free enough, for young trees here planted in February, in borders consisting of nearly half brick and lime rubbish and rammed as hard as a road, have made a very satisfactory growth already. Where new vineries are being planted there is a better chance of getting the back wall clothed with bearing wood than where the Vines have already possession of the roof. In this latter case it is little more than waste of time, and in any case the top few feet should be left free to admit sunlight to the Figs.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 25.

A most remarkable display was on view at the Drill Hall on Tuesday last. We do not remember to have ever seen a finer show than that now under consideration. The capacities of the building had to be made the utmost of to stage the exhibits, whilst the quality was of the very best description. Each of the committees had a fair share of the work, the greatest extent falling to the lot of the floral section. The attendance also showed a marked increase, it being a difficult matter at times to inspect some of the most popular flowers. Roses again were resplendent in beauty, those from Canterbury, as usual, being remarkable for their individual freshness and quality. Many of the flowers were fully equal to the finest exhibition blooms in July. A grand lot of *Maréchal Niel* came from Thame, where this popular Rose is grown to perfection. Equal in point of interest were the superb flowers of *Fortune's Yellow*, from Wantage, which made a grand display, being also set up in a tasteful non-orthodox manner, with one long flowering branch in the middle. Roses also came from Waltham Cross and Cheshunt. Hardy flowers were very well represented, notably the Daffodils, amongst which those from Andover were the most prominent by reason of the fine new seedlings included. The mollis and *Gheat Azaleas*, from Southgate, made a brave show, so also did the *Gloxinias* (a fine group of high-class quality) from Forest Hill. Anthuriums found many admirers on this occasion, being of singular interest from the point of variety and distinctness; these came from Burford Lodge and Brussels. A most instructive exhibit, one of the best of its kind in point of variety and high-class culture was that of the Gold and Silver Ferns (chiefly *Gymnogrammas*) from Edmonton. Before the Orchid Committee there were some good groups. In that from Chelsea many of the hybrids were of special interest, showing that there is practically an inexhaustible field for the hybridist. From Bush Hill Park came a good group chiefly of the best species now in flower; the same refers to that from Upper Holloway. From The Establishment Horticole (Linden's), Brussels, came another splendid group, amongst which were several distinct forms of *Odontoglossum*, whilst the profusion of flower and the high-class culture were specially noteworthy.

The Fruit Committee had before them two high-class exhibits of vegetables and fruit, that from Syon consisted of vegetables only; that from Amphill of the same with forced fruit added. In both instances the vegetables were of ideal table quality, fresh, and not of gross or abnormal growth, being far better from the cooking point of view than the huge overgrown examples to which prizes are oftentimes awarded. The lecture was most instructive and of great interest, being listened to by a large number of Fellows and others.

Orchid Committee.

First-class certificates were awarded to the following:—

LÆLIO-CATTLEYA THORNTONI (C. *Gaskelliana* × L. *Digbyana*).—This is a remarkable hybrid, and a fine addition to the section. It has the intermediate characteristics of both parents both in the habit of growth and the flower. The sepals are over 3½ inches in length, upwards of an inch in breadth, and delicate rose in colour. The petals, upwards of 3 inches across, are much crisped at the margin, and pale rose in colour. The broad lip is heavily fringed at the margin with pale rose, becoming whiter towards the centre, the side lobes rose, shading to yellow, lined with purple at the base. A fine, healthy plant with one flower came from Messrs. Veitch and Sons, in whose nursery it was raised by Mr. Seden.

LÆLIO-CATTLEYA WELLSIANA LANGLEYENSIS (C. *Triane* × L. *purpurata*).—In this the sepals and petals are of fine size and substance, the ground colour white, heavily suffused and mottled with rose; the broad lip crimson purple, with a darker shade in the centre. The side lobes are rich crimson, shading to yellow at the base. It has the intermediate characteristics both in the shape of flower and habit of growth. It is far superior in colour to the original L. C. *Wellsiana*, and was raised in the nurseries of Messrs. Veitch and Sons, by whom it was exhibited.

Awards of merit were given to the following:—

CATTLEYA SCHREDERE AMABILIS.—A grand form with broad, deep rose sepals and petals, fine in shape and substance. The lip is heavily fringed at the margin, white, shading to rose in front of the distinct orange disc, the side lobes rose, shading to yellow at the base. The plant exhibited carried a raceme of two flowers. From Messrs. J. Veitch and Sons.

CATTLEYA SCHREDERE (*Harefield Hall* var.).—A pretty form with pale, nearly white sepals and petals, the lip pale rose, with a purple blotch in the centre, the side lobes rose, shading to yellow at the base. It is a distinct and desirable form. A plant with five flowers came from Mr. E. Ashworth, *Harefield Hall*, Cheshire.

CATTLEYA MENDELI BEATRICE ASHWORTH.—This is a distinct form with almost white flowers, the sepals and petals having a slight trace of rose. The lip is wholly white, with some yellow in the throat. A small plant with two flowers came from Mr. E. Ashworth.

CYMBIDIUM CANATICULATUM.—This is a distinct form with rich purple sepals and petals, the lip reddish purple, with white in the centre. The flowers are produced in dense scapes. From Mr. J. Sparks, Ewhurst.

CATTLEYA SEDENI (C. *Lawrenceana* × C. *Percivalliana*).—The sepals and petals are bright rose, of fine form and substance, the lip rich crimson-purple in front, the side lobes rose, shading to yellow at the base. From Mr. C. J. Ingram, Elstead, Godalming.

ODONTOGLOSSUM HUNEWELLIANUM MAJUS.—A distinct and pretty form of the species, the sepals and petals yellow, heavily spotted and barred with brown; the lip creamy-white, with numerous brown spots in the centre. A fine plant carrying a raceme of eight flowers came from Mr. Greenwood, Haslingden.

ODONTOGLOSSUM PESCATOREI VAR. *DUCHESS OF WESTMINSTER*.—In this the sepals and petals are white, slightly suffused in the centre with rose, numerous purple spots covering the whole flower. It is a pretty variety, but not equal to many of the forms previously certificated. From the Duke of Westminster, Eaton Hall, Chester.

Messrs. Linden, Brussels, sent a large and interesting group, consisting principally of finely-grown and beautifully-flowered *Odontoglossum* of the various species and hybrids. Some remarkably dark *Cypripedium Lawrenceanum*, grandly-flowered C. *Rothschildianum*, a fine plant of C. *Lebaudianum* with four flowers on the spike, several finely-flowered *Miltonia vexillaria* in various tints of colour, a grand form of C. *Mossiae*, and a nearly white form of C. *Mendeli* named *The Pearl*

were also included. A silver-gilt Flora medal was awarded. Messrs. J. Veitch and Sons, Ltd., sent a small but interesting group, prominent among which were several highly-coloured and finely-flowered plants of *Lælia Latona*, the sepals and petals pale yellow, suffused with purple; the lip crimson-purple on a yellow ground. A fine plant of *Masdevallia Veitchi*, with two dozen flowers; *Cattleya Philo*, sepals and petals pale rose, lip rose, suffused with purple on the front lobe, bright yellow in the centre; two finely-flowered plants of *Dendrobium Boxalli*, D. *Cheltenhamense*, and a fine plant and variety of *Epidendrum Wallisi* were also shown. A silver Banksian medal was awarded. Messrs. Hugh Low and Co. sent a large and interesting group, consisting principally of finely-flowered *Cattleya Mendeli* and C. *Mossiae*. C. *Lawre-Mossiae*, raised from the parents indicated in the name, has deep rose sepals and petals of fine form and substance; the lip rich crimson-purple shading to yellow, with some brown in the throat. *Odontoglossum crispum*, O. *Andersonianum*, O. *triumphans*, O. *luteo-purpureum*, O. *Ruckerianum*, and O. *Pescatorei* were represented by numerous forms. Finely-flowered *Dendrobium Bensoniae*, D. *Devonianum*, *Ada aurantiaca*, various *Oncidium*, *Cypripedium*, and other Orchids were also shown (silver Banksian medal). Messrs. B. S. Williams and Son sent a fine group, prominent in which were some remarkably large plants in fine variety of *Cattleya Mendeli*, finely-flowered *Vanda tricolor*, good forms of *Odontoglossum crispum*, O. *triumphans*, O. *cirrhosum*, O. *hystrix*, O. *Wilkeanum*, and a remarkably dark form of O. *Hurryanum*, with ten flowers on the spike. *Trichocentrum tigrinum*, several fine forms of *Trichopilia*, *Miltonia*, and a grand plant of *Epidendrum radicans*, with nine spikes of its scarlet-and-yellow flowers, were also shown in this group. The silver Banksian medal was awarded. The Right Hon. J. Chamberlain, Highbury, Birmingham, sent a grand form of *Cattleya Schroderae*, a pretty form of C. *speciosissima*, *Lælio-Cattleya Highburyensis*, *Masdevallia Chamberlainiana* with pretty rose and bright yellow flowers, in the way of M. *Shutteriana*, and a plant of the rare *Epi-Cattleya Guatemalensis*, the sepals and petals yellow, with a suffusion of salmon-red, the lip darker than the sepals and petals, with some purple in the throat. Mr. J. Bradshaw sent a small group consisting principally of finely-flowered *Odontoglossum crispum*, O. *sceptrum*, *Dendrobium Jamesianum*, a fine *Cattleya Lawrenceana*, and a nice plant of C. *intermedia alba*. Mr. Greenwood showed *Odontoglossum Humeanum* with four flowers and O. *asperum violaceum*. Sir T. Lawrence sent a grand form of *Odontoglossum crispum* with twelve flowers and *Mormodes onanthum*, a distinct form with rich purple flowers. From Mr. De B. Crawshaw came *Odontoglossum Lionel Crawshaw*, previously certificated. Mr. W. Cobb sent *Dendrobium albo-sanguineum*, a fine plant in flower of *Cypripedium Gertrude Hollington*, *Odontoglossum polyanthum*, and *Cattleya intermedia*. Mr. J. Colman had a finely-grown plant of *Cattleya Lawrenceana* carrying four spikes of flowers.

Floral Committee.

The following plants obtained an award of merit:—

AZALEA J. J. DE VINK.—This is one of the mollis *sinensis* hybrids, in which strain the flowers are larger and the plants more vigorous than in A. *mollis* seedlings generally, while the pale primrose colour, with light orange spots, is very effective. The plant was a mass of bloom. From Messrs. R. and G. Cuthbert, Southgate.

PRIMROSE EVELYN ARKWRIGHT.—This is a remarkable variety, with enormous flowers of the true primrose shade; the flowers, each 2 inches across, being borne on long stalks. From Mr. J. H. Arkwright, Hampton Court, Leominster.

DEUTZIA PARVIFLORA.—A lovely snow-white variety that should prove welcome, the flowers borne in small heads on neat bushes with small,

slightly crenate leaves. From Messrs. Jas. Veitch and Sons, Chelsea.

PTERIS CRÆTICA SUMMERSI.—In this the fronds are distinctly divided, and have heavy, tassel-like appendages to even the smallest portions. The plant is of dense, compact growth, about a foot high and through, and well furnished with its ample fronds. From Mr. H. B. May, Dyson's Lane, Edmonton.

CALLA RHODESIA.—A golden form with immense flowers, very richly coloured and only slightly marked at the base of the spathe with a dark crimson hue. The leaves are large and handsome and prettily marked with translucent spots and blotches. From Messrs. Paul and Sons, The Old Nurseries, Cheshunt.

ROSE PSYCHE.—A lovely addition to the Polyantha class, producing in apparently well-nigh endless profusion trusses of pretty buds and expanded flowers that will do much to render it popular. The older flowers are of a bluish tone, the buds and expanding blossoms of a lovely flesh shade of pink that is ever welcome. This lovely form has been obtained by crossing Golden Fairy with Turner's Crimson Rambler. From Messrs. Paul and Sons, The Old Nurseries, Cheshunt.

ROSE THE DAWSON.—A pretty, free-flowering variety of the China section, bearing abundance of rosy pink blossoms after the free manner of this section. From Messrs. Paul and Sons, Old Nurseries, Cheshunt.

One of the finest exhibits upon this occasion was that of Mr. H. B. May, of Dyson's Lane, Edmonton. This was mainly composed of Gymnogrammas; indeed, the collection included some twenty-five species and varieties of these alone, and may perhaps be regarded as the most complete assortment of the gold and silver Ferns staged at the Drill Hall. Of late, groups of Ferns have been somewhat abundant and quite a strong feature, yet on no previous occasion has so fine a set of these been seen. Among the more important were noted *Gymnogramma Alstoni*, very rich; *G. grandiceps superba*, *G. multiceps*, *G. flavescens*, *G. schizophylla gloriosa*, a most beautifully formed frond, the pinnae exceedingly minute and elegant; *G. argentea cristata*; *G. pulverulenta*, *G. Mayi*, *G. Parsonsii*, beautifully tasselled and of golden hue; *G. pulchella*, *G. peruviana argyrophylla* and others. These with a few *Cheilanthes* and *Notholaenas* made up a most exceptional group (silver Flora medal). Messrs. J. Laing and Sons, Forest Hill, departed on this occasion from their mixed plant arrangements, and set up a delightful lot of *Gloxinias*, which, for the early season and by no means favourable weather of late, were very fine in every respect. Indeed, it would be difficult at any season to produce finer varieties or better grown plants, the varieties being of the erect-flowered type, and very handsome. The whole of the plants in their varying hues of rich crimson velvet, scarlet, rose, white, and others beautifully edged were arranged in a groundwork of Ferns and supported by the graceful *Cocos Weddelliana*. One kind in particular—*Lady Tweedmouth*—had a dozen of its pure white flowers edged with scarlet (silver Flora medal).

Sir Trevor Lawrence, Bart., Burford Lodge, Dorking (Mr. Bain, gardener), had a magnificent group of *Anthuriums* that included several splendid varieties, all of great decorative value and some at least acquisitions to this race. The more telling were *Elegans*, pink, spotted scarlet, with yellow curling spadix; *Triumphans*, self salmon-pink, a marvellous variety; *Album*, creamy-sulphur, shaded white, with scarlet tip and yellow spadix; *Lawrenceanum*, white, heavily varnished; *Andreanum*, glowing crimson; *Dr. Lawrence*, salmon-pink; and *Perfection*, in the way of *Andreanum*, with a smoother spathe, and a wonderfully varnished surface. Besides these there were many seedlings of considerable merit (silver Flora medal). Mr. Geo. Mount brought a lovely lot of *Roses* from Canterbury. The flowers of *Catherine Mermet* were superb; some two dozen blooms of this so much alike in size as

also in the tone of colour, that they may have come from a mould. The same kind on stems 2 feet long was even better, and displayed the value of the *Rose* in decoration when thus grown and cut with such leafy, vigorous stems. Equally good in its way was a lot of *Niphetos*, very pure, and of good form and size; while among other kinds Mrs. John Laing, Ulrich Brunnner, Comtesse Nadaillac, and Caroline Testout were very fine. Mrs. Sharman Crawford, in the way of Mrs. Laing, was splendid, both in size and colour, the same remark applying to some noble blooms of Prince Arthur, splendid flowers in the pink of condition (silver-gilt Banksian). A fine lot of *Roses* also came from Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, these including the new pink Mrs. Rumsey, *Niphetos* (very fine), *Merveille de Lyon*, *Maréchal Niel*, *Bride*, *Souvenir d'un Ami*, *The Queen*, *Ella Gordon* (a really fine dark *Rose* rarely seen in any form), *Duchess of Albany*, and others (silver Banksian medal). Mr. J. Walker, Thame, Oxon., again brought some eight boxes of *Maréchal Neil* in splendid condition, large, handsome globular flowers. A group of hybrid *Azaleas*, seedlings between *A. mollis* and *A. sinensis*, were a great attraction near the entrance, the plants coming from R. and G. Cuthbert, Southgate. Particularly noticeable was the increased vigour of the seedlings of this strain, while the lovely shades of colour were also splendid. A few of the best were *Sebastapol*, salmon-pink; *Anthony Koster*, yellow and orange; *Alma Tadema*, pale primrose, fawn spots; *General Vetler*, tawny-orange; *Nicholas Beets*, chrome-yellow; and *Dr. Pasteur*, deep apricot-orange (silver Banksian medal). A lovely lot of hybrids of *Anthurium Schertzerianum* came from L'Horticulture Internationale, Brussels, and revealed many beautiful forms. *Lady Lawrence*, a freckled kind, white and scarlet, strawberry and cream, very curious; *Le Drapeau*, scarlet, very handsome; *Emperor*, intense crimson; *Grand Dame*, clear salmon-pink, yellow spadix; *Goliath*, intense crimson; and *Baroness Schroeder*, deep salmon, were noteworthy in this attractive group (silver Banksian medal). Among the most attractive things in the exhibition was a splendid bank of *Fortune's Yellow Rose* from Lord Wantage, Lockinge Park, Wantage. The blooms were in splendid condition and formed a sumptuous feast of this strikingly beautiful and effective *Rose*, than which it is doubtful, if for decoration, a better kind exists (bronze Banksian medal). Exciting more than ordinary interest at these meetings were some specimens of dried Ferns and other things from Messrs. Osman and Co., Commercial St., E.C. (silver Banksian medal).

Among miscellaneous plants exhibited by the Messrs. Veitch, of Chelsea, were *Deutzia parviflora*, with snow-white heads, and *Celmisia ceriacea*, a composite, in which the florets forming the ray are pure white and 2 inches across. The same firm also had lovely plants of *Chionanthus virginicus*, the snowy *Deutzia Lemoinei*, *Rhododendron indicum Kœmpferi*, &c. A highly interesting series of hardy Himalayan *Rhododendrons*, cut from the open, came from the garden of Sir John Llewellyn, Penllengare, Swansea. These included *R. Thomsoni*, *R. Campbelli*, *R. grande*, *R. cinnamomum*, *R. arboreum album*, &c. The foliage was also handsome. Messrs. J. Peed and Sons, Roupell Park Nurseries, had a group of *Dracenas* of useful size for decoration arranged on the floor with Ferns. The group contained many of the best-known of the coloured forms, one called *Frederici*, with dark foliage, broadly margined with scarlet, being very fine. *D. Goldiana* was likewise fine. Messrs. Wallace and Co., Colchester, again staged a most interesting lot of small bulbous things, in which *Trilliums*, *Dog's-tooth Violets*, and *Tulipa Greigi* were noticeable. *Fritillaria macrophylla* (syn. *Lilium Thomsoni*) had two spikes of its funnel-shaped blossoms, which are very showy. Very good, too, were *Erythronium giganteum*, *E. revolutum*, and *E. Hartwegi*. *Fritillaria Meleagris* and *M. alba* were also noted. Messrs. Paul and Son, of the Old Nurseries, Cheshunt,

had a varied assortment of hardy plants in pots and pans, which included several Tufted Pansies and such things as *Andromeda tetragona*, *Bryanthus empetriformis*, the new single *Rose Royal Scarlet*, and *Gerbera Jamesoni* with a large, richly-coloured flower-head. Among alpine and other hardy things were *Geums*, *Doronicum plantagineum excelsum*, *Adonis vernalis*, *Pulmonaria arvernensis* (a mass of deep rich blue), *Trillium grandiflorum*, *Androsace carnea*, *Anemone Robinsoniana*, and others. Mr. T. S. Ware likewise had a small assortment of alpine and allied plants: *Tiarella cordifolia*, *Iris tingitana*, *Saxifraga Boydi*, *Anemone alpina sulphurea*, *Thalictrum anemoneoides*, *Androsace villosa*, *A. sarmentosa*, several species of *Primula*, and other interesting plants. From Forde Abbey, Chard, Mr. J. Crook sent a box of blooms of *Rhododendron Veitchi levigatum*, a very pure and beautiful variety. A handsome, massive head of *Brownea Ariza* was sent from the Botanic Gardens, Glasnevin, and a huge specimen of *Trillium grandiflorum* from Mrs. Wingfield, Amptill House (Mr. Empson, gardener). This is the finest specimen of this plant we have seen, measuring exactly 3 feet across and studded with its pure white blooms.

Narcissus Committee.

A first-class certificate was awarded to—

NARCISSUS WILL SCARLETT, a lovely flower with creamy yellow perianth, and a crown fully 1½ inches across of the richest and most intense orange, this fine colour being retained to the very base. In vigour the raiser compares it to *Horsefieldi*, and certainly the leafage is as robust as in that of this well-known kind. From Rev. G. H. Engleheart, Appleshaw, Andover.

Awards of merit were given to the following:—

NARCISSUS WHITE LADY.—A Leeds kind, with segments of similar hue to those of *Katherine Spurrell*, only greatly improved, and a lovely pale yellow or lemon-coloured cup. Rev. G. H. Engleheart.

NARCISSUS WHITE WING.—Also of the Leeds section, the perianth segments beautifully refined, and the cup of a pleasing light yellow shade, very slightly crimped longitudinally. Rev. G. H. Engleheart.

NARCISSUS DIADEM.—This is an *Incomparabilis* form, the primrose cup widely expanded, with an edge of rich orange, the remainder being stained with a yellow shade to the base. Rev. G. H. Engleheart.

NARCISSUS IVANHOE.—A small *Incomparabilis* kind, with nearly white segments and a crown of deep orange hue. A neat and compact as well as showy flower. From Messrs. Veitch and Sons, Chelsea.

Rev. G. H. Engleheart again exhibited some remarkable seedlings. The *Poet's* kinds were again a strong feature, more especially where the combined forces of *poetarum poeticus* and *poeticus recurvus* have joined hands in originating an entirely new intermediate race. Even to-day these forms connect *ornatus* with *recurvus*, the latter the last of the race to bloom, and the influence of the parentage is seen in the progeny now referred to, as many of the flowers required some days longer to develop fully. Apart from those already noted, *Tasso*, *Longfellow*, *Juliet*, *Cycle*, and *Roundelay* are all *Poet's* kinds, and everyone a superbly finished flower. *Garnet*, *Amber*, *Golden Drop*, and *Bianca* are other gems in this set, apart from many seedlings as yet only numbered. A silver Banksian medal was awarded. Messrs. Jas. Veitch and Sons, Chelsea, had a really fine display of all the leading sorts, as may be gathered from the following selection: *Minnie Hume*, Mrs. Langtry, *Duchess of Westminster*, *Autocrat*, *Barri conspicuus*, *Maurice Vilmorin*, *Grandee*, *Sir Watkin*, *Nelsoni major*, *Mme. de Graaff*, *Shakespeare* (a fine trumpet yellow in the way of *F. Moore*), *Mme. Plemp*, &c. (silver Flora medal). Messrs. Barr and Sons, Covent Garden, had one of their characteristic groups, *C. J. Backhouse*, *Maximus*, *M. J. Berkeley*, *Emperor*, *Gloria Mundi*, *P. R. Barr*, *Beauty*, *Poetarum*, *Poeticus grandiflorus*,

Queen of Spain, Weardale Perfection, Glory of Leyden, Mme. Plomp, Shakespeare, and Grandee being noticeable (silver Flora medal). Messrs. J. K. Pearson and Sons, Chilwell, had a select assortment of the principal kinds. Included were five grand blooms of Weardale Perfection as a central figure, and such as Gloria Mundi, Glory of Leyden for its immediate supporters. Among many good kinds in this lot were noted J. B. M. Camm, Bicolor of Haworth, Duchess of Westminster, Santa Maria, and Grandee (silver Flora medal). Mr. T. S. Ware, of Tottenham, was the only other trade exhibitor of cut Narcissi, and here, again, a large number of the same kinds was staged. There were also some well-filled pans of the yellow Hoop-petticoat, forming a margin to the very cream of this family.

Fruit Committee.

There were some most interesting exhibits before this committee, and it is gratifying to note such excellent produce thus early in the season. From Syon House came excellent early vegetables, from Frogmore, Melons, and Mrs. Wingfield sent from Amptill good Strawberries, Bananas, and Apples, with many other smaller exhibits, making, on the whole, an excellent display. Awards of merit were given to—

MELON LORD EDWARD CAVENDISH, a white-fleshed variety above medium size, with nicely netted skin of a light golden colour. It has a great depth of flesh of delicious flavour, and very juicy. From Mr. Thomas, The Royal Gardens, Frogmore.

READ'S SPROUTING KALE.—In this the leaves have the appearance of a small Scotch Kale, but the heads are studded with small sprouts like Broccoli. It is a very free grower, giving a great quantity of sprouts. From Mr. J. Read, Brethby Park Gardens, Burton-on-Trent.

Mr. H. T. Martin, gardener to Lord Leigh, Stoneleigh Abbey, Kenilworth, sent some very large heads of the ordinary purple variety of Seakale. Mr. G. Wythes, Syon House, Brentford, sent an excellent collection of early vegetables. Potatoes were represented by three varieties of shapely, clean tubers. They were English Beauty, Sharpe's Victor, and Veitch's Ashleaf. French Beans were well shown, the new Early Favourite being specially good. Asparagus was large and good. Broccoli was also good, and included Veitch's Model, Chelsea Favourite, Late Queen, and Sutton's Main-crop. Of Kales six kinds were staged. Tomato Early Red was good, as were Carter's Early Norn and Chelsea Gam Peas. Cucumbers in three varieties, Cabbages in three kinds, Ellam's, Sutton's Favourite, and Earliest of All, the Lyon and Musselburgh Leeks, Carrots Early Nantes and Gem, with half-a-dozen varieties of Lettuce, completed the collection (silver-gilt Banksian medal). Mr. Empson, Amptill House Gardens, Beds., staged Royal Sovereign Strawberries in pots, dishes also of the same variety and Sir J. Paxton, a very fine bunch of Musa Cavendishi, Apples in quantity, the best being Claygate Pearmain, Annie Elizabeth and Alfriston, Rhubarb in variety; Leeks, Ailsa Craig Onions, Universal Protecting and Mammoth Spring White Broccoli, Cucumbers, Cabbages, Seakale and Asparagus (silver-gilt Banksian medal). Messrs. Veitch and Sons, Ltd., Chelsea, staged a new Broccoli called Market Favourite, with nice compact heads. The committee did not think it superior to Model, one of the best, which it much resembles. Apples came from Mr. Grimes, The Nurseries, Ryde, Isle of Wight. A new Apple Queen Caroline's Seedling was sent by Mr. Bull, Cottenham, Cambridge. It is a very pretty fruit and good, but past its best. Some new appliances in the way of thermometers came before the committee, one from Mr. Outram, Fulham, called the registering indicator, an excellent contrivance if the registering portion were made more difficult to move or get out of position. A new electric alarm thermometer came from Mr. Beck, Hatton Garden, London. This rings a bell when the temperature declines.

The Veitch flavour prizes brought forth six dishes and good quality fruits for so late in the season, the premier award going to Mr. Powell, gardener to Col. Brymer, Ilington House, Dorset, for a nice dish of Allen's Everlasting; Mr. R. Bullock, Taplow Hill, Maidenhead, being second with Hereford Pearmain. Others kinds staged were Easter Pippin, Suffolk Foundling, Northern Greening and Bramley's.

LECTURE.—Mr. Burbidge read a paper on fragrant foliage as opposed to sweet-scented flowers, and pointed out that while, as a rule, floral odours were positive and given off, as it were, spontaneously, the odour of leaves was negative and but rarely perceivable, except when touched or bruised. Flowers, again, exhaled perfume only when at their freshest and best, but, thanks to Mr. Hudson having kindly brought a very instructive set of fresh, and dead and dried leaves of sweet-scented Pelargoniums, he could show his hearers that leaves were sometimes almost sweeter when dead and dried than when alive. Mr. Hudson had also pointed out to the lecturer the interesting fact that the younger and hairy foliage of the Citron-scented Eucalyptus (*E. citriodora*) is sweeter than are its smooth and more adult leaves. Mr. Burbidge said he hoped that they would value sweet-scented leaves quite as highly as they did sweet-scented flowers, and grow them more generally in greenhouse and garden. He further pointed out that some perfumes were attractive to insects, especially floral perfumes; but that, on the other hand, some odours were deterrent to insects, and as such used to prevent the ravages of moths, ants, &c., and, as was well known, many essential oils in emulsion or alcoholic solutions were useful as insecticides in the garden. Perfume is really vapour exhaled from essential oils secreted by the leaves—floral or foliage leaves of plants, as the case may be. They may in some cases attract insects, and so ensure the fertilisation of the flowers, but odour in foliage often acted as a deterrent to browsing animals. In conclusion, the lecturer advocated the more extended growth of sweet and durable foliage, and of sweet herbs for the market. Of flowers there was often enough and to spare, but he felt sure that there would be a ready sale for decorative foliage, for pot herbs, and for scented leaves of the best kinds, both fresh and dried. Perfumes and spices had been used from the earliest times down to the present day, and in conclusion Mr. Burbidge pointed out that modern scientific experiments went to prove that there was a solid sanitary basis attending the usage of many perfumes, and that their usage was not merely a sensuous or luxurious fashion. A very choice collection of plants yielding essential oils came from the Royal Gardens, Kew. Lord Annesley, of Castlewellan, co. Down, kindly sent forty-three kinds of sweet-scented plants, including the rare *Laurelia aromatica* and other things not usually seen. Messrs. Veitch and Sons, Chelsea, also sent a rare group of scented plants, including the exquisite little violet-scented Fern, *Lastrea fragrans*. Cut specimens came from the University gardens of Cambridge and Dublin, and Mr. Hudson, of Gunnersbury House Gardens (who was in the chair on this occasion), brought up fresh and dried specimens of five of the best of the scented-leaved Pelargoniums—viz., *Pelargonium fragrans* (Nutmeg scented), *P. radula majus* (Balsam scented), *P. capitatum* (Rose scented), *P. quercifolium* (Pine scented), and *P. Lady Plymouth* (Terebene scented)—an exhibit that excited much interest from the numerous visitors present at the meeting.

Auricula Society's show.—Owing to the pressure on our space we have been obliged to hold over the report of this until our next issue.

Royal Botanic Society.—A meeting of the Fellows of the Royal Botanic Society was held on Saturday in the museum at the society's gardens, Regent's Park, Mr. G. W. Bell presiding. Dr. Coode Adams delivered a lecture on "Some Remarkable Cacti," illustrated by lantern

slides and coloured drawings, and some living specimens from the large collection possessed by the society. The lecturer remarked that to most people Cacti, as seen in conservatories and greenhouses, were simply more or less ungainly members of the vegetable kingdom, remarkable only for the peculiar forms which their stems assumed, and for the absence of leaves. It was, therefore, a surprise to many people to see these plants blossoming and bearing, as they did, flowers which were generally large and of very gorgeous hues. In the course of his lecture Dr. Coode Adams particularly mentioned the South American Cactus, the *Anhalonium Lewinii*, the fruit of which possesses extraordinary intoxicating powers, not unlike those of hashish. When eaten, the Cactus in question causes most enchanting visions to pass before the eye, scene following scene in rapid succession, while the drug leaves no unpleasant after effects.

NOTES OF THE WEEK.

Narcissus Nelsoni pulchellus.—Among Nelson's Daffodils, with their goblet-shaped cups, the variety *pulchellus*, although smaller than some, is very pretty, and much admired. The cups is yellow, and the perianth is closely imbricated and campanulate. It proves itself a good grower here.—S. ARNOTT, *Dumfries*.

Narcissus Sulphur Phœnix.—Among the double flowered Narcissi this one is ever a favourite by reason of its delicate fragrance. It is a capital kind for pots, and, while it cannot with impunity endure a forcing temperature, is particularly well-suited to cooler treatment, under which the blossoms are exceedingly delicate and pleasing.

Bunch Primroses.—Herewith I am sending you a few trusses of my strain of Bunch Primroses. These are from a strain I have been selecting and working up for the last fifteen years.—JOHN CROOK, *Forde Abbeu, Chard*.

* * A vigorous and beautifully coloured series. Nothing surely is better worth a place in the garden.—Eo.

Trillium sessile californicum.—The forms of *T. sessile* are not as a rule very attractive, though the kind here named is an exception, the pure white flowers with dark base being situated in the centre of a handsomely blotched trifoliate leaf, the segments of the latter broadly ovate, and singularly effective in a group. In a cool, peaty bed this is especially attractive just now.

Clematis montana.—The earliest of the pure snow-white starry blossoms of this lovely species expanded on a western exposure on the 23rd inst.—an early date, I believe, for this pretty free-growing climber, considering the aspect referred to. On the southern side, where the morning sun reaches the plant, it is still earlier and beautiful everywhere, particularly where a natural freedom prevails.

Gloxinias at Forest Hill.—We were pleased to see in a large group of Gloxinias from Messrs. J. Luing and Sons at the last meeting of the Royal Horticultural Society so many beautiful self-coloured varieties, the deep crimson and ruby colours being remarkably brilliant. Lady Edridge, deep purple, John Laing, of the same colour, but set off with a white margin, and Lady Tweedmouth, a very pretty flower, white, with rose-coloured ring at the base of the petals, were conspicuous amongst named kinds.

Doronicum Harpur - Crewe.—This easily grown plant just now is very showy in the garden. Quite recently we have seen much of it, as, indeed, other members of this family; but some of the best positions in which we have noted it were in front of dark-leaved Hollies, and again at the foot of a sloping grassy bank, which displayed the handsome golden flower-heads to advantage. In the border, of course, it is excellent, but outside this limited sphere the plant possesses a range of usefulness difficult to surpass.

Violets from Wales.—I am now clearing the Violet pits of the plants, not because the blooms are over, for they are most plentiful—sheets of blue—but the pits are required for other uses.

and the season of Violet planting has come again. I herewith send you a few. All the plants have produced blooms continuously, more or less, since the latter end of July last.—J. ROBERTS, *Tan y-bwlch*.

* * A handsome gathering of flowers quite equal to those we received in the early months of the year.—E.D.

Fritillaria armena.—This I cannot retain in my garden because of the slugs, which seem to have a special liking for the plant and crop it close to the ground before it is observed above the surface and a zinc ring can be placed round it. The type and the variety *F. armena rubra* I saw in the garden at Summerville, Dumfries, the other day. The flowers of the type are more attractive than those of *F. a. rubra*, but both are worthy of a place in the garden. They are grown in Mr. Davidson's garden in the border, and are perfectly at home there.—S. ARNOTT.

Narcissus Corbularia citrinus naturalised.—It is seldom that the Hoop Petticoat Daffodils naturalise themselves without special treatment. It was thus with special pleasure that the large sulphur Hoop Petticoat was recently seen well established in the garden of Mr. John Maxwell, Maxwelltown, Dumfries. Not only were the old bulbs established, but self-sown seedlings were plentiful, some having reached the flowering stage. The situation was not what one would consider an ideal one, being on sunny rockwork. The soil is fairly stiff, but there are no special arrangements for the retention of moisture, such as are sometimes recommended.—S. ARNOTT.

Indian Rhododendrons.—We have received with pleasure some very handsome Indian Rhododendrons from Mr. Robertson, Stonefield Gardens, Tarbert, Lochfyne, Argyllshire, in fine condition of flower and foliage—noticeable being *fulgens* and *barbatum*, splendid in colour; *ciliatum*, very fresh in foliage and good in growth; *glaucum*, a neat, densely-flowered kind, with flowers of a dull rose colour, which may have suffered on the way; *niveum*, most charming in its silvery foliage; *cinnamomeum*, very beautiful both in leaf and flower; *campylocarpum*, also with beautiful foliage, brown and silvery underneath, *Thompsoni*, *Campbelli*, *Falconeri*, and *eximium*.

Erysimum helveticum.—A dwarf-growing as well as sturdy and free-flowering crucifer, especially suited to the rock garden or in positions generally adapted to such compact subjects as this. In greater or less degree the plant has been flowering throughout the winter, but at the present time it is one of the showiest of dwarf rock plants with Mr. Perry, Winchmore Hill. The plants are not more than 6 inches or 8 inches high when planted out, but even at this height the shoots, branching in all directions, are crowned with the yellow heads of blossom. An idea of the freedom of the plant may be gathered from the fact of a single growth carrying as many as twenty or more of its compact heads of flowers.

Saxifraga Rocheliana coriophylla.—For planting freely in the rock garden no kind is better suited, as witness the very fine tufts, or rather drooping patches, of it in the Royal Gardens at Kew at the present time. One particular example at Kew furnishes a small space, and then carpets the side of a stone in its downward course in the most perfect manner. Even when flowering is past the tuft is very pleasing, but it is even more so now studded with its numerous blossoms of snowy white. This kind is a good grower even in common garden soil, and in the higher districts of Scotland in some instances is weedy by its very luxuriance. Such, however, is rarely the case near London or, indeed, any large town.

Magnolia conspicua.—In warm or sheltered places, fine plants of the Yulan are now gay. In more open positions the plants are not quite so happy, owing to the chilly winds of the past few days, while sharp frosts have done much to disfigure not a few of the handsome blossoms. Only a few days ago some splendid plants, almost

pyramidal in outline and nearly 15 feet high by 12 feet through, made a fine picture, but now wind and frost have done much to mar the general effect. Some exceedingly old and splendidly-flowered examples of this were an especial feature in the Tooting nurseries of Messrs. Rollisson many years ago, the huge trunk-like stem of the largest of these foretelling something of the great age of the plant. Each year these plants were crowded with flowers, which, however, were proportionately small—no doubt by reason of age.

Mertensia virginica (Virginian Cowslip).—This is perhaps one of the most striking bits of colour among hardy plants at the present time. Unfortunately, the plant has never been abundant in British gardens. Of its beauty and worth there can be no two opinions, the one most generally expressed being that it is quite one of the handsomest of blue spring-flowering plants. "Blue," however, scarcely interprets the pretty arching heads of tubular, drooping flowers of a lovely mauve-blue tone, very clear internally, and with a suspicion of rose-purple externally in the early stages. The habit of the plant is naturally graceful, of a glaucous hue, which is very pleasing. It prefers a sheltered spot, and thrives in sandy soils generally, either of peat or peat and loam. At Ditton and likewise at Winchmore Hill this has been flowering beautifully of late.

The dry season.—A serious feature in the weather has been the great lack of rain coupled with the presence of a very dry wind from the north-east. In London the total fall for the present month has been less than half an inch, or very little more than a third of the average for the time already expired. During the previous six months the total rainfall amounted to only 57 per cent. of the average, an unusually small proportion for so extended a period. In two months out of the six the total was considerably less than half the normal, while in one month (October last) it did not exceed one-sixth of the normal. In many other parts of our southern counties the weather since last summer has been quite as dry as in London, and in the rural districts the springs are in most cases alarmingly low. This month the western and northern districts appear to have fared better than other parts of the country. Over the north of England the rainfall has not been far short of the average, while at some places in the west it has been slightly in excess. In Ireland and some portions of the west and north of Scotland there has been a rather considerable excess.

Polyanthuses.—There are few things more popular than these, and none more generally useful in the garden where a free, pleasing array of colour is the chief aim. One of the very finest strains of these plants, however, that has recently come under our notice was growing in the nurseries of Messrs. Collins and Gabriel, at Hampton. The plants are growing in quite open nursery beds, so that when we say solitary plants were the size of a large dinner-plate and a perfect mass of bloom, some idea may be gathered of the perfection and vigour of the strain. The shades of yellow, from primrose to quite orange and gold, could scarcely be surpassed, the blossoms supported chiefly on stout stems 9 inches or 10 inches high, the flowers radiating on long foot-stalks and permitting free development to a really grand head of blossoms. Equally satisfactory were the pure white and likewise the dark shades, while among the less frequent of this class were masses of hose-in-hose kinds that defy description. We have rarely seen these plants in such excellence, and, considering the exceptionally dry season, as much as the naturally dry soil of Hampton, the great vigour of this particular strain is remarkable. Several colours were in separate blocks, the freedom from "rogues" at once demonstrating that some little care had been expended on the selection of the seed-bearing plants.

The weather in West Herts.—A cold week. On the 22nd the temperature of the air rose at no

time above 50°, and on four consecutive nights the exposed thermometer showed from 6° to 8° of frost. However, at 2 feet deep the ground is about 1° warmer, and at 2 feet deep about 2° warmer than is seasonable. A welcome rain occurred on the evening and night of the 26th, although the amount deposited was small, measuring less than a quarter of an inch. Easterly winds prevailed during a greater part of the week, but their rate of movement at no time exceeded seven miles an hour.—E. M., *Berkhamsted*.

OBITUARY.

MR. E. MORSE.

WE are very sorry to hear of the death of an old and well-known nurseryman, Mr. E. Morse, of Epsom. He was born in 1818, and commenced his gardening career as apprentice at Miller's Bristol Nurseries, being subsequently in the gardens of Sir Joseph Bayley, at Crickhowell, and those of the Hon. Neville-Greville, Botleigh Court, and lastly, in charge of the gardens of Mr. Henry Drummond, Albury Park, Surrey, where he carried out many alterations. In 1855 Mr. Morse acquired the old-established business of Messrs. Young, at Epsom, and this will now be carried on by his two sons. Mr. Morse was at one time a leader in all town affairs at Epsom, and by his death we lose a thorough plantsman.

The edible Morel.—I should be glad if you will in an early issue of *THE GARDEN* tell me the name of the enclosed fungi, and also if they are edible. My employer has been told that the people in the West of England prepare them in some way or other, and make a powder to eat with meat.—G. T. S.

* * The fungi are examples of the edible Morel (*Morchella esculenta*), and your employer is right as to their use in a dried state. Some people eat them stewed when fresh, but they are often very tough and gritty, and almost tasteless.—W. G. SMITH.

Andromeda floribunda poisonous.—There is little doubt that this plant contains the poisonous principle, *Andromedo-toxin*, found in a number of plants of the Heath family. It occurs both in *Azalea pontica* and *Rhododendron ponticum*, and was the cause of poisoning of Xenophon's soldiers, who ate the honey derived from the flowers of these plants. In the "National Dispensary" (Stillé and Maisch, 1886) *Kalmia angustifolia* is mentioned under the vernacular names *Sheep-laurel*, *Sheep-poison*, *Lamb-kill*, and *Andromeda mariana* as *Stagger-bush*. Both are stated to be poisonous to lambs and sheep. The poisonous effects of these plants, as well as of the common Yew, depend much upon their being eaten upon an empty stomach. It has been shown that a certain amount of Yew leaves may be mixed with other fodder without producing fatal results. So many plants of the Heath family have been found to contain *Andromedo-toxin* that domestic animals should not be allowed access to shrubberies or woods containing them. *Andromedo-toxin* has been found by the late Professor Plügge in *Andromeda japonica*, *A. polifolia*, *A. Catesbaei*, and *A. calyculata*; in *Rhododendron ponticum*, *R. chrysanthum*, and *R. maximum*; and in *Kalmia latifolia*.—E. M. H.

Insect among Orchids (*Subscriber T.*).—Looks like the Vine weevil.

Zephyranthes cinctata has been by mistake referred to as *Z. coronata* on p. 363.

Flora of Norfolk.—I believe a Norfolk flora has been published by Mr. H. D. Geldart, Thorpe Hamlet, Norwich. At all events he could give the information desired.—E. M. HOLMES, F.L.S.

Names of plants.—*J. C. Allen.*—*Allium triquetrum.*—*G. F. Wilson.*—1, *Rhododendron ciliatum*; 2, *Camellia fallonii* pieces, unable to identify.—*Truro.*—1, *Narcissus Nelsoni aurantius*; 2, *N. Schizanthus orientalis*.

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STOVE AND GREENHOUSE.

CARNATION DUCHESS OF FIFE IN POTS.

THE merits of this grand Carnation as a border variety are well-known, few others being equal to it as regards pleasing shade of colour, delicate perfume, non-pod splitting, hardy constitution, and free growth. It is grown here extensively, and heavy gatherings of well-formed blooms prove most acceptable during the month of July for all kinds of cut-flower work, especially for table decorations, as the soft rose tint is very striking by artificial light, and, when a large number of blooms is used, the scent is delicious. Useful as these are at the season named, I have found them even more so during the past few weeks, while, being produced under glass, the flowers come to the fullest size and perfection. Indeed, when grown as a pot plant, this Carnation would undoubtedly be preferred by many to the much-lauded S. de la Malmaison, as a larger quantity of perfect-shaped flowers would be obtained in less time and with the least possible attention, and, moreover, without the annoyance of seeing the plants dwindle away through the much-dreaded disease that so often ruins large batches of the latter variety. It is not to be inferred by this that I wish to decry the merits and beauty of the S. de la Malmaison section, but it is a well-known fact that for some reason or other they fail to prove satisfactory in many gardens in spite of the care and attention bestowed on them. It is in such cases as these that I would strongly recommend a trial being made of Duchess of Fife as a substitute, as with ordinary care a succession of flowers may easily be obtained from Easter until September. It might also be pointed out that it is not everyone who cares to wear such large flowers as the Malmaisons for button-holes and sprays; while, unless great care is used in arranging them in glasses and for table decoration, they present a heavy appearance, which is not the result

when flowers of Duchess of Fife are used, as the blooms are borne on long, erect stems, and can be arranged gracefully.

The plants from which the flowers I send you were gathered were layered in the ordinary way last autumn, and, when well-rooted some time in September, the strongest were placed into 6-inch pots. In these they were encouraged to make roots until frost appeared, when they were afforded the shelter of a cold frame—the lights, however, only being used when inclement weather threatened, which during the past winter has certainly not been frequent. In this position many of the strongest and best-rooted plants were showing their flower-stems by the beginning of the year, and required only the temperature of a greenhouse for the flowers to be fully open by Easter. Cool treatment from the first is most important, or the grass comes weak and the flowers lack size, substance, and colour. Of course, being a border variety, it is not a perpetual flowerer like the tree section, but, by potting up sufficient plants in the autumn, they can be brought on in batches, and so keep up a supply till those are ready in the open borders. The earliest batch has now passed out of flower, and, rather than let them remain pot-bound during the heat of summer, all the weakest shoots are cut away, the plants turned out of their pots and planted rather deeply in a cold frame. In such a position all the best shoots are easily layered, and an early, strong lot of plants will be ready for potting again before it is possible to secure them from those growing in the open border. Although I have never tried raising plants so early before, I am induced to give this plan a trial with a view of flowering them in the autumn, and so prolonging their season—of course, trusting to a later batch for the supply next Easter.

Beyond watering with weak soot water after the flower-stems form, no other assistance has been afforded in the way of manure, as there is the danger of over-feeding, causing the pods to split. Fresh maiden loam, a little leaf-mould,

together with a good percentage of sharp road grit, is the compost used, this appearing to suit all their requirements. By allowing good drainage, making the compost firm, and watering only when really necessary during the winter, a healthy rooting medium is secured, and there is not the danger of the plants going off at the collar which follows where the soil used is rich and kept in a wet state.

There are other border varieties suitable for the same treatment, but I have generally found that when the blooms are produced early, say the end of March, they lack fullness in the centre, with the exception perhaps of Gloire de Nancy, which makes a good companion to Duchess of Fife. It has also a distinct clove scent, and being pure white the flowers are much prized at Easter, as they are somewhat larger than those of that useful winter-flowering variety, Boule de Neige.—RICHARD PARKER, *Goodwood*.

. This variety is largely grown for market in the Thames valley, the flowers from their beautiful shade of colour and perfume being in demand. The flowers of Duchess of Fife in the open air unless the position is slightly shaded are liable to burn, this failing being very much against its being grown largely.—ED.

Double-flowered forms of Begonia semperforens.—In his catalogue for the present season M. Lemoine, of Nancy, announces that he will distribute during the coming autumn some double and semi-double varieties of Begonia semperforens. They represent the fruit of several years' labour in crossing, proving seedlings, and rejecting many, till those now obtained are said to be very desirable varieties. M. Lemoine states that there are several distinct forms among these double varieties, while the colours vary from white, rose, and carmine, to almost scarlet. As M. Lemoine was the first to raise tuberous Begonias with double blossoms (Lemoinei and Gloire de Nancy in 1876), the remembrance of the immense strides that have taken place since then in this class would suggest that a great future may be in store for these double forms of B. semperforens. The strong-growing varieties of

this last, *B. semperflorens gigantea carminata* and *rosea*, are very popular and valuable for greenhouse decoration at almost any season, but particularly in early spring. Of *rosea* there is at the present time a very attractive group in No. 4 greenhouse at Kew. These two vigorous forms just mentioned also originated with M. Lemoine, who has, in addition, given us *Gloire de Lorraine*. Some examples of these double forms of *B. semperflorens* were shown at one of the Horticultural Society's meetings last autumn, and it is very probable we shall have an opportunity of seeing them during the coming season.—H. P.

Russelia Lemoinei multiflora.—By far the best known of the *Russelias* is *R. juncea*, a native of Mexico, and an extremely graceful plant that requires the temperature of a stove, or it will succeed in an intermediate house. It is totally unlike any of the ordinary occupants of our glass structures, the branches being slender and Rush-like, while the leaves are but sparingly produced. This feature, however, is not particularly noticeable, owing to the bright green of the slender, pendulous shoots, which hang down for a considerable distance. The flowers, which are borne in great profusion, are each about an inch in length, tubular in shape, and of a bright scarlet colour. *R. juncea* has an extremely pretty effect when trained to a rafter in a small house, as it is not sufficiently vigorous for a large structure. Grown in this way the bright green pendent, Rush-like shoots form quite a fringe, and when lit up with the numerous bright-coloured blossoms, of course, additionally attractive. In suspended baskets, too, its distinctive features are well shown. It also forms an effective specimen if the principal branches are staked upright and the minor shoots allowed to dispose themselves at will. The form at the head of this note, *R. Lemoinei multiflora*, is a hybrid between *R. juncea* and the less-known *R. sarmentosa*. This hybrid, which is one of the many successes of M. Lemoine, of Nancy, is extremely pendulous in growth, and branches so freely that, grown in a suspended pot, the shoots form a fringe all around. The flowers, which are each about an inch long, are of a bright carmine-red colour, and borne very freely throughout the spring months.—H. P.

AROIDS IN ROOM DECORATION.

If, in the decoration of rooms, we only employed such plants as naturally possess a constitution which would enable them to maintain a continued existence in dwelling-houses, and would submit to the capricious treatment of those who attend to them, the number which we could use for this purpose would be very small; but, if we class under the heading of "room plants" all those which, in any way whatever, may be found serviceable in embellishing our dwellings, they would form a very long list, and there are few plants, except those demanding some special mode of culture, which may not be employed in the decoration of rooms. The true room-plants are permanent ornamental subjects, while the others are only temporary ones, and amongst these latter kinds the exotic Aroids must be placed in the first rank. Although the greater number of the plants of this family require to be constantly kept in a stove, there are, however, a few which can endure a less strict mode of treatment, and may contribute, at least for some time, to the decoration of rooms in dwelling-houses.

A certain amount of affluence or easy circumstances is necessary to enable one to indulge in Anthuriums, Dieffenbachias, or Caladiums for the decoration of his flower-stands and plant-boxes, but, then, what plants are more in their proper place amid every elegance of furniture, tapestry, chandeliers, and mirrors, and how forcibly does their presence impart an exotic feature to the scene in which they meet the view! They really appear as if they—the luxuries of Nature—were created to live amid the luxuries of civilisation, and it is there that we most appreciate their foliage, sometimes velvety and dark-coloured,

sometimes light-coloured and adorned with the most brilliant tints, and their flowers, which are as beautiful as they are lasting. I would recommend amateurs who have the means of indulging in this branch of culture, and also gardeners who have a stove and are often called on to furnish materials for room decoration, to cultivate some of these plants. The Aroids, however, when grown for this purpose, should find in the rooms which they are to occupy temporarily certain elements which are indispensably necessary for their preservation, and should be attended to with a gardener's care, which is seldom accorded to the majority of plants grown in apartments, and of which the rules may be briefly set down as follows: Keep up a pretty regular temperature, which at night and in winter should never be allowed to fall below 50° Fahr. Avoid sudden changes of temperature and draughts. Let the plants have as much light as possible and keep them from coming into close contact with openings in the heating apparatus or chimneys. Be careful to water them in good time, but rather moderately and often. Keep the leaves strictly clean. When a plant droops and the leaves turn yellow, take it back to the stove.

From the treatment which they require, Aroids are more especially suitable for decoration from May to October, but in warm rooms it is not difficult to keep them through the winter if they are carefully attended to. Under such conditions many species of them may be used in room decoration. The following list enumerates the kinds which are most to be recommended for this purpose:—

FLOWERING PLANTS.

Anthurium and its varieties	Andreanum	Anthurium ferrierense
Scherzerianum and its varieties	carneum	Spathiphyllum* candidum
		cannaefolium
		hybridum
		Patini

ORNAMENTAL-LEAVED PLANTS.

Amorphophallus and other species	Rivieri	Dieffenbachia amona
Anthurium acaule		Bausei
cordifolium		eburnea
coriaceum		imperialis
leuconeurum		latimaculata
subsignatum		Reginae picta
Caladium violaceum	Brazilian kinds (vigorous-growing)	Philodendron pertusum
		Remusatia vivipara
		Nanthesoma sagittifolium
		violaceum

The foregoing selection is sufficiently varied to permit anyone to form with these plants rich embellishments of a temporary character in drawing-rooms, &c., and, as they are also very striking subjects when growing in a stove, there are two reasons for recommending them for cultivation.—JULES RUDOLPH, in *Revue Horticole*.

NOTES AND QUESTIONS.—STOVE.

Plumbago rosea superba.—This genus provides flowers of red, white, and blue shades, and, singularly enough, all are chaste and beautiful in their way, and ever the admiration of those who see them. In the above variety the flowers are large and very charming in their delightful rose-pink shade. This plant should always be found in the warm greenhouse for the bright effect which it produces.

Pelargonium Princess May.—The flowers of this variety are of a very distinct salmon-pink in ground colour, different from all others I am acquainted with. The upper sepals being narrower than the lower ones, it does not make such a full, round flower as some of the leading varieties of the Duchess of Fife class, but it is a pretty flower and the ground colour is well shown up by the dark velvety crimson blotches on the lower sepals. Although the growth is not very strong, it is easily grown and makes a dwarf plant requiring very little support in the way of tying or stakes.

Ranunculus cortusæfolius.—This Buttercup, which is a native of Teneriffe, is not suffi-

* The *Spathiphyllums* are more generally known as Anthuriums.—J. R.

ciently hardy to be generally planted out of doors in this country, but it is well suited for the embellishment of the greenhouse, imparting, as it does, a very distinct feature. It is used in this way in No. 4 greenhouse at Kew, the plants being from 4 feet to 5 feet high, and terminated by a large open branching corymb of rich Buttercup-like flowers, quite 2 inches in diameter. The large deeply-lobed leaves are handsome and form an admirable setting to the showy blossoms. A coloured plate of this *Ranunculus* appeared in *THE GARDEN* in the early part of 1894.—H. P.

Rhododendron Forsterianum.—This is one of the very largest-flowered of all the hybrid Rhododendrons claiming parentage either directly or indirectly from R. Edgeworthi, and, though inclined to branch but sparingly—especially when young—unless freely stopped, it is almost indispensable where a collection of these plants is brought together, the exceedingly large, massive blooms causing it to stand out in a most marked manner from its fellows. This variety was raised by Mr. Otto Forster, the parents being R. Edgeworthi and the Moulmein R. Veitchianum. The flowers of R. Forsterianum are white with a yellowish stain at the base of the upper petals. Although sweetly scented, they are not so deliciously fragrant as those of some varieties.—T.

Lonicera sempervirens minor.—Anyone needing a selection of climbers for the greenhouse should, if possible, pay a visit or two to Kew, where there is, taken altogether, a fine selection of this class of plants. One of the most satisfactory of all is this Honeysuckle, which for many years has been greatly admired treated as a rafter plant in No. 4 greenhouse, where it flowers throughout the greater part of the year. The bright orange-red blossoms of this Honeysuckle are so showy and so numerous that it is fully entitled to a place among the most select of greenhouse climbers. The typical *Lonicera sempervirens* is a hardier plant than is the variety minor, which is a native of Carolina, the more vigorous typical kind coming from Virginia. This minor form will flower well in pots when comparatively small, but to be seen at its best it needs to be planted out in a prepared border.—T.

Pelargonium Dorothy.—This is a very fine variety, of a good habit and very free. The segments are white at the base, becoming first a purplish rose and then a rosy red, the margin of the flower undulated and almost white. On the two lower segments there are a feathered blotch of amaranth and radiating lines of this colour to the centre. The whole flower has a shining satiny appearance that much enhances the pretty colouring. No stakes are required for this variety, as the stems are very stiff and the foliage large, this making a dwarf, spreading plant quite naturally. It is one of the easiest of all to grow, and the immense trusses give it a very fine character when in flower. The individual flowers are nearly 3 inches across and the segments over an inch wide, so that the latter overlap each other a good deal, making a very full flower.

Pelargonium fimbriatum album.—There is not a more beautiful kind in existence than this, the flowers being absolutely pure white and very prettily fimbriated. It is so very weak in growth, however, as to be almost useless, and I have almost given up growing it. A much better grower, and also bearing pure white flowers, is Princess Alexandra, but the blossoms of this kind have a tendency to doubling, which spoils their appearance. The growth of *fimbriatum album* makes little progress during the winter and early spring, at a time when all the others are growing freely, and, as the flowers appear before many new leaves have formed, it takes several years to get anything like a decent plant. It should be grown in smaller pots than any other kind, and will not require any stopping. Princess Alexandra, on the other hand, is, if anything, almost too strong, and the more vigorous of the shoots should be pinched early to induce a well-shaped, evenly-balanced plant.—H.

ORCHIDS.

EULOPHIELLA PEETERSIANA.

THE accompanying illustration is reproduced from a photograph of the cut spike exhibited at the Drill Hall on April 12 last, when this was awarded a first-class certificate by the Orchid Committee of the Royal Horticultural Society. *E. Peetersiana* was introduced by and dedicated to M. A. A. Peeters, of St. Gilles, Brussels, last year from Madagascar. The rhizome of the plant climbs and twists

exterior of the side-lobes rose-purple, shading to white at the base; the interior white. It has five erect, tooth-like crests in the centre, which extend nearly to the base; these are brownish-yellow in colour. At the extreme base there are three prominent ridges, the outer ones white, the centre bright yellow. Coming from Madagascar, it requires stove treatment. Mr. White, Sir Trevor Lawrence's grower, considers it a far easier plant to deal with than *E. Elizabethae*, growing more freely, the general constitution being of a more robust nature. Orchid growers will look forward to



Eulophiella Peetersiana. From a photograph by Mr. Bowden, Dulwich.

amongst branches of trees like a snake. The leaves are each from 2 feet to 5 feet in length, and the flower-scape, nearly 5 feet in height and produced from the base of the new growth, bears a cluster of twenty blooms or upwards at the apex. The sepals are each $1\frac{3}{4}$ inches in length and $1\frac{1}{4}$ inches broad, deep rose-purple, shading to white at the base, and tipped with darker purple at the apex. The petals, rather longer than the sepals, are $1\frac{1}{2}$ inches wide, the colour similar to that of the sepals. The front lobe of the lip is rose-purple, shading to white in the centre; the

its being introduced in quantity, as such a noble species is worthy of every consideration and should have a place in every collection. It is certainly the finest Orchid that has been introduced from Madagascar. C.

Cattleya Schilleriana.—Good forms of this beautiful *Cattleya* are to hand from "R. R." (Bristol). It is one of the most interesting species now in flower, and one that requires care to grow it well. Not being so strong in habit as the species of the *labiata* group, the compost should only be thin, and the greater part of the pot or basket

may be filled with clean crocks. Good results have been obtained by fastening the plants to Tree Fern stems, and some have gone so far as to put it on blocks, but this latter mode is too poor for it, and, unless the plants are very closely looked after as regards moisture, the growth will be weak. A light place during the early spring months is a great advantage, for the plants are often in full growth while many of the larger-growing kinds are still at rest. The flowers appear singly or in pairs, and are each about 4 inches across, the sepals and petals narrow, wavy, and variable in colour—usually some tint of reddish brown, spotted with deep purple. The lip is spreading in front, the side lobes curving over the column, crimson-purple in front, with white and yellow markings. It is sometimes considered a natural hybrid between *C. Aclandiae* and *C. guttata*, and was introduced to the continent in 1857.

Dendrobium clavatum.—This old species used to be much more grown, and in fact is seldom seen now except in some old-fashioned collection of plants. It is a pretty plant, with club-shaped stems and evergreen foliage. The racemes of flower appear at the upper part of the stems, and contain fewer flowers than those of *D. densiflorum* and other more popular kinds. These are $2\frac{1}{2}$ inches across, bright orange yellow, with a maroon blotch on the lip, this segment being downy on the upper surface, with a toothed margin. *D. clavatum* is not so strong-growing as many of the evergreen kinds, and may be grown well in pots or baskets not so large as are used for these. The compost should consist of the usual peat and Moss mixture, but only a little of it is needed unless for large plants. It succeeds best in a warm part of an intermediate house, and a few weeks only are necessary for a set of stems to form. It is not unusual for two sets to be made in one season, but it is not wise to encourage the plants to do this, as they are more free-flowering when kept to their proper annual routine of growth, rest, and flowering. During the resting season it must not be much dried at the roots. *D. clavatum* is a native of Nepal and Assam, and though discovered as far back as 1828, was not introduced until 1851.

SOBRALIAS.

THE blossoms of these are so beautiful that one can easily overlook their evanescent character, and the plants are so easily grown that the merest tyro in Orchid culture may take up their cultivation with every prospect of success. It is one of the drawbacks to Orchid-growing that peat of a suitable character is not always easily obtainable and is expensive, but this need not stand in the way of anyone growing *Sobralias*, as very little of it need be used. I have often recommended the judicious use of leaf-mould in mixture for some of the stronger-feeding Orchids, and the report of the Ghent show, detailing the fact of such species as *Oncidium sarcodes* being grown in this material almost alone, is suggestive to say the least. Equal parts of this material and loam, with a little chopped Sphagnum Moss and peat, will grow *Sobralias* well, provided the pots are well drained and abundance of charcoal broken in lumps is mixed with it. Where Sphagnum is not plentiful there are other native Mosses that are equally good for these strong-growing Orchids, though it does not do for others of an epiphytal character and weaker growth. The growths of *Sobralias* consist of tall Reed-like stems of varying height, clothed almost from top to bottom with broad green leaves, and they may be repotted at any time when not in active growth. The growth of most species is very free, and in consequence rather large pots are needed. So closely do the roots enwrap the compost, that it is difficult often to separate it, and, unless there is a suspicion of old, sour material in the ball, it is much better not to do so. In case of old, sour compost being present, the plants should be shaken out and the material swilled out from among the roots by a forcible jet of water from

the syringe or hose. Unless the roots are in really bad condition, give a good shift, the new pots being quite a couple of sizes larger than the old ones. If they are bad, cut away all decayed roots after washing and drying them, retaining all that are alive and planting them carefully in small pots, using more Moss and charcoal and less loam in the compost. The plants need not be elevated, but kept a little below the rims of the pots, and the compost should be very firmly placed about the roots.

Where there is no room for the larger-growing *Sobralias* on the stage, a corner in the house may often be found for them, and although appreciating a good position, they are so accommodating that they will make good flowering growths in shady corners where other plants will not thrive. I noticed some time since nice plants of *S. macrantha* tied to wires on the back walls of a lean-to house, and although it was not their flowering season, I was assured by the grower that they bloomed profusely every year. For years I kept some fine old specimens in a vinery all through the summer, and during the winter these had to be tied up very close in order to save room in a warmer house devoted principally to *Cattleyas*. So it will be seen that the plants are easily accommodated, provided only they have plenty of head room. While not requiring to be actually dried off, very little water is necessary for a month or two in winter, but beyond this they are very thirsty subjects, revelling in moisture both in the atmosphere and at the roots. The foliage is apt to be attacked by red spider in an atmosphere inclining to dryness, so that it is wise whenever the plants are out of flower to keep the syringe going freely about them. There are several species more or less distinct, and a large number of varieties of the well-known *S. macrantha*. These bear in many cases immense flowers that, while they last, are very showy, and there is a pure white and very chaste form of the species. Two good companion kinds of rather dwarfer habit are *S. xantholeuca* and *S. leucoxantha*.

DENDROBIUM DALHOUSIANUM.

This is a large, handsome plant when well grown, the tall, stately stems and the showy racemes of flower being as fine as anything in the genus. The plant in its native country is probably deciduous, but under cultivation there is always a certain amount of foliage on the stems. The stems are terete, over a yard in height, and usually tinted with purple; the racemes appear at the upper joints, and contain about a dozen flowers, pale creamy yellow, with a dark maroon blotch on the lip. It may be noted that these racemes are produced two, three, or more years in succession from the same stems from higher or lower nodes, but they are not often seen on the last season's wood, as in the usual deciduous species. The roots are strong and persistent, liking a very rough, open compost and large, roomy pots. Peat and Sphagnum in equal proportions, with abundance of rough lumps of charcoal and crocks, suit it well as compost. The pots must be more than half-filled with drainage, protecting this with a layer of rough Moss before putting the plant in position. Should the old ball be in fairly good condition it need not be much disturbed, for none of these large-growing species like to be much pulled about at the roots. If there is anything sour, or likely to quickly become sour, by all means take it out, even if the roots have to be interfered with, but the less this is done the better. Pot firmly and keep the leads back as far as possible, so that they will not reach the rims for a couple of seasons at least, and finish the compost with a slight rise to the centre. The young shoots commence rooting after they have made considerable progress, but it is not advisable to

wait for this before repotting, as usually practised with the smaller growers. The reason is that the roots below will have become very active, and, of course, will feel the check worse. The plants require a very long season of growth, as may be readily imagined when the size and length of the stems are taken into consideration. For this reason it is not usually possible to ripen the stems in the ordinary way, for they are often in full growth as late as November. The growing quarters may, if convenient, be a large, light, tropical house, and it does not matter whether it is devoted to Orchids or other plants. This is much more to their taste than small, narrow houses, where the blinds have to be almost constantly down to prevent injury to the foliage. A moist atmosphere must be kept up about the plants by frequently damping the stages and paths and between the pots. No diminution in the water supply need be made until late autumn, and even then the roots must be kept moist. A short resting season can usually be managed in late winter or early spring, but it is not so necessary for this species as for the truly deciduous kinds that remain quite inactive for several months. After the new growths get beyond the first stage, light syringings overhead are admissible, but until this the water is apt to collect in the cup formed by the young leaves, and this leads to their decay. Syringing must be discontinued when the weather begins to get cooler in autumn. The temperature usually advised for *Dendrobiums* while growing will suit this species, and during the winter it is quite safe in a house that does not fall below 50° at night. Insects are not particularly troublesome, and may be kept under by ordinary vigilance. The plants before the blooms are fully open may be placed in a cool and shady house, where they last longer than in the growing quarters, where the individual flowers seldom last over a week. It is a native of Burmah, but was brought to this country by Gibson—when travelling for the Duke of Devonshire—from Calcutta.

Schomburgkia tibicinis.—Though nearly related to the *Cattleyas* and *Lælias*, this Orchid is not so showy as many of these; yet the flowers are very ornamental, and, where there is room, a few plants should be included. The flowers appear on tall spikes over a yard in height, and are individually about 3 inches across. The sepals and petals are prettily undulated, reddish brown, shading off nearly to white at the base; the lip yellow, streaked and blotched with purple. The pseudo-bulbs are large, and bear a couple or three deep green leathery leaves, from between which the flower-spike springs. The plants are best grown in fairly large pots in a rough and very open description of compost, as the roots like rambling over rough lumps of charcoal or crocks. The *Cattleya* house suits it well, and the plants may have the lightest part of it in order that the growth in autumn may be hard and well ripened. The pseudo-bulbs are hollow, and are said to be used by the Indian children as horns—a circumstance that accounts for the specific name. It is a widely-distributed plant, naturally occurring over a great range of country in Central America. It was one of the plants sent home by Mr. G. Ure Skinner in 1836.

Gongora atro purpurea.—The singular flowers of this species appear at various seasons; indeed, where a few large plants are grown it is seldom out of bloom. The spikes appear at the base of the pseudo-bulbs, which are strongly ribbed, and each spike contains a large number of flowers that, hanging around a large specimen plant, have a very fine appearance. The plant is very easy of cultivation, growing strongly in baskets half-filled with drainage material, and a

good open compost over this. So free-rooting are the plants when in good health, that they entirely fill the basket and push upwards into the congenial air of the house. The *Cattleya* house suits it best, and the baskets may be hung where they receive the fullest light, only shading a little in hot weather to prevent injury to the foliage. During the greater part of the year the roots must be kept very moist, and the foliage may be frequently dewed over with tepid water during the growing season. Red spider is its worst insect enemy, and should be kept under, for the foliage when healthy is very beautiful, but is not so when over-run with these pests. *G. atropurpurea* is a native of Trinidad, and its peculiarly formed flowers with recurved segments are reddish brown, profusely spotted with purple. From this there are one or two variations.

ORCHIDS AT OAKWOOD, WYLAM ON-TYNE.

A visit to this garden is always instructive, for neither Mr. Cookson nor his gardener, Mr. Wm. Murray, makes any secret of the methods pursued by which such a great degree of success has been attained. The means are at the command of anyone who will take the trouble to cross-fertilise his flowers and has patience to wait for the results. At the time of my visit (the middle of April) the following were in bloom: *Phajus Cooksoni* is very interesting as being the first garden hybrid *Phajus* that flowered in England. It was obtained by crossing the vigorous and well-known *P. Wallichii* with the beautiful and rather difficult-to-grow *P. tuberculosus*. The sepals and petals are rose, brownish tinted, and much like those of the seed-parent, while the lip more nearly resembles that of *P. tuberculosus*. More recently Mr. Cookson crossed the stately *P. Sanderianus* with *P. tuberculosus*, and obtained *Phajus Norman* and varieties, referred to in THE GARDEN of last week. There were two forms of *Phajus Sanderianus* in flower, one with quite yellow sepals and petals, with the base of the labellum orange-yellow. The flower resembles in colour *P. Blumei* var. *Bernaysi*, figured in *Botanical Magazine*. The question is whether or not most of these tall-growing species are merely forms or sub-species of *P. grandifolius*. Even Dr. Reichenbach regarded *P. Wallichii* and *P. Blumei* as sub-species of *P. grandifolius*. At the time of my visit the *Dendrobiums* were in great beauty. Amongst them were very fine forms of *D. nobile*, and of the darker varieties of this useful species the variety *D. nobile nobilium* is the best. *Cooksonianum* is very curious, the sepals and petals being blotched like the lip. *D. Arnoldianum* is quite distinct from *Cooksonianum*, bright in colour, and the blotches are deeper. Several other distinct forms were in flower, the variety album being distinct and pretty, but not so fine as another white variety named *Amesia*. Most of the *Dendrobiums* are hybrids raised at Oakwood, many of them being very beautiful. *Dendrobium dulce* (Oakwood variety) is of vigorous growth, the sepals and petals rosy-red, the lip reddish-purple. It is a cross between *D. Linawianum* and *D. aureum*. *D. Sibyl* is a very handsome *Dendrobe* with large flowers, the sepals and petals of a clear rose colour with a tinge of purple; the lip of a rosy purple colour, throat yellowish. It is a cross between *D. bigibbum* and *D. Linawianum*. *D. Bryan*, one of the most distinct of the garden varieties, has the sepals, petals, and lip of a uniform pale yellow colour, the throat orange streaked reddish brown. It is a cross between *D. luteolum* and *D. Wardianum*, but it certainly has most of *D. luteolum*. *D. William Murray* was the most beautiful of all that were in flower. This handsome form has been raised by crossing *D. albo-sanguineum* with *D. nobile*. The sepals and petals are pure white, so also is the lip, which has a dense, maroon-purple coloured blotch in the centre. *D. Cassiope*, a hybrid between *D. nobile* and *D. japonicum*, has white flowers with a violet-purple blotch. *D. Cybele* is a very interesting cross between *D. Findleyanum* and *D. nobile*, the

flowers very handsome, the sepals and petals whitish at the base, flushed at the apex with pale rosy purple. The lip has a conspicuous crimson-purple blotch at the base. *D. Owenianum* is another of the *D. Wardianum* hybrids, and is intermediate between its two parents, *D. Wardianum* and *D. Findleyanum*. *D. Doris*, a cross between another garden variety, *D. Leitchianum* and *D. japonicum*, is variable in character; the sepals and petals are elongated, white, with a purplish lip.

Many of the very finest *Cypripediums* have been raised at Oakwood, and it was noticeable that the hybrid forms are unusually vigorous, even when one or other of the parents may well be described as miffy. Thus we have in the garden varieties *C. Juno* and *C. vexillarium*, fairly vigorous growers, although the pollen-bearer, *C. Fairieanum*, is one of the most difficult to grow well; at least, it is supposed to be difficult. It requires great patience to raise seedling *Orchids*. Mr. Murray informs me that only 10 per cent. of the seed-pods contain fertile seed; and even when the seed germinates, it irritates the most patient cultivator to see the plants die off one after another, notwithstanding the utmost care to keep them alive. The wire stands invented by Mr. Murray are in use at Oakwood, and are excellent contrivances for allowing a free circulation of air underneath the plants. JAS. DOUGLAS.

NOTES AND QUESTIONS.—ORCHIDS.

Angræcum modestum.—The pretty pure white blossoms—borne on semi-pendent racemes—of this *Orchid* are always looked forward to and welcome. It thrives well in small baskets suspended from the roof in the warmest house, and only a modicum of mass, with a few bits of charcoal and plenty of drainage, should be given. But care is necessary when basketing the plants that they are very firmly fixed and cannot rock about; otherwise they will never be satisfactory. Plenty of water is needed all the year round, the most, of course, when growth—root and top—is most active.

Odontoglossum citrosimum punctatissimum.—This makes a welcome change from the typical forms, the flowers being in some cases quite a deep rose, with spots of purple on the sepals and petals. It has a very fine appearance when a good spike of it is produced, being much brighter in the mass than the variety *roseum*, or, indeed, than any form of the species. *O. citrosimum* is one of the finest of plants for hanging baskets, and in a cool conservatory or fernery the flowers last a long time in good condition without in any way harming the plant. It is very subject to spotting if the flowers are kept in a moist atmosphere.

Epidendrum atro purpureum roseum.—The flowers of this variety are deeper in colour than those of the type, and the lip has a pretty rosy tint with a purplish suffusion under the column. They occur on tall, erect scapes containing about a dozen, and are about 2½ inches in diameter. The plant likes a light, cool, and airy house, and shading is seldom necessary except in the hottest weather. Equal parts of peat and Moss over good drainage suit it for compost, but plenty of rough crocks and charcoal should be mixed therewith. Use fairly large pots, and water in accordance with the state of growth. It is a native of Guatemala.

Masdevallia nycterina.—The quaint yet beautiful flowers of this species are now open, and they bear a considerable resemblance to those of *M. Chimara*. They are produced on short stems, the sepals brownish purple and yellow, spotted with red and hairy, elongated into tails about 3 inches in length. It should be grown in a basket about three-parts filled with clean crocks, the compost consisting largely of *Sphagnum Moss* and charcoal, a little peat only being needed. It does well in quite a cool house during the summer—indeed, all the year round, if the night temperature is not allowed to fall below

50°. *M. nycterina*, a native of New Grenada, was introduced by M. Linden about 1874.

TREES AND SHRUBS.

THE BIRCHES.

(*BETULA*.)

THERE are in all about twenty-five species of Birch, and these are distributed over the cooler parts of Europe, Asia, and North America. No genus of deciduous trees penetrates farther within the Arctic Circle than *Betula* does, nor is capable of thriving under conditions more generally inclement. From the shores of Labrador and Hudson's Bay in the east, the Birches extend right across the American continent to Alaska and the Yukon River region in the extreme north-west, and from those inhospitable latitudes southwards to California on the one side and to Florida on the other. In Europe they are found in Lapland, southwards to the mountains of middle Europe, whilst in Asia they have been found on the Himalaya, in Manchuria, and in Japan. In stature they range from fine timber trees, 100 feet high, to low shrubs keeping within a foot or two of the ground. Among hardy deciduous trees the Birches are conspicuous in the peculiar gracefulness of their slender, mostly pendulous branches, and in the shining, often coloured, bark of the trunks and main limbs. Our native *B. alba*, and the others with white trunks, are in this respect amongst the most striking of all deciduous trees. On a clear winter's day when the low rays of the sun strike the gleaming trunks, and the delicate tracery of the branches and twigs stands out against the sky, the Birch gives one of the most beautiful effects in winter vegetation. None of the species appears difficult to accommodate. Although some are found under very moist, or even semi-aquatic, conditions, and others in comparatively dry or rocky places, they all thrive in ordinary soil. Even *B. nigra*—the American River Birch—which often grows naturally in positions covered with water for several months each year, succeeds very well, and makes a distinct and striking tree in the sandy, dry soil at Kew. In regard to propagation, the weeping, coloured-leaved, and other varieties of garden origin have, perforce, to be worked on stocks of their own breed, but otherwise all the Birches should be raised from seed. Plants raised by other means are never so vigorous. The seeds may be sown in pans or boxes in a cool frame, either in autumn or spring, and should be simply pressed into the soil, not covered with it. Where large quantities of the Common Birch are required, seeds can be sown on beds of finely pulverised soil out-of-doors.

Whilst not complete, the following list of Birches represents pretty fully those that at present exist under cultivation. Some comparatively new species have been discovered in South-Eastern Europe (Caucasus, &c.), but of these, as well as of some others native of Japan, little is as yet known here:—

TREES.

- | | |
|---|--|
| <i>B. alba</i> (including <i>B. verrucosa</i> and <i>B. besceus</i>) | <i>B. nigra</i> (syn., <i>B. rubra</i>) |
| <i>B. Ermani</i> | <i>B. occidentalis</i> |
| <i>B. lenta</i> | <i>B. papyrifera</i> |
| <i>B. lutea</i> | <i>B. populifolia</i> |
| <i>B. Maximowiczii</i> | <i>B. ulmifolia</i> |
| | <i>B. utilis</i> (syn., <i>B. Bhojpattra</i>) |

SHRUBS.

- | | |
|----------------------|----------------------|
| <i>B. fruticosa</i> | <i>B. intermedia</i> |
| <i>B. humilis</i> | <i>B. nana</i> |
| <i>B. glandulosa</i> | <i>B. pumila</i> |

B. ALBA (White Birch).—Our native Birch is well-known as one of the most graceful and effective of British trees. In winter especially its gleaming white trunk and pendent twigs give it an individuality that no other of our native trees possesses. It is not a long-lived tree, compared, that is, with such trees as the Oak, the Beech, or the Elm. It attains its greatest size—from 50 feet to 60 feet—in middle Europe, becoming smaller, and even shrubby, in the far north. In a wild state it is, in the British Isles, most abundant in Scotland, and a sloping river-bank or the precipitous sides of a hill clothed with the Birch, the Rowan tree and others intermingled, is one of the most characteristic scenes of that country. The wood is white, and is used in furniture-making and for the manufacture of such articles as cotton reels, shoe-pegs, &c., also for many household utensils. In the far north, where growth is slower, the wood is much more durable than that produced in more equable climates. The smaller branches and twigs are still employed for making brooms. The Birch-rod—an instrument with which, as old Gerard puts, "school-masters and parents do terrify their children"—has gone largely out of fashion. In some of the largest trees the trunk is from 2 feet to 3 feet thick. The bark then becomes rugged at the base, retaining its silvery colour further up and on the main branches. That it is an ancient tree in Britain is proved by its having been found in the lowest strata of peat bogs near Manchester, where it had been preserved for probably thousands of years, and, curiously enough, with the silvery bark still fresh and bright. It is spread over all the northern latitudes of Europe and Asia, whole woods often consisting of this tree alone, especially in Russia, where it is the commonest tree, and in Greenland, where it is said to be the only one. A kind of wine is made from the sap, which is obtained by tapping the trunk in March and April. From the bark a useful, fragrant oil is obtained, important in the preparation of Russian leather. Of the numerous varieties of the White Birch the following are the more noteworthy; they belong to two groups, one of which (*verrucosa*) has glabrous leaves, the other (*pubescens*) has downy foliage and young wood. Other differences are to be found in the lobing of the scales of the female catkins, and the varieties in the *verrucosa* group are, on the whole, of a more distinctly pendent and graceful habit than those in the *pubescens* group.

B. A. VAR. DALECARLICA.—In this handsome variety the leaves are much more deeply cut than in the ordinary form, being lobed as well as toothed. It is also known as *B. laciniata*.

B. A. VAR. FANTIGIATA.—A distinct variety with erect branches and an almost Lombardy Poplar-like habit.

B. A. VAR. PENDULA.—This has the pendulous habit of the ordinary Birch still more markedly developed.

B. A. VAR. PENDULA YOUNGI.—Widely known as Young's Weeping Birch, this is the best of the pendulous Birches, and one of the most striking of weeping trees.

B. A. VAR. AUREA is a new variety with golden foliage.

B. A. VAR. PURPUREA has purple leaves, and

B. A. VAR. VARIEGATA has them blotched with yellowish white.

The above varieties belong to the *verrucosa* group, the following to the *pubescens* group:—

B. A. VAR. PONTICA.—A robust plant than the others of this set, with larger leaves.

B. A. VAR. PUBESCENS.—The type of this group, the leaves being downy.

B. A. VAR. URTICIFOLIA.—This, the Nettle-leaved Birch, may be compared with var. *dalecarlica* of the other section in its having handsomely lacinated leaves, which are, however, very downy.

B. ERMANI.—In the mountain forests of the great middle island of Japan this Birch is found at elevations of 4000 feet to 6000 feet above the sea level. It is the commonest of Japanese Birches and was first introduced to Europe by

way of the St. Petersburg Botanic Garden. It resembles our native *B. alba* in having a white bark on the trunk, but that of the branches is yellowish-brown. The leaves are heart-shaped with a tapering point, and an irregular double toothing at the margin. The male catkins are 2 inches to 3 inches long, and are in full pollen during the latter part of March. The species is distinguished botanically from *B. alba* by the middle lobe of the bracts of the female catkins being spoon-shaped (instead of lanceolate or oval as in *B. alba*).

B. FRUTICOSA.—A shrubby species growing some 4 feet to 6 feet high, and a native of North Europe and North Asia. It has thin leaves, each from three-quarters of an inch to 1½ inches long, with the toothing shallow and more regular than in most Birches.

B. HUMILIS.—Another shrubby species growing about 4 feet high, with numerous close branches and small leaves that are obovate, being rounded and coarsely toothed at the apex, whilst they taper gradually towards the base, where the margins are entire. On the barren shoots the leaves are three or four times the size of those on the fruiting branches, which are often under half an inch in length. A native of the most northern parts of both hemispheres and a pretty little shrub.

B. GLANDULOSA is one of the American shrubby species and is nearly allied to *B. nana*. It can, however, be easily distinguished from that species by the young twigs being covered with glandular warts. From another American shrubby species—*B. pumila*—it differs in having quite glabrous, instead of downy, twigs and foliage. The leaves are almost stalkless, and each half an inch to three-quarters of an inch long.

B. INTERMEDIA.—This is a shrubby Birch intermediate between *B. nana* and *B. fruticosa*. It grows on the mountains and in the arctic regions of Europe, and is some 6 feet high, with erect branches. From *B. nana* it may be distinguished by its larger leaves, which are ovate, rather than orbicular, as in *B. nana*.

B. LENTA (Cherry Birch).—A tree about 70 feet high and a native of North-Eastern America, extending from Newfoundland and Canada to the State of Georgia. According to Sargent, it reaches its greatest size on the western slopes of the Big Smoky Mountains in Tennessee. The leaves each measure from 3 inches to 5 inches in length, and when quite young have silky white hairs beneath. The marginal teeth are slender and incurved. The male catkins are 3 inches long when fully developed, about the beginning of May, and are then bright yellow and very pretty. In a young state the branches of this tree are erect and the general outline pyramidal, but after it has reached half its full size the branches become more graceful and pendulous, and the whole tree of a more rounded shape. The bark is dark reddish brown, and when bruised has a sweet, aromatic odour. A valuable oil is distilled from the wood, which is used both in medicine and for flavouring. This tree is nearly allied to the following species (*B. lutea*), but differs in having the scales on the female catkins smooth (in *B. lutea* they are downy). The bark affords another distinction; it is aromatic in both, but, whilst sweet in *B. lenta*, it is bitter in *B. lutea*.

B. LUTEA (Yellow Birch).—In the forests of the north-eastern parts of North America this Birch is one of the largest trees—sometimes as much as 100 feet high. It thrives best in cold latitudes and in moist positions. Sargent observes that even no farther south than southern New England it is rarely a handsome tree. It is valuable in Canada as a timber producer, the wood being strong and hard and taking a fine polish. It resembles *B. lenta* in its erect branches and pyramidal habit when young, and in afterwards becoming a round-topped tree with more or less pendulous branches. The leaves are each 3 inches to 5 inches long, the margins set with glandular teeth. The bark is at first greyish, but afterwards becomes red-brown or yellowish, especially on surfaces recently exposed by the curling

off of the outer layers. This tree thrives well near London. At Kew there are specimens 20 feet to 30 feet high, and handsome in growth as well as in the trunks. It is nearly related to *B. lenta*, under which species some differences are pointed out.

B. MAXIMOWICZI.—This is the last new species of Birch brought into cultivation, and, although the largest specimens are only 6 feet to 8 feet high, it is a quick grower, and altogether very promising. We owe its introduction to cultivation to Professor Sargent, who obtained seeds of the tree during his travels in Japan in 1892. He says:—

In the forests of Yezo we saw for the first time this tree. It is certainly one of the handsomest trees in Japan and one of the most distinct and beautiful of the Birches. In Yezo it is a shapely tree 80 feet to 90 feet high, with a trunk 2 feet to 3 feet in diameter, covered with pale, smooth, orange-coloured bark.

Its most striking character is the large size of the leaves. On our young plants they have measured 7 inches to 8 inches in length and 5 inches to 6 inches wide, and even on the large trees seen in Japan by Professor Sargent they appear to have been only a little smaller. They are doubly and irregularly toothed, dark green and shining. The species ranges from the main island of Japan (Hondo) through Yezo and Saghalien into Manchuria. By the aborigines of Yezo—the Ainos—the tough bark “is used for many domestic purposes.”

B. NANA (The Marsh Birch).—In a state of nature this Birch—the dwarfest of all the species—is a low, bushy shrub, rarely more than 3 feet high. Under cultivation, however, it is sometimes twice that height. In a wild state it affects wet situations, and for similar positions in gardens or parks may be recommended as a pretty and interesting little Birch. It will, at the same time, grow well in fairly moist ground. It forms a dense, much-branched bush, thickly set with round leaves, which are each one-eighth of an inch to half an inch across, and have prettily crenate margins. The species is a native of the coolest part of the north temperate zone, and often occurs also under sub-arctic conditions. It is found in Scotland, Russia, Sweden, Lapland, &c. It is of value to the Laplanders both as fuel and bedding. Ptarmigan are said to feed on its seeds.

B. NIGRA (The Red, or River, Birch).—Few of the Birches are more interesting and distinct than this. It is a fairly tall tree and grows in its native country from 60 feet to 90 feet in height. The trunk has the curious propensity of separating into two or three divisions a few feet from the ground, which gives the tree quite a distinct appearance. These limbs grow erect and have no further tendency to divide. The trunk is very rough and picturesque, because of the numerous flakes of dark-coloured bark standing out all round it. The leaves taper towards both ends, but more abruptly towards the base. The margin is cut up into large teeth (or even lobes), which are themselves toothed. When young they are downy beneath, but gradually become smooth; later, they are of a dark, shining green, and from 1½ inches to 4 inches long. The male catkins are clustered two or three together, slender, and each about 2½ inches long. This Birch is a moisture-loving tree, and in a wild state in Eastern North America is found mostly near the banks of water-courses or swamps, often partially inundated for several weeks at a time. In a very interesting notice of this Birch in the “*Silva of North America*,” Sargent describes it as one of the most remarkable trees in the genus, and the only semi-aquatic Birch. “The charm of many southern rivers is often largely due to this beautiful tree, with its slender, flexible branches dipping their ends in the water.” It ripens its seeds by early summer and they drop to the ground when the water is at its lowest; they germinate rapidly and obtain a firm foothold before the autumn floods return. It attains its greatest size in the damp, semi-tropical lowlands of Florida, Louisiana and Texas. It is quite hardy in England, and as a water-loving tree of singular beauty it might

well be planted more freely in our parks than it is now. It was first introduced by Peter Collinson in 1736.

B. OCCIDENTALIS (Black Birch).—This species, which is not yet well-known in European gardens, was first discovered by the North American travellers—Lewis and Clark—in 1805, on the banks of a tributary of the Missouri River flowing on the eastern side of the Bitter-Root Mountains. It is found also in British Columbia, California, and Dakota, growing, as a rule, in moist soil near water in mountain cañons. Although it is spread over a wide area it is not common anywhere (Sargent). It was introduced from Western N. America to the Arnold Arboretum in 1874. It is not one of the largest Birches, being sometimes 30 feet to 40 feet high, with a trunk 12 to 18 inches in diameter, but more often producing a cluster of slender stems only half that height. It is always a graceful tree, with slender pendulous branches covered with a dark, very glossy bark. The twigs are thickly set with resinous glands. The broadly ovate leaves are pointed at the apex and blunt at the base, the margins furnished with sharp glandular teeth. Following the American custom, the common name of “Black Birch” is here given to this species, although it is frequently applied to *B. nigra*. The latter is, however, more correctly the “Red Birch,” being the *B. rubra* of Michaux. The two can easily be distinguished by the leaves and bark. In *B. nigra* the leaves are bright green and pointed at both ends, whilst the bark curls off in thin layers; in *B. occidentalis* the leaves are dull green and cut off sharply at the base, whilst the bark is close.

B. PAPIRIFERA (Canoe or Paper Birch).—With us this is one of the whitest-barked of all the Birches, surpassing in this respect even our own White Birch. It is a North American species, and is widely spread over that continent. In the far West it reaches to the coasts of Alaska and the Yukon River Valley southwards to the States of Washington and Montana. On the eastern side it extends from the shores of Hudson's Bay and Labrador as far south as New York and Pennsylvania. It is famous as the tree whose bark is used for building canoes. This bark is tough and resinous, and water-tight, and is readily divided into thin layers. It is also used for making baskets, drinking cups, &c., whilst the wood is useful for the manufacture of shoe-lasts, spools, shoe-pegs, &c. The tree grows some 60 feet to 70 high (considerably more in some of its habitats). When young the trunk is smooth and of a gleaming white, and the tree rather pyramidal in habit; when older the bark is furrowed and loses its whiteness, and the tree assumes a rounded habit with pendulous branches. The leaves are each 2 inches to 3 inches long, pale beneath, with the mid-rib and veins covered with whitish silky hairs. The male catkins are produced in clusters, and about mid-April are in full pollen, and then about 4 inches long. The species was introduced to Britain in 1750 by the Duke of Argyll.

B. POPULIFOLIA (American White Birch).—Neither in this country nor in its native habitat does this species attain to any great size or age. It grows to some 20 feet to 30 feet in height, and resembles our British White Birch in the colour of the bark. Its leaves are somewhat triangular in outline, thin, 3 inches long, with a long tapering apex, and coarse, irregular teeth at the margin. Being borne on long, slender stalks, they flutter with every movement of the air—much after the manner of the Aspen and other Poplars. Although a graceful tree, it is of less value than many other Birches because of its short life. Sargent observes that it is one of the least desirable of American trees for parks, but is useful in springing up profusely and rapidly even in sterile soil, and thus providing shelter to other more permanent and valuable, though slower-growing trees. It extends down the eastern side of North America from Canada to Pennsylvania and other States.

B. PUMILA (American Dwarf Birch).—A shrub varying in height from 2 feet to 8 feet, with the young branches and lower face of the leaves

usually covered with soft down. The leaves vary in shape, and are each half an inch to $1\frac{1}{2}$ inches long, finely netted. Like our native Dwarf Birch (*B. nana*), this species is found in wet, boggy places, and in a wild state extends from Canada southwards to New Jersey, Minnesota, and other States of the Union. It was introduced in 1762. The tallest form grows about 8 feet high, and on account of its erect branches and slender habit is known as *var. fastigiata*. From *B. nana* this species differs in its densely pubescent young foliage, and from another shrubby Birch—*B. glandulosa*—in the absence of glandular warts on the twigs.

B. ULMIFOLIA.—This is a Japanese species often grown under the name of *B. alba var. costata*, or simply *B. costata*. It is a tree as large, apparently, if not larger, than *B. alba*. The trunk is covered with bark as white as that of any Birch, and the tree, on the whole, is as ornamental as any of the species. The leaves are larger than those of our native Birch, broadly ovate, and have a long, tapering point and a coarse, irregular toothing.

B. UTILIS.—It is chiefly under the name of *Betula Bhojpatra* (very variously spelt) that the

this Chinese species, which is, as usual, flowering profusely. It is, I think, in its most effective stage when but a few of its showy semi-double blossoms are fully expanded, as the buds are much deeper in colour than the flowers are when fully open. While *Pyrus spectabilis* may be planted almost anywhere, it is a first-rate subject for a lawn tree where space is limited, and can be depended upon to furnish a gorgeous display in the spring, while the fruits are also decidedly ornamental. It is frequently met with grown as a standard, and where a belt of shrubs is planted to hide any unsightly object, such a tree as this may be employed to break up the otherwise too formal appearance. *Pyrus spectabilis* is the oldest Eastern species that we have in our gardens, for it was introduced as long ago as 1780, the well-known *P. japonica* not reaching here till some years later; at least the year 1815 is usually given as the date of its introduction, but in a copy of the *Horticultural Register* for 1836, the editor (James Main, A.L.S.) contributes a series of articles on "Reminiscences of a Voyage to and from China, in the years 1792-3 and '94," and says of this *Pyrus*: "We got one plant of the Hoitong (*Cydonia japonica*). This

those remaining are for the most part yellow. Is such a severe set-back usual and unavoidable? Are the plants likely to recover?—A NEW SUBSCRIBER.

* * Did you give the plants a good soaking of water immediately after planting? If not, this would account for the leaves falling off. The soil at the side of the house was no doubt very dry. Keep the plants well watered at the roots and syringe the stems freely, and new leaves will soon push out.—ED.

Shrubby Veronicas.—Some of your readers may be interested to hear that several of the shrubby Veronicas have seeded freely in my rock garden. Seedlings of *V. loganioides* are growing out of a patch of Thyme and Moss on the face of a rock, apparently without any soil. The plant itself was removed in February, 1896, and the seedlings appeared in late autumn. There are many seedlings from *V. Lyallii*, and a few apparently from *V. Haasti*. *V. lycopodioides* flowers very freely here, and I think I saw a seedling from this, but it has disappeared.—E. C. BUXTON, *Bettws-y-Coed*.

ROSE GARDEN.

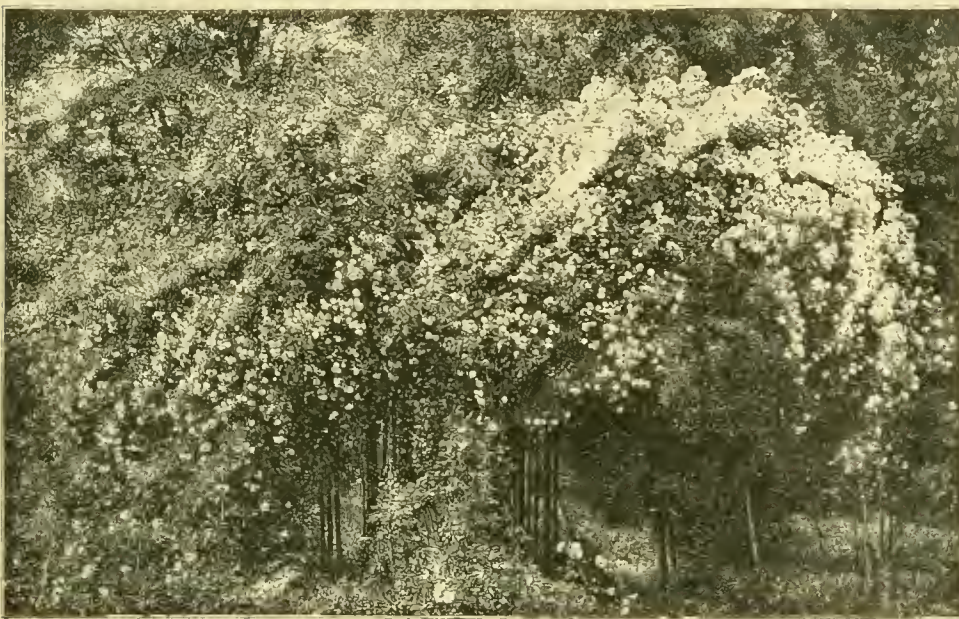
ROSES ON ARCHES.

We ought to have much more of the Rose as a climber and as a garland in the old way on chains and walls and pergolas; also the free-growing Roses should be allowed to form bushes on lawns in their own way, and certainly the old garland kinds are the best single Roses. How little can be seen now, even in good Rose gardens, of the beauty of the form of the Rose, which is so evident where it is grown in a bold and varied way. One of the handsomest things we have ever seen was a collection of climbing Roses grown over Oak arches at intervals along a Grass-walk in M. Cochet's nursery in France. Seen in the blooming season it was a thing not to be forgotten. There are many other graceful ways of growing Roses apart from the stiff standards and few feeble ways one generally sees, especially in the large gardens.

Rose Sylph—This Rose has quickly taken a foremost position among the true Tea-scented section, and not the least point in its favour is its absolute immunity from mildew. The flowers, which seem to come midway between those of Ernest Metz and Souv. d'Elise Vardon in colour, form, and substance, are thrown up well above the foliage on good erect stems. Unlike most Teas, it will form a handsome specimen without the aid of sticks. It is a first-rate Rose, suitable alike for exhibition, for cutting, or for bouquets and button-hole work.

Rose Mme. Rene Gerard (Tea).—M. Guillot appears to have been very fortunate in securing some lovely tinted Roses of late years. Last season we were given the charming golden red Souvenir de Catherine Guillot, and now this year we have received the Rose under notice, which appears to be a combination, as far as colour is concerned, of Ma Capucine and l'Idéal. The raiser describes it as "deep coppery yellow, strongly shaded with Nasturtium red," and the description is as accurate as can be expected when such charming tints prevail in a Rose. What rosarians need to aim at is to improve the size and substance of the kinds possessing these tints, and it should not be difficult to those individuals who have the leisure to undertake it.

Hedges of Rose Crimson Rambler.—There can be no better method of displaying the extraordinary vigour peculiar to this Rose than by planting a hedge of it. A few posts put down, with stout wire stretched between them, is all that is needed in the way of support. The ground should be well trenched and drained,



Roses on arches.

few specimens of this Birch at present cultivated in Britain are known. This name may well be superseded by the older, more correct, and less barbarous one here given. This Birch inhabits the inner ranges of the Himalayas, often occupying the highest levels at which tree-like vegetation exists. It is said to be a native also of Afghanistan and Japan. As is the case with our native Birch, this species is gregarious, whole forests being met with that consist entirely of this tree. At the lower elevations on which it grows it is a tree of moderate size, rarely more than 50 feet to 60 feet high, but at its highest limits is reduced to a mere shrub. The leaves are 2 inches to 3 inches long, and more or less downy when young. The main branches of the tree are erect, the twigs drooping. The bark is reddish or purplish brown, and peels off in broad, horizontal flakes. Brandis observes that it is used by the natives in various ways, such as for writing on, for making umbrella covers, &c.; also that the Hindoos use it in various religious ceremonies.

W. J. BEAN.

Kew.

Pyrus spectabilis.—Included in the genus *Pyrus* are some of our most beautiful early flowering trees, and of them all one of the very best is

plant had been introduced several years before by Mr. Slater, but repeatedly lost by being treated as a stove plant."—H. P.

NOTES & QUESTIONS.—TREES & SHRUBS.

Juniperus communis aurea.—This pretty golden form of the common Juniper is most effective when it puts forth its new growth in the spring. Little bushes about a foot or so in height would be useful for window boxes.

Himalayan Rhododendrons.—Why do we so seldom see these interesting and often beautiful species? Mention of two lots of their flowers is made in your issue of April 30, but no hints as to how they were grown. It would be a great kindness to others if those who succeed with Himalayan Rhododendrons would say what, in their experience, the various species want—as to soil, moisture, shelter from wind or frost, and, above all, exposure to or shelter from the sun.—STEPHEN A. MARSHALL.

Planting Ivies.—Early in March I planted against the west wall of a London house several large Irish Ivies. At the time they were well covered with bright green leaves, but now they look very bad—nearly all the leaves are off, and

working in some good lasting fertiliser, and I should prefer plants upon their own roots. In two years a gorgeous effect will be produced. By careful training and pruning this hedge may be had in bloom from the very top to the base. The border in front could be carpeted with the charming creeping *Wichuriana* Rose, a delightful novelty at all times, but when seen running along the ground, like *Ivy*, and rooting at intervals in similar manner, its foliage and pretty single white blossoms, that so much resemble those of the *Macartney* Rose, produce a very pretty effect. If more variety is desired, then a dozen or so of the most decorative of the dwarf *Polyantha* Roses could be massed in front of the hedge, and their miniature blossoms would harmonise beautifully with those of *Crimson Rambler*.—P.

Work in the Rose garden.—In giving liquid manure it is better to vary the kind. A small quantity of air-slaked lime put into each barrel of liquid is very beneficial to soils at all deficient in this. Do not give liquid manure unless buds are seen. Hoeing well and often should be the aim of every Rose grower. Never allow the soil to become hard or crusted. A good tilth is better than all the mulchings with manure, and I would only give the latter just before the blossoms expand, and then more to keep the flowers clean than for any other reason. Searching for insects is a troublesome but necessary task. It is annoying to find a little black maggot has spoilt a most promising bud, but such is too often the case. A crowded plant favours insects. Keep a good open plant free from weak shoots in the centre and insects will not be nearly so troublesome. If we think too much hard wood has been retained, no harm will follow the removal of a shoot, and it is better this should be done at once. Briers budded last summer will need careful watching, placing a stake against each one. Climbers on walls must have good soakings of weak liquid manure.—P.

Filling up gaps in Rose beds or borders. This is an excellent time to plant out a few Roses from pots, especially now that we have received the long-looked-for rain. Provided good plants are procured, a fine lot of bloom may be had from them, and those grown in 8-inch pots will not exhibit any signs of being turned out of their pots if the ball is previously well soaked before setting into the soil. I have seen prominent beds filled with such plants in May, and the growth they made, with the resulting blossom, was truly marvellous. It is true the beds were well prepared prior to planting, for after the bulbs were removed the old soil was replaced with some good loam that had been sandwiched with cow manure for a twelve-month. It is also a very suitable time to put out plants grown upon their own roots and that have been wintered in frames. Most of the *Tea-scented*, *Chinas* and allied tribes succeed admirably upon their own roots, provided a good start is made with strong, well-rooted plants. These own-root Roses are little thought of by some, but it is very pleasant to the amateur to see these plants recoup themselves from beneath the ground line when severe frosts have cut off many of his budded stock.—A GROWER.

Planting out Roses under glass.—Glass structures are so cheap that it is surprising so few people plant out Roses under glass. I do not suggest the practice could be profitably adopted in the vicinity of large towns, but in the suburbs, where good meadow land can be procured, the growing of Roses under glass could be profitably taken up. The chief points to consider are good, well-trenched, fairly rich soil that is naturally or artificially drained, a span-roofed house running from north to south, with top lights removable, perfect means of top ventilation both on east and west sides, and as few rafters as possible so as not to impede the sunlight. Given these conditions, with one row of 4-inch pipes and a water tank inside we have a Rose house quite suitable for our purpose. During the next two or three weeks is the best time to set out the plants. These should be young grafted stock of the current year, and they must be worked on the *Seedling Brier*. Do

not let them become pot-bound before planting out, for Roses in this growing condition should never receive any check; consequently the temperature they are placed in must accord with that from which they have been taken. These plants will not make much show the first year, but in the second will tell a different tale. When watering is done let it be thorough, and a slight mulch of stable manure will prevent excessive evaporation during the summer months. It will surprise many to see the enormous plants that this method of culture will produce. I have seen *The Bride*, *Bridesmaid*, *Catherine Mermet*, *Perle des Jardins* and others with wood as thick as one's thumb, and the plants as much as 3 feet through. Of course the pruning is not of that vigorous style so carefully adopted by the exhibitor, and yet the resulting blossoms from these almost let-alone Roses are quite up to exhibition standard. I do not say they are hard forced, far from it. If the first crop is ready at the end of March it is considered to be early enough.—P.

ORCHARD AND FRUIT GARDEN.

RASPBERRIES WITHOUT STAKES AND PRUNING.

In many gardens the Raspberry needs staking because the canes are not sufficiently strong to bear any weight, and, if left to chance, would bend over and look unsightly. In poor or unsuitable soils the culture of Raspberries without stakes, wires, or supports would be out of place. In many gardens the plants are grown under the shade of trees, and in such positions the canes are weak. With canes freely exposed, and attention given to pruning after the crop is cleared, there is no need of stakes. After many years' trial I have found that Raspberry canes pruned as soon as the crop is cleared will give much heavier and finer crops than those left to chance. The early pruning allows the canes to mature thoroughly. For years when I grew these fruits on a strong clay soil I lost a lot of wood in severe weather, the canes dying back badly at the top. This I found was mostly owing to badly-ripened growth, as since the thinning out of weak canes and pruning in the summer I have rarely seen a single cane injured when grown in the open. To grow Raspberries without stakes it is necessary to summer-prune and to restrict the growths at the stools. Some growers object to summer pruning—why I fail to see, as to allow the canes that have borne fruit to remain to impoverish next season's crop is bad policy. I have found summer pruning of great value, and not only can old fruiting canes be removed, but a large number of others—mostly weak ones or those not needed to produce next season's crop. Three canes left at a stool are ample. I have seen double the number left, but would advise three or four at the most. There is always such a large number of shoots from a single root or stool that growers often hesitate to cut away so many as I have advised; but it is a good plan, as the reduction of canes to three or four at the most is the chief point in culture. In many gardens the canes are often left at the pruning in the early spring 5 feet to 6 feet in length. Of course, when the canes are grown without stakes this length is out of the question. Canes half the length fruit almost to their base, and two rows of canes with double the weight of fruit on each may be grown in the same space. I plant at 2 feet apart in the row. The best canes I ever saw were grown 3 feet apart, and cut down to 3 feet annually. In selecting the fruiting canes for next season's

work it is an easy matter to choose those in a straight line, as if this is done the gathering is facilitated and feeding is more readily accomplished. I would advise more constant renewal of Raspberry quarters, as young plants produce much finer fruits and in greater quantity. The Raspberry will grow for many years in the same place, but good results cannot be expected. I prefer spring feeding, and a liberal top-dressing now of rich manure will build up next year's canes and assist in swelling up the fruits on the bearing canes. If later on in the season liquid manure can be spared it is of great value.

G. WYTHES.

FIG TREE BORDERS.

THE Fig under glass, if allowed an unlimited root-run, makes nothing but wood and foliage, and bears little or no fruit in consequence. To counteract this, it is necessary to curtail its rooting space rather severely. This, if properly carried out, brings about the desired effect. This curtailment of border space restricts root growth, which in turn induces the trees to make not only a much less exuberant growth, but wood of a more fruitful character. We can keep the roots of Vines and Peach trees fairly under control by the various expedients adopted when constructing borders for them, but Figs require something more than this. Their roots must be quite under control, otherwise the grower will experience no end of trouble, for it is astonishing the distance they will travel if there is nothing to prevent them doing so. Even common mortar will not stop them, as the following incident will prove. Some years ago I planted a Fig tree at the end of a Black *Hamburgh* viney in a narrow brick pit, which contained about three good barrowloads of compost. The brickwork looked so sound that it was thought impossible that any roots could escape through the joints. The tree made a deal of strong growth the first year, but it was thought that matters would right themselves the second season, so the roots were left undisturbed. However, the next year the tree grew out of all proportions, so lifting was decided on. To my astonishment it was found when the tree was being lifted that a root had penetrated through one of the mortar courses and had found its way to an adjacent Vine border, in which it revelled. The root between the bricks was about as thick as an ordinary slate pencil, but on the other side it thickened and was about an inch in diameter, and had branched off in all directions in the Vine border. When this was severed and means taken to prevent the same thing occurring again, matters righted themselves. Since then no further trouble has been experienced. By this it will be seen how necessary it is to prevent the roots from escaping. This is done in various ways. Some enclose the space which the border is to occupy with brick walls, and either provide a floor of bricks or concrete to prevent the roots from descending to the subsoil. Another way is to dig out a trench 2 feet or 3 feet wide, and surround the border with a good mass of brick rubble, chalk, or similar material, rammed firm to prevent the roots escaping in a lateral direction, and if the bottom is concreted or paved this answers very well. Another good plan is to concrete the floor and build the retaining walls of turves instead of bricks. In this case a clear space some 2 feet or 3 feet in width should be left between the walls of turf and the soil in the body of the house. This space if below ground may be utilised for filling with fermenting materials, and after this has done duty and decomposed, feeding roots will push through the turf walls and take possession of it and prove invaluable. I had occasion to deal with a large old tree in this way some few years back, the roots of which had found their way into a drain some 35 feet away. In this case I cut away all roots found up to within some 4 feet of the stem. A wall of turf was built in a semicircular form right round the tree, and the space between it and the ball was

filled in with a compost of equal quantities of loam and lime rubble. The floor is of bricks laid in cement, and the soil in the remaining portion of the house or the original border is held up by a brick wall. There is, therefore, a space or pit 2 feet 6 inches in depth between this wall and the turf wall of the border, capable of holding about three cartloads of leaves, which is filled when the house is started. Some of my friends thought I should kill the tree by adopting such drastic measures, but I have never had cause to regret the course I took, as the tree gives me two fine crops of fruit yearly. The last method to be described for constructing Fig borders is, I consider, the best when the front of the house will admit of it, and that is to build a brick pit entirely above ground to hold the necessary quantity of compost. The base may be of brick laid in cement, or paving stones laid in the same material, or of cement concrete. It matters not which, so long as the roots cannot escape through the joints. Ordinary brickwork in this case suffices, as the pit being above ground there is nothing for the roots to pass into should they penetrate the mortar courses. A hole should be left at the lowest corner or one at each corner for the water to escape through. With a border contained in such a contrivance the roots are as absolutely under control as if the tree were in a pot, and it is the least troublesome of any method I have ever tried. If desired, a second wall could be run round the first at some 4 feet distant from it, in which to place a bed of leaves to accelerate forcing, but it is really unnecessary. I have two trees grown in this way, which always give splendid results. With regard to the

SIZE OF BORDERS,

this depends in a great measure on the size of the house and the amount of trellising which the trees will have to cover. A border 6 feet wide and the same in length, with a depth of 2 feet 6 inches, will support a very large tree. The border instead of being 6 feet wide may be 3 feet, which will give a greater length should these dimensions be more suitable for the style of house to be planted. A border containing from 2 to 3 cubic yards of compost is capable of supporting a tree covering an area of trellising equal to 360 or 400 square feet. This is mentioned, as it may serve as some kind of guide to intending planters. Personally, I would rather provide a border of a small area, and be compelled to feed liberally afterwards when the trees become established, than err in the opposite direction, for which reasons have already been given. If a large area of trellising has to be covered, necessitating the planting of two or three trees, the border for each should be kept strictly separate. It is unnecessary to construct the border all at one time, as this can be done piecemeal, in the same way that Vine borders are built. Drains should be provided for carrying off the surplus moisture when the borders are constructed below the ground-level of the house, and good drainage at the bottom of the borders is also essential. This latter may consist of 4 inches of broken bricks, with a 2-inch layer of smaller metal, about half an inch in diameter, on the top of this. On the whole lay turves grass-side downwards, when the compost may be got in at as soon as ready. As regards

THE COMPOST,

the Fig is not very fastidious, as it will grow in almost any kind of soil, but that best suited to its requirements for indoor cultivation is a good sound loam, and should it contain—as many soils do—a high percentage of lime, so much the better. Given a soil of this description, nothing else is needed but some lime rubble, old plaster, or chalk to mix with it. This calcareous matter will ensure porosity by keeping the loam sufficiently open for the free passage of water, and, at the same time, prevent the trees from making rank growth. The quantity of this calcareous matter that should be used depends on the class of loam that has to be dealt with. For heavy loams it should be in the proportion of one-third

of the whole. Lighter loams will not require so much, and for sandy loams it may well be dispensed with altogether. When little or no calcareous matter is used, bone-meal may be added with good effect, and in the case of light, sandy loams half-inch bones may be used in addition. The bone-meal may be used in the proportion of half a hundredweight to a ton of soil when used alone. When the half-inch bones are to be used in addition, a quarter of a hundredweight of each will suffice for each ton or load of soil. The loam for this purpose should not be chopped too fine, pieces from 3 inches to 4 inches square being suitable. Mix the ingredients thoroughly, and place the mass under cover, or protect with shutters or tarpaulins, if there is a large quantity of it, and the houses are not quite ready. When the compost is taken in it should be spread evenly, and each layer consolidated either by treading or ramming. Pay great attention to this detail, as a badly-constructed border gives no end of trouble in the way of watering, and the growth made under such conditions is long-jointed and unsatisfactory. On the other hand, when the compost is properly compacted as the border is being built up, it retains moisture, as water passes more slowly through it, while growth, if not so rapid, is more firm and short-jointed. The same class of compost will suffice for bush trees if they are to be planted out—a method of growing the Fig now but seldom seen. Great care must be exercised in curtailing rooting space in this case, and a separate compartment should be provided for each. I abolished a small house of trees planted in this way some time ago simply on account of the difficulty experienced in keeping both root and top growth within bounds, and now reap far better returns from trellis-trained trees, whose roots are strictly confined. If bush trees are required or preferred, they are best grown either in large pots or tubs, as they are then quite under control.

A. W.

Nectarine Early Rivers on open walls.—With such bad weather whilst the trees were in bloom I was agreeably surprised to find this new early Nectarine had set a very heavy crop of fruit. It appears to me to be hardier than the well-known Lord Napier. Being a few days earlier than the older variety may have possibly influenced the crop, as trees of both varieties side by side have had just the same treatment, and the newer variety is overburdened with fruits, while Lord Napier is very thin indeed. For many years Lord Napier has been my standard variety for forcing or otherwise, but Early Rivers has proved its claim to front rank. It is invaluable for early supplies, and grown in an unheated house is of great value, as it fills in the void between forced fruits and those in the open.—G. WYTHES.

Strawberries for forcing.—"A. D." thinks it would be interesting to know which varieties are the best for forcing. Royal Sovereign should head the list. With the usual treatment given it flowers and sets abundantly, and the fruit swells up to a great size, while the flavour is very good. Next I must place President, a good old standard variety, and hard to beat as regards flavour. I find it will not set its fruit in so warm a house as Royal Sovereign; in fact, the cooler it is brought on the better. Mine are brought on in an unheated Fig house, and are generally fit to gather at the end of the first week in May, while for the latest crop I grow Sir Joseph Paxton, an excellent Strawberry in every respect. I plunge the pots of these in a cold pit that has been emptied of Potatoes. This lot carries on the supply until the outside ones come in, and again here Royal Sovereign leads the way. I have tried several other kinds for pots, but up to the present none has given me such satisfaction as the three named above. As regards storing, mine are plunged just above the rim of the pot in coal ashes in the frame-ground without any overhead protection whatever.—J. MAYNE, *Bieton, Devon.*

—In his note on these as grown at Hackwood Park, "A. D." (p. 342) asks for

views as to the best methods of storing the plants for winter. I have always adopted the plan of standing the pots on a hard bottom, plunging them to the rims in coal ashes. I have never found any harm to result from the method either to pots or plants. The exceptional frost experienced early in 1895 left the plants unscathed, though I viewed them with some apprehension when the thermometer began to register several degrees below zero. Plunging in frames may be better, but I do not feel at all sure that it is, and have not the convenience for storing all in that way if I did. Of course it is necessary with outdoor plunging to have a batch or two under cover, so that they may be easily got at for removal to the forcing houses when necessary, as it is not possible to get the plunged pots out of the ashes in time of hard frost without much damage. As for the old-fashioned method of stacking the pots in tiers against a wall, I look on that as nothing short of cruel to such a moisture-loving subject as the Strawberry, and its well-doing after such treatment should only be looked upon as a proof of what a long-suffering plant it is, and not that the treatment is right.—J. C. TALLACK.

HARDY FRUIT PROSPECTS.

JUDGING from reports which have appeared since the terrific storms of wind, snow, and rain last month, a great amount of damage has been done to the flowers of various fruit trees, which at the time were fast opening, or in many instances fully open. The depth of snow which fell, and the severity of the frost experienced at night, showed a great variation in different parts of the country, and the resulting damage on tender vegetation would seem equally variable. Excepting Apricots and a few Plums on an east wall there were no open flowers in the garden here, and although their appearance at the time gave but very poor hopes as regards Apricots, there are some fruits set and swelling. The trees themselves are very slow in showing leaf growth, and would seem to have suffered a check consequent on the change from the mild and sunny weather to that which favoured winter, rather than the early spring. Where so much damage was done to the flowers, no doubt, was where they became moistened by the drifting snow, and in this state exposed to the biting frost and keen wind in the early morning. Here the snowstorms were light, and the trees, being comparatively dry, escaped. Since more genial weather has set in, trees of all kinds are moving rapidly. Plums and Pears in particular showing colour very fast. Peaches on open walls, too, are making headway both in flower and leaf growth. The cold nights retarding the bud expansion, the trees have made a spontaneous movement of flower and leaf, an unusual case with Peaches. As yet there is no sign of blister, which in other years has given so much trouble. Some Gooseberries which were in full leaf had their foliage browned by the frost; others now show no sign of injury, and are developing their flowers fast. Strawberries are starting, the trusses of bloom, particularly in young plants, becoming prominent. Raspberries with me always suffer more than other fruits from the winter and spring frosts, the canes dying back so much as to make the crop very partial. This I attribute to the soil not being well drained, and fresh plantations are in progress. Apples never looked more promising than at the present time, and if we get no severe weather at the blossoming time there should be heavy crops everywhere. Cherries were not forward enough to suffer at the time of the frosts.

Here the frost was similarly severe as that instanced by "H. C. P." (page 295), with a slightly higher rainfall, but this was less than

half an inch for the month. The value of coping or wall cases has been amply demonstrated this spring, the fact of snow and rain being carried clear of the trees making them able to resist much more frost than would be the case when either slightly or heavily charged with moisture. I think with Mr. Groom that the cold spell will do more good than harm. Speaking generally, everything was making such rapid progress early in the year that the prospects were very uncertain. The trees seem now to be in a normal condition, and it only needs a continuance of genial weather to ensure a good fruit year, with the exception of the early districts where the damage occurred as already reported. W. S.

Wills.

PEACH BLISTER.

WHETHER the foliage on outdoor Peaches will suffer this season to the same extent as it did generally last remains to be seen, but if searching east winds, with bright sun during the day and a low night temperature, if not actually frosty, are favourable for its appearance and spread, as many believe it to be, then we may soon begin to hear complaints, as the weather for weeks past has been of this description. Many trees which came under my notice last May were more badly attacked than any I had ever seen before, and many were the inquiries what best to do at the time and how to avoid future attacks. These are questions which it is difficult to answer, as sometimes under the most careful treatment, together with the use of night coverings, the trees are not always exempt from injury, though, of course, they suffer much less than others that have not received protection. So bad were some trees last year that when the ruptured leaves were removed—and it served no good purpose to retain them—the trees were practically stripped, and it was not until we had more balmy weather that clean, healthy growth was established. At one time it was thought that they were so crippled that it would be almost impossible to secure properly developed wood for this season's crop, but it is satisfactory to note that even the worst attacked trees were furnished by autumn with promising shoots, and so at the present time a full crop is secured so far. Unless we should experience a very severe frost, free thinning will have to be resorted to later on. New growth up to the present is quite free of blister. I am departing somewhat from the treatment followed in former years, viz., by delaying the work of disbudding, with a view to a larger number of shoots acting as a protection one to the other, as well as for screening the most exposed fruit, which, by the way, when not checked by frost generally develops into the finest. All the shoots that were growing towards the wall and pressing between this and the branches were removed early, as their growth would have become deformed, and made suitable lurking places for greenfly and other pests. Another way in which I am not following previous treatment is in not syringing the trees to dislodge aphids. It is not that these have not put in an appearance yet, but I have dealt with them other than by applying a solution through a syringe, which will be carefully avoided until the weather is safe enough to do so freely.

So long as the foliage is in a dry condition, east winds and cold frosty nights have less injurious effects. The one great thing is to watch that insects do not get the upper hand and cripple free development of growth. To guard against this the trees are being looked over almost daily, and any leaf which shows the least

sign of curling may be taken as having some greenfly behind it or on its under side. The workman, with the aid of a tobacco-dust distributor, gently presses the affected leaf between the thumb and finger, and after crushing the fly, a little powder is applied, the moisture from the insect causing it to adhere to the foliage, thus saving wetting it for the purpose. So far I am pleased with the results, and though it is early to form an opinion, I do not think I ever saw the trees look in a more promising condition in every way at the present date. Trees on both south and west walls are equally free from blister and all heavily cropped. The only protection I have afforded, and which will be retained for some time, is a double thickness of Strawberry nets arranged loosely about 18 inches from the wall. This screens the trees from winds during the day and frost at night at the same time. Growth is not weakened by the exclusion of light and air, which is sometimes the case when thick blinds are not used carefully. It may be considered a mistake, and would certainly prove so with indoor trees, to delay disbudding as long as I intend this season, as there is the risk of robbing the trees of so much robust growth; but care must be exercised in doing so piecemeal, when with the fruit swelling rapidly little or no evil results are apprehended, and if it is only the means of warding off blister from the foliage the cure would prove much less harmful than the disease.

With a view to further assisting the trees I have found it necessary to water the borders, but tepid water was used, so as not to lower the temperature of the soil. Long dry litter is spread over the border in the evening, and slightly drawn on one side during the day to allow the sun to act on the soil, by which means the roots are brought into full activity earlier than they would be if unattended with these details, and result in top-growth being better able to withstand troubles, whether they may arise through the appearance of insect pests or unfavourable weather.

Goodwood.

RICHARD PARKER.

NOTES AND QUESTIONS.—FRUIT.

Apple Hubbard's Pearmain.—The small but handsome and briskly-flavoured fruit of this variety should ensure it a place, especially as in addition to its good eating qualities it has the merit of keeping well into the end of March, or even later. Like all other good flavoured kinds it is easily contaminated by musty straw or dirty shelves, and therefore there is need of the greatest care in the choice of a store. The fruit is below medium size even when well grown.

A very old Pear tree.—There is to be seen on the margin of a wood at Ruxley Lodge, Esher, where the soil is a mixture of sand and loam, a remarkably fine old Pear tree, that serves to show how enduring some varieties can be when surroundings are favourable. The tree has a huge head and a fine, handsome, clean stem of exceedingly pleasing rugged bark, and at 3 feet from the ground it measures 11½ feet in circumference. The fruits are small, something after those of the Green Chisel, and only gathered when other Pears are scarce.—A. D.

Apple Pine Golden Pippin.—Though not usually considered one of the latest Apples, this is still in capital condition at Livermere. This is no doubt owing to rigid selection of the fruits at storing time, careful handling, and a suitable store, for without these aids long keeping would be impossible. It is a small, but good quality fruit, varying a good deal in shape, but usually a little angular, skin light russet, the flesh white, juicy, and pleasantly acid. Such Apples at this time of year must be extremely useful, for the

list of good dessert fruit just now is not a long one.

Nectarine tree failing.—I send you a small branch of Pitmaston Orange Nectarine, and would feel obliged if you could tell me what it is that has attacked the leaves? The peculiar thing is that only one half of the tree is affected, and it seems now as if it were growing out of it, and the fruit to all appearance is swelling all right. It is a large tree with two branches. The union is very much swollen. One half is perfectly healthy, the other affected like the sample sent. All the other trees in the house are in good health.—W. K.

* * * We fear your Nectarine tree is showing signs of canker. For this there is no cure. It often happens with the Peach and Nectarine grown under glass. What makes us think it is canker is that only half the tree is affected. You may ask why one side should be affected and not the other. This is simply because the graft has overgrown the stock, and in time all the tree would be affected. We have seen trees that have lost three parts of their branches exist for years on a very slender bit of wood if the bark was sound. We do not advise leaving trees in so poor condition; far better plant young ones. At times the whole tree collapses, this taking place when the leaves and new fruits begin to make increased demand on the roots. The sap cannot ascend through the decayed dry portion, and the tree dies. If you examine the bark at the place you refer to, you will doubtless find a portion brown and lifeless. The tree will make a little growth if there is any life in the wood, but probably the fruit will not ripen, though you say it is swelling. It is only a matter of time. Some varieties are more subject to canker than others. In some cases it occurs from bad grafting or budding, and in many others from the stock not suiting the scion. Such is our experience, and we fear the evil will continue as long as we are obliged to rely upon worked trees.—Ed.

GARDEN FLORA.

PLATE 1169.

SINGLE-FLOWERED CHRYSANTHEMUMS.

(WITH A COLOURED PLATE.*)

It must be something like thirteen or fourteen years ago since single-flowered Chrysanthemums first appeared as competitors for public favour, and although a few growers speedily evinced a desire to spread the cultivation of the new type little was accomplished in that way for some years.

These single varieties are not in the strictest sense of the word show flowers, and consequently there was a strong disinclination on the part of committees who were responsible for the preparation of prize schedules to find any place for them at the ordinary November shows. This objection has, however, now been overcome, but only to a slight extent, for the prizes are few and of little value when compared with those offered for other types of the popular autumn flower. From an æsthetic standpoint single Chrysanthemums are useful, and in many cases of simple beauty. They can be grown without any severe régime of disbudding and systematic manuring, and the rich harvest of blooms that rewards the cultivator will be an ample recompense if the object be to have flowers for the house or for purposes of decoration in vases, &c.

There are two main divisions of the section, the larger being generally called Japanese single, and of which Admiral Sir T. Symonds

* Drawn for THE GARDEN by H. G. Moon. Lithographed and printed by J. L. Goffart.



CHRYSAE. SINGLE. HYBRID. NEMUS.

may be regarded as the type, the other section is usually referred to as small singles.

A few of the first came from America, others have been introduced from France, but by far the best and most effective are the produce of such English raisers as Messrs. Cannell and Sons, Mr. Teesdale, Mr. Owen, Mr. W. Wells, and one or two other specialists who have been able to gauge the public taste better than the foreigners, for after all is said the popularity and utility of the singles depend more upon public taste than upon that of the exhibitor at shows. They are, however, shown sometimes in very attractive form, but the only proper method is in vases or in some similar receptacle. To stage them on the ordinary green-painted showboard is to do injustice to a light delicate flower that was never intended by nature or by art to be displayed in such a way. There are many varieties in cultivation, and a glance at the dealers' catalogues will show how great is

colour very fine velvety wine coloured crimson; yellow centre.

SCARLET GEM.—Small but good; colour bright crimson, with yellow centre; short, flat ray florets.

ADMIRAL SIR T. SYMONDS.—Japanese single, with long, broad florets; colour rich golden-yellow.

MISS WOLSELEY.—Japanese single; flat pointed florets, rather large; colour purple-amaranth.

PRINCESS MAUD.—Very pretty shade of pale canary-yellow; florets fluted. A very delicate-looking flower.

ROSE PINK.—Fairly large in size; colour rosy amaranth, with white disc at the base of the florets.

ETHEL SARGENT.—Rather broad flat florets; colour crimson-chestnut, reverse golden. A close neat bloom.

EMILY WELLS.—A seedling from Miss Mary Anderson; pretty pale shade of rosy mauve.

MISS ANNIE HOLDER.—A yellow counterpart of the last-named.

MISS MARY ANDERSON.—Rather small; florets

adapted for cutting. No collection should be without them, as they are of easy culture. As seen at the shows, much of their beauty is lost, because of the general way of stiffly arranging them on wires to get a level appearance. The true beauty of singles, to my thinking, is seen when the branches are not disbudded. Every little lateral will produce flowers, and they hang with peculiar grace. The tendency of exhibitors, too, is to produce unduly large blooms, which are not the most effective. Mary Anderson, Miss A. Holder and Miss Rose are excellent types of single Chrysanthemums. The last is also of very dwarf growth, thus lending itself to the formation of a perfect pot plant.

Cuttings may be rooted during April and May unless very large bushes be desired, in which case propagation should start earlier. Medium-sized plants are usually the most acceptable. Chrysanthemum cuttings root easily at this season. One has only to give them a little soil and moisture. As soon as rooted they may be potted singly into small pots in soil of a loamy nature, and when the stems are 6 inches high the points should be nipped out so as to cause a bushy growth. The larger plants can be repotted into 5-inch pots, and finally be placed into those 8 inches in diameter. Those of weaker growth may receive but one shift from the small pots, using those 6 inches across. In these sizes we may obtain most useful specimens. Turfy loam three parts, thoroughly rotted manure, with a free admixture of gritty sand, is employed when the shifts into the larger pots take place. Pot firmly, and give the plants ample room. The sides of garden walks are often convenient for Chrysanthemums, and when they are stood in single line there is little danger of a soft, drawn-up growth—a condition not conducive to good results, whether they be single varieties or the more imposing show kinds. Some protection from frost at night is necessary until the middle of May; otherwise the plants should not be coddled in any way. It is advisable not to top the shoots after June. By that time ample stems may be had to form nice bushes. Tie the stems to sticks before they get long, and constant attention to watering is necessary. Some stimulant will be needed when the soil is well filled with roots, a yellow look in the leaves usually indicating a starved condition. Liquid manures must always be given often and weak. Soot is a stimulant often neglected. In liquid form it gives a healthy colour to the leaves. A change of diet is advisable in the employment of one of the many excellent fertilisers which are easily obtained, and it is well to choose showery weather when a surface dressing is given.



Single Chrysanthemum Miss Rose.

the diversity both in form and in colour. But I think the number of really good and effective varieties is limited to narrower proportions than some of the ardent advocates of the section are inclined to admit. During the past three seasons I have visited nearly every trade display in the neighbourhood of the metropolis, the public exhibitions in most of the parks, floral committee meetings, shows and private collections of Chrysanthemums of all sorts, and during that time I have made entries in my note book of those singles which have appeared to me to be most worthy of mention. It is possible of course that others may be equally good that do not find a place in the list appended to this paper, but if so, it is only fair to say that I have not met with them in the same condition as those enumerated below.

MISS MABEL WILDE.—Of good size; long ray florets; colour deep rose.

REV. W. E. REMFREY.—Long, flat ray florets;

flat and of good breadth; colour a delicate shade of pale blush, centre yellow.

VIRGIN QUEEN.—Japanese single; colour pure white; a pretty flower.

ANNIE TWEED.—Broad flat florets; colour deep rich, velvety crimson.

GUS HARRIS.—Very pretty but small; colour rosy lilac.

BUTTERCUP.—Flat florets; colour pale lemon yellow.

MISS CHRISSY.—Small; florets flat; colour deep reddish-bronze.

DOLLY VARDEN.—A charming little flower and very free; colour rosy pink.

MISS ROSE.—Flat florets, starry-shaped flower; very free; pretty shade of lilac blush.

PURITY.—Large flower with broad florets; colour white. C. H. P.

—The large Daisy-like single Chrysanthemums are charming grown as bush plants, and the flowers being so light and elegant are well

Single Chrysanthemums are most effective when the buds are not thinned, or at least not unduly disbudded. It is well to point out another defect of many of the sorts noted at exhibitions. If grown naturally they produce semi-double flowers. The florets are therefore removed to one single row. A true single, to my thinking, should not in any instance produce more than one row of florets, and in naming a few varieties I shall bear this in mind. Annie Tweed (dark crimson), Eucharis (white), Golden Star (yellow), Mary Anderson (blush-white), Miss Annie Holder (light yellow), Miss Rose (rosy white), Mr. Alfred Double (terra-cotta), Mrs. D. B. Crane (cerise-pink), Purity (white, rather tall), Rev. W. E. Remfrey (crimson), Scarlet Gem (terra-cotta red), Snow Wreath (fine white), Christmas Cheer (small white, late variety), and Treasure (tiny yellow, late) are good varieties.

H. S.

THE WEEK'S WORK.

KITCHEN GARDEN.

ROUTINE WORK.—There will be much work among the early-sown vegetables at this season—I mean those raised under glass—as many will now be large enough to plant in their permanent positions. Summer Cauliflowers will need early attention. Many plant between rows of main-crop Peas, as the Peas shelter the plants at the start. I have found it a good plan to plant the smaller quick-growing varieties between rows of Asparagus when the latter is given plenty of room. Brussels Sprouts sown for early supplies will now be in condition to plant out, and as regards space between the rows much depends upon the variety and the condition of the soil, as if at all rich the plants make a strong growth. A space of 3 feet between the rows and 2 feet between the plants is none too much. I find it advantageous to draw drills for these, or, in fact, any plants raised under glass, as the drills convey moisture more readily to the roots and also protect the plants from rough winds. It is an easy matter to earth up later. Much the same remarks are applicable to Cabbage sown for summer supplies. Other plants, such as Lettuce, will need attention before the plants get too large for transplanting, and if at all crowded in the frames it will be better to thin out, even destroying weak, puny plants to give those left to mature space to develop. The first-sown Lettuces in the open are now large enough to thin, and if the work is done in dull weather the seedlings soon take hold, if lifted carefully. A rich soil is necessary for these plants, as unless growth is rapid the leaves are tough and bitter. Every opportunity should be taken to keep the hoe going between growing crops or land waiting for a crop, as with drying winds weeds are soon checked. With rain and much warmer weather it will be very difficult to prevent weed growth. Now is a good time to kill weeds on walks. If there are no Box edgings I find a great saving in using weed destroyers, as the gravel is then clean for a year. Peas coming through the soil should be staked early, first moulding up to encourage growth and prevent winds twisting the haulm. Succession crops should be sown every three weeks, selecting those kinds which are noted for their continuous cropping. The seeds may now be sown more thinly than earlier in the season.

THINNING CROPS.—This will be necessary where early sowing is resorted to. I am a strong advocate for early thinning, as, if Onions are sown at all thickly, if left to get large before thinning those left to bulb are loosened and rarely do well. By thinning early, rains fill up the crevices, and drought is less felt in dry seasons. If plants are needed for salad it will be better to leave a row or two for that purpose than spoil the whole crop. Onions left very thick in the beds often mildew badly in wet weather. Carrots, to be good, need thinning in their very early stages, as I have noticed those left too late are frequently attacked by fly, and it is then useless to thin. Both Carrots and Turnips are subject to attacks of fly, and it is well to dust the seedlings overhead very early in the day with dry, fine wood-ashes, to which may be added soot in bad cases. With genial showers thinning is facilitated. So far we have had a very dry spring, so that it may be necessary to water some plants. I find it a good plan to water the rows of seedlings overnight, and thin early the next day. The plants do not suffer, as it is an easy matter to give a little more water after thinning to settle the soil round the roots. Lettuce soon spoils if left too long, and with these quick-growing plants I would advise more frequent sowing and more space to avoid transplanting in dry seasons.

FORCED VEGETABLES.—These are now giving a welcome supply, and will in a way eke out the somewhat scanty crop of green stuff available. Potatoes in frames that have set their skins will be ready to lift. I adopt rather severe treatment

with these, needing the frames for so many other things. I lift the Potatoes, burying the sets at one end of the frame, and they keep good for several weeks. Other crops are often grown between frame Potatoes at the start. These should be cleared, as they do harm, not only crowding the foliage but drying the soil. Beans in frames will be making good progress. They delight in warmth and moisture, so it is well to close early; at the same time avoiding cold draughts in sunless weather. Owing to excess of moisture I have frequently lost some of the earliest blossoms of Peas, as they damp badly in dull weather. With these it is well to leave a little air on all night to allow moisture to escape freely. Turnips in frames and also Carrots may now be given air freely. Turnips will be benefited if given liquid manure when watering. It is well to draw the plants as soon as large enough, to give others more space. Both these vegetables are often sown much too thickly at the start.

VEGETABLE MARROWS.—At this date one can often forward an early crop by utilising spare frames or hand-glasses that are now not needed for Potatoes and other forced vegetables. A sturdy plant at the start will be a great gain, as weakly, drawn plants raised in strong heat are a long time before they take to the soil and come into bearing. I have previously advised growing Marrows after the first week or so in cold frames before planting out, as by so doing a much better plant is secured. If a little warmth can be given the roots at the start the progress is more rapid. Avoid rank steam, and in planting in soils without warmth water must be given sparingly at the start. Marrows are much benefited by covering them at night for the next three weeks. Another sowing may now be made for planting out in the open the first week in June. These I sow in cold frames and expose freely as growth increases. One plant in a pot is preferable to sowing in pans, and this sowing will not need much manure. My plan is to take out a little soil when planting, replace with a mixture of good soil and decayed manure, and when growing freely mulch with spent Mushroom manure. Plants grown on a mass of manure often run to leaf badly. Grown as advised they are more prolific and fruit a longer time. It is an easy matter to feed freely with liquid manures when fruiting freely.

TOMATOES.—Few plants grow more freely than these after a certain stage. The earliest-sown will now be showing fruit freely and need much stopping to give the fruits free exposure. With only a limited root space it may be necessary to give a mulch. I find spent Mushroom manure the best; it does not cause gross leafage, while at the same time it conserves moisture and encourages surface roots. I am aware many growers do not advise manure in any form for Tomatoes. I do, and in giving my earliest fruiterers in pots their final shift I add a small portion of bone-meal mixed with wood ashes or burnt refuse. Plants to fruit in June and through the summer months should now be making headway. It is a mistake to keep seedlings too long in small pots, as when repotted they lose their lower leaves, and the bunches at the lower part of the plant fail to set. Firm potting is needed to create a sturdy growth, and though I am aware many growers have to make various shifts at this season, as space is limited, it is well to grow as cool as possible and near the glass. Plants for open-air culture, if in small pots, may with advantage be given a shift, as, unless shelter can be afforded, only in the most favourable places can they be planted out till May is well advanced. If repotted now, the plants will make good progress. The plants potted for some time and of a good size should get free exposure in fine weather to prevent drawing, and if a warm wall can be spared for a few by covering over at night, an earlier crop may be secured. I find a sowing made now of great value for early autumn supplies, as the earlier fruiterers will be getting exhausted, and a stock of young plants will provide fruits in frames or cool pits from August to December. The plants from this sow-

ing are grown cool from the start in cold frames, and may be fruited in pots or planted out.

RUNNER BEANS.—As regards the date on which these may be sown, much will depend upon the locality. Many, to get early supplies, sow in heat in pots or boxes. In the southern parts of the country Runner Beans are generally sown about the second week in May. I prefer rather deep drills, as it gives the plant more shelter in its infancy, and also assists to checks drought later on. Many good cultivators grow in trenches prepared as for Celery, and get very heavy crops. No matter how grown, it is essential to give plenty of manure, as the Runner is a gross feeder and needs much moisture in light soils when in full bearing. This vegetable is often too much crowded. It is surprising what a large amount of space one plant will fill if allowed to expand. Many place the rows too close, this causing a weak growth, and, unless the full light can reach them, the blooms fail to set. In sowing the seeds do not cover too deeply—about 3 inches. If the soil is heavy, make it as fine as possible; indeed, in clay soils it well repays to cover with a better material. Old hot-beds or potting-bench refuse will greatly assist germination. The seeds in the drills should not be closer than 6 inches, but as one cannot always depend upon the seed, they may be sown somewhat more thickly, thinning later on. I would call attention to the newer types of Runners which have been introduced of late years. I mean those of the Tender and True type. There are some very fine varieties, and I consider them of greater value than the old Runner. They are admirably adapted for gardens where space is none too plentiful; they also give enormous crops, are earlier, and the produce is much liked in the kitchen. The staking is also much less, this in itself being a great saving. S. M.

FRUIT UNDER GLASS.

STRAWBERRIES UNDER GLASS.—Since my last remarks upon Strawberries the work has been of a routine character, and thus far as regards the season there has not been anything to complain of. It has even been more favourable in my case than usual from the point of watering, as there has not been a continuous run of clear sunshiny weather, yet sufficiently so to perfect the fruits both as regards colour and ripeness. That fine Strawberry Royal Sovereign still continues to give the best possible satisfaction; true, it requires slightly more labour expended upon it in the way of staking, but this is amply compensated for in the fine large fruits obtained and in the almost complete immunity from failure to set. It packs and travels well, too, and this is of the utmost importance. By the use of sulphur, well incorporated with water and used as a dip for the plants when introduced into warmth, mildew has been completely subdued wherever this preventive was applied. In some way a few plants were overlooked, and here it made its appearance, but it was observed and stopped in good time; hence the practical utility of the dipping was clearly demonstrated. I grow Auguste Nicaise for May fruiting, at which period it is a grand variety, showing well, setting freely, and swelling up to an enormous size; earlier it is not so reliable. The comparatively new variety, of French origin also, Louis Gautier, which produces large fruits of a pinkish white tint, is also showing well, with as many as five and six spikes to a plant. Last season I proved its setting qualities; hence its culture is not now an item of uncertainty, whilst its colour adds variety and interest to the desert. Both Latest of All and Gunton Park are also pushing up strong spikes, but these varieties in my case have not had a previous trial. No Strawberries should now be kept in vineries; even in the latest houses their presence is undesirable, and rather than adopt this method of growing them it would be infinitely better to relinquish their culture completely. Cool, or comparatively so, houses of Peaches, Nectarines, and orchard-house fruits will now suit them much better. Too

much warmth now means a greater liability to red spider, which if it gains a foothold now may do irreparable injury throughout the season. I have cleared them all out of the Fig house and vineries, as well as out of all the forcing pits, and now only allow them upon clear light shelves in orchard houses and in the Strawberry houses proper; thus the spider is not so much to be dreaded. The latest plants of Royal Sovereign are now flowering in cold frames, where with care they will set well. The next to follow these are of the same variety, but small plants kept through the winter in 3-inch pots, being the surplus stock of last year, and now planted out in frames with mats over them instead of glass, which is not sufficiently plentiful for a few weeks to come. In order to make up the number to fill these frames, some runners were lifted from outside beds (reserved stock); these do not feel the check, all showing their spikes kindly. These will give a gain of at least one week as compared with the outside plants.

STRAWBERRIES IN THE OPEN.—To all present appearances the plants look well; the spikes are showing strongly and the young foliage is vigorous and healthy. Mulching has been commenced, and will be pushed forward as speedily as possible. It may require an extra effort to do this thus early, but that it pays must be an undisputed fact. It does not take so long, and that is worth consideration too. Before attending to the mulching, do not under any circumstances omit to apply a liberal dressing of lime or of lime and soot. The lime is the best remedy for slugs, whilst the soot in addition is very efficacious for the small black wireworm, which is oftentimes equally as destructive. If the lime can be applied just before a shower of rain, so much the better, whilst in its application look well to it that it is well worked in close to the crowns of the plants. In most instances no doubt a genial shower has already fallen, perhaps more; this will for a few weeks obviate the need of artificial watering, but if there is in any case a suspicion of drought existing as the spikes push up, and the first as well as the best flowers expand, a liberal watering should be given. It is not too late now to apply an artificial manure where such is considered necessary. It will pay well to watch the weather during the period of flowering, as, perchance, a frost may supervene and cut off the finest blooms. Failing anything better, the litter used as a finish to the surfacing will answer very well; it will thus be on the spot for after-application, being found to be a very convenient protection when lightly shaken over the trusses.

FORCED PLANTS PLANTED OUT.—Of these the strong ones are much to be preferred, and as the crops are cleared off and the plants duly hardened off, the required number to suit any given case should be planted rather than be allowed to remain in their pots, being probably overlooked for watering in the meantime. This season I have proved that the first early runners taken last season from these forced plants gave by far the best stock of plants for pots, notably in the case of Royal Sovereign. This year I hope to take my stock in this way and trust thus to gain quite a fortnight in the final potting up. Vicomtesse H. de Thury is still the best Strawberry for autumn fruiting, and by planting out the stock of forced plants about now a good and reliable second crop may be had during August and September. It may not answer to grow this variety to any extent for early forcing, but when an autumn crop has to be provided then its value is fully proved. Mine are now being planted on a west border, as the crops are cleared off, 2 feet each way being allowed, as I find if they are put any closer the fruit does not dry sufficiently when the heavy autumnal dews are falling. With a few weeks' careful attention all of these forced plants will soon become established, after which the second crop of flower-spikes will appear. All the runners should be taken off these autumn fruiterers as they appear.

ALPINE STRAWBERRIES.—These are growing away now very freely, both last year's plants and

those not yet fruited. The latter promise to make very strong plants, having been raised from seed during April of last year, and will take up the succession for fruiting during August so as to follow those which are a year older, and which are now only needed for the first early and midseason crop. These alpine Strawberries require the same attention at this season as other Strawberries do with respect to mulching, watering, &c. Given good attention they pay well to grow for private supplies. Seed has been sown at various times during April, and is now germinating and growing freely. These seedlings will be pricked off as soon as they can be conveniently handled. No runners of these alpine varieties are ever depended upon when the seedlings are sufficiently plentiful, as they lack vigour.

CHERRIES UNDER GLASS.—The first early variety with me has this season again been Guigne Annonay (April 27). It is a Cherry of fine appearance, black when fully ripe, and keeping well in good condition if not immediately required. Early Rivers succeeds it, and this, again, is followed by Bigarreau de Schrecken, between which and Frogmore Early Bigarreau there is not many days' difference. No attempt is made to actually force the Cherries, *i.e.*, as generally understood; a slight degree of warmth has so far been maintained, but both side and top ventilation is always on, save when it is actually freezing. Shade has not been required on many days, but it will still be resorted to if very bright weather sets in. So far there has scarcely been any appearance of caterpillars; this enemy of the Cherry in its earlier stages has been practically *nil* since a free use has been made of XL All vaporiser, thus proving its utility as a labour-saving medium. Black fly also has not been any trouble at all, thanks to the same remedy. Guard against any semblance of over-watering in all stages; it encourages leaf growth too much, and oftentimes at the expense of the crop of fruit. These remarks apply equally whether the trees are in pots or planted out. Some of the stronger shoots may need stopping, even in the case of leaders, so as to balance the growth. This had better be attended to early, as it will then save to some extent the use of the knife later on. Where heavy crops are set upon trees in quite cool houses and now safely towards the stoning period some thinning will be desirable, in order not to distress the trees and to secure at the same time finer fruits. A mulch over the borders will soon be desirable, as it will in some measure save watering. Take note of any tree that may show signs of casting its fruit at the time of stoning, and apply either bone-meal or an artificial compound, as previously recommended for this particular failing.

HORTUS.

THE MARKET GARDEN.

MARKET GARDENING DURING QUEEN VICTORIA'S REIGN.*

I PROPOSE to take the productions of our present market gardeners in the following order:—1, vegetables; 2, fruits; 3, flowers; each of which may also be subdivided into out-of-door or naturally-grown varieties, and in-door or forced varieties.

VEGETABLES.

With regard to open-air vegetables I may say that the cultural details of sixty years ago, with very few exceptions, remain the standard of the highest present perfection. It is in the direction of earlier and improved varieties, and in the increase in quantities rather than in the methods of culture, that a comparison will mostly tell. I do not propose to enumerate the kinds of vegetables or the varieties which have been successively cultivated during the period under review,

* Paper read by Mr. J. Assbee, of Covent Garden, before the Royal Horticultural Society, October 2, 1897.

but I propose rather to touch upon a few marked cases where important varieties have been introduced, or new and extended fields of culture have been opened up.

ASPARAGUS very fitly commences my list, as its cultivation gives a striking illustration of remarkable progress. Many acres of this have been laid down during the past few years in places where the soil and situation are favourable. The so-called "grass" has become known by the locality from which it is produced, such as Worcester Grass, Cambridge Grass, Sandwich Grass, &c. Though our local Middlesex growers still bear the palm for excellence, I may quote the Worcester or Evesham field as a sample of progress. About twenty-five years ago certain gardeners in the Evesham Valley began to grow Asparagus as a market vegetable. These growers were happily brought into touch with Covent Garden salesmen, who taught them to properly grade and pack the bundles for the market trade. The prices proving remunerative, and the demand largely exceeding the supply, a considerable development of the industry followed, and the railway, waking up to the importance of encouraging a good customer, granted better facilities for transit. It is now estimated that there are about 4000 acres of Asparagus in this district alone. Each acre in full bearing will give 40,000 sticks, or 400 bundles, of which about two-thirds come to London. These figures are a moderate computation, and are small compared with our importations of foreign Asparagus.

CELERY is another example of extended cultivation. The increasing value of Celery as a vegetable, either cooked or raw, has no doubt had a stimulating effect upon its production. In Lincolnshire hundreds of acres are devoted to Celery; indeed, it may be regarded as a regular alternative crop with other market vegetables in the black soil belt of the Trent Valley. It affords another illustration of the railway system as an artery of food products, beneficial alike to grower, consumer, and carrier. As much as 50 tons of Celery a day are brought to London by the Great Northern Railway in the season.

PEAS.—The cultivation of Peas has made great strides, particularly in the Essex district. The earliest Peas come from Kent and other southern counties, and the latest from Yorkshire. The season lasts from the end of May or beginning of June till August. The establishment of the Great Eastern Railway Company's depot for Essex garden fruit has more than doubled the tonnage of Peas brought by them into the London markets, and opened up a great outlet for other kinds of market produce.

ONIONS.—The introduction of the Spanish and Tripoli Onions has had a considerable effect in improving our English varieties. The market gardener finds a considerable sale for bunched young Onions during the spring and early summer months. When we read that over 6,000,000 bushels of Onions, valued at £684,000, were imported into this country in 1896 we cannot consider that we are overburdened with our home supply.

POTATOES.—These are in every respect the leading vegetable at present in use amongst us. The small market gardener has to a very great extent given over the cultivation of this and certain other vegetables to the farmer-gardener, if I may so designate those large growers who combine farming with the production of market crops. There were 563,741 acres of Potatoes grown in Great Britain in 1896. These were estimated to produce 3,562,235 tons. Out of this quantity Lincolnshire, our largest Potato-producing county, grew 57,638 acres, producing 400,709 tons; whilst Yorkshire grew 51,495 acres, yielding 326,849 tons. There does not seem to have been any great increase in the quantity of Potatoes grown recently in this country. The Great Northern and Midland Railways have established depôts for the convenience of this trade, and as many as 1100 truck loads of Potatoes arrived at the Great Northern depot in one day last season. Great as is our Potato production there is still a large

foreign importation, chiefly of early varieties, from the Canary Isles, Jersey, and the Mediterranean, as well as from Holland, the value of which is about £1,000,000 a year. No vegetable has been so prolific of varieties as the Potato. Most of our new ones only last a few years, to be in turn superseded by so-called improvements supposed to possess better qualities. The great object of the Potato raiser is to secure (1) a plentiful cropper; (2) a good eater; (3) a disease-resister. Of late years the system of spraying has been introduced to accomplish the last object.

BROCCOLI AND CAULIFLOWER have been greatly improved and their period of growth extended chiefly by the introduction of Veitch's Autumn Giant, which was a grand example of a new variety fulfilling a decided trade want. Cauliflower and Broccoli might also be quoted as examples of the distance vegetables can be carried for market. Our remotest English county, Cornwall, supplies us with many thousands of crates of these useful vegetables, often in seasons when nearer fields have perished with the frost. We have also of late years imported Cauliflower largely from Italy.

FORCED VEGETABLES.

Besides the efforts that have been made to improve and extend open-air vegetables, our more advanced market gardeners are turning their attention largely to forced goods. The earlier climatic conditions in France, together with the increased facilities for transit of produce, have enabled the French competitor to secure great advantages over the English grower in the market for early spring salads and vegetables. Efforts are being made to minimise this by forcing certain vegetables in England, though up to the present the success has not been very marked. A few things are, however, being very successfully done, and this may lead to more serious attempts in other directions.

RHUBARB.—The present system of forcing Rhubarb is a most marked advance on the old methods. There is a popular notion that the forced Rhubarb, so abundantly supplied to the London market from the Leeds district of Yorkshire, is in some mysterious way produced by waste factory steam. This is merely a humorous fable, as a visit to one of our local growers who is adopting its cultivation will clearly testify. A field of Rhubarb is first cultivated in the ordinary way. Large sheds, usually 100 feet long, 30 feet wide, 5 feet high at the eaves, and 8 feet high in the centre, are erected at a convenient spot, generally in the field or closely adjacent. These sheds are perfectly dark when closed, and the Rhubarb roots are lifted from the open ground and placed very thickly in these sheds, which are artificially heated and kept at the proper temperature and moisture. The Rhubarb is periodically pulled, bunched, and packed for market, and when the forcing season is over the roots can be removed and returned to the open ground for recuperation and future use. A shed of the size named will hold about an acre of Rhubarb, and the varieties grown are chiefly Champagne and Victoria. The season during which it is marketed extends from the latter end of January to May. In the height of the season—February and March—it is estimated that over thirty tons a day are brought into London alone.

SEAKALE AND ASPARAGUS.—These are now forced upon a new and greatly improved system, though the old practice of forcing Seakale is still being worked. By means of a subterranean chamber containing a hot pipe passing through an open water channel, the roots are supplied with a warm and humid bottom-heat. Well-matured roots, raised in the open ground, are lifted and placed very thickly over this chamber in frames and protected from the outer air and light by suitable covering; and when the shoots are matured a delightfully clean blanched vegetable well rewards the grower for all his previous care and pains. This system has been introduced by one of our most typical and enterprising market gardeners. With regard to Seakale, the bed will

produce abundant sets for future out-of-door culture, yielding in time a further supply. With Asparagus, however, forced roots are of no further use. In all systems of forcing vegetables by packing such as I have described, a quantity of adjoining farm land is necessary to keep up a supply of well-grown roots.

MUSHROOMS.—The old system of forcing Mushrooms on triangular beds of manure with a straw protection is still largely followed. The attempts to force them in houses or sheds have met with very varying success. When well grown on the latter system they have a more attractive appearance; but to grow Mushrooms successfully in a house requires constant watchful supervision, and experience often gained after much expense and comparative failure.

SALADS.—In the direction of forced salads and vegetables there is a large field for enterprise still open. Except Mustard and Cress, which are well and largely grown, and a few French Beans, we are almost entirely in the hands of French growers for our early supply. I look hopefully to the time when cheaper glass-houses and frames shall enable British growers to compete successfully with foreign and Channel Island producers. At present English market gardeners find a more profitable use for frames by raising seeds in them and forwarding early out-of-door crops. As a rule vegetables thus assisted realise much higher prices than later ones.

FRUITS—OPEN AIR.

The system of planting a mixed garden of top and bottom* fruits is generally followed. The bushes below can be removed later on, when the top fruits have grown sufficiently to cover the ground, and thus the garden be turned into an orchard; or the mixed garden can still be retained by thinning out some of the tall trees. The bush system of culture does not admit of this dual arrangement after a few years. There has been a great extension of fruit cultivation for market during the Victorian era, and particularly during the last half of it. During the last decade the acreage of fruit land has increased from 36,724 acres to 76,245 acres, of which 32,090 acres are orchards and 30,699 acres are market gardens. Besides this fruit land there are 96,696 acres of market gardens in Great Britain. I find that Kent is *par excellence* the greatest fruit and market garden county, and well deserves its title, "The Garden of England." The leading market gardening counties are:—

	Acres of Fruit.	Acres of Market Gardens.
Kent	22,632	12,972
Middlesex	3,870	9,460
Worcester	3,194	6,139
Norfolk	2,913	2,834
Yorkshire	3,691	5,124
Hampshire	2,149	3,145
Essex	1,929	4,642
Cambridge	2,721	2,125
Surrey	1,459	3,700
Sussex	1,480	2,443
Lincoln	1,698	1,582
Bedford	264	7,997
Gloucester	1,743	2,277
Devon	1,533	1,613
Cornwall	1,948	2,101
Lanark (Scotland)	2,107	1,754

(* Bd. Ag. Ret. 1896.)

Respecting particular varieties of fruit grown for market there has been no doubt a greater improvement than in vegetables. The market gardeners are very largely the producers of their own seed in vegetables. In fruit they are more open to the introduction of new varieties from professional nurserymen, especially so in new plantations, of which there have recently been so many. There are, however, cases where the possession of good varieties of market fruit has caused some of our market gardeners to raise their own stock, and occasionally to compete with nurserymen. Foreign competition in certain fruits has, of course, a considerable effect in determining the

* Top and bottom, i.e., standard trees with bushes planted between them.

varieties produced by the home grower. The public taste, too, is another matter of consideration, especially in the introduction of new varieties. The main points to be studied in a new market plantation are (1) quantity or productiveness; (2) quality and appearance; (3) time at which it can be marketed.

APPLES.—Here the market gardener of to-day is brought face to face with the American producer. Consequently he must grow either—(a) Early varieties to clear before the American crop arrives, such as Keswick Codlin, Lord Suffield, Lord Grosvenor, Devonshire Quarrenden, Yellow Ingestrie, Duchess' Favourite, Pearmain, Duchess of Oldenburg, Ecklinville, &c.; or (b) middle-season Apples of such well-known and favourite varieties that they are always saleable at good prices, despite all competition, such as King of the Pippins, Blenheim Orange, Cox's Orange, Ribston, &c.; or (c) late varieties, which can be kept till the bulk of the American crop is over, such as Bramley's Seedling, Lane's Prince Albert, Northern Greening, Wellington, &c.

PEARS.—Pears, like Apples, have greatly improved in variety, though only a few are grown largely for market. Williams' Bon Chrétien is amongst Pears what Blenheim Orange is amongst Apples, and what Victoria is amongst Plums—undoubted favourite. The Hessel is largely grown as a sure cropper. Amongst other varieties I might mention Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess, Calabasse, Fertility, Beurré Diel, Duchesse d'Angoulême, Sockle, Winter Nelis, and Catillac as being chiefly grown.

PLUMS have had many additions of late years, the chief favourite being appropriately named Victoria. Rivers' Early Prolific is a very valuable market Plum. Other varieties, such as Orleans, Prince of Wales, Green Gage, The Czar, Monarch, Diamond, Pond's Seedling, Gisborne's, Coe's Golden Drop, and Pershore, are largely grown. Plums from France are over before our home-grown ones are ready, and the Dutch Plums have not the quality of our English fruit.

CHERRIES are largely grown, particularly in Kent, where the Cherry orchards are usually sold as a crop season by season. The chief market varieties are May Duke, Elton, Bigarrean, and Morello. The grower of Plums and Cherries has an object in securing early varieties, and with Plums late ones also, so as to avoid a glut as much as possible by lengthening the period for marketing.

SOFT FRUITS.—Strawberries, Raspberries, Currants, and Gooseberries. Of these, Strawberries come first in area and extent of cultivation. They vary much with the soil and situation, and are more subject to change of variety. The Cornish and Southampton fields have done much to drive French Strawberries out of the market, and the South-Western and Great Western Railways are assisting distant fruit-growers. For flavour there is none equal to the British Queen, but its cultivation is more difficult. Paxton is by far the most largely grown market variety. President is a very useful old variety. Napier is too soft, and so is Noble, which, though of good size and prolific, lacks quality as a market fruit. Eleanor is late and sharp-flavoured. Royal Sovereign is perhaps the best of the newer varieties.

BUSH FRUITS, as they are called, are very much more largely grown than formerly. Gooseberries have a double advantage, there being a great demand for them in their green and unripened stage. Lads, Bobs, Warringtons, Industry, Ringer, and Rifleman are the chief market varieties. Currants, both red, black, and white, could with advantage be even more largely grown. They doubtless suffer somewhat from being often an undercrop. Raspberries are difficult to handle except in tubs, and more Raspberries in proportion go to the jam factory than to market. In some fruit districts local jam factories have been erected to deal with such surplus fruit as cannot be more advantageously disposed of, particularly in districts far from large towns, such as some parts of Kent,

Worcestershire, Cambridgeshire, Gloucestershire, &c.

Besides our home-raised fruits there are enormous quantities of foreign imported fruits. In 1896 we received no less than 6,177,193 bushels of Apples from abroad, valued at £1,582,471; 483,823 bushels of Pears, valued at £206,674; 560,246 bushels of Plums, valued at £241,782; and 219,367 bushels of Cherries, valued at £105,246; and a total of 18,641,874 bushels of raw fruit, valued at £5,540,069, being an increase of £2,200,000 since 1871. With such facts before us can we wonder that English open-air fruit culture is on the increase? Could we but depend with any certainty on our climate, I should say it was a great national waste that so much money should go out of the country to pay for what might profitably be grown within it. But unfortunately the English fruit crop is very uncertain, and many who might profitably engage in the business have not sufficient faith to inspire them with courage to make the attempt, or have not sufficient means to enable them to await the successful return for their outlay. Many instances could be cited of large returns in one year being followed by almost nothing another, and only by a system of averages can the value of a fruit farm be gauged. This uncertainty is very much against extended fruit culture. The latest competitor with the home fruit grower has been California, the climate of which country seems most admirably adapted for choice high-class fruits. Mr. A. Block, of Santa Clara, is a very extensive fruit producer, and he has induced the railway and shipping companies to send fruit into London markets in cool chambers. He has perfected a system of packing for this purpose. The fruit compares favourably with the choicest noblemen's gardeners' productions here to-day, and is an object-lesson for English growers how to pack and forward to market. One great advantage of foreign fruit in the market is the fact that it is sold with the case complete, thus avoiding all the vexations and troubles attaching to returned empties.

FORCED FRUIT.

The cultivation of forced fruit for market has made enormous strides during the last twenty-five years. The small and comparatively trivial quantities grown in 1837 are now hardly worth considering. The few Pineapples and Grapes then grown were obtainable only by the wealthy. Cucumbers were grown in frames and pits, and Tomatoes were unknown as food and popularly regarded as poisonous. No doubt the high prices realised by Grapes and Cucumbers led to their more extended cultivation, and the success attending these efforts, together with the more natural method of growing Cucumbers pendent, and the education of the public taste for Tomatoes as food, have opened out the trade beyond all anticipation.

Other fruits forced are Strawberries, Peaches, Nectarines, Melons, and Figs. The introduction of Madeira Pineapples has caused their culture for market as an English hot-house crop to cease. Many of our large fruit growers under glass also grow flowers, and by a judicious system of management reap considerable advantage from a succession of crops. As a rule, the most successful men engaged in this business have grown up in it. Having satisfied themselves of the soundness of its commercial character, they have applied their acquired experience in the practical details of their work to its extension. The enormously increased production has had the effect of greatly lowering the market values, and this has led in as buyers and consumers a large class, who thus obtain choice fruit at reasonable prices. This extension of trade has been made profitable by the cheapening of materials, the more economic use of them by horticultural builders, by improved systems in the construction and heating of greenhouses, and by more effective methods of carrying on the work on a large scale. Through these means the grower is enabled to face reduced prices with a fairly satisfactory result. One of our largest market gardeners thus

sums matters up:—"I have to invest more capital, to employ more labour, and to work harder myself for less percentage of profit. The public reap all the additional advantage." In visiting the establishment of any one of the large market gardeners we cannot but admire the excellent order and regular system under which their business is conducted. Everywhere are visible the forethought and direction of a master mind, capable of grasping alike the most trivial details of the work as well as the highest commercial principles so necessary in organising and successfully conducting a large and important business. A circle drawn with a 15-mile radius from Covent Garden will embrace the largest proportion of the market glass. Perhaps the Lea Valley contains the largest number of growers under glass. From Tottenham to Rye House there is a series of establishments which are monuments of progress; if the North of London be visited we find others in the Finchley district; if we journey up the Thames Valley and its outlets we again meet with many equally deserving, though more often hidden by the surrounding fruit plantations; the southern section stretches away to the Bexley and Swanley districts, where they bear equal evidence of importance as local industries. Besides this home district there are other neighbourhoods, such as Worthing, East Grinstead, Chelmsford, and many others, where colonies of fruit growers under glass are springing up and extending. In fact, wherever the soil and situation seem favourable to the successful development of this business some enterprising person seems ready to open it up. I should particularly like to quote Worthing as a remarkable illustration of what a locality distant from large centres of consumption can accomplish. It is now about twenty-six years since the first commencement was made to produce glass-grown fruit at Worthing. It has now become a local industry of the highest importance. No fewer than 650 houses of glass are rated as agricultural land with a rateable value of £8500 a year. They produce great quantities of Grapes, Tomatoes, Cucumbers, and flowers; and the united efforts and association of the growers have literally compelled the railway to grant more favourable terms for the transit of goods. I find it impossible to give accurate information respecting the quantities of goods raised under glass, but so far as I can judge there are about 1000 tons of Grapes, 6000 tons of Tomatoes, and 500,000 dozen of Cucumbers produced in this country at the present time yearly. It is estimated that there are 32,000,000 square feet of glass in the United Kingdom used for fruit and flower culture. This would cover 735 acres of land, and if put together end to end in houses, 15 feet wide, would reach a distance of 400 miles.

GRAPE.—The chief varieties of Grapes grown for market are Black Hamburgh, Gros Colman, Alicante, and Muscat of Alexandria; and in smaller quantities Madresfield Court, Gros Maroc, and Canon Hall.

TOMATOES.—The old wrinkled variety has gone quite out of cultivation, and many growers select their own seed, chiefly from strains of Chemin Rouge, Perfection, Challenger, and Trophy.

CUCUMBERS.—The present system of growing Cucumbers in quantity has had the effect of almost entirely driving out the Early Dutch Cucumber from the market; and when the British public shall appreciate the value of this fruit as a stewed vegetable, as well as a raw salad, there will be an additional opening for its culture. Improved varieties for hot-house culture have followed the introduction of Telegraph and White Spine, and hybrid varieties raised therefrom now dominate the market. Many eminent growers are their own seed raisers. Instead of importing Cucumbers, there is now a considerable export trade in them to Continental cities. Our Grapes, too, are sent to the Continent and to America, proving at once the superiority of our hot-house fruit.

PEACHES and NECTARINES are grown in certain districts. Unless high-class fruits at top prices

are produced, there does not appear to be very much profit attached to their culture. The Peach is especially liable to damage from imperfect packing and change of temperature, and no fruit shows such a difference in price between the first and second grades.

STRAWBERRIES under glass are a profitable crop when well grown, and they can be succeeded by a crop of Tomatoes. In some cases a third crop of Chrysanthemums is grown in the same house.

FLOWERS—OPEN-AIR.

Large as have been the areas of agricultural land transferred from the farmer to the market gardener to supply vegetables and fruits, and great as has been the progress of those grown under glass, the crowning point of modern gardening is most certainly shown in the rise and progress of flower culture for market. There can be no comparison made between 1837 and 1897 in this branch of market work. The few loads of plants in pots and bunches of flowers only obtainable at Covent Garden Centre Row have been changed into the unique and magnificent spectacle presented by the early Covent Garden Flower Market of to-day. Nothing so much marks the advance of our working and middle classes in material progress, in improved taste and refinement, as their increased outlay upon flowers. At all seasons and under all conditions of life, from the sick-room in a London lodging, or the ward of a public hospital, up through all times of joy and sorrow, to the highest function of society (the Drawing Room), we find flowers shedding their joyous light and delicious perfume, Nature's most charming productions. Open-air flowers commence with the humble Snowdrop, passing along with the changing seasons through Violets, Narcissi, Tulips, Wallflowers, Lilies, Pinks, Stocks, Roses, Asters, Dahlias, Chrysanthemums, and others, till frost and snow again appear. In early spring a large quantity of rooted plants and seedlings suited to suburban and window gardening is daily sold in pots and boxes. These are succeeded by bedding-out and window plants, such as Geraniums, Calceolarias, Marguerites, &c.

FORCED FLOWERS—POT PLANTS.

But however much we may admire our hardy and half-hardy bedding plants, they are eclipsed by their more delicate brethren of hot-house culture. Pot plants (as distinct from cut flowers) are of two classes: (1) fine-foliaged plants and (2) flowering plants.

FINE-FOLIAGED PLANTS have recently become more and more in demand, especially since our growers have proved that they can raise them without the assistance of foreign nurserymen. The Palms, for instance, have so increased in quantity and decreased in price as to bring them within reach of a multitude of buyers. The chief fine-foliaged plants brought to market are the Palms, Ferns, Crotons, Aspidistras, Aralias, &c. A curious fancy for small boxes of mixed fine-foliaged plants in 2½-inch pots has sprung up of late years, and one firm alone sells about two and a half millions of these pots annually.

FLOWERING PLANTS in pots give general evidence of excellence of cultivation and magnificent training. They change with the season much more than fine-foliaged plants do. The succession runs through Tulips, Hyacinths, Primulas, Cyclamens, Cinerarias, Spiræas, Deutzias, Musk, Mignonette, Marguerites, Heliotropes, Fuchsias, Calceolarias, Pelargoniums, Lilies, Ivy and other Geraniums, Heaths, Roses, Chrysanthemums, and many others. Some have a longer period than others, but all present in turn masses of colour, supremely grand at all seasons. The grower of plants for market is subject to fashionable caprice more than any other producer. Many flowers for almost unaccountable reasons have a run for a few seasons and then get somewhat discarded for newer favourites. As it takes some time to raise a stock of any newly-fancied variety, the artificial rise and fall in value are very disheartening to growers. A faint idea of the extent of this important branch of market work may be gathered

from the advertisement columns of the gardening Press, where sales of hundreds of thousands of leading market varieties of young stock are quoted. In addition to the millions of pots brought into London, there is a very large trade carried on between the growers' places and distant centres of population, many thousand boxes being thus sent direct by rail every year.

CUT FLOWERS.—Besides the enormous quantity of flowers and plants in pots grown for the market, there has sprung up of late years an increasing trade in cut blooms. In point of fact, many growers are beginning to divert their attention from plants to cut flowers, as entailing less work and expense with more certain sale. In this department, however, the local grower has to enter into competition not only with the surplus cut blooms of private growers and gentlemen's gardens, but with more distant English market growers, who can send supplies of cut blooms readily by rail, and also with the foreign producer, favoured with cheap rates and a more genial climate. From the Riviera, for instance, we have daily hundreds of baskets during the winter and spring months, and this trade is largely increasing. Doubtless there are times when this competing French flower trade has a considerable effect in cheapening certain classes of English goods. The choicest freshly cut home-grown flowers, however, secure the best class of trade, and in this as in fruit the English grower stands unrivalled. As an instance of the remarkable effect of opening up a market with a remote locality I cannot but quote the Narcissus trade of the Scilly Islands. This was introduced by Mr. T. Algernon Dorrien Smith, of Treseo Abbey, who sent the first lot of flowers to Covent Garden in 1865, when they realised £1. Under this gentleman's fostering care and untiring efforts the export in 1885 had risen to sixty-five tons of flowers; in 1887 it had increased to 100 tons, and in 1896 to 496 tons of Narcissi and fifty-nine tons of Wallflowers and Tomatoes. The largest day on record was this year, when 1600 boxes came to London alone. The Narcissus as a market flower affords a remarkable example of the way in which a popular favourite rapidly develops. Perhaps this is due, not only to its innate beauty as a flower, but to the time of year when it blooms, to its good keeping properties when properly gathered, and to the admirable and effective method of bunching for market. Great credit is due to those growers who so successfully introduced this popular flower. The chief cut blooms for market are Lilies of the Valley, Roses, Carnations, Scarlet Geraniums, Tuberoses, Arums, Camellias, Gardenias, Eucharis, Orchids, Chrysanthemums, &c. The great feature in connection with blooms is to secure a regular and constant supply. Of course this is impossible in certain cases, but there are others where it is done. White and self-coloured flowers are always in demand, and consequently are less subject to glut and its attendant evils. One of our latest developments has been to keep Lily of the Valley roots in cool chambers, so that they may be grown all the year round. It is impossible to give any statistics as to the quantity of cut flowers or of the many thousands engaged in the trade as growers and sellers.

Wren's nest in an Arum plant.—About a month ago a batch of Arums that had been flowering in a low, span-roofed house at a neighbouring nursery, were shifted into a large, cool house until they could be removed to the open. The pots were placed close together, and the spreading foliage of the plants, forming a natural canopy, inspired a pair of wrens with the notion that an ideal nest could be fashioned among the tall shafts of the Arums' leaves, and, one day, when the blooms were being cut, a perfectly-completed nest was discovered, built between the leaf-stalks of one of the plants. Unfortunately, shortly afterwards, a boy watering carelessly with a hose managed to swamp the nest and wash it from its position. At the same nursery another pair of

wrens have a nest in a Maréchal Niel Rose, trained against the back wall of a lean-to vinery, facing due south. The nest is almost at the top of the wall and not more than a foot from the glass, so that the temperature, when the sun is shining, should save the prospective parents the trouble of incubation.—S. W. F.

TURF IN AND NEAR THE FLOWER GARDEN.

Good turf is justly the pride of British gardens, and though in old times, when labour was not so expensive, many of the larger gardens showed waste in mowing great areas of grass, the possession of fine turf is essential in and near the house and garden—we mean that wholly apart from the open park or playground. Flower beds are often set in turf, or there are small grassy playgrounds and spaces near the house or the garden on the good effect of which depends very much the beauty of the home landscape, as they come so much into the foreground of what should be pictures. One reason why we should take care to get the best turf which the conditions of soil or climate allow is that no other country but ours can have such good turf. In many countries, even in cool Europe, they cannot have it at all, but grass seed has to be sown every year to get some semblance of turf. Where, however, the natural advantages are so great, our care should be to get the benefit of them, and though in many places the turf, through much care and the goodness of the soil, is all that could be desired even in Britain, in others a very poor turf is often seen. In such cases much mis-spent effort is often given in vain attempts to get a good turf.

From want of knowledge or care, and occasionally local or other reasons, many people, thinking that any rough preparation will secure them a good sward, merely trench and turf the ground; others think that turf will come of itself; but such people are often rudely disappointed, and therefore some instructions as to the best way of laying down turf, where the work has to be done from the beginning, and also for repairing it when out of order, may be useful to some readers. The following is written by Mr. James Burnham, who has made some of the most beautiful garden lawns we have seen, some of them laid in bad spring weather.

FORMATION OF GOOD TURF.—Should the spot chosen be on heavy soil, such as clay, take the levels and fix them 16 feet apart around the outside of the piece intended for a lawn. Take some levels across the piece, then take 12 inches of the clay out below the levels. Should any of these 12 inches contain good soil, wheel that on to the outside of the piece, removing all the clay to a place near and burning it into ballast. This can be done by using slack coal. Find the natural fall of the ground and place pegs 16 feet apart in lines from top to bottom the way it falls, then dig out the soil in line of pegs with a draining tool 12 inches deep at top end, bottom end 18 inches deep. This will give a fall of 6 inches. Then lay in 2-inch drain pipes, with at the bottom end a 3-inch pipe for a main to take the water that drains from the sub-soil. See that this main is taken to some outlet. Cover the pipes with 3 inches of burnt ballast, and spread 3 inches of burnt ballast all over the piece of ground. Dig the ground over 12 inches deep, at the same time mixing the 3 inches of burnt ballast with the clay, taking care not to disturb the pipes or dig below them. After treading all over firmly, place on the surface 2 inches of burnt ballast, filling to the level with loam mixed with the good soil you have

laid on one side from the surface. If you have no good soil, fill up with loam mixed with coarse gravel, brick rubbish, and burnt ballast. Tread all over again as before, making it level with a spade, pressing in any lump or stone that appears level with the ground. No rake should be used. You have now 2 feet of trenched earth. Do not dig down deeper in one place than another. A stick cut 2 feet long by the worker's side is the best. He can, with the stick, test his depth from time to time. In laying the turf keep the joints of each piece half an inch apart. When it is all laid down, pat it gently all over with a turf-beater. It is better to take up the turf that is a little higher than the rest and take out a little of the soil than to beat it down to the level. Then spread some burnt ballast, ashes from the burnt refuse of the garden, and the top 2 inches of soil from a wood, sifted through a half-inch mesh sieve, mixed well together, all over the grass. Move it about until all the joints in the grass are level. Wait for rain, then go over the lawn and take out all weeds. Give another dressing of the soil as before, adding to this a little road grit and old mortar. If no old mortar is available, slaked lime will answer. Move this about until all is level again. In the month of March or the first week in April, if the weather is fine, sow all over the lawn some of the best grass seed. Get some fine Thorn bushes, lace them together in the shape of a fan heavy enough for two men to drag about the lawn in various ways. Roll with a light roller. Keep off the lawn until the grass has grown 3 inches, then cut it with a scythe, and roll with a light roller the first season. When mowing with the machine is commenced, see that the knives are not set too close to the ground.

Should the spot selected for a lawn not contain clay, so much the better. Dig holes here and there 2 feet deep in the winter months. If no water lie at the bottom of the holes, this shows it will not want draining; if there is water, drain as on heavy soil. In trenching the ground, if the subsoil be bad, take 3 inches of this away, filling up to the level with good soil to which have been added half-inch crushed bones in the proportion of four tons to the acre, fine brick rubbish and burnt ballast in the same proportions as for the heavy soil. Turf and treat as on heavy soil. If you have a good grass field, take the turf for your lawn, also top spit away, replace with rough soil, and place 3 inches of the loam that has been dug out upon the rough soil you have put in, then sow, bush harrow, and lightly roll.

TREATMENT OF OLD LAWNS.—Weeds, Moss, and bare places on lawns show that they are worn out. To renew this, take off the turf in rolls 3 feet long, 1 foot wide, and 1 inch thick. If the turf cannot be rolled, take 6 inches of the surface away, then trench 2 feet deep, keeping the good soil on the top as you proceed. Tread firmly all over, and fill up to the level with good soil; mix with the loam, burnt ballast, old brick rubbish, half-inch crushed bones, and road sidings or sweepings. Then turf and treat as in the case of new lawns. On old lawns there are very often handsome deciduous trees too close to which it would be dangerous to trench. To get grass to grow under these, take away 2 inches of the exhausted soil, replace with good, and sow thereon grass seed thickly. Rake the seed in gently, roll it lightly, and water when necessary. This may be repeated in the same way as often as the soil under the trees becomes bare. In some cases where turf is scarce, a roll of turf 3 feet long and 1 foot wide may be taken and cut in half lengthways. With this form the out-

lines of the beds which have been staked out previously, beat down to the level required, and bring up the intervening spaces to the level of the turf with good soil. Make this firm, rake it level, and on this sow some good grass seed. Rake it over, roll lightly, and protect from birds where these are troublesome. Cut the grass when 6 inches high with a scythe and keep it well watered during the summer if the weather is dry. In this way a beautiful lawn may be had at little expense as compared with turfing it completely over.

LAWNS ON HEAVY AND SANDY SOILS.—In some parts of Hampshire where peat and sand abound seeds are by far the best to use to form a good turf. Remove all peat from the site you wish for a lawn, pile it on the outside of the work and cast plenty of water upon it. Then take out 2 inches or 3 inches of the dark sand that lay under the peat, cast this also over the pile of peat. Take out 12 inches of the sand, dig all over 12 inches deep and tread it firmly. Get all the road scrapings and road trimmings you can with a little clay and stiff loam and cast upon the peat pile. Having got together the quantity you think will fill up to your level, then cut up small the peat you have in the pile and mix all well together with this, fill up to the level, tread firmly all over, then give all over a good coating of cow manure, turn this 3 inches under the surface, and tread firmly all over. In the month of March sow thickly. Do not let the surface get dry the first summer and cut the grass when 6 inches high with a scythe.

Attention should be paid to keeping all lawns free from weeds. Dress lawns once a year with one bushel of salt mixed with fourteen bushels of wood ashes not too much burnt. When you see the wood is consumed, spread the ashes abroad and cover with good soil. Break the charcoal small, mix all well together, do not sift, spread upon the lawn, and roll it in.

CHRYSANTHEMUMS.

EARLY-FLOWERING CHRYSANTHEMUMS.

ALONG with the late-flowering, large-bloomed Chrysanthemums which have been so much in fashion for some years past there are also some varieties which should not be lost sight of, considering their special merits. I mean the early-flowering kinds, which, on account of the period at which they bloom, cannot appear at the exhibitions where their late-flowering sisters make such triumphant displays.

These early-flowering varieties, although, perhaps, of more modest appearance than some of the other kinds, are not less valuable in the highest degree, possessing, as they do, the good quality of blooming several weeks before the late-flowering kinds, and consequently of charming the sight at a time when the flowers of these later kinds have not yet commenced to bloom. They are, moreover, very easily grown, and do not require any of the special attentions which are exacted by plants grown for the winter-furnishing of apartments and winter gardens. They should be allowed to grow as they like, and should not be disbudded; they cannot be grown in pots.

From the latter part of summer to the end of autumn these early-flowering Chrysanthemums may embellish our gardens with their brilliant and abundant flowers, the blooming of which is generally continued until very late in the end of the season, as the early frosts are seldom severe enough to damage them. It is to be regretted

that these plants have been so much put aside of late years and sacrificed to the large-bloomed kinds, which, although possessing their other good qualities, are inferior to them in hardiness and capability of being grown as open-air plants, properly so named. Twenty years ago, on the contrary, early-flowering Chrysanthemums were extensively grown, although large-bloomed varieties of this group were not at that time known, and only pompon kinds were cultivated. M. Délaux, a grower in the south of France, had the first large-bloomed variety of early-flowering Chrysanthemums. This precious variety, which was named Gustave Grunervald, was taken in hand by several growers, who, by judicious crossings, have enriched the gardening world with more than 100 new varieties remarkable both for the diversity of the forms of the flowers and for their brilliant and varied colours.

I may, perhaps, as well mention how the first early-flowering Chrysanthemum made its appearance in France. In the year 1853 it was raised by M. Pelé, an eminent grower, who named it C. Andersoni, in compliment to Mr. Anderson, a London nurseryman, who purchased the stock from him for the sum of 500 francs (£20)—a high price at that time, and indicative of the value of the new variety. Mr. Anderson distributed this Chrysanthemum in various parts of Europe, where it was highly appreciated by amateurs, who at that period were enthusiastic in their admiration of this fine race of plants. The colour of C. Andersoni was a brilliant chrome-yellow, and the plant flowered from the end of June up to the first frosty weather. Other varieties, obtained from this by the same raiser, continued the series of early-flowering kinds. A few of the names, taken at random, will give some idea of the fine plants of the period, viz., Andromède, Belle d'Août, Orion, Regulus, Arc-en-ciel, Comtesse de la Chastres, Homère, Mme. Louise, Sainte Flore, Aigle d'Or, La Créole, La Carmélite, Sainte Agathe, Alexandre Pelé, Durullet, Trophie, Mme. Pelé, &c. Some of these varieties, which are still sold in our flower markets, were very largely grown for sale a few years ago.

Amateurs have too much neglected the fine early-flowering varieties, which adorned the gardens of our fathers for nearly half a century, for the exclusive culture of varieties with enormous, I might say monstrous, flowers to which their attention has been entirely diverted. I repeat that they do not merit this neglect, but have good reason to be recommended, and notably for planting in flower-knots in the grounds of amateurs, where they would advantageously replace some kinds of plants which, when summer is over, present no further attraction. They would be all the more appreciated because the holidays at that time of the year send town-dwellers in crowds to country residences, where flowers are never too plentiful nor in too great variety. Besides, it must not be supposed that all the flowers of early-blooming Chrysanthemums are of small size; on the contrary, the flower-heads of some of the new varieties attain a pretty large diameter, and that without any disbudding.

At the exhibition in June of last year held by our society, five or six varieties of early-flowering Chrysanthemums, with blooms of extraordinary size for the season, formed a superb group. The Parisian growers are certainly far in advance of foreigners in the cultivation of plants of this kind. In the group to which I have alluded might be seen flowers of deep pink, old gold, chamois or buff, white and yellow colours. The variety Gustave Grunervald was

largely represented there as well as the varieties which have sported from it, and which have achieved such a success at the exhibitions of the Royal Horticultural Society in London. Such an early blooming of these plants as was seen at the exhibition in June, 1897, may be regarded in the light of a singularity, of a difficulty overcome, but is of no interest as regards the embellishment of gardens, which at that time of the year are plentifully supplied with flowers. It is in the months of August and September that these Chrysanthemums can be had in flower to the greatest advantage, and they will then be appreciated by everybody.—M. LEMAIRE, in *Journal de la Société Nationale d'Horticulture de France*.

—The trial in the gardens of the Royal Horticultural Society, Chiswick, last season of these must be considered a great success, and there is little doubt that the display then made was a surprise to many who had failed to keep themselves in touch with the progress made during recent years. Only recently there was a preponderance of the pompon sorts, and pretty though these were, a large number were distinctly formal in appearance, chiefly through a system of severe disbudding and a comparatively limited range of colour. Brighter colours were badly needed, and these in flowers as represented in the ordinary midseason sorts. This was at length accomplished, the French raiser, Mons. Simon Délaux, in particular deserving credit for the large and varied selections he sent out, comprising Japanese sorts of rich and lasting colours and in numerous and interesting forms. If I remember rightly, in one season he distributed some 200 distinct sorts. This number was far too many for one season, as it was almost a matter of impossibility to test the merits of each satisfactorily. Only one firm of specialists gave this importation a thorough trial, and although copious notes were taken at the time of the specially good sorts among them, only a small proportion of these was again heard of. That a large number were distributed throughout the country in the succeeding season has since been proved by the occasional notices that have appeared in the horticultural journals respecting sorts which can be traced to this particular importation, but there is little doubt that many excellent novelties were lost.

No longer can we complain of want of colour and brightness in the early-flowering Chrysanthemums, as these may now be obtained in crimson, orange, bronze-yellow and white, besides many intermediate shades. With very few exceptions the habit of the plants is good, while there are many instances in which almost typical plants for outdoor work have blossoms of the brightest colour. Most of the varieties may be considered dwarf, and rarely exceed 3 feet in height. The pompoms are remarkable for their dwarfness, 2 feet being an average height for this type of plant, and these generally are literally covered with their pretty little blossoms.

One of the most effective methods of growing them I witnessed in a private garden last season. In this case some half-a-dozen plants of a sort were planted together, a distance of 2½ feet to 3 feet between each plant, and when the flowering season came round the display they made was remarkable. This method is worthy of repetition in all gardens where a late summer and autumn display is wanted, these plants coming in at a time when the outdoor garden is beginning to lose its beauty. An unfortunate mistake is sometimes made in severely disbudding the plants in the hope of obtaining a few extra good flowers. This is a mistake. The early-flowering sorts seem to resent this interference with their natural growth, which, if left alone, invariably produces numberless blossoms of good colour, and which last a considerable time in the open. In a few instances the plants may be partially disbudded with good results, and this in the case of those plants which develop a number of buds in clusters and ultimately finish unfolding their forets on blooms with very short footstalks. In gardens

where there is a great demand for cut flowers during the period already referred to, it would be found distinctly advantageous to grow a batch of these plants in a spare piece of ground for this purpose. I know of instances in which these early-flowering sorts have only been grown for one season in this way, and so pleased have the growers been with the long and continuous supply which the plants have given, that they have determined to extend the practice during the present season.

The third week in May has been my time for planting out for years, and if the plants are in a strong and healthy condition at that time they will be about 3 feet in diameter when the flowering season arrives.—D. B. CRANE, *Highgate*.

FLOWER GARDEN.

THE WINTER ACONITE.

(*ERANTHIS HYEMALIS*.)

We have no prettier flower in the garden in its season than the Winter Aconite. It is alike interesting and beautiful, as well as useful in many ways and various aspects in the garden. In the latter one of the most beautiful ways of utilising this plant is that of freely planting it in the grass. On grassy slopes it is very beautiful, particularly where later-planted roots appear with the Snowdrops and the Glory of the Snow. Not less desirable is this plant for the margins of woodland walks. In all these places the golden cups, snugly placed in the leafy nest, make a very pleasing picture in the winter landscape, and if perchance its flowering is accompanied with sunshine so much the better, as the golden-yellow blossoms expand to their fullest extent and render it one of the showiest, as it is also one of the simplest, of garden flowers. In the rock garden likewise should good use be made of this harbinger of spring, and again as a ground-work for many deciduous and flowering shrubs that make but little show in the winter. In the past this plant has been utilised in all the positions here suggested with good effect, not in a great tuft here and another yonder, but a free sprinkling calculated to produce a natural carpet more or less freely distributed over a large area, though not all in the same vista. Such shrubs as the Mezereons, Andromedas, Rhododendron præcox, the Dogwoods, Azalea mollis, and such like are a few of those that may be—indeed, have been—frequently successfully treated in combination with this pretty flower. Quite in the early days of the present year this plant figured freely at Kew in such positions. One bed of the Siberian Dogwood we remember was very striking, with the crimson stems of the shrub against the host of golden-yellow cups that for the time constituted the ground-work. Happily, too, the plant is not fastidious as to soil. It will grow and flower in poverty-stricken soils near to Laurel hedge fences, almost with the same regularity as it will in peaty beds where Andromedas and Daphne Cneorum thrive so well, or again in heavy soils or the cool surroundings of turf, the plants coming and going and reappearing the following year in the majority of instances. One position—the hardy fernery—has been left till now, yet the effect among the bronzy fronds is not only pleasing but frequently surprising, thus adding a winter charm to a usually deserted portion of the garden.

Narcissus triandrus albus.—Could we compute accurately the number of bulbs lost in the vain attempt to establish this beautiful Daffodil in the border or on rockwork in our climate, the total would be surprising. It would be interest-

ing to know in how many places in the United Kingdom this Narcissus will live from year to year. I have been unable to establish it yet. Only a few miles from my garden it has been grown in the ordinary border for six or seven years, and the seedlings are flowering freely around the parent clump. This is in the garden of Mr. James Davidson, of Summerville, near Dumfries. The border is of good loam, and *N. triandrus albus* makes remarkably vigorous growth and produces a good number of flowers annually. Needless to say, the lovely white flowers are much admired by all who see them.—S. ARNOTT, *Carsehorn, by Dumfries, N.B.*

Violet La France.—This large and fine Violet has done very well with us, even small, weak plants of their first year, and Mr. Millet, of Paris, the raiser, writes to us regarding it and other varieties as follows:—"I am glad that my Violet La France has succeeded so well with you. I receive congratulations concerning it from all parts, so that I am led to believe it will be a good plant everywhere. Replying to your query on the subject of 'Violet Culture in the Neighbourhood of Paris,' I must tell you that this has much changed in the last ten years, the south of France having done much harm to Parisian cultivators, and, on account of this competition, Parisian growers look out for the varieties which flower in autumn and spring. They cultivate The Czar, Luxonne, Princess of Wales, Four Seasons, and a variety known in my catalogue under the name of Grosse Bleue, which flowers in autumn and spring, but scarcely at all in winter. There are also some who devote exclusively to the Parma Violet from



The Winter Aconite (Erantnis hyemalis). From a drawing by H. G. Moon.

20,000 to 25,000 frames, which are warmed by steam. The flowers are picked for winter use and the plants in the spring are sold in pots."

Saxifraga aetiooides primulina.—Among the crusted Saxifragas at present in flower, I think none can equal the above when seen in good condition. Though naturally one of the slowest to form really fine tufts, it is, nevertheless, beautiful when it has reached specimen size, and then flowers with great freedom. The blossoms, individually, are not so large as in *S. Boydi*, nor so deep in colour, but these are more than compensated for by their greater numbers. The shade of yellow is the true pale primrose tint which is so pleasing above the perfectly mounded blue-green tufts. The plant is not a difficult one to grow, particularly if in spring and during dry weather plenty of water is given it. Grown in pots it is a perfect gem. My largest plant this year has been exceptionally good, having produced nearly four dozen of its pretty spikes, the majority of which carry three flowers each. It is so good and so apparently perfectly happy under pot culture that one hesitates to plant it out, though doubtless given the right position it would be equally successful. Much of the stock of this I have seen from time to time is less free in growth. This I think may be accounted for by my giving the plant abundance of water, which I consider indispensable to many of this family during the early

spring. A free, rich mixture of sandy loam, finely sifted very old manure, and broken brick is the compost my plant is growing in.—E. J.

Leucojum æstivum.—The mention of the Summer Snowflake in "S. W. F.'s" delightful notes on "March in South Devon" induces one to return to the subject of its non-flowering with him, about which, it may be remembered, some little correspondence appeared some time ago. Since that time I have been comparing the freedom of flowering of plants in various positions. These observations confirm the advice offered by Mr. Jenkins and myself that "S. W. F." should try a drier position for *Leucojum æstivum*. Here there is one clump on the edge of a little nook prepared for Trilliums and similar plants. This had the sides and bottom made almost watertight so as to retain more moisture than usual. The Summer Snowflake in this wet corner produces a much smaller proportion of flowers than in any other part of the garden, although there is practically no difference in the exposure. This clump also makes growth earlier. It may be mentioned that the foliage looks much finer than in dry places, but this is compensated for by the plants in the latter having five or six times the number of heads of bloom.—S. ARNOTT, *Carsehorn, by Dumfries, N.B.*

Edgings.—Much beauty is lost to gardens by not using suitable plants for edgings. Edge the walks tastefully. Oyster-shells, bits of broken china, and tiles are not pretty. Wood is objectionable, as being a fruitful source of fungus troubles. Get stone if possible, and plant against it tufted creeping things, as the Mossy Saxifrage (*S. hypnoides*), like a soft mat, spongy as it were, and of a cheerful green throughout the year. The common Thrift (*Armeria vulgaris*), Pink Mrs. Sinkins, or the old Fringed White; Creeping Jenny, or the deep blue *Gentianella* (*G. acaulis*) will be happy under such conditions. The *Gentianella* is the most quixotic of these, sometimes flowering and growing delightfully, sometimes the reverse; it likes a warm, light, gritty soil, then one may expect the rich harvest of blossom as deep as sapphire in tone. A garden may be made beautiful in a way with edgings alone. People lose much by not knowing what to plant, and the soil for the things to root into. The beautiful Speedwell (*Veronica prostrata*) makes a thick mat, hidden for several weeks in summer by a profusion of rich blue flowers. I once saw a superb edging of this Speedwell, a picture in itself, and taking the place of ugly tiles and brick ends in many gardens. I love to see the so-called common White Pink as an edging. In June it is covered with flowers as white as a snow-drift, and a fragrance as sweet as a Tea Rose scents the garden. When all this glory has departed, the silvery tufts are like a satiny sheen in autumn and winter.—C.

Sternbergia Fischeri.—Apart from its curious habit, for a *Sternbergia*, of flowering early in the year (March and April), this does not seem to be a specially attractive plant for general cultivation. It is well established here and blooms freely, but the flowers are pale in colour, do not have long stems, and are of a texture too soft or thin to pass unscathed through some of our hard weather. The average gardener would find much more satisfaction in a clump of early-flowering Narcissi. Of course everyone who grows *S. lutea* values it highly, for it is one of the best low-growing bulbous plants of the autumn. I notice reports of many failures with these bulbs, and it appears that both this and *S. macrantha* have definite ideas of their own as to what position suits them. Judging from my own experience, *S. lutea* prefers a warm, sheltered place, where the soil does not cool off too early. At least in such a position it thrives here and always flowers, while another clump planted in full exposure, where every cold breeze sweeps over it, is only now starting. This hint is merely a tentative one, for on general principles one would not expect a plant, whose leaves appearing in the fall are unaffected by the hardest weather, to be so easily discouraged. However, one does not always

garden by theory, and if a plant fails in what one considers the proper environment, one must either discard it or stifle his pride of cultural knowledge and shift it to some other position.—J. N. GERARD, *Elizabeth, New Jersey.*

KITCHEN GARDEN.

TOMATOES IN VINERIES.

It is said of the Grape-growing industry that the great dimensions it has so rapidly assumed are largely due to the ever-increasing demand for Tomatoes. Thanks to the possibility of growing remunerative crops of the latter for at least two seasons, or till the whole of the roof is thinly covered with Grape Vines, there is no long waiting for returns, and, as a consequence, the grower can afford to part with his Grapes at comparatively low rates and yet feel well repaid for his trouble and outlay. The methods of market growers have of late years been largely followed by private gardeners, and not always with unqualified success. By all means grow Tomatoes in vineries and Peach houses so long as there is room for them, but not at the expense of the more legitimate and, in my opinion, more generally profitable occupants of those structures. Newly-planted Vines or trees are very liable to be smothered by Tomato plants disposed near to them, and that is what takes place in small houses where too much is attempted. Market growers have, I feel certain, nearly all made the same mistakes. In their case, however, there are, as a rule, no expensively formed borders for the Tomatoes to revel in, and, in addition, the bulk of, if not all, the Tomato plants are grown in fairly large pots and the roots allowed to spread out into the border, as advised on page 367. The pots have a restraining influence upon the growth of the plants, and the roots do not rob the borders to any marked extent. On the contrary, it is my belief that pot plants, which of necessity have to be fed liberally, actually leave the borders richer than they found them. So well do Grape Vines and Tomatoes agree together when the latter are not allowed to gain the upper hand, that I have actually found Vine roots in possession of the soil in Tomato pots. If the Vines suffer from contact with Tomato roots it is because they do not get a fair share of the insufficient moisture supplied.

Vines, in common with Tomato plants, must have plenty of light and sun if they are to thrive, and it is useless, therefore, as far as crops are concerned, to attempt their culture if these conditions cannot be complied with. If the former are disposed not less than 3 feet apart and are planted ("cut-backs" are best) in March, the rows of Tomatoes may come midway between these and right across the house, for one season only, one class of plants not greatly interfering with the other. The Vines should be topped when about 8 feet long, and all laterals and sub-laterals be stopped beyond the first leaf on each break. If the roots are kept properly supplied with water the rods ought to be stout, requiring little or no shortening, and be capable of producing four to eight bunches each without sustaining other than a salutary check thereby. There should be no cropping the full width of the vinery during the second season. I tried it once, but was a considerable loser thereby, more especially owing to the rubbed, disfigured state of the bunches of Grapes. A lean-to house may safely be cropped from the back walls to within 5 feet of the front wall with Tomatoes, and in the case of span-roofed structures 5 feet space on each

side should be given solely up to the Vines. The leading growths of the latter being topped when another 5 feet to 6 feet have been added to the length of each rod and heavily cropped, producing, say, from eight to twelve bunches apiece the following season, attempting to grow Tomatoes in the centre of the house would not end profitably. Maiden-hair Ferns would be a better crop. In some instances that have come under my notice undue importance has been attached to the Tomato crop, the Vines being topped when about 6 feet long in order that they should not shade the plants. This hard stopping resulted in forcing out growths from buds at the base of the laterals on the young canes, practically ruining them. Allowing the laterals to grow unchecked is an un-called-for proceeding—a mistake, in fact; but the other extreme, or too severe stopping of leading growths, is even more unwise.

As before hinted, if the borders are double-cropped, very much more water must be applied than would have been the case if no Tomatoes were grown, a mulching of strawy manure both conserving moisture and preventing the soil becoming as hard as a road. Under this treatment the Vines may grow strongly, though not more than desirable, while the Tomatoes, if planted out, will probably become too gross to crop well. Checking this by withholding water will not answer well, and this is a case where rather severely reducing the size of the primary leaves is both justifiable and desirable, as it serves to prevent rank growth. Attempts to grow Tomatoes in vineries frequently made by private gardeners long after the roofs have been covered with Grape Vines invariably end in failure. The favourite positions are at the ends and against back walls, but light without direct sunshine does not meet the case. I remember once seeing remarkably good crops of Tomatoes, the fruit hanging in great clusters on plants growing in boxes of soil arranged on high back shelves, in the vineries at Forde Abbey, near Chard, Somerset, but they were not wholly covered with Vine leaves, enough sun and air reaching the Tomatoes to cause them to flower and set fruit with the greatest freedom. What Mr. Crook accomplished in that position, others, too, may imitate with advantage, training the plants down the trellis, as in his case.

There is one very good reason why a few or many Tomato plants, according to circumstances, should be grown with Grapes in a house. Wasps, curiously enough, have a great aversion to Tomato plants, and I never yet knew them to eat the fruit. They will not pass through a row of plants arranged along the front of a house, nor in my case have the Grapes been touched by wasps where Tomato plants are growing in fairly large quantities. Whether a few plants against a back wall would have the effect of keeping wasps out of a vinery I am unable to say, but it is no new discovery, and there are numerous readers of THE GARDEN who could, if they would, enlighten us on the point. In some districts wasps are such a scourge that any simple remedy would be welcomed by innumerable gardeners, not a few of whom have spoilt more Grapes than they have saved in their efforts to exclude wasps from them. Anything over the various openings fine enough in texture to exclude wasps also seriously militates against a free circulation of air, and wholesale decay of ripe fruit is likely to occur in a stagnant atmosphere. If my advice, therefore, is taken, a few Tomato plants will be grown in vineries merely as a preventive of wasps. More might also be grown immediately in front of vineries, either planted in a disused outside border, or else in 12-inch pots

set on an outside border. If the plants in pots are kept well supplied with water and liquid manure, and also attended to in the way of dis-budding, they will produce good crops of fruit without doing any harm, and very probably by the means of keeping wasps away.

W. IGGULDEN.

NOTES AND QUESTIONS.—KITCHEN.

Broccoli Cattell's Eclipse.—This Broccoli has for many years been grown largely, and though some of the later introduction are superior as regards colour, they are in many cases less hardy and therefore, not so reliable. This variety rarely fails even in hard winters, and comes in from the middle of April to the end or even later, much depending upon the soil and locality. I find to do this variety justice it is necessary to sow in April. I have referred to its colour, it being what is termed a sulphur-coloured variety, but this is not noticed where quantities are needed. Its hardiness makes it valuable when so many fail. I always grow this variety to precede the well-know Model. If the heads are cut in a small state the colour is not at all objectionable.—S. M.

Dwarf Bean Early Favourite.—I have this season grown this Bean in pots and am much pleased with its earliness, cropping and good quality. Ne Plus Ultra is reliable, but the newer Bean, in addition to being very early, is also larger in the pod and more fleshy, in this respect resembling Mohawk, one of the seed parents. Many at this season will be planting dwarf Beans in the open; and I would advise a trial of Early Favourite, as it is one of the earliest I have grown and the quality is as good as when forced. This variety has stouter foliage and appears to be hardier—at least, it suffers less in cold weather than smaller-leaved kinds. Its dwarf compact habit will make it a favourite in all gardens where earliness, cropping and quality are considered.—A GROWER.

Tomato Conference.—A great number of Tomatoes has been introduced since the advent of Conference, but none to surpass it in quality and cropping. I am aware there are many larger kinds, but mere size in Tomatoes is not needed, as large fruits are not always of the best quality. Though this variety may be termed old in comparison to others, it is still as great a favourite in private gardens as when first distributed. It is just the size for a private garden, and its remarkably free fruiting qualities make it profitable. For pot culture it is valuable on account of its earliness, and it is equally good for the open ground. The colour is very rich, and being a smooth fruit it always finishes well. If quality alone in Tomatoes is considered, Conference will occupy a high place, as there are few either early or late kinds superior to it. The nearest approach is Ham Green. This, like Conference, is a very good variety and noted for its quality, but it is later.—G. WYTHES.

Asparagus and frosts.—Asparagus this year is later than usual, as in 1896 and 1897 I cut Asparagus from open beds the second week in April, whereas this year it was the last week in the month before the supplies were at all good; indeed, if litter had not been placed over the beds at night to preserve the grass there would have been poor supplies. No doubt frosts have retarded the growth, and this points out the importance of sheltered beds for very early supplies. It is a mistake to have the beds all in one place. There will be no lack of Asparagus now, but earlier supplies are welcome at a season other vegetables, especially choice ones, are none too plentiful. Much may be done to hasten growth by covering the surface of the beds with Bracken or dry litter at night. It is important that the litter be removed and placed in the alleys during the day, as the covering left on does harm, preventing the sun warming the soil. My early beds slope to the south in front of some houses, and

these I find most useful, as they are quite a fortnight in advance of those in the open, and in such seasons as this with severe spring frosts an earlier supply is obtained.—S. M.

SOCIETIES AND EXHIBITIONS.

NATIONAL AURICULA SOCIETY.

(SOUTHERN SECTION.)

APRIL 26.

ON this occasion there was a general roughness in the flowers owing to the weather. Some went the length of stating that it was the worst Auricula show held for years, not from any lack of quantity, but from the absence of quality. There were more entries than usual, showing that the society does not lack members who grow for exhibition, but some doubtless could not get their flowers open in time. With the exception of Mr. A. R. Brown, of Birmingham, the Auriculas staged were all of southern growth.

SHOW AURICULAS.—The principal class for these was for twelve varieties, and there were four competitors. The first prize was awarded to Mr. J. Douglas, Great Bookham, and this fact caused some surprise, the general opinion being that Mr. Charles Phillips, of Bracknell, who was placed second, should have won the first prize. In this class green-edged flowers were represented by Mrs. Henwood, rather large and coarse, yet a very fine variety; Dr. Hardy, a very good green edge indeed, attractive in all its parts, having especially a fine golden tube; Greenfinch; James Hannaford, a new variety, shown on this occasion in good form; and the Rev. F. D. Horner. The best grey edges were George Rudd, Marmion, George Lightbody, and Lancashire Hero. Mr. Douglas had a large new variety named Olympus, which we thought somewhat coarse and wanting in quality, but it was awarded a certificate of merit. The best white-edged flowers were Acme, a charming variety when at its best, but which some think to be degenerating; Mrs. Dodwell, Rachel, Heather Bell, John Simonite, and Miss Woodhead. Mr. Phillips carried off the honours with his two superb dark selfs, Mrs. Phillips and Miss Barnett. Others were Black Bess, Mrs. Potts, and Negro. Mr. Phillips took the first prize with six varieties; Mr. Smith was second. The former had Mrs. Henwood, green edge; Richard Headley and George Rudd, grey edges; John Simonite, white edge; and his two fine selfs above named. Mr. Smith had Conservative, a pretty white edge, but rather small. The judgment in the class for four plants, in which there were ten entries, was also criticised. Mr. J. Sargent, Cobham, was placed first. His strong point was green edge, Abbé Liszt, with sixteen pips, but he had a very coarse Mrs. Potts, self. A young grower, Mr. A. S. Hampton, of Reading, was well to the fore with four well-balanced plants. He had the Rev. F. D. Horner, green edge; Lancashire Hero and George Rudd, grey edges; with Heroine, self. There was a class for two plants, in which Mr. P. Hennell, Winchmore Hill, took the first prize with the Rev. F. D. Horner and Acme, both good. There were fewer plants than usual in the class for single specimens. Mrs. Henwood took the first prize as the best green edge. The Rev. F. D. Horner was second, third, and fourth. Lancashire Hero, in good form, was the best grey edge; George Rudd was second and fourth, with Rachel third. Heather Bell was the best white edge, Acme taking the second place. The best self was Heroine, a fine but uncertain variety. Mrs. Potts and Miss Barnett followed in the order of merit. The premier show Auricula was Douglas's Abbé Liszt, above mentioned, with sixteen expanded pips. It was the best show Auricula exhibited. There were three collections of fifty Auriculas—a class over which it seems impossible to get up much enthusiasm, as they may be said to contain what is scarcely good enough to go into the smaller classes. Mr. J. Douglas was first, the Guildford

Hardy Plant Nursery Co. second. Ariel and Ruby in Mr. Douglas's collection are worthy of mention as two red selfs. Venus and Lady Randolph Churchill were two new white edges of promise.

ALPINE AURICULAS.—These were, as usual, very gay, though in many cases with an inclination to coarseness. In the case of the show Auriculas only one truss of bloom is permitted, but an alpine may have as many as it will produce, and they in consequence furnished gayer masses of bloom. The alpine Auriculas are divided for exhibition purposes into golden centres and cream or white centres, and the margin should be shaded—a dark colour round the centre shading to a paler tint. The self-coloured alpine that were grown in the early stages of its development appear to have gone quite out of cultivation. The best twelve came from Mr. C. Phillips, who has taken a strong lead as a raiser of new varieties in this section. Evelyn Phillips, Vandyke, Mrs. Martin Smith, and Mrs. Gorton were the best among the golden centres; Lady C. Walsh, Edith Weston, Perfection and Sister Mary, white centres. These plants were large and finely grown and bloomed. Mr. J. Douglas was second. He had a very fine golden amber-tinted variety named Aurelia; Firefly, very bright, the fiery crimson on the margin contrasting with the rich golden centre; Dean Hole, and Queen of the West. The leading white centres were Toujours Gaie and Mrs. H. Turner. Mr. J. W. Euston, Mr. Douglas's successor at Great Gearies, had the best six, among them The Bride, very bright orange-salmon, and a pleasing white-centred variety named Tennyson. Mr. C. Phillips and Mr. Douglas followed in the order mentioned. Mr. Euston also had the best four, Rosy Morn and Hiawatha, golden centres, being most conspicuous. Mr. W. L. Walker, Reading, came second, also with good seedlings of his own raising. The best golden centres were Clara Phillips and Dean Hole; the best white centres, Perfection, Edith and Toujours Gaie, Mr. Phillips taking the first prizes in both classes. The premier alpine Auricula was a gold centre, Mrs. Martin Smith, from Mr. C. Phillips.

SEEDLING AURICULAS.—No seedling show varieties were staged, as they increase very slowly, but certificates of merit were awarded to two alpine, viz., Miranda (C. Phillips), gold centre, shaded amber, tinted with red, a variety of fine shape and substance; and Mrs. Barefoot (Barefoot), in the way of the foregoing, but with a darker ground colour to the shading. Certificates of merit were also awarded to the following varieties shown in collections: Grey-edged Olympus (J. Douglas), a large-sized flower, having a weak tube, good paste, thin body colour, and good edges; and to Mrs. Dranfield (C. Phillips), a promising violet self, fine pip, smooth, good tube and paste. The following alpine varieties were also certificated: Firefly (J. Douglas), one of the brightest-coloured varieties yet raised, maroon, shaded with bright crimson; and Hiawatha (J. Douglas), gold centre, with a dark ground, shading to deep salmon.

POLYANTHUSES AND PRIMROSES.—Collections of twelve of the former were very showy, but they seemed to lack the quality we used to see a few years ago. Mr. J. Douglas was awarded the first prize for fancy varieties, and Mr. G. Dixon, Chelford, came second. Baskets of Primroses and Polyanthuses were also gay. Mr. J. T. Bennett Poë was first and Mr. Douglas second. Mr. Douglas was the only exhibitor of twelve pots of Primroses; they also lacked quality. Double Primroses were rough and past their best. Messrs. Paul and Son, Old Nurseries, Cheshunt, had the best six pans, Mr. Douglas following with the same number of varieties arranged in a basket.

Mr. Douglas was the only exhibitor of twelve species of Primulae. He had Sieboldi, verticillata, mollis, japonica (two vars.), intermedia, rosea, decora, floribunda, pubescens, in fine character, a poor pink form of the same, and Forbesi. Mr. Euston had the best six, staging verticillata, obconica, Forbesi, intermedia, floribunda, and a yellow Auricula. Groups of any species or varie-

ties were also shown, the Guildford Nursery Co. coming first with a basket of fancy Auriculas arranged with tufa, moss, &c. Mr. Purnell-Purnell came second, having a round basket, in the centre a group of P. Sieboldi vars., with various species and Auriculas.

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, May 10, in the Drill Hall, James Street, Westminster, 1 to 5 p.m. At 3 o'clock the Rev. Prof. G. Henslow will lecture on "Some of the Plants Exhibited." The schedule of the show of British-grown fruit, to be held at the Crystal Palace on September 29, 30, and October 1, is now ready, and can be obtained on application to the secretary, Royal Horticultural Society, 117, Victoria Street, S.W.

NOTES OF THE WEEK.

Iris orchoides.—This rare and beautiful species is now in full beauty at Winchmore Hill, where it is in bloom in the open ground. The flowers, too, in many instances are of a clearer golden-yellow than is usually seen, with fewer of the dark blotches that in some flowers are so conspicuous.

Rose The Dawson.—This is indeed a Rose for the garden, and in this way there is scarcely a limit to its usefulness. The Dawson belongs to the China section, and, apart from its beauty, is delightfully free—facts abundantly proved by the examples from Messrs. Paul and Son, Cheshnut, and which gained the award of merit at the Drill Hall last week.

Hutchinsia alpina.—Though this is one of the freest growers among alpine plants, it is not so frequently seen as one would expect. Quite small pieces, if planted in sandy loam in spring, will often reach a foot across in one season, and such patches covered with snow-white flowers are very attractive in the rock garden. The plant is now beginning to bloom and will continue flowering for some time.

Narcissus Weardale Perfection.—At the Royal Horticultural Society's meeting on the 26th ult. Messrs. Pearson and Sons, Chilwell, showed no less than five handsome blooms of this splendid variety in the midst of their fine exhibit of these flowers. The flowers, however, were not of the largest size, having been taken from either small bulbs or offsets. This constituted the largest exhibit of this variety yet seen in London.

Fritillaria macrophylla.—This species, otherwise known as Liliun Thomsoni, was shown by Messrs. Wallace, of Colchester, at the last meeting of the Royal Horticultural Society. The plant in question had two fine spikes of its funnel-shaped blossoms, each spike bearing many of its rosy-lilac flowers that are very much reflexed at the apex. The plant under notice was about 2 feet high, both spikes being equally strong and well flowered.

Tufted Pansy Pembroke.—This variety is one of the earliest to bloom, and for the flower garden is almost indispensable. It belongs to the rayless type, is almost circular in shape, and although a free-growing sort, is by no means coarse in its growth. One specially good point about the flower is its delightful fragrance, and when freely distributed about the rooms in small receptacles this is very noticeable. As an exhibition flower it is also highly prized.—D. B. C.

Celmisia coriacea var.—A flowering example of this handsome and striking New Zealand composite was shown by Messrs. Veitch at the last meeting of the Royal Horticultural Society. The plant is made up of a tuft of oblong-lanceolate leaves, thick and leathery, and freely covered with cottony threads, and below with a dense silvery tomentum. The flower-heads are borne on sturdy, stout scapes each a foot high, the ray florets of the purest white and upwards of 2 inches across. The species is said to be hardy, and if so would constitute a fine addition to hardy composites generally.

Rose Psyche.—Those whose tastes incline to miniature Rose-buds for bouquets and cutting generally will find this new variety most welcome. It is of the Polyantha section, and obtained from Golden Fairy and Crimson Rambler, which imparts to it a wondrous profusion of bloom. As a climbing Rose it should also prove excellent,

while the charming blush and flesh-pink colouring is pretty in the extreme. In the bud state it is singularly beautiful.

Anemones from Lincoln.—By parcels post I send you a box of specimen blooms of my Anemone King of Scarlets, and a few blooms of *A. fulgens annulata*, gathered this morning from the open. After passing through such heavy rains the last few days, you will, I think, appreciate their value for beds or borders.—JOHN T. GILBERT, *Dyke, Bourne, Lincolnshire.*

* * They are very handsome, and the variety of the scarlet Windflower admirably grown.—ED.

Primrose Evelyn Arkwright.—It is evident that improvement even in the Primrose family is going on by leaps and bounds, as witness this remarkable variety with its true primrose colour and enormous flowers of more than 2 inches across. Nor is this greatly increased size the outcome of cultivation. The plants did not in the least betray this, and the flowers of quite small, though young, plants were as large as the single pips shown. It is stated also that the variety comes true from seed, which will render it an acquisition.

Narcissus Will Scarlett.—A few years since we had no variety of *Narcissus* with rich an orange cup; the only step in this direction was here and there a kind with the margin stained or perhaps suffused with colour. Now Mr. Engleheart in the above-named has produced a hybrid with a cup wholly of this much-sought-for tone. Not only is the cup of this shade at the brim, but the same hue, which is almost a scarlet-orange, is retained throughout the crown and to the base. The raiser regards this as his greatest attainment in this direction.

Tulip Dame Elegante.—This is a pretty garden Tulip, to all appearance of the Gesneriana type, and attractive from its delicate colouring and neat form. Its main colouring, at first almost canary-yellow, passes off into a pretty creamy shade. It is lined inside with a broad carmine stripe and the segments also have shorter carmine streaks at the edge. These are not so formal as to make the flower stiff-looking, but add to its appearance as a garden Tulip. It is said to be of French origin. It looks well associated with *T. Golden Eagle*.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Thalictrum anemonoides.—The Anemone Meadow Rue is now in full bloom in shady nooks of the rock-garden, and there looks prettier and grows better than when exposed to the sun. There appears to be a little variation among the plants, the best of these being whiter and with larger flowers than others. The single form seems more easily grown than the beautiful double variety, which always keeps comparatively scarce. The single form is, however, very pleasing with its white flowers and finely divided foliage.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Fritillaria acmopetala.—Like many of the *Fritillarias*, this species, at present in flower here, is far from being showy or bright in colour. It, however, gives character to a garden when grown among other plants. The predominant colours are green and dark purple, the prettiest part being invisible unless the flower is turned up for closer inspection, when the beautiful gloss of the interior is made visible. The usual height, according to the "Dictionary of Gardening," is 1 foot, but here it is fully 2 feet. The stems are also said to be one-flowered, but they often produce two flowers, which hang loosely from the glaucous stems.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Androsace villosa.—This very charming species, with its woolly tufts of leaves, is now prettily dotted over with the white, red-eyed blossoms. The species, however, does not take to our lowland fogs and moisture-laden atmospheric conditions at all well, the wet and fogs, with their ever-poisoning influence, telling heavily against it. Yet if planted in a fissure of rock, somewhat narrow, in a steep, sloping position, and in such a way that the moisture may penetrate to the roots

without of necessity being strained through the woolly tufts of leaves, there is certainly more hope of success. It is a good plan also to wedge the tuft rather tightly between pieces of stone. In this way, with the rapid drainage afforded it, much may be done with this lovely alpine.

Brownea Ariza.—A massive clustered head of bloom of this striking species was sent from the Botanic Gardens, Glasnevin, to the Royal Horticultural Society's meeting on the 26th ult. The colours of the flower is an intense rich scarlet, exceedingly striking and showy, as may be gathered from the fact that this immense head of bloom was about equal to an 8-inch pot in dimensions, only more nearly globular. Several species of the genus have been flowering abundantly at Kew during the past few months, and in each case are exceedingly rich in colour and most attractive. The genus requires great heat to grow it well. The above species, which comes from New Grenada, is said to attain a height of 30 feet to 40 feet, so that when seen in full bloom it would be very attractive.

Golden Callas.—Each year now is adding its quota to the list of new golden *Arum Lilies*, and of both sections also—that is to say, those with plain or full green leaves, as in the old white kind, and others again with the leaves interspersed freely with translucent blotches. An addition to the latter is *Richardia Rhodesia*, with a rich golden spathe of large size and scarcely any of the dark blackish purple at the base as seen in some kinds. Another novel kind, and this probably the most valuable, is called *Rotunda*, of the same rich colour, but with dark green leaves as in the ordinary *Richardia*. The richly coloured spathes of this latter are not so large as usually seen in yellow kinds, though doubtless this will be attained with age and increased size and weight of the corm. Both kinds were shown by Mr. Jennings, gardener to L. de Rothschild, Ascott, Leighton Buzzard, at the last meeting of the Royal Horticultural Society.

Primula farinosa alba.—Almost every lover of hardy plants is acquainted with the pretty bird's-eye *Primrose*. It is a veritable gem among the moisture-loving kinds, and no plant is more easily accommodated in the garden. This is so, even where no great moisture is at hand, as the plant succeeds well in partially shady places also, and being an abundant seed-bearer should be made much of. To the typical kind, which from seeds gives slight variations of colour occasionally, the above will add a new charm, owing to its pretty heads of nearly pure white flowers. This novelty is flowering with Mr. Perry at Winchmore Hill, and is certainly the daintiest member of the whole race of *Primulas*, and to British gardeners doubly interesting, because a native species. The variety *alba* is in other respects identical with the type, while its delicate heads will form a pleasing contrast to those of that species.

Rhodothamnus Chamæcistus.—One of the prettiest and most interesting things in the rock garden at Kew just now is a specimen of this rare ericaceous plant, crowded with flowers. It is a native of the Eastern Carpathian Mountains, whence it was first introduced into England by the Messrs. Loddiges about 1786. It bears its flowers in clusters (of two to four blossoms) at the ends of the twiggly branches, each flower just over 1 inch in diameter, and pale rose. The low or prostrate branches are abundantly clothed with small hairy leaves. Whilst there are few shrubs of its class so full of interest and charm as this, there are few more difficult to establish. In spite of the 112 years that have passed since Loddiges brought it to this country, it is still (and has always been) one of the most uncommon of the Heath family under cultivation. Fortunately the difficulty has been overcome in the rock garden at Kew, where a specimen has now flowered annually for some years past, and keeps increasing in vigour.

Cytisus præcox.—Numerous as are the shrubs that flower in April and May, there are few even

at that time so showy as this hybrid Broom. It originated as a chance cross between *C. albus* (the white Portugal Broom) and *C. purgans*—the latter a comparatively rare plant nowadays. Its origin was put on record in the *Gardeners' Chronicle* about a year ago by Mr. H. J. Wheeler, of the Warminster Nurseries, who stated that a plant was found in a bed of seedling *C. purgans* about thirty years previously by his grandfather—the late Mr. George Wheeler—from which all the plants now in existence have doubtless descended. It has the wonderfully free flowering qualities that characterise the taller Brooms, and at this season is simply one mass of sulphur-yellow blossoms. At Kew it may be seen in large quantities. Even when out of flower it has a claim to rank as a useful evergreen, although of foliage in the true sense it has but little. Its slender branches, however, are deep green, and form a somewhat heavy, but still graceful, mass, which in winter makes a pleasant contrast to the ordinary leafy evergreens.

White Narcissus muticus.—Hitherto I have never found quite satisfactory evidence of what may be called an accidental albino amongst wild Daffodils, but I have recently got a strong case in its favour. Last year Mr. Digby, of Warham, who has travelled a good deal amongst the wild Daffodils in the Pyrenees, sent me a flower of a pure white Daffodil, which he found some years ago growing wild amongst *N. muticus* on the high Pyrenees, between Gedre and Gavarnie. In autumn he gave me a bulb, and both in leaf, flower and season I find that it corresponds with *N. muticus* (Gay), and not with *N. moschatus*, which flowers much earlier, has narrower and pointed leaves, and differs in the shape of the flower. The spot where it was found is at least twenty miles in a direct line from the Val d'Arras, where *N. moschatus* occurs plentifully, and no Daffodil with white flowers is known to have been found nearer to Gavarnie before. There were only two flowering bulbs; they grew in the middle of a mass of *N. muticus*, also in flower at the same time.—C. WOLLEY-DOD, *Edge Hall, Malpas.*

Trillium grandiflorum.—This is one of the finest perennials in flower at the present time, and one of the most valuable hardy plants for the garden or for pots. Good examples in pots, however, notwithstanding it is one of the easiest plants to grow, are rather exceptional, and for this reason it was extremely gratifying to note the grand mass of it in full flower as shown at the Drill Hall last week. The specimen in question came from Mrs. Wingfield, Amphil House. The plant by actual measurement was 3 feet through the handsome spread of its leaves, the growth standing some 18 inches high from the top of the pot in which it was growing. The whole surface was freely covered with its pure white flowers. Not that this *Trillium* is an isolated example, as many other good hardy plants may be grown with the same ease and similar success if only taken in hand in the same way. Such fine examples, however, are very rare, not only in hardy things but in other departments also, the exhibit of to-day being rather a collection of small, every-day plants, and not in the least exceptional examples of good culture through a series of years.

Cytisus Ardoini.—Among the dwarf or prostrate Brooms this species is especially valuable in being the first to flower and in being also one of the most beautiful. Coming from the mountains bordering the north shore of the Mediterranean Sea, near the frontier line between France and Italy, it has, for a native of so well-known and well-traversed a region, been known for a very short time. It is only since the year 1871 that it has really been under the notice of cultivators of hardy shrubs. In that year it was figured by Moggridge in his *Flora of Mentone*, t. 58, in which work he observes that he first found it on Mont Cima d'Ours, and subsequently on the summits of two other neighbouring mountains near Mentone. It does not appear likely to grow more than 1 foot in height, and has very small, downy,

trifoliate leaves. Towards the latter end of April the whole plant becomes thickly studded with the small golden-yellow flowers, and is from that time well into May one of the most charming of dwarf shrubs. For the rock garden nothing can be more suitable than this little alpine shrub. Unfortunately it is as yet very rare, not only in cultivation, but in a state of nature. It is said to be very seldom found bearing seed on its native mountains, owing to the continual browsing by animals. For some years there was only one small plant at Kew, but, now this is large enough to take cuttings from, a good stock is being obtained. Cuttings strike fairly well put in under a bell-glass in a cold frame during August.

Schizocodon soldanelloides.—This is still rare, arising chiefly from the difficulties which are to be found in the great distance which this plant has to travel before it reaches our shores from its eastern home in the mountains of Japan. I have made several attempts to secure a stock of this interesting and rare plant, and have at last succeeded. To the true lover of alpine there are certain plants to which one takes a fancy at first sight. The *Schizocodon* is one of that character. Its dark bronzed glossy foliage borne on long foot-stalks reminds one very much of that of the beautiful *Shortia*. The foliage of the *Schizocodon* is still more beautiful. Even as a fine-foliaged plant it would at once take a front rank. The flowers, which resemble those of a *Soldanella* considerably enlarged, are of a deep rose colour, prettily fringed, passing into blush or white in the centre. It is one of the most charming hardy plants introduced for many years. *Galax aphylla* is a closely allied plant, and *Shortia*, *Diapensia* and *Pyxidantha* are its near relations. It will no doubt do well under the same conditions as the *Shortia*. The thick shining leaves give us some indication that it comes from a moist country, and that it requires a certain amount of shade and moisture to grow it successfully.—W. H. STANSFIELD, *Southport*.

PUBLIC GARDENS.

Commons preservation.—The report of the Kent and Surrey Committee of the Commons Preservation Society, which has just been published, states that during the year 1897 the society has been called to deal with no fewer than fifty-five cases of encroachment upon common land, village greens, roadside wastes, and obstructions of rights-of-way, and that in several instances the society was successful in removing the obstructions and abating the encroachment. The society experiences great difficulty in obtaining the necessary support and information, and it is anxious to obtain local branches at all important centres in Kent and Surrey. A trustworthy map, showing the footpaths between London and Croydon, is announced as about to be published as soon as possible.

Kew Gardens.—In the course of the discussion in the House of Commons on the vote to complete the sum of £115,000 for the maintenance of the Royal Parks and Pleasure Grounds, Mr. Akers-Douglas said that it had at length been decided to open the Gardens on June 1 at 10 a.m., and to open them at that hour every morning for the following three months. If it were found that the public appreciated the new arrangement, and visited the Gardens to the extent that the advocates of the earlier opening of the Gardens said they would, the Office of Works would make the extension of hours—as far as the summer months went—permanent. The Queen's Cottage would be handed over by the Lord Chamberlain's Department to the Office of Works on June 1, and, as soon after as the Office of Works could make the necessary arrangements, the grounds would be open to the public. It was the intention to preserve the grounds as far as possible in their present condition. They would only open a path from Kew Gardens to the

cottage. The rest would remain much in its present condition. It would not be cut up unnecessarily, and it should still form one of the most beautiful bits of wild country in the proximity of London, and be, as it certainly had been, a sanctuary of all bird life in the district.

Marechal Niel Rose.—Would you kindly inform me whether I ought to syringe my *Marechal Niel* Rose in a warm greenhouse? It is now in full bud. As the new leaves come on they curl up and fall off.—ANXIOUS.

** It appears to us that your plant is suffering from mildew. Is it covered with a greyish white powder, or spots of same? If so, that is mildew, and must be checked as far as possible. A cold draught or any sudden changes of temperature should be avoided. There is never any harm in syringing a *Marechal Niel* while in growth provided you do not use a strong insecticide. We would advise you to add a little more flowers of sulphur to any of the many useful insecticides now in use. Keep the whole well on the move while syringing, and it will leave a fine dusting of sulphur wherever it has touched. Unfortunately, you give us no idea of the treatment accorded, so that we are somewhat in the dark as to the probable cause. Nor do you say if you mean flower or growth buds. We can only suggest it is mildew, drought, or an over-dose of manure water—probably the first.—ED.

The weather in West Herts.—A warm week. On the 2nd the shade temperature rose to 65°, and on the previous night the exposed thermometer never fell lower than 44°. At both 1 foot and 2 feet deep the ground is at the present time about 1° warmer than is seasonable. Rain fell on six days to the total depth of nearly 1 inch, making this the wettest week since that at the end of March. At the beginning of the week no measurable quantity of rain-water had passed through either percolation gauge for three days, but since then more than a gallon of water has come through both gauges, each of which is a yard square. Until the 3rd inst. the record of clear sunshine was very poor, amounting to less than ½ hours for the previous six days. A *Blenheim Orange* Apple growing in my garden came into blossom on the 3rd, or two days earlier than its average date of first flowering for the previous twelve years, but one day later than last year. April proved warm. On no night did the exposed thermometer indicate more than 12° of frost, and after the first week never more than 7° of frost. Rain fell on only eleven days, and to the aggregate depth of less than 1½ inches, which is about half an inch below the average for the same month in the previous forty-two years. I find that all the last nine Aprils have been more or less dry, while three of them were considerably drier than the past month. The duration of sunshine was about seasonable, and on only two days was no sunshine at all recorded.—E. M., *Berkhamsted*.

Tamworth Pansy and Viola exhibition.—A unique display of Tufted and fancy Pansies is promised for Saturday, May 21. Through the enterprise of Mr. William Sydenham, in whose grounds the exhibition is to take place, no less than forty classes are provided for amateurs, and opportunity will also be given for trade growers to stage exhibits. Some of the chief features of the display include classes in which the decorative value of these flowers may be illustrated. Classes are also provided for Tufted Pansies in rayed as well as rayless flowers, and in numbers to suit the small as well as the large grower. These are exclusively devoted to self varieties. Particularly valuable are those classes in which three blooms of a variety and of one colour are asked for, these embracing rayed and rayless varieties respectively in blue, yellow, and white, and one of any other colour. This should bring into prominence the best flower of each of these colours. Fancy Pansies are also liberally provided for. A party from

London has made arrangements for favourable terms with the railway company for the return journey, and Mr. Leonard Brown, The Cottage, Seven Arches, Brentwood, Essex, would be pleased to hear from anyone wishing to join the party. Provided ten or more persons agree to make up a party, the railway authorities promise to provide a saloon carriage for the purpose. The train leaves Euston Station at 8.45 p.m. on Saturday, May 21, arriving at Tamworth 11.35. The executive of the exhibition has promised to give the London contingent facilities for staging their exhibits before the judging commences.

OBITUARY.

A. W. BLICK.

WE regret to announce the death, at Brentford, on May 2, of Mr. A. W. Blick, in the seventy-second year of his age. He was employed at the Crystal Palace when this was being built. Here he remained for ten years, afterwards coming to the gardens of the Royal Horticultural Society at South Kensington when these were being laid out. He remained as foreman here for about twenty-five years, thus being well known to gardeners and others who visited the fortnightly meetings and the summer shows in the best days of the society.

DR. ALEXANDER PATERSON.

VISITORS to the Bridge of Allan, especially Orchid growers and amateurs, will regret to hear of Dr. Paterson's death. He was born in 1822, and obtained his medical degree at Edinburgh in 1843. After having begun practice in Edinburgh, his health became delicate, and as he had derived great benefit from a visit to the Bridge of Allan, he settled there and entered with much spirit into the development of the place as a health resort, and, thanks mainly to his energy, it is now a most popular inland watering place. His genial kindness and hospitality were proverbial, and no visitor to his house or garden came away without the most grateful memories of his kindness and good nature. Dr. Paterson was a well-known amateur Orchid grower, and his plants were remarkable examples of healthy cultivation, and many were also of great rarity. In the culture of *Sarracenia*s he was also an adept, and his garden ever rewarded the closest inspection. Dr. Paterson belonged to the good old school of Scotch gardeners, of which the late Mr. Anderson Henry was another conspicuous example, and he was always delighted to welcome strangers interested in botanical or antiquarian studies. One of his genial and liberal traits was shown in his sending his choicest Orchids and other rarities to the Queen on her birthday, or in presenting them to her at Perth Station as she journeyed to Balmoral. The genial doctor will be widely missed and gratefully remembered by all who knew him.

F. W. BURBIDGE.

Names of plants.—E. G. Loder.—Nos. 1, 2, 3, vars. of *Rhododendron indicum* (*Azalea indica*). Several of these have been introduced in recent years; they are probably merely cultivated varieties of the Japanese gardens, and have not received names in this country. Colloquial names should suffice for them, as they have no botanical status. No. 4 is *Spiranthes convallarioides*, a native of China.—S. T.—1, an *Oxlip*; 2, *Narcissus Nelsoni* major.—Arthur E. G. Way.—*Ophrys lutea*.—C. P. L.—The Box Thorn (*Lycium barbarum*).—Frances M. Wilson.—*Pyrus salicifolia*.—S. T.—Probably *Azalea rhomboidea*, but should like to see better specimen.—Mrs. Davenport.—1, *Sprekelia formosissima*; 2, *Narcissus Burbidgei* Varssa.—T. B.—1, *Waldsteinia trifolia*; 2, *Saxifraga muscoides*; 3, *Aenina argentea*; 4, *Linaria cymbalaria*; 5, *Arenaria balearica*; 6, *Adiantum concinnum* latum; 7, *Phlebodium aureum*; 8, *Nephrolepis* sp.—W. J. O.—1, *Kerria japonica* fl.-pl. (double-flowered Jew's Mallow); 2, *Epidendrum coelebatum*.—F. J. Polkinghorne.—1, *Forsythia viridissima*; 2, *Grevillea rosmarinifolia*; 3, next week; 4, *Deutzia crenata* fl.-pl.

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STOVE AND GREENHOUSE.

ARUMS FOR PROFIT.

SEVERAL correspondents have lately contributed their views upon the best or most profitable methods of cultivating *Richardia æthiopica*. I propose describing the method that answers well with me without special reference to anything that has been advanced on the subject. After according both practices a fair trial, I unhesitatingly give the preference to planting out as being the least trouble and most profitable in the end. If my neighbours, some of whom grow Arums constantly in pots, and in one instance the same pots for two or three years, not repotting annually, but merely top-dressing, could show better results, or even so good, I should have less confidence in my own practice. As it happens, no one cuts Arum flowers earlier in the season than I do, and apparently few finish up so well. Within a week of housing the plants a few blooms were ready for cutting; all flowered freely before midwinter, the Christmas supply being most satisfactory, and from then till Easter all the plants were flowering grandly. At the latter church festival Arums were comparatively scarce. I wonder why? I had thirty-two dozen blooms perfectly fresh at that time, and could have sold, in the trade, double that quantity at good prices. A fortnight after nearly as many blooms were fully expanded, and a week later, when house room could no longer be afforded the bulk of my stock, the plants were still pushing up flowers. Altogether from about 400 plants I have cut 2350 blooms, the average market value of which may be put at 3s. per dozen, amounting to the respectable total of £29 7s. 6d. There is nothing sensational about all this, but it is satisfactory, especially seeing how easily it was done.

After Easter it does not pay to keep Arums growing in houses that are wanted for Tomatoes, but in my case a few dozen are moved into a Peach house to afford blooms for special

orders and for memorial wreaths and crosses. All the rest have to "rough it" somewhat in the open, and seem but little the worse for exposure to frost. It is true the leaves already present a woebegone appearance, and so they do in any case if thoroughly dried off at the roots—a necessary, and I may say imperative, preparation for planting out. By the end of May they are ready for planting, and an open breadth of ground—the soil of which is largely "made," being a mixture of old potting soil, this replacing much of the ordinary poor, sandy loam taken away for potting—is levelled over and prepared for them. No heavily-manured trenches, which only serve to produce plants coarser than desirable, and no solid manure of any kind are needed or used. The plants are duly shortened down, shaken clear of soil, pulled to pieces, graded, and planted according to their sizes from 9 inches to 12 inches asunder in rows 20 inches apart. If the ground at the time happens to be somewhat dry, water is given—this effectually settling the soil about the roots—but if on the moist side, the watering is deferred till a dry time sets in. On one occasion—the summer of 1896—I found it necessary to give a thorough soaking of water to the plants after they had made good progress above the ground, but in most seasons this is uncalled for. The Dutch hoe should be run between the rows occasionally, and that is all the trouble that need be taken. Surely this must be a most economical practice, saving both water and labour.

Arum leaves are very tender, a light frost injuring them, and in my case the first week in September is as late as I can trust them in the open. It would also appear that the greatest care must be taken in lifting and potting the plants, or otherwise they will be almost irrecoverably crippled. That, however, is not my view of the case. If the soil happens to be dry at the time when the plants have to be lifted, give a good preparatory soaking of water, but this is not often needed. A few hours later the Arums are lifted with forks and no attempt is

made to save a great ball of soil about the roots of each, the aim being rather to save as many of the roots as possible, these turning cleanly out of the loose soil. They are carried on hand-barrows to a convenient place for potting them and at once placed in pots. Only a few are placed singly in 7-inch pots. The majority are wanted to produce as many blooms for cutting as possible, with a minimum amount of labour, and they are found to do best in large pots, ranging say from 9 inches to 11 inches in size. The larger sizes are made to hold three strong plants, and the others are also as closely packed with plants as possible without damaging the roots. Good drainage to the pots is afforded, and ordinary moderately rich loamy soil employed. After potting, the plants are arranged where they can be lightly shaded from bright sun and protected, if need be, from an early frost. They are given a good watering and syringed occasionally on bright days, though not late enough in the day for the leaves to remain damp at night. About the middle of September—earlier if a frost is imminent—the plants are housed and disposed at once where they are to remain till the end of the season.

The position that suits them well is the centre of long, comparatively low span-roofed houses, and they are arranged principally in a single line, the pots nearly or quite touching each other. Here they remain remarkably sturdy, and having a narrow walk on each side of them are easily accessible. Owing to the plants being in moderately large pots and arranged on a moisture-holding base, they do not require attention nearly so often as do Arums in smaller pots arranged on dry stagings, and they are further benefited by being allowed to send roots out into the soil underneath. Even in such positions the plants require and must have larger quantities of water during the season, and soot water applied frequently is also of great assistance. The check given to the growth of the plants when they have to be lifted is scarcely noticeable, and, as a matter of fact, does more good than

harm, having the effect of making them flower early and abundantly, while the size of the blooms is not such an objection as frequently is the case with those produced by the necessarily highly fed plants grown constantly in pots. The temperature that suits Arums all the winter is that intermediate between that of an ordinary greenhouse and that of a plant stove, or say from 45° to 50° by night, with an increase of 5° to 10° in the daytime. An occasional fumigation keeps the plants free of green fly, and early in the season thrips—the cause of the flowers being stained—must be destroyed in the same way. W. I.

Philodendron Lindenii.—From a climbing or creeping stem beautiful leaves of a glossy velvety green are produced, and these have bands and markings of deep brownish maroon that seem to vary on each leaf. On the younger semi-transparent ones it is very beautiful, while the older ones have a pale green reverse that shows off the colour to even greater advantage. The plant is of the easiest possible culture provided a hot, moist, and shady house is at command, but without these conditions it is of no use trying to grow it well. The stems may be made into cuttings and rooted over a brisk warmth, and if they have afterwards anything moist to lay hold of in addition to the soil in the pots, they are all the better for it. The best position of all for it is over a water-tank in a stove, and if they can reach it, the roots will enter and thrive in the water. On a moist back wall of a stove, too, it is very fine, and makes a welcome change from the usual plants found thereon. It is a native of tropical America.

Imantophyllum at Holloway.—There is a fine display of these just now at Messrs. Williams' nursery, all the finest forms being well represented. There is a marvellous range of shades of red in these plants, and this amply compensates for the absence of other colours. The Holloway plants are remarkably clean and well grown, bearing immense trusses of flower. These plants are very useful for conservatory and house decoration, as nothing short of actual frost seems to hurt them. The plants should be potted in a good sound compost of peat, loam, and well-dried cow manure, with a good sprinkling of rough silver sand, and allowed to make their growth in a fairly moist greenhouse. After this is complete, they may be kept almost dry in a vinery or greenhouse and slightly encouraged a few weeks before they are wanted in flower. Such a place as a vinery or Peach house starting to work or a plant stove will give the requisite stimulus to the growth, and beyond this nothing but the most ordinary treatment is necessary. Their culture, in fact, may be summed up in a very few words: keep them clean, allow a good season of growth and rest, and bring them on in large or small batches as required for flowering.

Eranthemum albiflorum.—There are several species of Eranthemums, some of which are decidedly more showy than this, but still *E. albiflorum* is a pretty little plant, and one that will flower when quite small. It is, like many of the others, upright in growth, and if pinched freely in order to encourage a bushy habit, the flower panicles suffer thereby. To obviate this the plants may be grown to one stem and grouped in a large pan, as they are more effective in this way than if treated as single plants. Even under this treatment it will flower freely when little more than a foot high. The leaves of this species are ovate in shape and of a very deep green colour, while the pure white flowers are produced in upright panicles. At first they are very much like a cluster of white Lilac, and present a marked contrast to the deep green leaves. *E. albiflorum* is, like the other members of the genus, of easy propagation and culture, but being less vigorous than some of them, care must be taken not to overpot it. A second white-flowered species now in bloom is totally distinct from the

preceding. This is *E. tuberculatum*, which was introduced from New Caledonia over thirty years ago. In general appearance this is very distinct from most members of the genus, as it forms a little shrubby specimen with a profusion of branches clothed with small oval leaves of a brownish green tint. The branches are studded with curious little tubercles, from whence the specific name is derived. In this the blossoms are pure white with a long slender tube, somewhat after the manner of *Bouvardia Humboldtii*.—H. P.

Asparagus retrofractus arboreus.—This charming Asparagus is just now, when making its young growth, seen at its very best, and so beautiful is it that one wonders it is not met with in almost every garden, as it is so dissimilar from any other kind in general cultivation. It is a far more vigorous climber than *A. plumosus* and *A. tenuissimus*, that have attained to a great degree of popularity within the last few years, and needs more root room than they do; still very effective little specimens may be obtained in pots 6 inches or 7 inches in diameter if the long rambling branches are trained around a few sticks. Planted out in a prepared border and secured to a rafter or in some similar position, it is seen at its best, and plants established in this way are extremely useful for cutting from. This Asparagus was first put into cultivation by M. Lemoine, of Nancy, in 1890, under the above name, but a couple of years or so later, when a first-class certificate was awarded it by the Royal Horticultural Society, the varietal name of *arboreus* was dropped, the plant appearing simply as *Asparagus retrofractus*. The stem of this is hard and woody and of a greyish colour. Side branches are freely produced, and the minor twigs which they in turn push out are slender and wiry, and have the leaves arranged thereon in little tufts. These leaves are thread-like, each from 1 inch to 2 inches long, and though always of a bright green tint, they are when first produced unusually vivid. This Asparagus if grown in pots needs plenty of root room and a rough porous compost, but, as above stated, it does better when planted out than in pots. The sprays retain their freshness for some time when cut and placed in water.—T.

Pentapterygium serpens.—Every spring this Indian Whortleberry forms one of the most attractive plants to be met with in the Heath house at Kew, but though attention has been called many times to its great beauty, it does not as yet appear to be in general cultivation. It forms a large tuberous rootstock, from the centre of which are produced long arching branches sparingly furnished with small *Pernettya*-like leaves, and producing several shoots towards their tips. The flowers, which are borne throughout the greater part of these shoots, hang thickly along the under sides thereof. They are tubular in shape and of a most brilliant red colour. The extremely graceful habit of the plant and the profusion in which the flowers are borne, combined with their vivid colouring, render it a charming object for a cool house at this season. It is a native of the forests of the Himalayas, and is often found as an epiphyte, nestling among the mosses on the limbs of large forest trees. The genus *Pentapterygium* is nearly related to *Vaccinium*, and the plant in question is sometimes known as *Vaccinium serpens* and *Thibaudia myrtifolia*. To succeed in its culture it needs plenty of drainage and a soil principally consisting of sandy peat of a fibrous nature. A second species, though less showy than the last, is decidedly ornamental, and particularly interesting from the curious markings of its blossoms. This is *P. rugosum*, an evergreen shrub with pointed ovate leaves and of somewhat loose habit of growth. The blossoms are drooping, each about 2 inches in length, urn-shaped, and peculiarly marked, the ground being yellowish, with zigzag lines of a reddish brown arranged transversely, while the calyx is altogether of that hue. The blooms being of a stout, waxy nature, retain their beauty a considerable time before they drop.

As a rule, this species flowers during the summer months. The treatment usually given to greenhouse *Rhododendrons* will suit it well.—H. P.

NOTES AND QUESTIONS.—STOVE.

Rudgea macrophylla.—The habit of old plants of this species is peculiar, but the pure white, sweetly-scented flowers are very beautiful. They are produced in dense heads and partly hidden by the handsome deep green leaves. To obtain the best results with this species the young plants must be grown on strongly in rather large pots and rich soil, keeping them in a moist, warm greenhouse or stove temperature.

Anthurium Dickii.—This has immense deep green leaves, and from the centre of the plant the large, vigorous spathes rise. These are deep purplish rose at the base and become much paler above, sheathing around a very large yellow spadix. It requires a stove and very liberal treatment to obtain the best results, and to prevent injury to the foliage the plants should have plenty of room. Large plants of it are now bristling with spikes at Holloway.

Spiraea astilboides floribunda.—This species, which is referred to in such high terms on page 360, is of continental origin, having been distributed by a Belgian nurseryman in 1891. It soon made its appearance in this country, where in 1894 it received an award of merit from the Royal Horticultural Society. At the time of its distribution it was described as a seedling from a plant of *S. astilboides* that had presumably been fertilised with the pollen of *S. japonica* growing in close proximity thereto, and such is doubtless correct, as the newer kind is in general appearance about midway between the two. With regard to the foliage, the leaflets are larger and rougher than those of *S. japonica*, and at the same time they are of a much brighter green than in *S. astilboides*, and do not become bronzed with exposure, as that kind does. The inflorescence is more in the way of *S. japonica* than the other parent, being more erect and of a whiter tint than *S. astilboides*. It is, however, a larger growing plant than *S. japonica*. The second *Spiraea* alluded to in the above-named article, viz., *S. compacta multiflora*, is no doubt an instance of the old golden-veined *reticulata* reverting to the ordinary green-leaved form, for the inflorescence of this last is exactly the same as the other, and though admired by many, it is, from my point of view, too lumpy to be compared favourably with the typical *S. japonica*.—H. P.

Zephyranthes carinata.—This pretty little bulbous plant, alluded to on page 363, is a great favourite of mine, for not only are the blossoms very beautiful, but with little attention it may be depended upon to flower every year, and will go on increasing and gaining vigour season after season. Treated as an ordinary greenhouse plant it does not flower with me so early as this, but is usually at its best about July. The bulbs are not large, being little bigger than those of a full-sized Snowdrop, and the foliage is also narrow and grass-like, so that one is scarcely prepared for so large a flower as this really is. It is in general appearance very like a small *Vallota*, while the colour is a deep rich rose. Each flower is borne singly on a stem 6 inches or a little more in length. This *Zephyranthes* is a native of Mexico, from whence it was introduced over seventy years ago, but it was seldom seen till within the last few years. In some parts of the tropics it is exceedingly popular, cropping up here and there as *Crocuses* do with us. I have received it more than once from India as a beautiful native bulbous plant, whose flowering set at rest any doubt as to its being our old Mexican friend. Large masses may be grown in pans, but for general purposes planting about half a dozen bulbs in a pot 5 inches in diameter is a very convenient way of growing it. A soil principally composed of sandy loam and a temperature such as *Pelargoniums* require are very suitable for this *Zephyranthes*.—H. P.

A STONE SEAT AT DROPMORE.

IN giving this engraving of one of the few good stone seats one meets with in English gardens, we may perhaps say a word in favour of such seats, the best for gardens, though, owing to the prejudice against stone with us, it is probably hopeless to effect much change. The defects of the wooden seat are so clear everywhere, that one ought to make an attempt to do something better. By continual painting—a troublesome and messy business always—we can, of course, keep seats of wood in some kind of condition, but when we attempt to make seats in natural wood, like Oak, the desire is to keep them in their natural and best colour, which excludes painting, and then we find that decay soon sets in; and, in fact, most wooden seats begin to rot as soon as they are put up, and the state of wooden seats in English gardens is generally one of decay, often to the degree that they cannot be used. A stone seat, on the other hand, in a French or Italian garden is often a picturesque thing, and the one difficulty

perianth. It is a worthy flower to bear the name of one who did so much for bulbous plants, and among them the Daffodils.—S. ARNOTT.

TREES AND SHRUBS.

BERBERIS DARWINI.

IN making a selection of the earliest flowering shrubs that afford a display long before such as Laburnum, Lilac, and Thorns show signs of life, *Berberis Darwini* would probably take precedence of all others. Although it is to be met with in most gardens, it is only in a very few that it is seen at its best, as by judicious planting it can be made as useful as it is ornamental, viz., to form screens and picturesque hedges. No conception can be formed of the size and beauty individual shrubs will attain from the straggling specimens one often finds in overcrowded borders where they have no chance of retaining the lower branches and are

Berberis. This idea occurred to me recently from seeing the two in close proximity. A large clump of early-flowering shrubs planted two years ago is now well established, and the first striking feature presented by it this spring was the two things mentioned above.

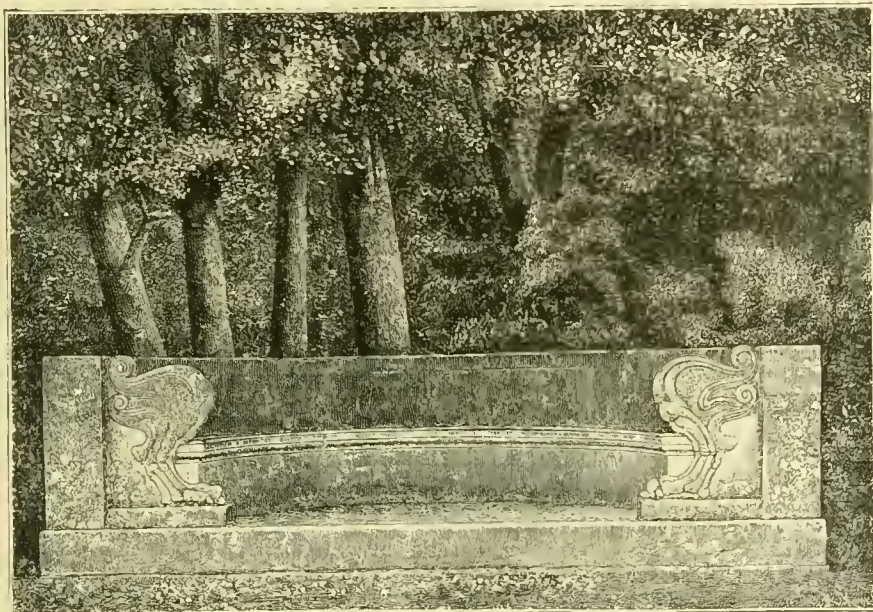
Berberis Darwini may be used in other ways with the very best results, viz., as a wall plant, and prove much more interesting than many others used for the purpose, but of course it must be treated and trained accordingly. It is common for even small plants to throw up one or more long, straight shoots the first year after planting, which are the ones to select to form the foundation of the future plant. It may be necessary to place several plants at the base of the wall it is intended to cover, so as to secure the desired number of shoots, and train them upright from 9 inches to 1 foot apart. Having formed a base by this means, all other growth at the bottom should be cut back to allow the strength to go into the leaders, treating them in a similar way to upright cordon fruit trees, so as to form a neat, even surface of foliage. The necessary attention afterwards will consist in pruning back the flower sprays directly they commence to fade, and so encourage a new set from near the base for next season's display, and at the same time keep the plant within bounds. The plant can also be put to even a more useful purpose than described above, and it was a happy thought that occurred to someone years ago to form a hedge of it at Lavant House, Chichester, where it acts as a boundary between the pleasure grounds and park, and appears of sufficient strength to resist cattle, while for weeks in the spring a belt of rich golden colour brightens up the whole garden, and may be seen from many points and at a great distance. This may prove a hint to some who are desirous of forming a picturesque screen in the flower garden or pleasure grounds, but who are undecided what to select for the purpose. To maintain a belt of plants in a fairly even but at the same time not too formal outline, the shears must be avoided, as all that is required is cutting back here and there some of the longest shoots after they pass out of flower, when it will prove an interesting feature in a few years, even when not in bloom, and more satisfactory than the common Laurel and Privet too often employed for such a purpose.

RICHARD PARKER.

Godwood.

Akebia lobata.—This comparatively new species of *Akebia* is very distinct from, but less ornamental than, *A. quinata*, to which in some respects it bears considerable resemblance. *A. quinata* is so well known that little need be said concerning it; still, the extremely supple character of its flexible shoots, together with the pleasing tender tint of the young foliage and the singular lurid purple of its blossoms, combine to give it a most uncommon, yet decidedly ornamental appearance. *A. lobata*, which was figured in the *Botanical Magazine* (tab. 7485), is therein described as differing from *A. quinata* in having more woody branches and smaller flowers. The new-comer is apparently as hardy as *A. quinata*, but its shoots lack that extreme flexibility which forms such a pleasing feature of that species. *A. lobata* is a native of Northern China and Japan.—T.

Deutzia parviflora.—This pretty *Deutzia* was first introduced into cultivation through the Botanic Garden, St. Petersburg. It forms a somewhat upright-growing bush that reaches a height of 4 feet or thereabouts, and whose branches are clothed with deep green leaves, strongly veined. The shoots of the previous year's growth are studded throughout the greater part of their length with small, flattened corymbs of white Hawthorn-like blossoms, which open before those of any other member of the genus, and on this



A stone seat of Dropmore in front of a group of *Ilex*. Engraved for THE GARDEN from a photograph by Mr. J. James.

which may be fairly urged against it in Britain is easily got over by putting a trellis over it of Oak laths held together by cross pieces or any similar trellis, which will make it as dry and comfortable as any other. The cost of such seats is sometimes greater at first than the cost of wooden ones, and a little more thought is required in design so as to place them where they are really wanted, but the result is enduring and we have no further trouble about their maintenance. The seat at Dropmore is gracefully set against a group of *Ilex* in that charming garden of trees.

Narcissus Ajax Dean Herbert.—Many of the newer higher-priced Daffodils are unattainable by the greater number of flower-lovers, and it is always well to grow some of the finest of the varieties obtainable at a moderate price. Such a Daffodil is Dean Herbert, one of the bicolors, and raised by Mr. Edward Leeds. It would, perhaps, be more appreciated were the perianth segments white instead of primrose, passing to sulphur, but its size and distinct appearance, as well as its sturdiness, recommend it to many. The rich yellow trumpet is quite in proportion to the

shorn of their natural habit and beauty. Another important reason why it should be selected before many others is that, being of a naturally hardy constitution, there are few districts where it would not succeed, which should be a further inducement for planters to use it freely. As a lawn plant it has few equals, handsome specimens being obtained in a few years if well-balanced plants are selected for the purpose. Growing on turf, the pendent branches laden with their golden flowers are seen to advantage, and are not damaged during stormy weather like those growing in a dug border. Some of the finest specimens I have seen are grown in this way in one of the coldest districts in the north, which proves its value for planting in such localities. Where space would admit, a bold feature could be made on the lawn by planting this and *Bambusa Metakea* a few yards apart, so that each specimen stood clear of its neighbour, showing a good carpet of turf between, and if more variety were desired, a few tall standards of *Prunus Pissardi* might be added, and a striking contrast obtained between the dark young foliage of the latter and the golden sprays of the

account are sometimes injured by late spring frosts. It is perfectly hardy and forms a very pretty early-flowering shrub for the open ground as well as for flowering in pots, but in both of these respects it is, I think, surpassed by a variety in the production of which it has played a part, viz., *D. Lemoinei*. This was obtained by fertilising the flowers of *D. parviflora* with the pollen of *D. gracilis*. This was done in the spring of 1891, and a quantity of plants resulted therefrom. Three years later it received a first-class certificate from the Royal Horticultural Society of France, and in 1896 the same award was given it at a meeting of our own Horticultural Society. It has already become very popular as a forcing plant and has been many times exhibited, and now two years after it obtained a first class certificate, one of its parents (*D. parviflora*) has received an award of merit.—T.

NOTES & QUESTIONS.—TREES & SHRUBS.

Flowering Currant (*Ribes*).—*Ribes sanguineum* on the grass looks well in any position, especially when seen in big specimens or several plants growing together, and when backed by green-leaved shrubs the effect is good. Beautiful as the plants are when growing thus, they are equally so when seen on the turf. I have a fine bush of this on the turf in the wild garden. A mound of *St. John's Wort* gives a good setting to the *Ribes* when in bloom.—DORSET.

The flowering Currant is thus referred to by Loudon: "By far the most ornamental species of the genus. It is easily propagated, and as hardy as the common Black Currant. It flowers profusely, and coming into bloom early in the season forms the most splendid bush to be seen in British shrubberies, from the middle or end of March to the beginning or end of May." Though many introductions from all parts of the world have been made since that time, the above remarks are as applicable now as when they were first written, but owing to the fact that this *Ribes* is of so accommodating a nature that it is practically everybody's plant, its great merits as a highly ornamental shrub are apt to be overlooked, from the fact that it is in many places at least so very common. Beside the typical form there are several varieties in cultivation, two of the most distinct being well shown in a coloured plate in THE GARDEN last spring. There are album or albidum in which the flowers are nearly white, and *Gordonianum* or hybridum, which resulted from a cross between *R. aureum* (the Missouri Currant) and *R. sanguineum*. The colour of the flower is about midway between the two (a most uncommon and pleasing tint). Beside these there are several other well-marked forms of the Flowering Currant, prominent among them being *atro-rubens*, of a deep rich red, and *glutinosum*, of a peculiar pinkish-lilac tint. A particularly showy variety is the double-flowered (*flore-pleno*), whose blossoms are of a rich red colour, and apart from their duplex character they are later in opening than in any of the others. The flowers, too, remain fresh and bright for a comparatively long time.—T.

Wellingtonia gigantea.—One of the specimens of this fine conifer to be seen at Westonbirt is most interesting owing to its being one of the first trees of the kind introduced into this country. It would thus appear to have been planted about forty-five years, though I believe it was kept in a pot and regarded as a tropical plant for some time after it was received. It has attained the great height of 74 feet, but is not so well proportioned as other fine specimens to be met with elsewhere. The trunk is, I think, remarkably large, as it is from 18 feet to 20 feet in circumference 2 feet above the ground, the thick layers of bark adding to the beauty of the stem.—I.

Azalea rhombica.—Following closely on the heels of the North American *Rhodora canadensis* with its pretty rosy-purple blossoms we have this Japanese *Azalea*, whose flowers are of much the same tint, but altogether larger and more

showy than those of the *Rhodora*. It is the earliest of all the hardy *Azaleas* to come into bloom, and for this reason the blossoms sometimes fall a prey to late spring frosts. The flowers are borne before the expansion of any of the leaves, and in such profusion that the entire bush is quite a mass of blossom. It has been in this country for many years, but is still decidedly uncommon, and rarely met with in nurseries. It is now, of course, included in the genus *Rhododendron*, which has quite swallowed up that of *Azalea*, and the *Rhodora canadensis* above alluded to is now *Rhododendron Rhodora*.—T.

FLOWER GARDEN.

NEW AND CHOICE DAFFODILS AT DITTON.

REGARDED from an all-round standpoint, the spring of 1898 must be considered as generally favourable to *Narcissi*, at least so far as the flowering is up to the present time concerned. This is so in spite of the almost entire absence of rain, which in the average of seasons is so helpful to the development of foliage and flower alike. Growers, too, of the flower on a large scale will likewise be grateful for the absence of those extreme cold, cutting winds, and, not less damaging in its way, the scorching sun that plays such havoc to many flowers, though more especially such as *Barri conspicuus*, *Gloria Mundi*, and others that possess richly coloured crowns that render them so conspicuous in any arrangement of their flowers. It is these kinds, moreover, that, if longevity of the flowers in the open be considered, should be planted within a sort of sheltered domain, so that the wind or scorching sun—the latter especially damaging should the flowers be moist with rain—may not reach them with its fullest force. It was, doubtless, some such view as this that caused the Messrs. Barr to construct the many shelters and enclosures that now exist in their Daffodil grounds at Ditton, shelters, too—though not of a fancy kind, and perhaps not quite the right thing for a private garden—one feels the expediency of as soon as you are within their folds. It is within these temporary shelters at Ditton that the privileged visitor may see within the limits of an hour more of the cream and the richest gems of this exceedingly rich family than perhaps in any other nursery of its kind in Europe. It is here that the gems of the Dutch raisers, as well as those of the British raisers, may be seen side by side, and here also that one may compare and admire all this floral wealth and beauty. Here the finest of the race may be seen, many of them towering high on giant stems well-nigh 2 feet long, bearing aloft their noble blossoms that in many instances are unique. Chief among this category are such as *Weardale Perfection* and *Monarch*—splendid acquisitions that will be many years before they are cheap or even approachable by many present-day growers. Both these are grand in their way. Some single bulbs of the latter were carrying five monster blooms. It is a very remarkable fact in respect to these that the price is being raised each year, and the famous *Monarch*—without doubt the noblest of the self yellow trumpets ever raised—which, in its earliest days, was offered at £5 5s. per bulb, has now reached the astonishing price of 15 guineas each. The handsome *Weardale*, the bicolor kind, is likewise a splendid flower. Quite near these came the handsome yellow trumpet *Fred Moore*, a novelty of last year, also a massive kind of great vigour. This, however, has now a close companion in *Lady Helen Vincent*, a

fine kind that only obtained its certificate of merit on April 12 last. It is, however, noteworthy of this recent novelty that the flowers at Ditton were greatly superior to those shown at the Drill Hall on the day named. This will make a fine addition to the nearly self-yellow trumpet class. A large bed of *Glory of Leyden* next received attention, the huge blossoms, with spout-like crown, standing out boldly and well on the sturdy, solid stems. This is a very fine kind in many ways, the perianth, perhaps, possessing a rather weak point, yet as a whole a really grand flower of great size and fine vigour. In the same shelter the smaller-flowered *Apricot*, also a present-year's novelty, was noticed. This distinct kind obtained the award of merit chiefly for the break in colour, a buff-orange tone having been imparted to the trumpet, which thus opens out a new field to the hybridist.

Still among the very choicest of the more recent bicolor kinds is *Mrs. Walter Ware*. It is not of the giant race, and may in size be compared to *Mme. de Graaff* or *Mrs. Thompson*, both sufficiently large for all purposes. The chief merit of *Mrs. Ware* is in the pearly white of the perianth and in the full-toned yellow trumpet so beautifully reflexed at the brim, and in all respects possessing rare finish. A bed of this with some 200 in full bloom we regarded as among the very finest at the moment of our visit. Possessing a good constitution, this is a kind that will be sought after much in the future, when a selection of Daffodils of the highest standard of excellence becomes a necessity. Another very fine display was created by *Victoria*, also a bicolor Daffodil, yet not so clear as the last-named. *Victoria* may be said to belong to the *Glory of Leyden* group in so far as the shape of the trumpet is concerned, that is to say, a trumpet slightly widening at the rim and beautifully frilled, but not recurring; the segments of the perianth creamy white, and broadly overlapping, and the whole flower very solid and sturdy-looking. Here within the shelters and again in the specimen beds in the open it is good, a bold, prepossessing flower of indisputable presence. Not less bold and telling are *Golden Queen* and *Golden Nugget*, both novelties of last year and of the self yellow class, and with the fine bold character and sturdy qualities of *Emperor* in the foliage and growth generally. Another very handsome form, still scarcely without equal, is *M. J. Berkeley*, the colour that of *Maximus* in a flower of greater and, indeed, nobler proportions generally. The huge flange-like rim of this kind, broadly reflexed and beautifully as well as heavily frilled, renders it at once conspicuous. Not least of its charms is a distinct pleasing fragrance that should be turned to good account by the hybridiser, seeing it is so distinct and withal so agreeable. *Mme. Plemp*, *Ada Brooke*, *Grandee*, *J. B. M. Camm*, *Portia*, among those not so well known as the ever-popular *Empress* and *Horsfieldi*, are all of the bicolor section deserving of special note, as we pass on to the beautifully refined white Trumpet sorts, in which *Mme. Plemp* is a very beautiful and chaste kind, as well as a novelty of first rank. Other beautiful novelties in this set are *Grace Darling* and *Lady Somerset*, flowers in which the segments of the perianth possess a distinctive curve suggestive of *Tortuosus* in a glorified form. Here, too, we find the lovely *Mme. de Graaff*, the most prominent of this fair race of Daffodils. *Matson Vincent*, *Mrs. Thompson*, *Mrs. F. W. Burbidge*, with *Mrs. J. B. M. Camm*, are other gems in this section that satisfy and fascinate most lovers of the flower, and constitute

the very cream of the white and sulphur sorts, not only in size and beauty, but also in constitution and vigour. Another very important section is

THE CUPPED NARCISS.

It is a noteworthy fact that this section is naturally strong and vigorous, the race, above all else, perhaps, best suited to naturalising in grass, for here they retain largely of their pristine vigour and taller growth that produce a unique effect in garden landscape. It is among these that the remarkable *Gloria Mundi* shines out so well and so conspicuously, the rich orange-stained cup being of large size and well expanded, a flower as yet quite unique in this respect. C. J. Backhouse is of the same hue, but a smaller flower in all its parts and much earlier, while other notable kinds include *Commander* (a novelty of 1896), *Goliath*, *Gwyther*, and *Autoerat* (a distinct form of excellent habit and very vigorous). Beauty also is a conspicuous kind, showing well among the hosts of these kinds. To omit Sir Watkin from these would, of course, be to omit one of the best, yet one so well known as to need no comment beyond the fine stretch of it then at its best with others later planted, on the eve of opening.

Novelties in the Barri group, the "Star Narcissi," are not so numerous as in some other sets, but several of those now in commerce are well-nigh indispensable in the garden. Among the newer kinds, *Dorothy E. Wemyss* is exquisite, the colour in the shortened cup very conspicuous. *Flora Wilson* is also an extremely pretty flower, the segments so very pure and the whole flower compact; several bulbs of this were producing two flowers to a scape. Another very beautiful kind is *Maurice Vilmorin*, with a cup heavily stained with orange-scarlet. *Siddington*, a variety of 1896, is also free and good, and frequently produces twin flowers in a scape. A very curious kind in this group is *Sensation*, that appears to possess as much of the Leeds blood as the Barri, in which latter it is, however, placed. It is a handsome flower, the perianth whiter than usual in these kinds, and the cup beautifully edged with orange-scarlet. This is among the very earliest of the Barri group, and was passing when our notes were taken. Of course, there is the world-renowned *B. conspicuus*, perhaps the most deservedly popular of all the Barri strain, but this is not grown in the shelters at Ditton. It is to be seen in the open fields by many thousands in a batch. In one quarter alone there were just fifty beds of this, and each bed contained 1000 bulbs, a similar lot gracing what is known as the New Field—a valuable adjunct of many acres devoted to blocks of the most popular sorts.

The elegant Leeds section has remained till the last, though the Silver Star Narcissi are by no means the least worthy of this valuable tribe. Perhaps one of the fairest sights among Daffodils—certainly in the writer's opinion—was the beds of *Duchess of Westminster* and *Mrs. Langtry*, then a mass of nearly pure white, exquisitely crimped flowers, the biscuit-toned cups in some of these being charming against the pearly delicacy of the perianth. The former is the larger flower, and either in the beds as growing here in the open, or in a mixed vase of the two kinds, their real beauty must be seen. *Minnie Hume*, *Princess of Wales*, *Katherine Spurrell*, and *Beatrice* are all good and distinct among these, and worthy every care. One other kind, and this a Poet's Narcissus—*N. poeticus poetarum*—was very fine indeed, many handsome flowers just opening.

The above naturally only represent a very few kinds out of some 20 acres or 30 acres of these flowers, some of the kinds as, e.g., *Barri conspicuus*, appearing in overwhelming numbers, and, as viewed from the upper end, revealed not less than 70,000 or 80,000 of its handsome and graceful flowers; large numbers of bulbs bearing three and others even four flowers each—truly a wondrous sight.

E. J.

A new form of *Erythronium revolutum*.

—A collector in Northern Humboldt Co., California, sent me bulbs of an *Erythronium* last season which proves to be a connecting link between *E. revolutum* type and *E. revolutum* var. *Johnsoni*. Like the latter, the leaves are mottled with dark brown and have a varnished appearance. It is usually one-flowered, and the blooms are almost uniformly of a dark pink, verging on rose, with orange centre; in fact, the colour of lighter flowers of var. *Johnsoni*. The typical *E. revolutum* has light green leaves, mottled with white, or rarely light brown, the flowers opening white, tinged with pink and becoming purple. This form, found as it is on a line between the known habitats of *E. revolutum* and *E. Johnsoni*, is evidence of the existence of a chain of connecting links.—CARL PURDY, Ukiah, California.

Epigæa repens.—This exquisite plant is referred to in the interesting article by "J. C. L." on "North American Plants" on p. 336. I have lately seen it growing well in a few Scottish gardens, and believe that it may pretty safely be said that "J. C. L." is correct in attributing the success of the plant in Mr. G. F. Wilson's garden to "the arrest of rapid evaporation." This seems to be the secret of success in many places with a considerable number of North American plants, and it is unfortunate that many cannot secure it without employing what may be called artificial contrivances—to be avoided as far as possible in our gardens. In nearly all the gardens in which I have seen it established and in good health it was grown under a hand-light, shaded in summer. By this means almost uniform moisture was secured, and the plants appear to enjoy the conditions under which they are thus grown. Healthy plants of the *Ground Laurel* are very beautiful, and it is unfortunate that so many cannot secure the clusters of fragrant flowers without some such means. There are, however, many gardens in which a shady, moist nook could be chosen in which *Epigæa repens* would look well and be at home without any covering of the kind.—S. ARNOTT.

Border Polyanthuses.—If the plants of these, also falsely called Primroses, shown recently at the Drill Hall were to be regarded as indicating the best types or strains in cultivation, then would it be needful to lament over the undoubted deterioration that had taken place. That it is not so, and that fine and more refined forms do largely exist, is happily the case. Still, it was not possible to look upon the coarse, clouded and roughly marked flowers, with irregular habits, devoid of all style and symmetry, without realising that they were a very long way behind the strains that used to be shown at the National *Auricula* exhibitions several years ago. The large-flowered German forms of border Polyanthuses that were once so finely shown from Knaphill had in them many redeeming features, even though coarseness marked almost every flower. But the progeny seems to have gone back sadly. Evidently those who have been growing them have not regarded them with florists' eyes and have not understood their requirements or their possibilities. How poorly were good self colours shown! The pure whites, sulphurs and yellows, with their stout stems and bold trusses, seem to have disappeared, and have given place to others of bizarre hues, ragged of petal and borne on flabby stalks. How poor has taste become was evidenced by the fact that plants of blue Primroses, because some of the flower-stems had thrown up clusters, were

admitted into the class for twelve plants. A few years ago the judges would promptly have disqualified such things. Evidently, at the present rate of retrogression, border Polyanthuses, with their thrum eyes, pure yellow centres and distinct colourings, allied to fine form and substance and smooth-edged petals, will absolutely disappear, as the lovely single Primroses we used to see have apparently done so already.—A. D.

Iris californica and *Iris macrosiphon*.—I have been able during the last two weeks to make a careful comparison between fresh flowers of *Iris californica* (Hort., Leicht.) and *Iris macrosiphon* (Torrey). Of the former I had an abundance of fresh flowers sent by a kind friend, who collected them in various places near the original locality. Ukiah Valley is the original locality for *Iris californica*, and, while the plants are not yet in flower generally, they have been in bloom for several weeks on some hot, dry slopes in the canyons. I find that structurally the flowers are nearly identical, except that the tube of the corolla in *I. californica* is one half shorter and not nearly so large. The foliage of *Iris californica* is coarser and taller, the clumps more dense. In *I. macrosiphon* the scape is very short. In many it may be said to be stemless, and 2 inches is an unusual height. This of course brings the flowers low down in the foliage. In *I. californica* the scape is seldom as low as 2 inches, and oftener 4 inches to 6 inches, or even more. In colour there is quite a difference. In *I. macrosiphon* it is usually a very deep velvety purple, much less frequently light or medium. In *I. californica* it ranges from medium purple to blue. East of here, in Lake Co., it is yellow, while in some places there are all variations. To most observers *I. californica* would seem a coarse-leaved, tall-stemmed form of *I. macrosiphon*. From a garden point of view the exquisite purple of *I. macrosiphon* makes its culture desirable, while *I. californica* has especial merit in its many colour forms.—CARL PURDY.

A VARIETY OF THE YELLOW-FLOWERED SWEET SULTAN.

DURING the last two years there has been much interest excited in the south of France—and especially at Lyons—by a variety of *Centaurea* with large white fragrant flowers which have an uncommonly elegant appearance. This variety was first offered for sale in Italy under the name of *Margarita*, afterwards altered by some persons or other to *Centaurea Margarita* or "Marguerite Centaury," but it is nothing more than a large-flowered variety of the yellow-flowered Sweet Sultan (*Centaurea suaveolens*, Willd.). It differs from the type in having much larger flower-heads (sometimes 2 inches or more in diameter), and of a very pale straw-yellow, almost white colour and silky appearance. The ray florets are deeply cut or toothed at the extremities, and, standing out flatly or horizontally from the centre, give the flower-head a very elegant fringed appearance. To this is added a slight but extremely delicate fragrance, and the flower-stalks, although long and slender, are quite rigid, and hold the flower-heads very erect. These qualities are certainly more than any flower requires to secure its immediate employment in bouquets, as happened in the present case, and it was at Lyons, I believe, that this Centaury made its first appearance in France two years ago in the form of cut flowers. These flowers surprised the amateurs, and pleased them so much that they soon became very much sought after, and were sold, not in bunches, but at the respectable price of from 2d. to 2½d. apiece. Not knowing the plant, many persons were puzzled about it, and some of them sent me flowers of it with the request that I would tell them the name and give them some information about the plant. This Centaury is undoubtedly the result of a rigorous process of selection, which, by simply increasing the size of the ray-florets, has produced an exceptionally meritorious floral variety, while the typical plant, although in cultivation for more than 200 years, remains just as

it was. This is another instance of what a little thing is needed to completely change the horticultural value of a plant, but this little thing is absolutely necessary, and frequently the whole lifetime of the most patient and skilful cultivators may be spent in vain attempts to attain it. Since its introduction into France the Italian name of this plant has been corrected, and instead of Margarita it has, for commercial purposes, been named by some persons *Centauree odorante* à grande fleur blanche, and by others, *Centauree Barbeau blanche odorante*, which is nearly the same thing. The plant has all the habit and manner of growth of the type, together with its annual duration. Its flowers are simply larger and much more elegant; but whether some of them remain imperfectly developed, or whether, when viewed growing on the plant and in mass, the beauty of form and delicacy of detail in these flowers escape notice, their ornamental effect does not then appear to me to be equal to what it is when the flowers are cut and brought nearer to the eye. On this account it is especially for cut-flower use that this Centaury is to be recommended. Success in one direction gives encouragement and leads to fresh experiments, so that we may expect that various coloured flowers will soon make their appearance. Of such we had an instance last year in the case of the purple-flowered Sweet Sultan (*Centaurea moschata*, L., a very near relation of the yellow-flowered variety), the typical colour of whose flowers is purplish violet. While enlarging the size of the ray-florets by selection, growers have also produced a variety of colours to such an extent, that at the present day we have several tints—lilac, sulphur-yellow, passing into pink, violet, purplish, &c., and sometimes passing from one shade to another. This new, many-coloured race has received the name of *Centaurea Caméleon*, but its flowers—at least those of them which I have seen—do not equal those of the white-flowered Sweet Sultan either in size or in perfection of form, and their perfume, although stronger, is not at all so agreeable, unpleasantly inherited, as it is, from the parent plant, the flowers of which have the odour of ants.

It is a well-known fact that the hardiness of all living things diminishes in direct proportion to the degree in which they have been improved beyond the condition of their ancestors. The plants now in question have not escaped the operation of this law, for they are more exacting as regards their cultural treatment than the typical forms from which they are derived. Although it cannot be said that they cannot be cultivated in the open air in this part of the country, it is not less true that they grow better and flower far better in the south of France, for they especially require a good deal of heat, full sunshine, and well drained and light soil. Dampness in the soil and in the atmosphere is their chief enemy. In the north, as well as in the south, the cultural treatment of these *Centaureas* is exactly the same as that of their types, which have been known and grown in gardens for such a length of time that we can hardly venture to speak of it. However, one thing I may mention, namely, that in many treatises on floriculture we read that these plants may be sown on hotbeds early in the season, pricked out, and afterwards transplanted to the position in which they are to flower. This is very bad advice, because the truth is that these *Centaureas* are as impatient of bottom heat as they are of dampness, and when their roots have been bruised or broken in transplanting, the plants never completely recover from it. The mode of culture which suits them best is also the most simple, namely, to sow the seed in April, where the plants are to flower, in drills about a foot apart, and thin out the seedlings so as to leave them 8 inches apart in the drills. They should be watered very moderately, especially while the plants are young, as the least excess of moisture causes them to damp off at the collar and perish. This is the most difficult point in growing them in our climate. However, if the grower is careful to select a very well-drained position, sheltered, and well exposed to the sun,

he may, nevertheless, obtain splendid flowers, and may, perhaps, be able to use these new varieties of *Centaurea* in furnishing flower beds in special soils and positions.—S. MOTTET, in *Revue Horticole*.

HARDY DOUBLE PRIMROSES.

THE interesting note by "R. D." concerning these beautiful plants at page 337 is well-timed. As "R. D." says, "many die from defective planting." Of this there is not the slightest doubt. Despite the fact that double Primroses dislike fog and smoke and the near proximity to large towns generally, they are certainly amenable to cultivation within such limits if sufficient care be exercised in dealing with them. Where a shaded border is at hand, or even the shelter of a few evergreen shrubs to break the fiercest of the sun's rays, there need be no great difficulty in securing double Primroses in fair quantity. This is more especially true of the white, lilac, and sulphur, as also the more generally robust kinds known as *platypetala plena* and *Croussi*, while the double *Pompador* or *crimson* will, perhaps, need greater care. Many growers of this latter class it as a "delicate kind," but I incline to the opinion that it requires a different mode of culture to bring out the real vigour the plant contains. I have secured stock of this from various sources, though principally Scotland and Ireland, but must say that by far the finest plants I have received came from the latter place. These, though not massive clumps, were vigorous and large as compared with the single crowns usually received. Too frequently all this class of spring flowers is planted in too light and too poor soil, and if to these dryness is added, failure is ensured from the beginning. As pointed out by "R. D.," a rather heavy soil is best, and if of good depth and somewhat moisture-holding so much the better. On the other hand, where lighter soils obtain there are ample opportunities for success by proper manuring and so forth, and for Primroses in particular there is no manure to equal cow manure, not so much for its richness as for its cooling nature and moisture-holding properties throughout the year. This and deep cultivation will compensate for much that is wanting in respect to shade and other things. At this season of the year when Primroses are in full flower, quantities are purchased "balled" up in clay or heavy soil that is absolutely impervious, and in numbers of instances the plants are dropped into little holes anywhere in the garden simply to die. Anything else would be impossible, for the roots cannot escape from their prison, and even could they emerge, no hope of success exists from planting in a soil that has only been disturbed sufficiently to insert the clod of earth and its occupant. Shade is an important factor with many Primroses, and where this cannot be supplied to the extent desired, greater attention should be given to the soil, and to digging and manuring. The fence described by "R. D." answers admirably in many instances, and with the soil dug 18 inches deep and given plenty of cow manure, the majority of the double Primroses will succeed.

Many years ago I was told I could not grow the double crimson kind in a London garden but six or eight miles from Westminster. I made the variety a complete success in the following manner. In a low-lying part I placed a two-light frame, cleared out the soil 15 inches deep, and replaced it with old potting soil and some rather heavy sandy clay from the garden; this, with rotten leaf-mould, formed the soil, except for a very heavy dress-

ing of manure on the surface, and forked in well under prior to planting. Before inserting the plants the roots were shortened considerably, though not to the extent recommended by "R. D.;" and the plants were kept somewhat low to enable the new roots to emerge from the base of the leaves direct into the soil. When all were planted a good watering was given and the lights put on, the plants then being from 8 inches to 10 inches from the glass. The planting was done in April; a thin permanent shade was put on the glass, and a slight daily watering given about 5 p.m. Later on, when it was obvious that root action had commenced, the plants were watered twice weekly overhead with liquid manure, and by the end of the season these had made splendid tufts, full of vigorous growth, and a mass of roots also. Some years since I was informed that manure was deadly to this crimson kind, but my informant could not conceal his surprise when I showed him the above. My own experience is that it delights in the richest soils, and may be grown to perfection quite near to London with the means above given.

One point in planting these Primroses is often overlooked; it is the manner in which the new roots emerge from the base of the leaves each spring. It is at this time that replanting should be done, or at least a good mulching given to assist these roots. In replanting, I prefer to shorten the old roots to a length of 3 inches, unless in the case of the scarce double crimson, and then as many as can be spared are removed their entire length for replanting for stock. These roots, if carefully dealt with, in time produce young plants from their apex, and in this kind at least, where any number of root fibres can be secured, it is well worth the time. With the treatment I have described flowers the size of a crown piece and perfectly double have resulted. E. J.

Celsia cretica.—Attention has been drawn (p. 362) to this excellent plant for spring flowering in the greenhouse, a purpose for which it is well adapted. It is equally at home for autumn flowering in borders, and as it will bear moderate frosts with impunity it goes on blooming until quite late, later even than *Pyrethrum uliginosum* and the *Michaelmas Daisies*. For borders, biennial treatment is not desirable, as the plants get somewhat rusty in appearance just when they should be at their best. The better way is to sow in heat quite early in the year, and grow the plants as big as possible before planting out in May; such plants hold their foliage well and are always handsome until cut down by severe frost. In addition to the charming effect given by the plant as a whole, the individual flowers are among the most beautiful that can be seen indoors or out. The spikes last well when cut and placed in water, and are very effective when used in tall glasses.—J. C. T.

Wallflowers.—Generally the dark or blood-red variety does not seem to have been so truly self during this spring as usual. I notice in every direction broken or flaked flowers, especially in gardens. This is probably due to some effect of the winter upon the plants. Still, it is very important in growing stocks for seed that each dissimilar one be very far removed from others, as, because of the fecundity of pollen found in the flowers and their great attractiveness to insects, intercrossing is rapid. An exception to the rule was seen recently in the Farnham district, whereon the sandy soil of that locality the blood-reds were in fine bloom and very true. There is, on the whole, no finer Wallflower than is this one, and plants stout and bushy and from 16 inches to 20 inches in height, carrying deep reddish maroon flowers, are beautiful objects. The very dwarf dark red, by some seedsmen called Dwarf Bedder, has been very effective at Hampton Court. It is a capital companion plant

to the dwarf Belvoir Yellow, which is the most compact-habited of that colour. But the well-known clear yellow variety Cloth of Gold is a superb Wallflower, and makes a very effective companion to the strong-growing Blood Red. Generally pure self Wallflowers are more liked than are flaked or broken flowers, as these give no striking effects. The pretty sulphur or lemon-hued variety Faerie Queen is charming and a pure self. Even in such common garden plants as Wallflowers what an advance has been made. A spring flower garden may be made very beautiful by masses of these alone.—A. D.

THE PRICKLY THRIFTS.

(ACANTHOLIMONS.)

ALTHOUGH there are only three or four of these lovely Statice-like-flowered plants in cultivation at the present time, many species are known. They are to a large extent, if not wholly, Asiatic, and it is to be regretted that we do not possess a larger number in our gardens, seeing



Acantholimon venustum carrying sixty-seven spikes of bloom.

how well the districts where many of them are said to be found have been explored by botanists of late years. The few we already have are quite unique among our other alpine, flowering all through the summer in profusion. They affect dry rather than damp situations, and to see large plants flowering in the full blaze of the sun is a sight never to be forgotten. In soil well mixed with broken bricks they will do well, and it is a good plan where possible to plant them so that they may overhang clefts or ledges.

A. GLUMACEUM is the commonest in gardens; it is the most beautiful and certainly the most free flowering. It is a dwarf-growing plant, rarely more than a few inches in height, with crowded, short grass-like foliage, the leaves stiff and armed with short spines. The annual shoots bear a tuft of closely imbricated, spreading, and recurved leaves, the older ones generally withering as the growing point advances, which it does very rapidly, the more quickly forming large tufts. The flower-stems are generally two or three times longer than the leaves, and bear a

distichous spike of numerous and charming large rose-coloured flowers. It continues a considerable time in bloom, and is perfectly hardy in the neighbourhood of London, and does not seem to be affected in the least by the smoke. It may be propagated freely from cuttings or layers, simply notching and pegging down as many branches as may be required. Cuttings should be placed until rooted in a moderate heat, kept close, and gradually hardened off as they become established. It flowers in June, July and August, and was cultivated about London as early as 1840. Native of Armenia. Synonym, *Statice Ararati*.

A. ACEROSUM is a rare species, forming dense cushions of stiff leaves, glaucous, and armed with sharp points; it is, however, rather a shy flowerer; flower not so large as in the above; colour rose. July and August. Anatolia, Tauria, &c.

A. ANDROSACEUM is a synonym of *Statice Echinus*, and is nearly allied to the above.

A. KORSCHYI, a handsome species with white flowers, and

A. VENUSTUM, an illustration of which is here given, are also desirable for borders. It is a rare

and beautiful kind with rose-coloured flowers, and was introduced from Cilicia in 1873.

The old double Rocket.—It may be that some further explanation as to my method of planting in spring instead of in autumn is due. I see that "S. W. F." (p. 329), writing from Torquay, says that he has planted in autumn with satisfactory results, and this, too, was my practice when I lived in Cornwall, where the climate is similar to that enjoyed at Torquay, as I found that the plants or divisions started root-action through the winter and were benefited by this early planting. I write now from one of the coldest parts of Suffolk, if not of England, and I find that in ordinary winters root-action is suspended, and, the divided pieces of the plant being necessarily very short after the woody portion of the root-stock has been removed, they sometimes suffer by being lifted out of the ground with the severe frosts we invariably get at some time or other, and after which the growth is never quite so kindly as it is when they can root freely at once after planting and

grow away without a check. It was for this reason, and to show that spring planting need not be feared, that I suggested the idea in my former notes, which might have been more explicit, and I thank "S. W. F." for the opportunity given me to explain what might have given rise to wrong impressions.—J. C. TALLACK.

DAFFODIL NOTES.

THE Daffodil season now fast coming to a close has been a very good one here, though one reads of partial failures in Scilly and elsewhere, where Daffodils generally do well. The mild winter brought the earliest flowers out earlier than usual, and cutting has been extended well over two months. Now as I write (May 4) the later kinds, such as *N. bicolor grandis*, *Barri conspicuus*, *Nelsoni major*, *N. aurantius*, and the curious little twin-flowered form, *N. schizanthus orientalis*, are at their best; while, as the result of accidental late planting, groups of *Golden Spur*, *Empress*, *Emperor*, *Sir Watkin*, *F. W. Burbidge*, *Minnie Hume*, and the *Emperor-like P. R. Barr*, which is one of the best of Daffodils in habit and constitution, are still quite good. Those who wish to extend the Daffodil season another year would do well to keep a portion of their stock out of the ground until October and then plant deeper than usual. The favourite early Daffodil here is *cambricus*, which never fails to do well, and its stems run up long enough to make it very useful for cutting. This is succeeded by *Golden Spur* and *rugilobus*; then comes *princeps*, which just precedes the mid-season varieties. Two of the trumpet varieties, *Ard-Righ* and *maximus*, never do well here, and *Tenby* will not live at all. I have never met with *Tenby* doing well far inland, and fancy it pines for the sea air and breezes. *Empress* and *Horsfieldi* are too much alike to be both needed, though the latter is a little earlier. The greatest difference I can see is in the leaves and habit, and here the glaucous and more upright foliage of *Empress* has the advantage. Its increase, too, is more rapid, for in starting some years ago a new plot for cutting, a similar number of each was planted, and though they have both always remained healthy and strong-growing, *Empress* has more than doubled the increase made by *Horsfieldi*. I should like to know if this experience is general, as I do not remember having seen it noted. *N. bicolor grandis* is a magnificent Daffodil, the perianth broad and whiter than in any other of the bicolors, and the trumpet very fine in colour and form. Being naturally one of the latest, it is especially valuable.

Of white-flowered forms, *N. albicans* is the most satisfactory and carries its flowers longest; *Leda* (*tortuosus*) always has its leaves more or less diseased, but bears a handsome flower; *cernuus*, with its straight cut crown, is not a model in form, and I find the flowers very fleeting. Only one other white trumpet, *F. W. Burbidge*, is grown; this has a very fine trumpet, but the perianth is very flimsy. In the medium and short-crowned forms my favourites are the yellow *Autoerat*, one of the best growers with a much expanded crown; *Frank Miles*, very distinct in form and of excellent and strong growth; the well-known *Cynosure* and *Figaro*, and the magnificent *Barri conspicuus*, a Daffodil which should be in every garden and which has not a fault. Among the *Leedsii* forms, *Minnie Hume* and *Mrs. Langtry* are two of the best that have come into my hands, and both healthy growers; the latter is exceptionally free flowering. A group of lovely Daffodils is to be found in those of the *Nelsoni* type. They do not appear to be so commonly

known as most of the others I have mentioned, but they certainly deserve inclusion in all collections, as the flowers are of exceptional substance and last for a long time. They also are at their best when most of the Daffodils are over. Two of the best in the group are Nelsoni major and Nelsoni aurantius, the latter unique in its colouring, the lengthened crown being deep orange-coloured throughout and the perianth almost white. The former also frequently has a suffusion of orange in the crown, but this fades away and leaves the crown of a pure yellow by the time the flower is fully opened, while in the variety aurantius the colour remains, and in some cases deepens during the time the flower lasts.

J. C. TALLACK.

Livermere Park Gardens, Bury St. Edmunds.

FLOWER GARDEN NOTES.

SOME SPRING CONTRASTS.—A small collection of double Peonies, of those varieties whose foliage from the time it bursts from the ground up to from 12 inches to 18 inches in height is hardly less beautiful than the flower, was planted rather thinly on a narrow west border last autumn, and, having a few good seedling Polyanthus saved from a deep yellow strain, I filled in the space between the Peonies with these. It is difficult to imagine a more striking contrast than that afforded by this association, and it will be even better another season when both Peonies and Polyanthus have strengthened with age. This is only one of many striking spring contrasts produced as the result of judicious planting. Attention was drawn some few weeks ago to what might be accomplished by foliage alone, but this, pleasing as it is, has always a certain dullness that is seen at its best when relieved by a bright and distinct flower, and instances of this are now strongly in evidence. A bed of that splendid white Phlox Diadem, that has pale green foliage, was carpeted with Phlox setacea, and the contrast in the foliage was at once distinct and pleasing, but nothing in comparison to the effect now produced with the carpet plant a sheet of bloom. The new Aubrietia Fire King should also show to great advantage in contrast with the foliage of the white Phlox. Again, there are beds of herbaceous Lobelias associated respectively with Pinks and White Swan Tufted Pansy. For a time the bright contrast was in favour of the bed in which Pinks are the carpet, but this was quite eclipsed when the Pansies burst into bloom. In connection with Lobelias, it may be mentioned that divided plants are never so early as those that remain undisturbed from the previous year, although when division is necessary great care is exercised in the operation, and it is performed in early autumn directly the old flower-spikes are removed. It is a great point in favour of the majority of spring flowers, even of those species of which there is now a wonderful diversity of shade, as, for instance, Polyanthus and Tufted Pansies, that, given the planting of any one family in quantity and in great variety, there is nothing objectionable in the mixing up of so many shades. On the contrary, the effect produced is decidedly pleasing. I cannot say quite the same for the practice that has grown of late years of mixing different species, for although taste may be shown so far as the blending of colour is concerned, there is something incongruous in a mass of Tulips and Polyanthus, or the latter flower studded with Daffodils. Despite a marked contrast in their habit of growth and type of flower, there is not the same incongruity in a mixture of flower and foliage, examples of which are to hand in large clumps of Spanish Iris pushing up through masses of the alpine Phloxes. In connection with the Spanish Iris I would ask under what conditions these are found in their native habitat. I ask because a batch received was planted, in lieu of a better place, in a poor border, whose natural poverty is intensified by a col-

lection of various wall plants. They were planted deeply, get an annual surface mulching of half-rotten manure, and have done remarkably well, getting stronger with each succeeding year.

SUMMER BEDDING PLANTS.—The spell of cold experienced in the latter end of March and early part of April was responsible for arresting the progress of spring-flowering plants. Wallflowers, Silene, Myosotis, and things of a similar nature are consequently very late, and will have to be removed when just at their best if the early planting of summer-flowering stuff is practised, the alternative being to let them hang out as long as they are furnishing a good display, and see that the plants that are to follow them are thoroughly well cared for, so that when they are planted they shall be in a condition to go well away without check. If, for instance, the weather prove hot and dry during the next fortnight, watering must be well attended to, and thorough soakings rather than superficial sprinklings always given. Special attention should be given to things required for vases or boxes to see that the foliage is kept healthy and clean. In this direction simple arrangements easily planted will be found quite as effective as more elaborate arrangements, such, for instance, as white Marguerites with a deep edging of a free scarlet or pink Ivy Pelargonium, that will both mingle its trusses with the Marguerites and hang well over the sides, General Roberts Fuchsia surrounded by the white trailing Campanula, or arrangements of a similar nature. Half-hardy plants raised from seed early in the year and gradually hardened off may go out at once, if not already planted, especially where an early display is a consideration. In beds already partially planted with Tufted Pansies that have in former years been filled up with tuberous Begonias, let me recommend Pentstemons as a substitute. I think the mixture decidedly more pleasing, especially where the flowers of the Begonias are of the heavy, drooping type. Last season two beds in which Andrew Hunter and Elsie Pentstemons were respectively carpeted with White Swan and Edina Tufted Pansies proved very attractive. Antirrhinums, too, may be associated with the Pansies, a good crimson type showing to advantage against a mass of Violetta. The Snapdragons, however, are a bit more formal than the Pentstemons, and in beds mainly devoted to the former I would suggest that a bit of feathery foliage, as Acacia lophantha, should be sparingly planted. Early-sown Centaurea candidissima will now be ready, and this forms a capital companion for the fragrant Heliotrope. If good plants of a vigorous variety of this are to hand, spaces may be reserved at intervals for them and the remainder of the bed filled in at once with the Centaurea; the latter will be covering the ground and putting on its best colour by the time the Heliotrope is planted. Occasional plants of this Centaurea left in the ground from last year came through the winter safely and are growing away strongly.

CARNATIONS.—Seedlings of the Grenadin and early perpetual types are now ready; they are, however, grown principally for cutting, and so do not often find a place in the formal garden, but fill up occasional gaps on outlying borders. Writing of Carnations reminds me to inquire how growers have fared this season with Uriah Pike. Of some twenty border varieties grown, this has been with me the only failure, and the failure is most pronounced. It was very slow in rooting from the layers, and although the latter were left on the stock plants until early spring, they were not at all satisfactory when severed for planting out and three parts of the batch are dead. It is to be hoped that this variety, which I was relying on to take the place of the old crimson Clove, will not prove equally uncertain. A friend advised me to try Mephisto, but although hardy and a good grower, it has little or no scent. Is this failing a characteristic of the Carnations of Cannes and its neighbourhood? I received a large box of flowers from the Riviera about a month ago to show what was obtainable outside at that time, and besides Orange blossom, Ixias, Freesias and double An-

mones, there were some ten sorts of Carnations. Only one of the latter (a pink) was scented, and although coming at such a time they are acceptable, as different to anything we have out of doors, not one of them in point of quality would hold its own with the best outdoor varieties available later in the season. I am glad to say a good word for an old favourite, Countess of Paris. Rather slow, as a rule, to root, it does not always come through the winter well. This year, however, only three plants are gone out of a hundred, and those that remain are pushing away very vigorously. Of last year's seedlings the best was a buff, something in the way of Carolus Duran, but rather lighter in shade. It promised well, being a large even flower with no sign of splitting.

TUFTED PANSIES.—Sporting characteristics are developing earlier than usual among some of the Tufted Pansies, and from beds of Annie King and Blue Cloud I have picked respectively six and five distinct flowers. There is an idea that this sporting is only to be found in parti-coloured varieties and does not apply to selfs. This, however, is not always the case, as self sports run out into all kinds of shades, a fact that prevents them from being utilised in any arrangements where the retention of colour throughout the season is a main consideration, and it is gratifying to note that a firm accepted as specialists in these flowers makes a point of cataloguing any variety as a sport if it has originated in this way. I am writing of a light soil. Possibly on heavier land the sporting tendency would not be so pronounced, and I should be glad if any correspondent having stiff soil would try a lavender sport from White Swan, a large and handsome flower, which runs to a much paler shade given a spell of hot, dry weather, but one of the best I have all the time the true colour is maintained. Of seedlings coming into flower, the best at present is a flower of the shape and size of William Niel, but much deeper in colour. If it will retain all characteristics at present apparent it will be a decided acquisition. Other good things are an intense purple, almost a black, and one something after Vernon Lee, but a larger and better flower. The development of flower in a batch of seedlings is watched with keen interest, despite the disappointments that occur when the blooms fail to come up to the standard expected.

E. BURRELL.

Claremont.

CALIFORNIAN NOTES.

THE season in California, which in a previous letter I sketched to February 18, continues to be phenomenal and, to most of our State, disastrous. Week after week the rain failed to come until hope turned to despair. A rain early in April reached the northern half of the State and did much good, but at this date (April 19) the season's fall is the lightest since 1865. South of the centre of the State the rainfall has been so scanty, that, except where irrigated, there will be scarcely any crops, and no rainfall from this onwards can alter that state of affairs. Grass is equally dry, and stock of all kinds is being shipped to more favoured sections to save them from starvation.

From the central line north the prospect is much better. The rain that has fallen was well distributed, and the shower early this month was of great benefit, but even with these advantages the crop outlook is very bad. The larger area can now produce at best but very poor crops, and favourable weather is necessary even for that. Some of the northern coast range valleys will have good crops, and there will be grass enough generally in Northern California. The great drought has not been California's only misfortune this season. The exceptionally cold weather which culminated on the night of January 11 had its climax in March, and the orchards of the State—then in most places in full bloom—suffered heavily,

The temperature was far below the freezing point, and it is generally conceded that the bulk of the deciduous fruit crop was destroyed throughout the State. Of course it is yet early, and later estimates may show the damage to be less than supposed. Some sections where the trees were backward escaped, and thinner crops are in a measure compensated for by larger size. In our valley early fruits were destroyed, while Prunes, Apples, and Pears escaped.

The season here has been a severe test of the hardiness of many shrubs and trees. Perhaps we miss *Acacia mollis* more than any other thing lost. It has heretofore proved quite hardy, and our town was full of large trees of it, and in early spring they were glorious feathery masses of golden flowers. This season buds, leaves, and small limbs were frozen, and the trees will have to start from the old wood. The bright days of February stimulated Roses to a new growth, and with the big freeze our hopes of bloom went. An immense Banksian Rose had every twig burnt. The change from cold to hot was rapid. Before the middle of April there were days when the thermometer registered 85° in the shade. In my garden the Narcissi have been especially fine this spring. The first came early in February, but the hot days blasted most of the very late varieties, unless where shaded. Our climate is favourable to these bulbs, but I am sorry to say that they are not grown as they deserve to be. To be sure, *N. Tazetta*, or the Chinese Lily as everyone here calls it, is liberally distributed by the Chinese laundrymen among their patrons, and is to be found in every garden, but outside of Van Sion few Daffodils are to be seen in California.

Among the wild flowers the season is now as far advanced as it usually is four weeks later, and is now at its best except on shaded slopes. Everywhere they are to be seen, often carpeting the ground—not, it is true, in the luxuriance of a wet year, but so profuse as to astonish one not used to such flower masses as we enjoy. Early in the season the wet grain fields were white with *Cardamine angulata*; now their prevailing tint is the yellow of two Buttercups. Of these, *Ranunculus macranthus* is found everywhere and is tall and weedy, while *R. Bloomeri*, a low compact species found only in wet places, has rather pretty foliage. *Limnathes* are now in flower in all wet places in billowy masses. All are *L. Douglasi*, but in two leaf variations. The coarser of these is edible, and makes a substitute for Water Cress rather superior to the true sort. Many grain fields are yellow with the bloom of the wild (naturalised) Turnip, prettier than useful. It is in the dry grain fields and pastures of the upland that the finest show is to be seen. There is one twenty-acre field in sight of my window which is one billowy mass of *Eschscholtzia* in immense flowers of the deepest orange; then there is acre after acre of *Lupinus nanus*, large fields as white as if covered with snow with an annual *Eritrichium*, while patches of red *Collinsia sparsiflora*, of Cream Cups (*Platystemon californicus*), and of two *Nemophilas*, one, the blue *N. insignis*, the other the lighter *N. Menziesi*, brighten the fields. Just now these are the flower masses, but they have many less conspicuous companions, delights to the flower lover, and the woodlands and low wet meadows are rich with their characteristic bloom. On the hillsides all of these are to be seen, and besides are on acre of the beautiful *Gilia* tricolor. On hot slopes, in woods and gravelly places, *Delphinium nudicaule*, *Calochortus pulchellus*, *Iris californica*, and many others are in flower, while high up in the mountains Dode-

catheon Hendersoni, first of spring's blossoms, is still to be found in perfection, and even *Cardamine paucisecta* can still be found. A letter is too short to give a full list of the beautiful flowers which a few hours' walk would bring together in these beautiful April days.

CARL PURDY.

Ukiah, California, April 20.

NOTES AND QUESTIONS.—FLOWER.

Daffodils and Apennine Anemone.—I saw the other day a very pretty effect obtained by carpeting a bed of large bicolor Daffodils with the pretty little Apennine Anemone. Cultivation in beds that will a little later on be cleared for the inevitable "bedding-out" plants is not quite the right sort of treatment for this Anemone, but the combination gives a hint of what might be done by making a clearance near the fringe of a shrubbery or in a suitable spot in the wild garden, where both plants might be left alone for years. —J. C. T.

Primula rosea.—The note in THE GARDEN of April 16 on this charming *Primula* reminds me of the way it grows in the wild garden at Didlington Hall, Norfolk. In this garden it is now grown very largely, and the position given it seems to suit it. A stream runs from the lake and close by the wild garden, and beside this stream the soil has been raised some 2 feet above the water. In this position *Primula rosea* thrives admirably. In another place has been formed a miniature island, the stream running on both sides. The outside is protected, so that the water cannot wash the soil away. In the soil about 2 feet above the water large masses of this *Primula* and *Primula cashmeriana* are growing, and one can see how they enjoy the position by their large leaves. I am convinced both of these *Primulas* enjoy a cool, moist situation, although I agree they will not thrive in wet, boggy soil. When living at Farnborough, in Hants, owing to the hot soil I could not grow them. They grew fairly well in a shady position with plenty of water. —DORSET.

ORCHIDS.

ONCIDIUM CONCOLOR.

This will always be popular, and one never seems to have too many of the beautiful racemes of clear yellow blossoms. It is a small grower, but produces a great quantity of bloom when healthy, its culture being comparatively easy. Many fail to get the best results from growing it in large pots, in which it never becomes really well established, for it is not a very vigorous rooting species at any time, and if once the roots are checked, healthy growth is out of the question. Small pans or baskets are the best receptacles for it; in fact, many growers at first used to plant it on blocks, but this treatment necessitates such close attention to watering that it is not to be recommended generally. As noted, the growth is small, and if the pans or baskets show a margin of a couple of inches, or even rather less, around the plant, they are large enough. Fill these to within an inch for the smaller sizes with clean crocks, allowing rather more room for compost with the larger specimens. For these small-growing species it is quite as well to have the compost kept separate, placing first a little rough Moss over the drainage, then filling up with peat and Moss mixed, having plenty of finely broken crocks and charcoal ready to hand, and placing these in freely as potting proceeds. Make the upper layer firm, trim it off neatly, and dibble in a few fresh growing points of *Sphagnum* Moss around the rim or the top rods, as the case may be. The

leading pseudo-bulbs must not be buried, but the bases should just rest on the top of the compost. The baskets or pans must be suspended in the coolest house, as in such a position they get the best of the light during winter. Moisture in abundance is necessary all through the growing season, for if the atmosphere gets at all dry, thrips will be sure to attack the plants, and this means a serious drawback to them. When the young roots are running well in the new compost they must never be really dry. Taking down and dipping are preferable to watering with a pot or syringe, as the water is sure to reach every part of the compost and drainage. The growths are not constant in their time of appearance, but will usually be finished in the autumn, and will take a resting season longer or shorter according to the time the pseudo-bulbs finish swelling. It must not be a dry rest, for if moisture both in the atmosphere and at the root is not present, the pseudo-bulbs will shrivel badly and the plants will be seriously checked. Care is especially necessary in late winter when the spikes are beginning to form.

These alpine Orchids differ from small-growing tropical kinds like *Dendrobiums*, for even if these shrivel a little, a few weeks in more congenial quarters will to some extent, at least, restore their lost vitality, while these small *Oncidiums* and *Odontoglossums* when once badly shrivelled do not recover so easily. Overhead watering is easily overdone, but in summer light dewings over the foliage are very refreshing to the plants, helping, too, to keep insects in check. If the atmosphere is right the *Sphagnum* will grow freely about the base of the bulbs, keeping them cool and forming a good guide as to the state of the compost for moisture. Although long known, it is only within the last two decades that *O. concolor* has been popular. It was discovered on the Organ Mountains by Gardner in 1837.

Trichocentrum tigrinum.—This is a quaint and beautiful little species now in flower in Messrs. Williams' nursery at Upper Holloway. In growth it is not unlike a miniature *Oncidium Kramerianum*. The flowers are each about 2 inches across, the sepals and petals pale yellow, spotted with purplish brown; the lip almost triangular, broadest in front, with recurved margin. It is pure white with a yellow crest, and on either side is a showy blotch of purple. The plants are grown rather warm, and on account of their small size are best in limited-sized baskets or pans.

Trichopilia marginata lepida.—This is a very beautiful form of *T. marginata*, and is in capital condition at Messrs. Williams' nursery. The habit is that of the type, but the flowers are larger, with rosy spots on all the segments and a prettily undulated lip. The treatment of this variety is similar to that required by others in the genus—just a little warmer quarters than the *Odontoglossums*, a medium-sized pan or basket, with rough, open compost and careful watering. If once the roots of any of these get into a bad condition it is very difficult to bring them round. It is a native of Central America, and was introduced in 1873.

Cymbidium Devonianum.—This pretty and uncommon species is well grown at Holloway, several plants of it being now in flower. The spikes are pendent from the base of the pseudo-bulbs and contain a large number of flowers, each about 1½ inches across, the sepals and petals olive-brown with purple spots, though this varies in the different plants. The lip is deep purple in the centre, the colour becoming much lighter in front. It is best grown in baskets on account of the direction taken by the spikes, and an intermediate house is better than very warm treatment. *C. Devonianum* is one of the plants sent

by Gibson to Chatsworth about 1837, and is a native of the Khasia Hills.

Epidendrum radicans.—The growth of this plant is very intractable, and unless some means is taken to support it the plants soon look untidy. In an intermediate house it looks well if trained up under the roof, and owing to the freedom of growth and the amount of light the plants receive in this way, they flower more freely than when kept much shaded. The young growing points are the most tender and must be shaded from bright sunlight. When in flower few Orchids are brighter than this, the loose heads of orange-scarlet and yellow blossoms having a very telling appearance. It is a native of Mexico and Guatemala and was introduced about 1860.

Cattleya intermedia alba.—This is a very rare and beautiful albino, a small plant of it having been exhibited at the Drill Hall on April 26 by Mr. J. Bradshaw, of The Grange, Southgate. The flower is absolutely pure white, and the plant, though very small, was in faultless condition. It is by no means easy to cultivate, and from at least one place where it has flowered it has now disappeared. In this it differs from the typical *C. intermedia*, for this, though not particularly vigorous, will hold its own with reasonable care. The difference in the size of the flowering bulb on the plant referred to and those immediately preceding it was very marked.

Vanda suavis.—This noble Orchid is well represented at Messrs. B. S. Williams and Son's nurseries at Upper Holloway, where the plants are grown in a large house, and a score or so of large specimens in flower at one end has a beautiful appearance. The fragrance, too, pervades the whole house, and it is indeed difficult to account for the neglect this splendid Orchid has fallen into. *V. tricolor* alongside it is very fine indeed, and the grand spikes of flower are hardly second to those of *V. suavis*. There are a great many spikes coming on in the same house, so that from now until late summer or autumn a fine display will be kept up. These Vandas and others of similar habit may be grown with the greatest ease by anyone, the only point where trouble comes in being their habit of losing the lower leaves. To obviate this, the growth must not be rushed along in a close, shady house, but allowed plenty of air whenever possible and all the light the plants will stand without damaging the foliage. Plants so grown seldom lose their leaves.

LAELIA SUPERBIENS.

In my previous note on this species I endeavoured to draw attention to the fact that, contrary to the usual methods thought necessary to induce this species to flower satisfactorily (a system I myself had thought necessary for nearly twenty years), I found here a plant that had been grown with the Vandas and had flowered well for ten years at least, and which has continued to bloom satisfactorily under the same conditions for the last five years. It was not my intention in doing this to detract in any way from what had been previously written in respect to this plant, nor was it my desire to induce my fellow Orchid growers to adopt the system I there set forth. But, whether right or wrong, here is the fact of what is considered a troublesome species having flowered satisfactorily for fifteen years at least under conditions where we hardly get daylight for at least six months of the year. Not only is the atmosphere smoke-laden, but the roof-glass gets coated in such a manner (although constantly washed), that it is well-nigh impossible for light to reach the plants.

In your issue of April 30 "H. R.," in dealing further with this matter, says that he "would never grow the plant in dense shade had he a position where plenty of light could

reach it, but he would shade before the sun could damage the foliage." Surely in this matter any man that had the least consideration for his plants would never put shading on them unless there was some sign of the sun damaging the foliage. The extent also to which sunlight may be admitted is in my opinion quite a condition to be decided under the particular circumstances in which we may be placed. Here from September to the end of March no shading is required, but during the brighter months of the year shading has to be more carefully considered. Owing to the fact that the plants having had very little light, they are more liable to be injured by the strong rays of the sun. This brings me to the point in question, viz., the amount of sunlight Vandas will stand. Though I have substituted the lath blinds in the place of the woollen ones on all the other divisions, I still stick to the old material for the Vandas. If "H. R." (who has seen my plants) can point out 300 plants of Vandas in a like condition that have been grown under sunlight, I shall be glad to fall in with his views with regard to strong light. Further on he advocates large structures. I thought this theory was dead long ago. The house my Vandas are grown in is 36 feet long, 18 feet wide, and 12 feet high. Even in a house like this I think "H. R." would find that the atmosphere could not be kept so congenial to them as he would make believe. If an example is required of big structures, take the big Cattleya house in Messrs. J. Veitch and Sons' nurseries—fine for a show house, but for growing plants in, I, who had charge of it for some years, would not recommend it as a model. Again, there was the big house erected for the late Downside collection—a noble structure, but for growing Orchids a failure. This should be sufficient proof that large structures are a mistake. If lofty structures were so advantageous as "H. R." would have us believe, it is a wonder that our great trade growers do not advocate the system. Surely such people as Messrs. H. Low and Co., who have recently built so extensively at Bush Hill, would have had sufficient experience to have enabled them to judge whether plants do better away from the roof glass or within reasonable distance thereof.

Camberwell, S.E.

H. J. C.

Calanthe Sanderiana.—As a late-flowering kind this is extremely useful, and the elegant spikes are very beautiful just now intermixed with such as those of *C. Williamsi* and the evergreen *C. veratrifolia*. The blossoms are of medium size, a pretty bright rosy pink with a deep crimson blotch on the lip. In the colour of the flowers it comes nearest to *C. Veitchi*, but the habit of the plant and shape of the flowers are more those of *C. Regnierii*. It is a native of Cochin China.

Laelio-Cattleya Thorntonii.—The addition of another of these beautiful bi-generic hybrids between *Laelia* (*Brassavola*) *Digbyana* and *Cattleya labiata* is a distinct gain, and the Messrs. Veitch are again to be congratulated on their success. This class, of which *L.-C. Digbyana* Mossie was the first, will soon be getting numerous, as a beautiful one was exhibited about this time last year. The present hybrid is from the *Laelia* named and *C. Gaskelliana*, and is very beautiful in its soft shade of rose, with delicately fringed lip.

Odontoglossum baphicanthum.—In this plant, which is probably a natural hybrid between *O. crispum* and one of the odoratum section, the flowers are very distinct. They occur on tall spikes and are each upwards of 3 inches across in the best forms, the yellow ground colour being almost hidden with pale purple blotches. The lip is yellow, with reddish spots about the crest,

which somewhat resembles that of *O. crispum*. It is a native of New Grenada and thrives well in the coolest house under the conditions usually recommended for *O. crispum*.

Odontoglossum triumphans.—The showy character of this species is now everywhere apparent, and so distinct is it, that only a medium form is far superior to the ordinary run of yellow-flowering *Odontoglossum*s. Some grand forms of it were shown at the Drill Hall on the 26th ult., especially the unique variety from The Dell. I also noted some very fine spikes in the Victoria Nurseries, one carrying fourteen large flowers with clear-cut blotches on a deep golden yellow ground being very attractive. It is also one of the easiest to grow and very free.—H. R.

Odontoglossum Hunnewellianum.—The flowers of this pretty species are not so large as in many others in the genus, and cannot be described as first-rate. The flowers are yellow on the sepals and petals, and closely covered with small spots of chocolate and brown. It is only a medium grower, and thrives in small receptacles, a fine plant growing in a 5-inch pot and noted in flower this week having three spikes. The general routine of its culture is the same as for *O. crispum* and similar plants from New Grenada, this coming from the neighbourhood of Bogota.

GARDEN FLORA.

PLATE 1170.

HEDYSARUM MULTIJUGUM.

(WITH A COLOURED PLATE.*)

THIS is one of the newest species added to our hardy leguminiferous shrubs, and is quite distinct from any of that family our gardens previously contained. It appears to have first come into notice about fifteen years ago on the continent, and was figured about that time in the *Gartenflora*, but it was not till some time later that there is any record of it in this country. It grows from 3 feet to 5 feet high, is of spreading, somewhat sparse habit, the stems being crooked on account of the growth taking a different angle at each joint. The leaves, composed of numerous small leaflets, are of a greyish-green and 4 inches to 6 inches long. The flowers are of a purplish-magenta colour, with a yellowish patch at the base of the standard petal. They appear on racemes often more than 1 foot long—want of space having prevented the largest ones being represented in the accompanying plate. The plants commence to flower about the beginning of June, and continue to do so until August and September, a new raceme appearing with the leaf at every joint as the young growth develops. It is a native of Southern Mongolia, and is said to grow in desert regions. It certainly needs the sunniest position possible, but the soil in which it thrives best—a good sandy loam—is not one that is usually considered characteristic of deserts. In this respect it resembles a good many plants which in a state of nature grow under arid conditions, but which under cultivation thrive better (or, at any rate, satisfy the requirements of the gardener better) when treated pretty much the same as plants from more fertile regions. One of the chief recommendations of this shrub consists in its flowering at a season when comparatively few others are in bloom. There is a large group of it in the Pea family collection at Kew, which is very showy during June and July, although the colour of the flowers is to some people not pleasing. It can be propagated

* Drawn for THE GARDEN at Gravetye Manor, August 12, 1897, by H. G. Moon. Lithographed and printed by J. L. Goffart.



MIMULUS MULICATUS

by means of layers, cuttings, and seeds, the last being preferable when they can be obtained. The seed-pods are small, flat, rough, and almost circular, and usually contain a single seed. A bed or group of plants can be made to give a better furnished appearance by pegging down some of the lower shoots.

W. J. BEAN.

THE WEEK'S WORK.

KITCHEN GARDEN.

GENERAL WORK.—Owing to the genial rains the time will be occupied with the hoeing and thinning of crops. The former must be followed up regularly, as weed growth is so vigorous that it is almost impossible to cope with it. Transplanting will be done with greater ease and less risks whilst the ground is cool and moist. Small plants, such as salads, will need more attention to keep up a regular supply. Lettuces are making rapid growth, and those needed for succession should be lifted carefully and will now give better results if planted on a north border if not shaded with trees. Radishes will need similar treatment, giving them a cool corner and keeping the soil moist. All arrears of sowing should be completed at an early date if the plants need time for growth, as though one may easily make up losses well up to the middle of June, by this date it will be seen what is needed, and by sowing now with the ground in a favourable state there will be better results. In these remarks I include main-crop Carrots, Parsnips and Beet needed for winter supplies. These, if needed in large quantities, are none the worse if sown late, as though the roots are smaller, they keep better than coarser ones.

FRAME CUCUMBERS.—These may now be grown in frames and without fire-heat. I am aware this mode of culture is much less practised than formerly, but it is one many who can give the attention needed in airing and shading may adopt. With frame plants every bit of warmth should be conserved, then there will be healthy plants and a good crop. I do not advise putting out plants that have been some time in pots: far better plant those with four or five stout leaves 6 inches to 9 inches high, with fresh roots that will soon take to their new quarters. Shade, warmth and moisture are the three principal factors, and, given these, fruit may be cut in four to six weeks from time of planting. With shade little air is needed and early closing is a necessity, with ample moisture in all parts of the frame, not merely at the roots, but all over the surface of the soil. A gentle dewing overhead will do more to keep down red spider than a free use of insecticides. In planting give a rich soil, not too light, as though the roots like it light at the start, it is well to have soil that will build up stout, short-jointed plants.

CUCUMBERS IN HOUSES.—The February plants will now be showing signs of exhaustion if they have been cropped heavily. For late June and July supplies sowings should now be made. I need Cucumbers in large quantities at the season named, and rely upon young plants for the supply. At the same time it is fair to add I use houses that have given other earlier crops. I give these plants double the room allotted to the spring crop. So far I have found no variety to heat a good strain of Telegraph. Market Favourite is excellent where fruits are sent long distances or for keeping, as it retains its freshness so long. Plants in bearing may be assisted by frequently top-dressing, using rich materials, such as bone-meal and spent Mushroom manure. It is best to crop thinly and evenly at the start, as this allows of new wood being regularly laid in. Upon the strength and quantity of the new wood future supplies depend. A liberal day temperature should be given—80° to 90° with sun-heat, with ample moisture, closing early, with 70° to 80° night temperature for fruiting plants, allowing the thermo-

meter to run up to 100° at closing, and damping every part of the house and plants also.

RIDGE CUCUMBERS.—These are less grown than formerly, as the small fruits of the frame or hot-house plants are often used instead. Now is a good time to raise plants for pickling or other uses. A use one may with advantage put ridge Cucumbers to is for boiling as a vegetable. The long variety is excellent when the seed portion is cut out and then stuffed and cooked. Sown at this date in frames, two or three seeds in a 4-inch pot, and, when the plants are large enough, the weakest removed, there will be good plants by the second week in June to plant in the open. If a little warmth in the way of hand-glasses at the start can be given, so much the better. These plants delight in an open, sunny position and a rich, light soil. I admit there are failures. Many sow too early or plant out without due protection at the start. Sown now in frames and well hardened off, the plants will be safe in the open at the date named. The fruits of some of the Improved Long Ridge types are little inferior to those grown in frames, and cannot be compared with the yellow seedy fruits seen in shop windows.

POTATOES.—Since the genial rains a few days ago the growth of early Potatoes has made rapid progress, and moulding up must be attended to frequently, as the tops soon push through the new soil and are not yet safe from frosts. Later kinds just showing through the soil will need hoeing between to kill weed growth previous to moulding up. Now is a good time to feed Potatoes if food was not given at planting. Many are obliged to double-crop the soil, and cannot give the cultivation desired owing to late crops. In these cases I have found a liberal dressing between the rows before hoeing do much to build up a crop. I would advise feeding now in preference to earlier in the year, as now the crop will receive the full benefit of the food given. Potatoes in cold frames will now be at their best, and should not be dried off too quickly, as they lack flavour if the growth is not finished. In a few cases the small sets of frame Potatoes are ripened for a late forced crop in the autumn. I do not advise it, but there is no difficulty in getting new Potatoes in winter from seed ripened now and planted in August.

CELERY.—I am busy pricking out the seedlings of what may be termed the main crop of Celery. These plants are given but little heat. Having been sown early in April in frames, they are now fine sturdy plants. Needing large quantities, I am obliged to prick out without glass protection. The Celery occupies a place on a south border, and is merely covered with mats at night. It is well to have some rich material for the seedlings to root into, as it is necessary to lift later on with a ball of earth and roots. I use some spent manure from an old hotbed or old Mushroom manure made fairly firm, and then cover with 3 inches of good soil. Many place in ordinary soil, but it is well to get abundance of roots and a sturdy growth. Ample space should be allowed the seedlings: 4 inches to 6 inches is none too much—the latter if the trenches are not yet ready for the plants. I find I am often obliged to let these plants when pricked out remain longer than is desirable owing to the ground being cropped with other things.

LATE CELERY.—I have sown as late as the middle of May when a previous sowing failed and got fair results, as with late Celery one does not aim at size so much as a sturdy growth. To get rapid germination it will be necessary to sow in a frame, or to cover the surface with mats till the seeds are through, not allowing the seedlings to suffer from want of moisture. Standard-bearer is the best late kind I have grown. This I sow thinly and transplant direct into the trenches, not allowing the plants to get drawn. Grown thus there is less trouble with planting and watering, and should the seedlings be at all thick I would advise thinning in preference to crowding. I use the thinnings for soups and flavoured, planting thickly in drills and merely drawing up a little soil to the plants in November.

By growing late supplies Celery may be had good well into April, as by lifting in March and laying in under a north wall the growth is checked. It will be well to make the trenches as soon as possible, as the soil will then be in better condition for planting in a few weeks. I do not use large quantities of manure, but rely upon liquid manure and fertilisers during growth, as ample supplies of soot and salt with late moulding-up add greatly to flavour and keeping.

ASPARAGUS.—The supply is now plentiful in most gardens. I am strongly in favour of feeding at this date. I admit it is not well to use salt too freely on heavy land till cutting ceases, but light dressings with soot or, what is better, fish manure are of great benefit at this season. With a later growth than usual, owing to late frosts, the bearing period will be shortened somewhat, and feeding may be done earlier, as the demand on the roots will be greater should the weather be favourable. Guano mixed with wood ashes is an excellent fertiliser for poor soils, as it promotes root action sooner than animal manures. Many leave the small seedling-like growths during the cutting period. I fail to see their utility, as they rob the larger roots in time, and, provided the bed is evenly cropped, they do much harm. The hoe should be used freely among young plants, as these being in rows are not difficult to keep clean. Gaps may still be filled up if seedlings are lifted carefully. I would strongly advise early thinning where the seedlings are at all thick, as the plants if left in clusters cannot be removed later without injury to the roots of the permanent plants.

S. M.

FRUIT UNDER GLASS.

PEACHES AND NECTARINES UNDER GLASS.—The estimate given on April 16 as regards the ripening of the first early kinds in pots was nearly correct. The first Cardinal Nectarines and Early Beatrice Peaches, both which were started on December 2, were ripe and some picked on May 2. Now (May 7) the regular supply has commenced. The fruits of Cardinal Nectarine colour well, are large, and emit that rich aroma found in the finest midseason kinds. It is unmistakably a grand early forcing kind. Early Rivers will be ripe in a week or ten days from the time of writing, these, too, having been started on December 2, thus forming an excellent succession to the preceding variety. Both of these Nectarines have a peculiarity of swelling over and around the stalk of the fruits, which is liable to cause injury when the fruits are gathered. In order to overcome this, the better plan by far is to use a strong pair of Grape scissors with which the stalk can easily and readily be severed without the slightest harm to the fruits. Many, no doubt, have noted this peculiarity in other kinds even. Where such is the case the use of the scissors is recommended to preserve the fruits intact, when there is far less likelihood of premature decay setting in. Fruit on trees of Cardinal Nectarine started on December 22 is now colouring; this will ripen in about a fortnight from now. In striking contrast is Lord Napier, which, started on December 2, is not yet showing any signs of colouring.

TRAINED TREES.—Fruit on the first early trees in borders will now be coming on apace and be probably nearly ripe. Look well to the borders during the last three or four weeks and up to the perfecting of the fruits, and see that they do not suffer in the least from want of water. A great deal depends upon generous treatment at this stage, all the more so if the trees are carrying a heavy crop of fruit, and the result will show itself in the size of the individual fruits. If there is any tendency towards making lateral growths pinch them at once, and endeavour in so doing to direct all the energies of the tree in the direction of the fruits. Even leading shoots may be stopped when a sufficient length has been made, especially such as are disposed to grow too strongly. Keep a close watch after red spider, and use the syringe freely if there are any indica-

tions of an attack. If stopped in time a deal of after labour and annoyance will be spared those in charge. Black thrips will also give trouble in some instances, the best remedy for which is the XLAll vaporiser. These insects cause the fruits of Nectarines to assume more of a marbled appearance whilst they are colouring, and although no actual disfigurement may be occasioned, it is just as well to avoid it. As the crops are close upon ripening, the ventilation should be more liberally given; this will assist both in colouring and flavour. When the first fruits on large trees are seen to be ripe, a still more liberal hand as regards ventilation should prevail, so as to keep up a more prolonged supply. At this stage, if the weather be very warm and the sun shining brightly, it will be found a good plan to shade the trees. For this purpose at such times I use the dark brown cloths which are used for covering up during frosty weather. These keep the houses quite cool, and in this manner the supply from one tree may be spread over quite three weeks with care in the gathering as well. The shrivelling of which some growers have had to complain in the case of Lord Napier gives me no trouble at all; this no doubt in some measure results from too much direct sunshine. Whitening the glass would also be a convenient method of shading. The work in later houses will be of a routine character, but the thinning of the crop need not be delayed so long when one has by one previous season at least gained some knowledge as to the tendencies of the trees to fail in stoning. Some kinds do this, I note, more than others. The old Stanwick Nectarine is given to it, and so is the newer Stanwick Elruge, but in a less degree. These latest trees under glass will take water more freely now, and if the drainage is known to be good it will be safer to err in a slight excess than in the reverse. The latest trees will now possibly be exposed to attacks of green fly, more especially if not fumigated at the time of closing the house; attend to any such attack at once and nip it in the bud. Newly-planted trees should have close attention bestowed upon them now that growth is starting away in earnest, especially as regards tying and training, but above all in respect to maintaining a well-balanced growth all over each tree. I am not a believer in disbudding young trees so freely as is generally done; it is better to secure a more moderate growth at the base than to have to deal with rank, sappy shoots, which oftentimes upset the uniformity of a tree. When any shoot shows this tendency it is better to stop such growth, not only once, but repeatedly if need be. Do not attempt to accelerate the growth by the use of stimulating manures of any kind where young trees are planted in freshly-formed borders. Large leaves as well as large shoots are quite undesirable.

PEACH AND NECTARINE TREES ON OPEN WALLS.—Some few complaints are already being made that the crops are not so good as might have been expected, more particularly on the earlier kinds. I have no cause to complain; an occasional tree is thin, and this will occur from reasons beyond the immediate control of anyone, but as a whole so far the crop is promising well. A few green fly are in evidence, but these will have immediate attention. I thought an attack would have been delayed or staved off completely by the winter dressing, but, no doubt, a great many larvæ were then destroyed, though not all. Quassia extract at about half the prescribed strength will be the remedy, and if this be not sufficient the dose will be repeated. My choice of time when the weather is quite mild is about 4 o'clock, in order that the liquid may remain on the foliage longer and thus be more effective, but earlier if somewhat colder than usual. So far I have not removed the netting put on for the protection of the blossom, but now it must be done. The reason for delay has been to safeguard the trees as much as possible against the pernicious effects of the east winds. I am disposed to think the borders are a trifle on the dry side too; at any rate a good watering cannot possibly do any harm; therefore it will be given, the borders being narrow. No attempt at dis-

budding will be attempted for at least another fortnight. I do not believe in the extremely early disbudding practised by some growers; it often causes too luxuriant a growth, whilst it deprives the fruits of a small amount of protection also. Plants on walls will possibly need an application of the quassia extract too; it will keep the small caterpillars in check as well as the Plum fly. Here some of the shoots which already are disposed to grow strongly should be stopped. Apricots will probably be a rather short crop in many gardens. Those are fortunate who have them under glass, and are thus enabled in a small manner to protect them. Where the crop is really good and some can be spared, they will no doubt be acceptable in the kitchen or still room. Amongst these also the first operations as regards pinching and stopping will soon have to be done; actual disbudding is not so well unless the trees are at all weakly, then it will do good. Look to the roots of all Apricot trees in prepared or drained borders, and see that they are well supplied with water at this stage.

HORTUS.

KITCHEN GARDEN.

PLANTING GREEN VEGETABLES.

For some years I have planted the Brassicas much smaller than is often practised, and have found great benefit from so doing, as the plants take to their new quarters more readily than when at all large. I admit there are drawbacks, the chief one being drought, but this is felt less early in the season. Large plants of Cabbage, Broccoli, Kales, and similar vegetables suffer badly in dry weather. They are deficient of roots, and the check is so great at planting that they need a lot of attention to tide them over their earlier days. If the loss of plants, also filling up and other details are considered, the planting of smaller seedlings will be found to have much to recommend it. Weak, puny plants are useless. The small seedlings, given more room, are the most profitable, as being sturdy they are a mass of roots, and though they flag badly at the time of planting, a night's dew or shade will make them erect; whereas older plants will often lose their bottom leaves and fail to root freely. The weather at the time of writing is most favourable for planting small seedlings. My plan is to draw drills previous to planting. This is a ready way of giving water if needed, as it is conveyed directly to the roots, and the drills shelter from winds at the start. For market my practice may not find favour, but in gardens it is far better than using drawn, naked, rootless plants. Take Celery. Small plants of this could with advantage be used. My late Celery is given plenty of room in the seed-bed and planted direct into the trenches, the plants being dwarf and sturdy. Failing planting or having the quarters at liberty when the plants are ready, one may do much by transplanting in lines. Of course there is more care needed at the final planting to conserve the roots, and it requires more time than when small seedlings are used at the start, but it is far better than leaving the plants starving in the seed beds.

G. WYTHES.

Feeding Asparagus for forcing.—There is no better time to feed Asparagus than from now to the end of July, as with a free growth the plants reap the benefit. It must not be inferred I do not advise liberal supplies of liquid manure from July to September; indeed, there are few better fertilisers at the season named. At this date if fish manure, guano or any other approved quick-acting fertiliser is given, they will assist in building up strong growths. I feed freely as soon

as cutting ceases, and with showery weather the food is soon washed down to the roots if the soil is light. One may now use salt and soot freely. This will check weed growth and feed also. In clay, wet land the use of salt is not advised. One may also with advantage give a mulch of decayed manure to plants that have their roots or crowns near the surface. This keeps the roots cool and encourages new surface roots. The roots if at all old have a tendency to lift out of the soil, so that it is necessary to give top-dressings occasionally.—G. W. S.

Tomato Old Red.—I am loth to discard this, as it has its merits. I have a seedling very much like the old form, less corrugated certainly, but still not unlike the older variety. My object in calling attention to the above type is its value for first supplies in the early spring and its free setting qualities when others fail. A Tomato that gives ripe fruit freely early in April is valuable. I regret to say many of the smooth fruits are none too free-setting with me early in the year. I certainly do not advise growing this variety after May, its value being either early or late. The Old Red with me is earlier, and as regards flavour it is excellent, its fault—and this, I own, is much against it—being its shape. We must not, however, despise this Tomato on account of its shape, seeing the quality is so good.—S. M.

Thinning Peas.—Most growers when sowing early in the year are inclined to sow thickly. This did not matter so much when we grew the small round Peas with wiry haulm, as it required so many of these to make a dish, but with the larger-growing kinds of the present day crowding is a great evil. On the other hand, thick sowing after March is not a necessity. Still, it is much practised; in fact, some are far too generous with the seed, and one often sees rows like Mustard and Cress. Here comes the necessity for thinning, and with a genial rainfall at the time of writing this note many would get a much better return by thinning at an earlier stage and not leaving the plants to battle with each other for existence, let alone produce a crop. By thinning I have noticed many plants give pods closer to the soil, as there is no loss of leafage and they are enabled to branch out better. When thick, the haulm shoots up and only pods on the top. The splendid results obtained from Sweet Peas during the past few years have been largely secured by growing thinly, and the edible Pea pays for the same treatment.—S. M.

Pricking out Celery into trenches.—In growing Celery, as in many other things, cultivators are very apt to run in old grooves. In most cases it is advantageous to prick out the plants on a hard bottom in a sheltered spot, removing them to the trenches when they are strong. This is to be recommended when the trenches cannot be got ready early. There are times, however, when the land can be had early in the year and the trenches dug in May. In such instances the plants can be pricked into the trenches from the seed-boxes or pans. I saw an illustration of the advantage of doing so last June, when visiting Mr. Turton at Maiden Erleigh, near Reading. When walking through the kitchen garden I observed he had the greater portion of his Celery planted out. He remarked he could spare the ground, having just cleared it of Kale. He dug the trenches and put in the manure, treading the soil firm, and had the plants pricked into their permanent places from the seed boxes. He told me this spring he never had a better lot of Celery.—DORSET.

Late-sown Parsnips.—I quite agree with "S. H. B." (p. 327) that preference should be given to late sowing of Parsnips rather than, as is customary, sowing in February. The latter month or March would, no doubt, be chosen by those requiring exhibition roots in early winter. For home use large roots certainly are not required, and are not so tender as the later-sown and smaller roots. Old customs die hard, and this probably is one reason why so many choose the early months of the year instead of May for

sowing their Parsnip crop. There are the additional advantages, too, from late sowing that there is less work in getting up the roots for every-day use, and ground need not be reserved expressly for them, as is customary, but that which carries a winter crop can be freshly dug, or, if preferable, sown without digging at all. I, however, prefer to have freshly-dug, though not recently-manured, land for Parsnips; the plants grow away more freely, I find, on a broken surface than on a hard or closely-set seed-bed. Seeds of any kind put in during the cold months are much slower to germinate, and this I invariably find is a condition slugs and other insect enemies take advantage of.—W. S., *Wills*.

Tomato Golden Jubilee.—Yellow-fleshed Tomatoes have not found favour in this country, but for salad they are superior, as the quality is so good, and, when cut and served as a separate dish or mixed with other salads, the yellow kinds are well worth extended culture, as they have a peculiar flavour which is much liked. The Golden Jubilee is not much known, having been sent out only last year, but it is worth growing for its shape and quality. In the latter respect it is not unlike Green Gage, one of the first yellow Tomatoes ever seen, and still one of the best flavoured, having a thin transparent skin and beautiful flavour. The newer variety is cropping grandly, and will make a standard kind, as its shape and free cropping are equal to those of any red variety. Those who like Tomatoes uncooked should certainly grow this variety, as the flavour is rich and pleasant. I have had no experience with it for winter or late crops, but as a summer fruit it is one of the best and most prolific of the yellow kinds. G. W.

Seakale.—It was rather amusing to hear a gardener the other day asking whether his Seakale was not of a distinct variety because it was so very fine. Size was in this case purely a matter of production, whilst as to variety, it seems as if we were not likely to have other than the old purple-tinted variety, which the one mentioned was, and the Lily-white, which is still so rarely seen. When first introduced, there was an impression that in time the Lily-white would become very popular. That expectation has not been realised. Possibly it has not satisfied everyone, and apparently it is less robust than is the old form. Then there is an undoubted appreciation for the purple tint on the points of the stems, which is in well-grown and blanched Kale so pleasing. Whilst the very fine heads referred to received a cultural commendation, it is very doubtful whether gardeners generally would care to have stems so big round as a man's wrist, and the whole somewhat coarse. Certainly such huge Kale is not the best for table. Good stems one-half the size are not necessarily less profitable than are larger ones, as such roots as would carry very big Kale can be grown only where there is ample room allowed, and, no doubt, the soil strongly manured. No intimation was in the case referred to given as to method of production—whether from old-established roots, or from root cuttings of the previous year. Generally, it was believed to be from the former. But few gardeners of reputation now grow Seakale as a permanent crop; it is so easy to propagate every year from root-cuttings, and the resulting roots and crowns furnish such valuable material for forcing or blanching over several months that the method is productive of great gain. Really we have few winter vegetables of greater value than Seakale when grown as an annual crop.—A. D.

Cabbage sprouts.—"A. D.'s" timely allusion to the practice of cutting over Cabbages early and allowing a second growth of sprouts may induce those who have not tried the plan to do so this year. It frequently happens in gardens during April that there is a dearth of green stuff, except that supplied by the various sprouting Kales, and these do not invariably give satisfaction, especially after the flower-buds are in evidence. Young Cabbages, however, are always acceptable, and, given a good bed of these to start on and the

certainly that a good later crop may be had from the stumps, there is no need to wait long after March before beginning to cut freely of these. I began cutting Ellam's Early on April 5, and the sprouts from these are already, just a month after cutting, taking on that peculiar twist in the leaves which is the first sign of hearting, and by the end of this month or early in June it will be possible to commence cutting the second crop if necessary. Growers for market do not hesitate to cut early, as they can get a better price for quite small stuff than could be got later on when the plants are bigger, and private gardeners might well follow the example, though with a different object in view. All varieties of Cabbages do not sprout alike freely, but I have always found Ellam's excellent for the purpose, and I do not believe in growing many varieties. I have on trial this year a break of Allan's Incomparable, seed of which was sent to me by Mr. Allan, of Gunton. The stock is a wonderfully true one, and a first-rate type of what a garden Cabbage should be, being dwarf, early, thrifty, and hardy-looking, also very distinct in appearance. I hope it will turn out good as a sprouting variety.—J. C. T.

PLANTING AND THINNING ASPARAGUS.

YEARS ago very many persons did not venture on the culture of Asparagus, as they dreaded the costly preparation of the beds and did not always then get results in comparison to the labour and expense entailed. Of late these costly preparations have proved a fallacy and the culture is simple. Many will remember the labour formerly incurred in making an Asparagus bed. I have seen excavations 3 feet to 5 feet deep, many loads of manure and branches being placed in the bottom for drainage, I presume. In these days we are unable to devote so much time to one plant, as better results may be obtained by sowing on the flat in land double dug and well manured, sowing or planting in rows 3 feet apart and not less than 2 feet between the plants. The old method was 4-foot beds, a deep alley between, and three rows of plants; so close in the row, they were a mass of tops and roots could not expand. I would point out the necessity of thinning and giving ample space for the plants to develop. For permanent beds the rows should not be closer than 2 feet. In some soils it may be necessary to add other materials, but there is no need whatever to remove the old soil and replace with new. If the land will grow other vegetables, it will grow Asparagus with a little assistance. The raised-bed system I condemn in nine cases out of ten. Formerly all the plants were grown in raised beds, with the result that in dry summers the roots suffered. They are all on the flat now, with much better results. It is wrong to have raised beds in light soil. To prove this I filled up the alleys with good materials, old Vine borders, and have since got much finer grass. I have seen Asparagus sown so thickly, that thinning was a difficult matter without injuring the plants left. I would urge early thinning. It is a simple matter to go over the beds first with a small hoe and cut out at regular distances, and by so doing save much hand labour. I am not much in favour of the seed being sown at intervals in groups, as frequently advised, as it rarely fails to germinate, and sowing thus adds to the difficulties of thinning. Far better sow thinly in the rows; so as to be able to use the hoe, as then should the plants be overlooked for a short time they are not much the worse if the hoe is used early in the quarters. With thin sowing and ample room at planting, the growth is much stronger and grass may be cut sooner. G. WYTHES.

NOTES AND QUESTIONS.—KITCHEN.

Jerusalem Artichokes.—Last year I purchased two bushels of the white variety, thinking it would be preferred in the kitchen, but this spring I hear nothing but complaints about it,

The cook says it takes much longer in cooking, and that it is darker when dished up than the old pink-skinned variety. Have other gardeners had the same complaint about the white variety? As Mr. Wythes, Syon House, appears to cultivate the white kind, will he kindly chronicle his experience?—J. MAYNE, *Bictou*.

Early Cabbages.—The remarks of "A. D." in the last issue of THE GARDEN on the value of small Cabbages *versus* large ones will meet with approval from a good many private gardeners. I am this season growing five sorts, viz., Mein's No. 1, Ellam's, Battersea, Enfield Market, and East Ham, and with me they all prove medium growers with the exception of Enfield Market. Very few have bolted, and those entirely confined to Enfield Market. In my opinion, most private gardeners who are expected to supply early Cabbages will have a difficulty in beating Ellam's.—E. P., *Goulhurst*.

Late Broccoli.—This season the late varieties of Broccoli will be more valuable than usual, as there will be few good Cauliflowers in May. There is no lack of good Broccoli this season, and though full early for such kinds as Model and Late Queen, I have already cut nice heads of these varieties, and I fear there will be very few in the London district early in June. This will be a loss, as Peas make such slow progress that they will, I fear, be later than usual. Fortunately, these late Broccoli are well protected by foliage. The sun does more harm, as it opens and discolours the flower. Those who have late plants may with advantage give a check by cutting round the roots with a spade, or, what is better, lift with a ball and lay in under a north wall. This will retard growth and prolong the supply. This lifting will prevent the plants attaining a large size, but large heads are not needed for home use, and late heads early in June will be welcome.—S. M.

Late sprouting Broccoli.—Few vegetables are more useful than the sprouting Broccoli, and the produce is so good when cooked that I am surprised more plants are not grown in private gardens. For market it is a great favourite, as one may cut so many times, and there is a ready sale for short sturdy growths. The purple variety is the hardier of the two, and when cooked with its leaves there can be no objection to the colour, as it is of a nice green. I find the purple more prolific than the white—I mean the sprouting white. There is a distinct sprouting white which produces small heads, these being produced freely five to ten on a plant. This is a splendid type for late supplies, and with me it has proved hardier than the small white sprouting form. The newer variety is named The Bouquet, and the heads are much like those of a miniature Cauliflower. The sprouting varieties need an open position. My plants usually follow early Potatoes and give a heavy crop in March and April.—B. M.

Mint from cuttings.—In private gardens one often notices Mint occupy the same position for years. Treated thus the growths are much weaker, as Mint, to grow freely, needs food and good culture. Though many advise liberal top-dressings, the roots being in a matted state do not make the progress of those of plants with new soil and more space. Now is a good time to get new beds from cuttings. Propagation from cuttings is the plan adopted by growers who force large quantities of Mint, and it is a much better method of raising a stock than by root division. The cuttings are taken when the new growths are 4 inches to 6 inches in length. If the cutting is taken close to the soil the base will be found bristling with short roots. The cuttings are inserted firmly with a dibber in ground previously prepared by being well manured. I never allow the beds to remain more than two years, as I get much better results by annual planting.—S. H. B.

Early Potatoes.—The recent notes on early Potatoes in THE GARDEN have been very interesting. I have this year tried in pots Britannia, Maple Queen, Daniels' Early White Kidney, and Veitch's Improved Ashleaf. The seed of the

first three was given me by cottagers, and of the four varieties I have a decided preference for Maple Queen, both as regards earliness and cropping. I know nothing of the origin of the variety, and am unable to find it in any lists I have. Although I have always in previous seasons been perfectly satisfied with Veitch's Ashleaf, this year I find both Britannia and Daniels' White Kidney do better; at the same time I am of opinion that change of seed in the case of Veitch's Ashleaf would be beneficial. My seed has been grown on the same plot of ground at least four years. I have this season been able to get a dish from two pots of Maple Queen, whereas it has been necessary to turn out four of the Ashleaf, both planted on the same day.—E. PARSLow, *Brantford, Goudhurst, Kent.*

ORCHARD AND FRUIT GARDEN.

PEACH-GROWING IN THE LYONS DISTRICT.

THE second half of the present century has seen a veritable revolution in the culture of Peaches in the country about Lyons. Not quite forty years ago, the greater part of the Peaches which were used in our town or exported abroad were produced by trees grown on walls, with an amount of care and energy in which every cultivator took pride. It was then considered indispensable that the forms of the trees should be faultless, and a grower would have risked his reputation if his trees did not come up to this standard, so great was the rivalry at that time amongst the brethren of the craft.

My father, who excelled in this branch of culture and made many improvements in it, sent to the Universal Exhibition in 1867 one of the most remarkable specimens that came from the hands of the most skilful Peach growers of the period. It covered over 45 square yards of a wall and produced about 1000 Peaches annually. Having figured for some time in that famous reserved garden, where horticulture was made more of than it has ever been since, this wonderful Peach tree was preserved for a long time at the Muséum until the decay of the wood marred its fine form, an illustration of which, however, in the *Revue Horticole* for January, 1868, affords a good representation of it at its best.

At the present time very handsome wall-grown Peach trees are seldom to be seen here. The fashion has changed, and now it is from the open ground, where the soil is suitable and well exposed to the sun, that the enormous quantities of Peaches which may be seen at our railway-stations and markets early in July are gathered. The production of this fruit has increased many hundredfold, and to it numerous localities are indebted for their prosperity and their reputation.

The date of this change in the mode of culture goes back to the time when the Amsden Peach and the series of early varieties which followed it were introduced. It was very soon discovered that these new kinds were very well adapted for culture in the open air. Previously, more especially in Duphiné, the variety named Lydie or Michal, was used for this purpose, and in the southern parts of the Lyons district and elsewhere, the Turenne or Turenne améliorée variety; but the fruit of these, which ripened in September, was not produced in any great quantity and was all consumed at home. When the American Peaches were introduced everything was changed. The hardiness and productiveness of these trees, the earliness of their fruit, and the favour with which they were at once received in the markets, all combined to

cause them to be rapidly and abundantly multiplied.

Our open-air Peach orchards are usually formed on the slopes of hills, preferably on those with an eastern or a southern aspect. The trees generally have a short stem (from about 3 feet to nearly 5 feet long), and are grown in the form of broad, spherical, thick-set bushes. In this shape the wind has less power over them and gathering the fruit is less difficult. The spring frosts, perhaps, may have more effect on them in consequence of the heads of the trees being near the surface of the soil, but these orchards are made on ground suitable for Vines where injury from frost is seldom to be apprehended. The growers adopt the very good practice of pruning the trees in a simple manner and of thinning out the fruit when the crop is so abundant as to suggest the probability of its breaking off the branches, or exhausting the tree quickly by the superabundance of the produce, if the fruit is not thinned.

The varieties which are most in favour are the following, enumerated nearly in their order of ripening: Amsden, which forms the principal part of the plantations, along with some of its equivalents, planted for comparison, Cumberland, Downing and Rouge de Mai. Next comes Précocé de Hale (Hale's Early), which is almost as much planted as Amsden. To these are being added by degrees the variety Wilder, which bears very dry weather better, Edouard André and Pitavel, a more recently raised variety. Précocé de Rivers (Rivers' Early) has been well tried, but with us this does not succeed at all when grown in the open ground, although it is very good when grown on a wall; grown in the open it not only fails to colour, but also cracks and decays.

Amongst the old varieties which were formerly grown on walls there are some which ripen more or less closely after the American varieties, and succeed pretty well in the open air, viz., Abbé de Beaumont, Grosse Mignonne, Admirable hâtive, Chevreuse hâtive, Madeleine rouge, Pourprée hâtive, Reine des Vergers, &c. If these kinds are not so extensively grown for market as the preceding varieties, they, at any rate, occupy an increasingly important place amongst the kinds which are grown for the growers' own use, and amongst them are sometimes included the yellow-fleshed varieties, Rossanne and Villermoz. From time to time fresh varieties are found to be more particularly suitable for growing in this way. Of such I may mention the Tong Pa, which ripens as soon as the Mignonne hâtive, but the tree which produces it is much hardier and more vigorous-growing; and there is also the de Franquières variety, justly recommended by M. de Mortillet.

The series in which we find the greatest number of the most vigorous-growing, productive, and largest-fruited varieties commences to ripen in September. Such are Belle Blanche, Admirable jaune, Reine des Vergers, Prince de Galles, Grosse Royale de Piémont, Belle Cartière, Fine Jaboulay, Belle de Vitry, de Bergamote, Tardive d'Oullins, &c., also Jaune de Japon, an exquisitely-flavoured variety, intermediate between the white-fleshed and the yellow-fleshed kinds.

To this list may be added some varieties which have been recently tried and which appear to be still hardier, viz., Balmont, Belle de Sanzy (Mme. Charnut), Superbe de Trévoux, de Troyes, Baltet, Leatherbury (late), and Salway. Lastly, a quite new variety, Belle de Neuville, unanimously recommended by all who know it, ripening in the latter part of August and destined to achieve a high reputation in

the markets, from the beauty of its shape and colour, which surpass anything of the kind that we have ever seen in our climate.

All these varieties are very hardy and productive when grown in the open air, but a few of the latest-ripening kinds only attain all their good qualities in warm seasons ending with a fine autumn.—FR. MOREL, in *Revue Horticole*.

STRAWBERRY NOTES.

THE keeping in good condition of Strawberry plants in pots for forcing through the winter has been a subject for discussion for many years. I have tried every system which I have read of, and have for a number of years fallen back on the old-fashioned plan of leaving them in the open, plunged in ashes, and exposed to all weathers. Three winters ago the roots were frozen for over three months, but when thawed gradually and started slowly the roots soon were active and the plants fruited well. I have seen them wintered in frames, late vineries, Peach houses, and in many cases, the pots stacked on their sides, all doing fairly well. Allowing the roots to become dry, as they often do when built up, is most objectionable, and is the cause of many blind and malformed flowers. Royal Sovereign is my earliest variety this season, and is much valued as a free fruiter, of fine appearance, and of good flavour. John Ruskin and President stand next in favour. President does not grow freely in the open with me, but I notice that the forced plants which were planted last June, and given a liberal dressing of good manure at the end of August, have given fine healthy foliage and strong crowns. I have in some gardens been able to grow easily any Strawberry that came to hand, but I am well aware that it is waste of ground to plant certain sorts in soils and positions which are not suited to their requirements, while other varieties will grow and fruit under the same conditions. In this low-lying garden I have tried some noted for their excellence, but they died off the same season they were planted. Early runners, which complete their growth early in autumn and have a long period of rest, invariably force well. Firm potting, full exposure to sun, and absence of crowding are of great importance when preparing plants for early forcing. Crowding is a very common error in many gardens, and plants which have not space to develop their foliage are rendered worthless. M. TEMPLE.

Carron, Stirlingshire.

Apple Grange's Winter Pearmain.—A dish of this excellent late-keeping little-known variety came before the fruit committee at a recent Drill Hall meeting, when it was found to be, for the time of year, excellent, the flesh soft, juicy, and well flavoured. Such a variety is well worth wider culture for late dessert. But it is never a great cropper. I had it in several trees, originally under the name of Holland Pippin, at Bedford, where on the Crab stock it grew very vigorously; indeed, it is quite as robust a grower as is Blenheim Pippin. It always had some fruits, but never a big crop. Probably taking one season with another it was a good average bearer. The fruits are conical, having a somewhat deep, broad eye; not a few of them resemble a conical Blenheim. They are usually greener and more striped with red. Kept in a cool store it is one of the best late Apples we have. I have had no experience of its behaviour on the Paradise stock.—A. D.

Setting Melons.—Although a certain amount of pinching is necessary to keep the growth of Melons in check while the fruit is setting, mischief is often caused by taking out laterals whole. It is far better to look over the plants daily and take just the extreme points of the shoots it is intended to stop than to leave them to get so far ahead that the knife has to be used. But unless carefully done, one is apt to either take the shoot back too close to the forming fruit-bud, or et

leave too many leaves beyond it, the first often leading to the fruit turning yellow and dropping off, the second tending to overcrowding by leaving more foliage to form than there is room for. When the second leaf beyond the fruit is just discernible it is easy to pick this off, and this of course leaves the one joint necessary beyond the fruit. The male flowers used for fertilising should be a couple of days old, and, even if the flower has faded, the pollen is quite as potent, if not more so. The very dry atmosphere occasionally advised is not really necessary to procure a good set, but a free circulation of air is very helpful. It is, unfortunately, often the case that in March, just as the early Melons are flowering, cold, biting winds prevail, and the want of air is more prejudicial to a good set than a little extra moisture.

FRUIT TREES AT WESTONBIRT.

MOST of the fruit trees against the walls surrounding two kitchen gardens at Westonbirt are trained differently from any I have seen elsewhere. In appearance they are not quite so smart as those to be found in numerous other large gardens, but they do good service, and this season are, or were, without any exceptions, well furnished with flower-buds throughout. The fan-shaped tree is the most popular, but, according to Mr. Chapman's contention, trees trained in that form rarely cover all the space allotted to them with good bearing wood, the centres being the least satisfactory in that respect, while if whole branches of Apricots, Plums, Cherries, and Peaches die outright, as they are very liable to do in the majority of gardens, the trees are disfigured and weakened beyond recovery. Mr. Chapman's remedy is a combination of fan and vertical training, and he claims for it the advantages I readily accord to the *Palmette Verriers* of the French, this being a combination of horizontal and vertical training mostly applied to Pear trees. There is a more even distribution of sap. Instead of the lower or outer branches being the weaker and those in the centre much too strong, the former, owing to their greater length, coupled with a fair share of sap, eventually become quite as strong as those presumably more favourably placed near the centre of the tree. It follows that all the best fruit is not produced on the upper or central branches only, but is obtained in greater numbers all over the trees. At Westonbirt, instead of the main branches of fan-shaped trees being laid in to their full length in the angle in which they are started, all are given an easy curve and taken upwards as they clear each other. In this way there are no high centres where the tree's energies are largely expended upon the production of gross shoots that are cut away repeatedly every season, but the main branches are of more even growth throughout, and, as before stated, are remarkably free-flowering. All the young trees planted are trained in this way, and most of the older ones have been made to conform to the same method of training. If branches fail, others nearly or quite as large are shifted into their place, or else small shoots, of which there are large numbers available for selection every season, these springing from near the stem, are laid in. I saw no blank spaces or wrecks of trees anywhere, but the walls were admirably furnished with trees not "taking" to the eye of those accustomed to rigid fan-trained trees, but in a most profitable condition.

One long wall clothed with Plum trees, principally Gages, is especially noteworthy. Such a collection of large, healthy trees would be difficult to match. If only a tithe of the flowers showing on them at the time of my visit are followed by fruit, the requisite thin-

ning out will have to be severe. When Mr. Chapman took charge of the place (some thirteen years ago, I believe), the centres of these trees were very bare of fruiting wood, the bulk of the fruit being produced at the extremities of the branches. To remedy this by no means uncommon state of affairs, the plan of severely shortening a few of the main branches each year till all had been gone over was adopted, and from the resulting shoots a few well placed were reserved and laid in. In this way the character of the trees was gradually changed for the better without risking the loss of a single crop of fruit.

Westonbirt is not on high ground, and, judging from the state of the trees in neighbouring orchards, there is more moisture in the air than altogether desirable, or how else are we to account for the Moss and Lichen covering the stems and branches of the trees? In the gardens there are none of these observable, but, on the contrary, the stems and branches of trees against the walls and in the open are



Apple Wellington.

singularly free of blemishes of this kind. It was not always the case. The remedy is soap-suds used straight from the laundry, well syringing the trees with these when at rest, particularly on frosty mornings. W. I.

Good flavour in forced Strawberries.—Many persons condemn forced Strawberries as lacking flavour, but much depends upon the way the plants are grown. I have found a few varieties may be forced with flavour almost equal to that of open-air Strawberries if the plants are given a cool and drier atmosphere when the fruits are ripening. This year, needing a lot of forced Strawberries at Easter, some plants were started in January and brought on very slowly. Being short of space they were placed on shelves at the back of early Tomato houses. The Tomatoes needing a free circulation of air to set the fruit, this just suited the Strawberries, the fruits when gathered being equal to those in the open ground. I am aware it is not always an easy matter to give the

necessary lowering of temperatures in mixed houses, but one may with advantage grow the plants cooler from the start, and by so doing obtain size with flavour combined. This year my best early forcing Strawberry has been Royal Sovereign. This is a grand forcer and one of the best for flavour when crop and quality are considered.—S. M.

APPLE WELLINGTON.

THE large importations from abroad affect, of course, our home-grown fruit, but this should not deter amateurs from growing their own supplies. Keeping is an important matter, many not having the means to store large quantities, but many can store sufficient for their own use. If grown for sale it is important not to grow too many kinds. I was speaking a few days ago to an amateur who makes gardening pay. He told me he had an acre of Apple trees, and certainly it was a most profitable investment. He grew only a few sorts, and the best one he considered was Cox's Orange. He said no one for some years will make a mistake in planting Cox's, as if sold direct from the trees there is a good profit, if kept till late in the winter there was a much better return, and in spring one could command a still higher price. If we take cooking fruits, probably the one illustrated may be classed as one of the best all-round winter varieties. It is known under a dozen different names in various parts of the country, the one most general being Dumelow's Seedling.

In Wellington we have one of the best winter cooking Apples, being as regards quality difficult to beat. Of course, with over fifteen hundred varieties of Apples to select from, the amateur will do well to avoid most of them, and if he grows for profit, a couple of dozen will suffice. An important point for consideration is that of the stock the tree is to be worked upon, the shape and the after-culture. My advice to those who do not wish to go to much trouble in the way of food, pruning, and thinning of fruit, and who require fruit in quantity, is to grow half-

standards. These are trees with shorter stems than standards, and they are most profitable, but the fruits are not so fine as from bush trees. In the case of dwarf standards the fruits are easily reached, but cattle must not be allowed near them. Standards on turf give very little trouble and soon pay; but for the garden, bush trees on the Paradise stock give finer and earlier fruits. In a well-kept garden few trees are more ornamental than pyramid Apple trees, and though the Apple does not make so natural a pyramid as the Pear, it has its advantages. Probably for gardens with none too much space at command the bush and pyramid are most suitable, and those on the Paradise stock are most profitable in the majority of soils and positions. A GROWER.

Early planting of Vines.—After many years' trial both of early and late planting I would strongly advise planting early in April in preference to earlier in the year. My note more

concerns what are termed cut-backs or canes struck last year. I have advised April planting for several reasons; one, and probably the most important, is, that with lengthening days the Vines have a much better chance. They do not stand still at any period like those planted earlier. Needing young Vines in quantity for fruiting in a small state, for years I started the Vines in December and planted at the end of January or early in February. They usually made a spurt at the start, but only for a few weeks. This is not good for the canes, as I notice it usually ends in a very small or contracted growth at the base and a larger top or second growth. To avoid this I have for years started the Vines later, and by so doing, growth when once fairly active never stands still, with the result that there are a more regular growth and less anxiety as to the canes attaining a fair size. Doubtless many would do better earlier in the year if they had bottom-heat at command. I have not, and am obliged to rely on shallow borders. Last year I planted some Vines very early in the year as I needed the house, but April-planted canes of the same age are vastly superior, and I feel sure there is no gain whatever in planting so early. There is a gain in other ways. By deferring the planting the Vines break stronger with more light, and, as is well known, the top growth is considerably in advance of the roots. I always have double the number of bunches show on April-planted Vines; whereas on the others they are none too plentiful.—G. W. S.

FRAME CULTURE OF MELONS.

WHERE heated pits are at command the plants will now be ready to put out, but good Melons can be grown in cold frames or pits that have been cleared of early Potatoes, salads and other crops. The end of April is quite soon enough to sow the seed for these frames, and in the meantime the latter can be got ready for the reception of the plants. If a brick pit of ordinary depth, the soil must be thrown out for at least 3 feet, thus allowing room for a slight hotbed of leaves, short grass and a little manure. Prepare this by turning it four or five times at intervals of a couple of days, and put a thickness of about 18 inches in the frame. Usually drainage is not necessary, but if there is any doubt about the water getting away freely, it will be safest to place 6 inches of broken bricks or clinkers under the heating material. Let the heat fall a little, then place about 3 inches of sound turfy loam mixed with a little lime rubble over it. Two, or at most three, plants will be ample for a large light; for smaller ones a single plant is sufficient. For each plant a small mound of soil will be necessary, or a ridge can be carried through the entire length if a range of pits is to be used. A little soot and a few lumps of charcoal may be added to the above for forming the mound or ridges, ramming this very firmly about a week previous to putting out the plants. In many places the convenience for raising Melons is not of the best, and makeshifts have to be made. It does not matter where they are raised, but as soon as the seed-leaf appears, and until the plants are ready for the frame, they must be kept in a good clear light and sufficient heat to keep them growing rapidly. Sturdy and hard plants will be the result. When the fourth rough leaf is about the size of a shilling, pinch the plants back to this, and in a few days after this pinching the plants will be ready for the frames. If clean pots were used the seedlings will come out easily and without disturbing a single root. Plant with a trowel, covering the old ball with about half an inch of soil, and ram as firmly as before, finishing by lightly pricking up the soil with a pointed dibber. Damp the frame lightly and close at once, shading the plants if they flag. Keep very close for a couple of days, admitting a little more air the third day, when the plants will need watering. Soak every bit of soil around them thoroughly with tepid water and sprinkle a little dry soot and lime about directly afterwards.

As the plants get established and begin to grow, admit a little more air, and expose them to the

full sun, if they will bear it without flagging. If any plant droops a little, a handful of dry litter placed on the glass immediately above it is preferable to shading with a mat. Close early with plenty of moisture, and growth will be rapid. The number of shoots taken from the plant will vary according to convenience, but there is usually a sufficient number. Peg them down as they grow, and before they reach the sides of the frame—or whatever their space is—pinch out the top. Fruiting laterals will now appear, and these must be pinched at the first joint beyond the fruit blossoms. A little care in selection will ensure simultaneous opening of three or four flowers the same day to each plant, and the next day a similar number. It is not much use setting flowers at more than a day apart, as those fertilised first will take the lead in swelling, the others swelling slightly and then falling. Mid-day, when the pollen is dry, is the best time for fertilisation, and a rather drier atmosphere must be kept up in the frame until the fruits commence swelling. When this takes place, the plants need all the encouragement possible and plenty of water at the roots. A thin top-dressing of very rich soil, warmed previous to application, may now be given, one part of bone-meal to twelve of loam being suitable for this surfacing. Watering with liquid manure has a similar effect, and it is safer to give several weak doses than one strong one.

When the fruit begins to colour, all feeding must be left off and clear water only given. From the time the plants are established until the fruit begins to ripen the roots must be kept moist, all laterals must be closely pinched at the first leaf when a good set has been obtained, and the fruits must be elevated on pots or pieces of slate when they are about half grown. During colouring the water supply must be largely withheld, only enough being given to keep the foliage in good condition. All the air possible must be put on while the weather is fine, this helping the flavour materially. Hero of Lockinge is a very popular Melon for this mode of culture, but many of the richly flavoured scarlet-fleshed kinds are just as easy to grow and ripen from a fortnight to three weeks earlier. A GROWER.

THE ALPINE STRAWBERRY.

THE alpine Strawberry is at the present time but little grown in many of our gardens. I am fully persuaded that when it is given a fair trial many will be disposed to even further extend its cultivation. The culture is of the simplest, whilst, given weight for weight upon the same space of ground, the crop of the alpine Strawberry will rarely be one whit behind that of the average crop of other Strawberries.

HISTORY.—As far as English works are concerned, but little appears (so far as I have been able to ascertain) to have been written, nor in conversation even can many hints be gathered. In a catalogue of fruits issued by the Royal Horticultural Society in 1842 a section is devoted to the alpine, or wood varieties, which in the list includes twelve sorts. From amongst these, two appear to be those that are known to us at the present time, but in greatly improved forms, viz., the Red Alpine, or Des Alpes de quatre Saisons a fruit rouge, and the White Alpine, or Des Alpes de quatre Saisons a fruit blanc. There are also two other distinct forms, which I surmise are the same now as then, viz., the Bush Alpine Red and the Bush Alpine White. After giving these last-named a fair trial I have come to the conclusion that they do not give adequate compensation. They have one singular feature in that they never produce any runners. Not so, however, with the others, for they are, in fact, too prolific in this respect; hence, I have no doubt, they have not been so popular as they might have been in some instances. On again referring to the list in question, I note that the two first kinds which I

quoted are the only two put down as fruiting from June to November, which confirms me in supposing that these are the parents, so to speak, of the present-day alpine Strawberry. The alpine Strawberry is by some made a variety of the common or Wood Strawberry (*Fragaria vesca*), but is possessed of greater vigour and fertility when well cared for. I have looked up what I could in the writings of others upon this particular Strawberry. In one well-known work, only a few years old, less than a dozen words suffice, whilst in yet another the writer appears to be on very uncertain ground. For the more prominent notice accorded of late to the alpine Strawberry we are indebted to our neighbours the French, who in many things are the pioneers of fruit culture.

RAISING FROM SEED.—As far as I have gone in the cultivation of this Strawberry, I have had the best results from striking out a course of my own. It was by the special request of my employer that I was induced to go thoroughly into the matter. In order to lose no time as I thought, I immediately procured some runners, thinking to gain time by so doing, but in this I soon found out that what little I gained was not commensurate with the greater crops from the seedling plants in that particular instance. And it has proved so ever since. I was aware that seedling plants were cultivated with success at Chiswick some years back, but I never attached then so much importance to the fact. It is in the raising of one's own seedlings or in the purchasing of seedlings wherein lies the real success of the culture of the alpine Strawberry. The French grow their stock from seed, but it is only within the last few years that English firms have catalogued the seed, although the plants from runners are, as a rule, offered in most of our Strawberry lists in a similar way to the large-fruited varieties. This plan of offering the runners instead of the seed did nothing for, but rather acted against, any extended culture. A French writer of two or three years back advocated seedling plants, the seed to be sown, I think, in August or thereabouts. In my own practice I have found early in April to be the best time for my purpose. My plan is to sow the seed thinly in what are termed Celery boxes, and then treat in a similar manner to Celery itself, using a gentle heat to germinate the seed, and then grow the seedlings on for a time in a close pit or frame. These seedlings should be fit to prick off with nice little balls by the end of May, or as soon as the bedding-plants are out of the way. I then prick off into the same kind of boxes, and when well established gradually harden the plants off until fully exposed. The next move is to plant them out at about from 4 inches to 6 inches apart, or just leaving room enough to allow for a narrow hoe to be worked between them. This will be about the end of June. In another month, or early in August, watching for suitable weather, they are again moved, this time to about 8 inches or 9 inches apart. They remain thus till a convenient piece of ground is at disposal for making the permanent beds. In some cases this may be the end of September perhaps (so much the better if it be early), possibly it may be during October or even in the early days of November. Owing to want of room I have not been able to do this work at the earlier date given, but during October (about the middle) I made up my beds of about 1000 plants in 1896, and they succeeded as well as anyone could desire. This last autumn I was more pinched for room and could not plant out so early, it being mid-November before I had finished. So far these young

plants look well; the autumn was favourable and the winter has not been severe, although the London fogs have been more trying than ever I knew them before. As regards hardiness, the alpine Strawberry will compare most favourably with any known variety. In the final planting out a space of 18 inches each way is allowed. At first I planted more closely, according to the French style, but I found the method of planting in beds at 12 inches apart was far too close together. The foliage was thereby so dense as to cause the fruit to damp during wet weather and when the heavier autumn dews come on. The advantage of frequently pricking off the seedlings is seen when the plants are lifted for the final planting in the large balls with which they can be moved. This is important, as no check is given to the plants, and at the same time it checks any exuberance of growth that might ensue if the weather were more favourable than usual. The position I prefer for the seedling plants from the first pricking off is the shelter of a high wall, the aspect being east. Here I find them thrive well, the comparatively cool position suiting them admirably during the hot weather.

FIRST RUNNERS.—I have alluded to first runners, but by this I do not mean the first runners the seedling plants make: they will make these quite freely the first season. What I mean is the first runners after the plants are in their permanent quarters, *i.e.*, during the following season. These runners will make very good plants if well cared for, but never afterwards take runners from runners, or there will be the possible weakening of the constitution thereby. These runners from the seedling plants direct should be treated similarly to the seedlings, as far as possible. I believe more has been done to prejudice growers against the alpine Strawberry by the simple process of propagating runners from runners, generation after generation, than by any other process, unless it be that of retaining the old beds for indefinite periods, which in the case of any Strawberry we know full well is not commended as being sound in practice.

SECOND SEASON TREATMENT FROM SEED.—This will follow somewhat on the lines of Strawberries in general, and it will be possible to pick ripe fruits by the time the earliest-known kinds of the large-fruited ones are ripe. I do not advise this plan, however, finding it better to pick off the first flower-trusses and those following up to the end of June and on to the middle of July. By so doing, these plants gain surprisingly in vigour, and amply repay for the sacrifice (as it appears) of the earlier trusses. The fruits under this treatment will ripen from early in August, or even from the end of July, and a full supply will continue to be had until the end of September, and a good one up to the end of October. My latest picking last autumn was on October 31. From early in the spring the hoe should be lightly worked between the plants and rows until the plants are of full size with their first trusses showing. Then I find it a good plan to mulch rather heavily with well-decomposed leaf-soil. This will be just about in time to preserve the plants from any check by drought, or by the soil on the surface being exposed too much to the sun's rays, hence being made warmer than is congenial for the roots of the alpine Strawberry, which is very partial to surface rooting. The mulch thus given will be a great assistance to the plants, and all that is afterwards needed is a surface-dressing before the first fruits ripen, so as to keep them clean. Slugs and snails will give some trouble, as a matter of course, but lime and soot will be found efficacious, at the

same time having excellent manurial properties.

AFTER-TREATMENT.—As soon as possible after the best fruits have been picked, the beds should be gone over and be well cleaned of any weeds or runners. All runners, in fact, from the very first should be constantly picked off, so as to concentrate all the energy possible in the central crown. After this I give a surface-dressing of either bone-meal or an artificial compound in which the constituents are somewhat similar. I prefer this kind of manure to either that from the farmyard or stable, as it assists the plants without being productive of excessive leaf development. The dressing of bone-meal or otherwise is lightly forked in, and thus the beds stand over the second winter. In the spring following it is merely the routine work over again, but be earlier with the dressing of leaf-soil, as this time the first trusses will all be needed. The crop the second season I find to ripen at the same time as Royal Sovereign, but it is continuous up to the end of July, when, as before stated, the younger plants will be ripening their first crop. Thus, I have been enabled to have ripe alpine Strawberries from the third week in June until the end of October. This may to some extent be accomplished from one and the same bed, but I think it will be readily conceded that the plan I advocate is the better of the two. After the second crop the beds are broken up, when it will not be any difficulty to at once work the ground in again for a different crop. With one alternate crop it is quite possible to continue using the same ground time after time.

SOILS.—The soil with which I have chiefly to deal is a light loam, ground upon which one may work anywhere except during actual rainy weather. The subsoil where I grow these alpine is clay, but the top soil is of good depth. We suffer, however, more than one would imagine under these conditions from want of moisture. I am thinking of trying them in another garden, where the top soil is shallow, resting on a deep soil of gravel. Here, I conclude, watering will need more attention. I have also another bed planted this last autumn upon a plot where the subsoil has been worked to the surface and incorporated with the top spit. I have yet to prove how I shall succeed, but thus far the plants look well. Naturally, I believe, the alpine Strawberry prefers a sandy soil, but having so far done very well, I have not added this in my case. If I had to deal with heavy retentive soils I should at once set about getting some road scrapings and use these freely—not, however, from macadamised roads.

POSITION.—So far as I have ascertained, this Strawberry is not extremely difficult to manage in this respect. An exposed situation, where it is hot and dry is not so well suited as one where partial shade or less exposure prevails. If shaded by fruit trees to a moderate extent it will thrive all the better, but it should not be so much as to engender drought. If ground cannot be found on the flat, it will not matter much, so long as the slope does not cause the rainfall to run off rather than penetrate to the roots. Sloping banks with partial shade will also answer very well.

WATERING.—It will be gathered from what I have already said, that this is an essential item in the cultivation of the alpine Strawberry. The better the attention given during periods of drought the more satisfactory will be the results. In this respect it is the younger plantation which will need the greater amount of notice, especially when the earlier fruits are swelling. It is also a safe plan to water well for the early crop as one would for other Straw-

berries. The mulching before advised will greatly assist in overcoming the possible check from drought. When watering is done, let it be in earnest, not merely a superficial damping of the soil. The plants when in the seedling stage should be damped over once a day until they are well established, and also every afternoon when it has been a hot and trying day for vegetation.

FLAVOUR.—The flavour of the alpine Strawberry is distinct. It may be best described, perhaps, as intermediate between Vicomtesse H. de Thury and the Royal Hautbois. It is brisker than the latter, but sweeter than the former. Its properties as regards flavour appear to be brought out well with the addition of cream. The aroma surpasses that of any Strawberry I have noted in this respect. With a shrubbery intervening, I have distinctly noted this property during the summer season for weeks together. The birds also are very fond of them, and they are not bad judges on the whole. As a protection, I prefer to stretch nets on poles and wires at a sufficient height to gather the fruits without any removal of the netting.

ITS USES.—It is for the dessert only that I grow it, and it is at the breakfast-table where it is most appreciated. My plan is to gather the fruits very carefully without the stalks, guarding against bruising the fruits themselves. They are gathered into small baskets of Indian make, to all appearance very thin strips of cane, and placed thus upon the breakfast-table, no second moving or overhauling of the fruit being allowed, unless when sent away to a distance, and then even it is scarcely necessary to do it. This is how it should be with all tender dessert fruits like Strawberries.

TRAVELLING PROPERTIES.—Of this I had during the past autumn as good a test as one could wish. Having received instructions to pick for packing, I chose the fruits rather under ripe, but with flavour. These fruits were packed in one layer only in shallow boxes upon leaves, with leaves again over them, and then started on their journey to the extreme north of Scotland, as far almost as it is possible for the railway to carry them. Naturally, I inquired how they reached their destination, and found that they did so in a most satisfactory manner.

IN POTS.—Thus far I have not attempted this mode of cultivation, but I intend to take it up for next autumn, and my choice will be from seedling plants raised now or as speedily as possible in warmth. As these will not be wanted in pots before the middle of October, I have sufficient time before me, I think, to accomplish it. I know by previous experience that upon a sunny or warm border, given an abundance of moisture through the summer, Sutton's Large Red Alpine will fruit early in October when sown early in February. I accomplished this two years back as a test of what can be done by the express mode of culture.

ENEMIES.—The field mouse is very partial to the fruits and has given rise to a lot of trouble before I could stop him. A few of these will soon spoil a sufficient number for a goodly sized dish.

VARIETIES.—The alpine Strawberry as it was known only a few years back must not be taken as the present-day standard of this fruit. I have grown the following very greatly improved forms of it the past few years, *viz.*:—

ROUGE AMELIORE, OR IMPROVED RED.—A variety in every way distinct, having long fruits, being in this respect very singular; the length of the finest fruits with me has often been 2 inches,

and in shape somewhat like one's little finger (*i.e.*, the two extreme portions of it).

SUTTON'S LARGE RED ALPINE.—Although not quite so long as the foregoing, this is equal to it in every other respect, and by some would, no doubt, be preferred because of its shape. I consider these two the best for general cultivation.

BELLE DE MEAUX is distinct from either of the foregoing; the fruits are of the same shape as those of Sutton's Large Red, but quite a size smaller; the colour is the deepest of any, and the flavour first-rate.

BERGER IMPROVED is a variety that is thought a deal of by some of the French growers, but, so far, I have not thoroughly tested its qualities.

LARGE WHITE ALPINE.—Except as regards its colour, this variety is identical with Belle de Meaux; for the dessert it makes a pleasing change. There is yet another variety, one not yet grown I think to a satisfactory fruiting condition in this country. It is called

ST. JOSEPH by the French, and although plants of it have been in England on trial during the past season, it has not yet, in my opinion, been tested as it should be. It is recommended for late cropping, and as such it should be grown. So far as I have been able to judge by my stock, I am well disposed in its favour. That it is a first-class Strawberry in France I know for a fact, as some 1000 plants of it are already being grown in one of the largest private gardens there. As grown at Ferrières it is thought highly of, ripening its crop when other Strawberries are over. It appears to be intermediate between the best type of alpine and Vicomtesse Héricart de Thury. J. HUNSON.

A new yellow Raspberry.—Many growers of late years have discarded yellow Raspberries, but they will certainly become popular again, as in my estimation the yellow fruits have the better flavour if they are well grown and given free exposure. A new variety on trial this season is called The Guinea. It is stronger than many of the older yellow varieties and of a delicious flavour, being brisk and pleasant, with just enough acidity to make it palatable. The older white or yellow fruits were very soft and sweet, and not the best keepers in wet seasons. The Guinea, being a vigorous grower, needs plenty of room, as the canes grow to a good length. The parent of this variety (Superlative) is one of the best red Raspberries grown. Guinea promises to be equally productive. It is a great gain to have two such excellent varieties as these, as of late years many of the older kinds have lost vigour.—G. W.

Fruit bloom.—Everywhere there is on the fruit trees what can only be described as a magnificent bloom, and there are massive heads and pyramids of whiteness in all directions. Seeing that it has frequently happened when such excessive bloom-displays have been seen that the fruit product has been small and disappointing, it is of interest to watch results this year, as bloom has rarely been more plentiful than it is now. It has been thought that the excessive bloom produc-

tion is so exhaustive to the trees that fertilisation is imperfect. But there is behind our fruit bloom a much greater danger than this. It is found in the now exceeding general dryness of the soil, which is low down, and for the time of year almost unprecedented, whilst there seems to be little present prospect of improvement. Bush trees may be watered, but big orchards seem to be beyond the reach of such desirable amelioration.—A. D.

A FIFESHIRE GARDEN.

The illustration shows a view of the garden at Whitehall, Aberdour, Fife. This garden contains a large and varied collection of hardy shrubs, herbaceous, alpine, and bulbous plants. The shrubs comprise many fine varieties of Veronicas, Olearias, and other New Zealand shrubs; also Spiræas, Genistas, and Roses. Of the Roses, a great many are single

the shrubs and herbaceous plants, and an old pasture field which bounds the garden on the south is planted with the larger and stronger-growing varieties.

THE MARKET GARDEN.

HYDRANGEAS FOR MARKET.

THESE are now grown extensively for market, and there is a good demand for well-grown plants. *H. Hortensia* is the best known. There are several varieties, and under different conditions they vary considerably, especially in colour. The ordinary variety produces very large heads of bloom, the colour almost white, and changing from pale flesh to deep rosy pink, and in some soils to a distinct bluish tint. The variety *Otaksa* is usually of a brighter pink than the ordinary form and is of dwarfer habit, though the trusses



In a Fifeshire garden.

varieties, which thrive well, the soil being a strong, rich clay. The collection of herbaceous plants is also extensive, and includes almost every species worth growing. The garden is informal, and laid out in large beds and borders, shrubs and herbaceous plants being mixed together, and bulbs planted freely amongst them. The alpine flowers are mostly grown in the rock garden and amongst the stones with which the walks are edged. Alpines do very well. There is a large collection of *Helianthemums* (Sun Roses), which grow into spreading bushes. There are *Saxifrages* in great variety, *Aubrietias*, *Iberises*, *Lithospermums*, &c. The bulbs consist of *Liliums*, bulbous *Iris*es, *Colchicums*, *Scillas*, *Chionodoxas*, and a very large collection of *Narcissi*. The finer and rarer *Narcissi* are planted in clumps in the spaces between

are not quite so large. *H. cyanoclada* is a distinct variety, having almost black stems; the leaf stalks and main ribs of the leaves are also of a dark shade. The inflorescence, though not so large as in the preceding, is very attractive, being compact and of a bright rosy pink colour. *H. Thomas Hogg* is very distinct, having smaller leaves and medium-sized heads of pure white bloom.

The *Hydrangeas* may be readily propagated from cuttings taken early in the spring. The plants used for early forcing usually produce a number of side shoots, which must be taken off and provide good cuttings. These will root freely on a hotbed or in the ordinary propagating pit. The cuttings should be made as short as possible, and after they are rooted must be removed from the close pit before they begin to run up, the most important point being to get short-jointed thick

growths. They should be potted singly in a good rich leamy compost as soon as sufficiently rooted, and kept close for a few days until they have made a start, when they should be fully exposed to all the sunlight and have plenty of air. A little later on they will require potting on into the pots they will flower in, and during the summer they should stand out in the open quite free from any shade or shelter. With careful attention to watering they will make strong, short-jointed growths, and will set their bloom early in the autumn, to help which water may be gradually withheld. Some of the earliest plants which are inclined to run up may be stopped, and will form two or three shoots which will each carry a head of bloom the following spring. Old plants may also be cut back after they have done flowering, and if potted on into larger pots will make good specimens. I have seen plants this season with from five to seven large heads of bloom grown in 6-inch pots. Another mode of treatment is to take cuttings late in the summer, after they have stopped growing, and set their bloom. Cuttings put in in August will flower the following spring. With good treatment these will retain their leaves and make nice dwarf plants for early forcing. The chief point is to encourage root growth and expose the plants as much as possible to avoid premature growth in the autumn. In starting the Hydrangeas in spring, they should be fully exposed to all the light and sun that can be obtained, and should also have plenty of air. The syringe may be used freely, but water at the roots should be given sparingly until they have made a good start. No manure should be used until the flower-heads are well advanced, after which liberal supplies of liquid or artificial manures will greatly increase the size of the flowers and foliage. A.

French Strawberries in England.—The British Consul at Brest, in his report on the trade of that district for 1897, says that the crop of Strawberries in the Plougastel district last year is estimated at 2870 tons, of which 600 tons were sent direct to Plymouth by steamers chartered by certain of the growers; 345 tons via St. Malo, to Southampton and Paris; and 1925 tons remained for consumption in the neighbourhood of Brest; 3423 packages of Peas were also shipped direct to Plymouth. The produce on arrival there is at once distributed by special trains, the principal markets being London, Manchester, Bristol, Leeds, Liverpool, and Glasgow. Last season two steamers were put on to Plymouth, but for the coming one it is said that an additional steamer is to be chartered by another syndicate of growers. The co-operative movement among some of the growers to ship their produce direct to England has, so far, been very successful.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MAY 10.

COMPARED with the past few displays, that of Tuesday last was of less extent, some considerable amount of table space being unoccupied. Those exhibits on view, however, were fully up to the usual quality of those of many past meetings. It is satisfactory to note that there is now seldom any second-rate produce to be seen. The approaching Temple show accounted no doubt for the absence of some exhibitors; there was not, however, any perceptible diminution in the attendance of those who are keenly interested in gardening.

Several excellent exhibits of Orchids were to be seen, conspicuous amongst which were the singularly distinct *Lælia-Cattleya* Latona, and likewise the pure white form of *Cattleya intermedia*. Another striking exhibit of *Odontoglossum* came as before from Messrs. Linden. We also noted that more first-class certificates than usual

were voted at this meeting. Before the floral committee there were not, on the other hand, so many novelties as usual, but a few good groups were to be seen. Of these the Roses again occupied the premier position, of which favourite flower there were two groups of pot plants and several boxes of cut flowers from Waltham Cross, and another of those fine exhibits from Canterbury. The chief point of interest from the cultural standard was the small, densely-flowered greenhouse plants from the Hassocks Nurseries. These consisted of *Boronia heterophylla*, small, but beautiful examples; *B. scrulata*, larger, but equally good and perhaps more attractive; *Erica ventricosa nana*, full of flower; and a basketful of the charming *Browallia elata*, a mass of bright blue. Crotons, well grown and coloured, came from Edmonton.

Fruit was represented by some superbly grown Royal Sovereign Strawberries from the Hatfield gardens, finer than which have never previously been shown. Peaches came from St. Albans and Forest Hill, and Cardinal Nectarines from Gunnersbury. Radishes from the Royal Horticultural Society's Gardens and French Beans from Syon constituted the chief of the remaining exhibits.

Orchid Committee.

First-class certificates were awarded to—

LÆLIA-CATTELEYA FASCINATOR (*Lælia purpurata* × *Cattleya Schreoderæ*).—This is a distinct and handsome hybrid, the sepals and petals bright rose, of fine form and substance. The front lobe of the lip is rich crimson-purple, margined with rose; the side lobes rose, shading to white and yellow at the base, with at the base several reddish purple lines. The plant exhibited carried a two-flowered spike. It was raised and shown by Mr. C. L. N. Ingram.

SPATHOGLOTTIS AUREO-VIEILLARDI, a hybrid raised from the species indicated in the name, having the intermediate character of both parents. The upper sepal is pale yellow, slightly tinted with rose at the margin; the lower sepals similar in colour, but with rich purple spots at the apex. The petals are brighter yellow than the sepals, thickly covered with reddish purple spots; the lip rich purple in front, shading to yellow, spotted with brown at the base; the side lobes rich purple on a yellow ground, the exterior of the column deep purple. It has improved since it was exhibited at the Temple last year, where it received an award of merit. It is a distinct and desirable hybrid. From Messrs. J. Veitch and Sons.

LÆLIA-CATTELEYA HIPPOLYTA (Dulcote variety).—This is a grand form of this lovely hybrid, which has improved under cultivation. It originated in the batch raised in Messrs. J. Veitch and Sons' nurseries. The sepals and petals are rich apricot suffused with purple; the lip crisped at the margin, crimson veined with a darker tint, and shading to yellow lined with purple at the base. The plant carried a raceme of five flowers. From Mr. W. Cobb, Dulcote, Tunbridge Wells.

Awards of merit were adjudged to the following:—

SOPHRO-CATTELEYA GEORGE HARDY (*Sophrontis grandifera* × *Cattleya Aclandiae*).—In this the sepals are deep scarlet spotted with a darker shade of colour; the petals scarlet spotted with purple around the margin; the lip scarlet veined with a darker colour, shading to yellow at the base; the side lobes scarlet shading to yellow, heavily veined with deep scarlet at the base. It has the characters of both parents in the habit of growth. The seed was sown in 1892. From Mr. F. Hardy, Tyntesfield, Ashton-on-Mersey.

CATTELEYA INTERMEDIA FOWLERI.—The sepals and petals are white suffused with delicate rose, the whole of the front lobe of the lip rich crimson-purple; the side lobes white tinged with rose and purple at the base. A plant of this distinct form with six expanded flowers on the spike came from Mr. J. Gurney Fowler, Glebelands, South Woodford.

Messrs. J. Veitch and Sons sent a large group, prominent in which were several finely-flowered

plants of *Oncidium ampliatum majus*, *O. sarcodes*, *O. carthaginense*, and finely-flowered plants of *Cattleya Mendeli*, *C. Lawrenceana*, *C. Mossiae*, and *C. Schreoderæ*. Among the hybrids was a fine batch of *Lælia Latona*. The novelty of the group was undoubtedly a beautifully-grown plant of *C. intermedia alba*, with five of its pure white flowers. There is no doubt that this is the finest of all the white *Cattleyas*. Finely-grown *Odontoglossums* of the *O. crispum*, *O. luteo-purpureum*, and *O. Andersonianum* sections were also shown. There were also two freely-flowered specimens of *Masdevallia Veitchi* and a plant of *Epidendrum Wallisi* with nine spikes of its yellow and rose-purple flowers. *Angraecum modestum* was represented by finely-grown specimens, the racemes being nearly 2 feet in length. *Cypripediums* were also prominent, and included good plants of *C. caudatum*, *C. Schreoderæ candidulum*, a grand specimen and variety of *C. Masterianum*, *C. Annie Measures*, and *C. Germinyanum*. *Cochlioda vulcanica* with two fine spikes, *Cymbidium* in variety, and *Dendrobium* were also well represented. A silver-gilt Flora medal was awarded. Messrs. H. Low and Co. sent a nice group, consisting of finely-flowered plants of *Cattleya Mendeli* in great variety, several plants of *Lælia purpurata*, a good plant of *C. Skinneri*, and numerous well-flowered *Odontoglossums* of the *O. crispum*, *O. triumphans*, *O. Pescatorei*, and *O. Andersonianum* sections. *Oncidium* were represented by fine specimens of *O. Marshallianum* and *O. cancolor*. Finely flowered plants of *Dendrobium Bensonei*; a distinct form of *V. teres*, with pure white sepals and petals, lip slightly tinted with rose, and *Bulbophyllum claptonense* were also included in this group (silver Banksian medal). Messrs. Lucien Linden and Co., Brussels, sent some fine varieties of *Miltonia vexillaria*, about thirty cut spikes of *Odontoglossum crispum* in variety, and a grand spike of *O. Pescatorei* with sixty-five flowers. Mr. W. S. Ellis sent two grand plants of *Miltonia vexillaria* and ten finely-grown plants of *O. crispum*, the flowers being grand in substance and the spikes finely developed. Mr. F. Hardy sent cut flowers of *Sobralia macrantha alba*, two light forms of *Lælia purpurata*, and a fine form of *Cypripedium Gowerianum*. Mr. Robson sent a light form of *Odontoglossum Rochfordiae*. Mr. T. Statter, Stand Hall, Wheatfields, Manchester, sent *Cypripedium macrochilum giganteum* with two flowers, the tails each nearly 2 feet in length, and Major Joicey showed *Eriopsis rutidobulbon* and *Angulea Ruckeri sanguinea* with six flowers.

Floral Committee.

The following received awards of merit:—

AZALEA MME. JOSEPH VERVAENE.—A very distinct and pleasing variety of the indica section, with large blossoms of a lovely salmon-pink shade, the petals having dark spots at the base. From Mr. C. Turner, Royal Nurseries, Slough.

AZALEA AMI CHAS. VERMEIRE.—Also of the indica strain, with large, handsome flowers of a dark crimson or ruby-crimson hue; a very striking form. From Mr. Chas. Turner, Slough.

AURICULA GIANT GOLDEN YELLOW.—A valuable strain of hardy border Auriculas, which has been brought to the present state of perfection by selection. The strain is represented by many beautiful forms. From Mr. D. Sterrie, St. Madocs Cottage, Glencarse, Perthshire.

ALYSSUM SAXATILE FL.-PL.—A double form of an old garden favourite, which, apart from the double flowers, is identical with the type in general habit of growth, &c. From Messrs. Paul and Son, The Old Nurseries, Cheshunt.

AURICULA (ALPINE) PERFECTION.—A fine form with handsome pips of a crimson-brown velvet, and well-defined golden centre. From Mr. Jas. Douglas, Great Bookham.

AURICULA (ALPINE) DEAN HOLE.—Rich dark crimson, with maroon shade nearer the centre, which is of a clear yellow shade. From Mr. Jas. Douglas.

AURICULA (ALPINE) ZIXA.—The flowers of this are of a mahogany shade at the margin and

blackish crimson nearer the eye, with a clear, well-defined yellow centre. From Mr. Jas. Douglas.

Messrs. Barr and Sons, Covent Garden, upon this occasion sent a remarkably fine group of hardy flowers, notwithstanding the season of Narcissus is well-nigh past, and, as a result, but few varieties of these remained. Upon this occasion Tulips in their several sections made a really fine display, and were admired for their exquisite beauty and general freshness. Particularly fine among these were the selfs, the cream of which cannot fail to attract the visitor by their remarkable colours. Ever conspicuous in this set is The Sultan, with its handsomely-formed flowers of a glossy maroon-black. The Shah, rich cherry rose, is also fine, and not less so is Queen of Roses, a really charming flower. Zephyr is a soft rose-violet of exceptional hue; Salmon King is very effective. Flambeau is a fine scarlet. Dorothy, a distinct dove and mauve shade combined and shaded with white, is a late-flowering kind not yet at its best. Gipsy Queen is another of the Sultan class. Hecla, a crimson-maroon, is also fine. The same group contained many charming and rare species, such as the lovely Batalini, a soft sulphury chrome shade; Strangulata, clear canary; and Strangulata striata, a form of the last. A rare species under any circumstances is *T. saxatilis*, a small flower of a lovely rose-lilac with yellow base—a great beauty even among this sumptuous race of plants. Of other kinds the hybrid retroflexa was in quantity and very beautiful in the clear yellow tone of its flowers. The indispensable Bouton d'Or, the richest yellow Tulip; several forms of *elegans*, *Picotee*, and the curious plum-coloured and yellow Chameleon were among the more important of this group. Several species of *Fritillaria* were also noted, particularly *F. recurva*, scarlet; *F. pyrenaica*, a dark kind; and the pyramidal-flowered *F. persica*, a small free-flowering species with pyramidal inflorescence and numerous copper shaded flowers. Several species of British Orchids, some *Doronicums*, and Spanish Irises in variety likewise contributed to the display, while other hardy plants of note comprised *Corydalis ugbilis*, *Stylophorum diphyllum*, various *Scillas*, together with *Primula rosea* and *P. Sieboldi* vars. *P. denticulata*, *Saxifraga Rhei*, *Anemone fulgens*, *Hutchinsia alpina*, *Houstonia cœrulea*, a variety of dwarf *Phloxes* of the alpine section, and such like assisted in the display in this surprising array of hardy plants. This fine group occupied one entire table running the entire length of the Drill Hall, and contained many really meritorious plants and flowers (silver-gilt Banksian medal). Another fine exhibit of cut Roses came again from Mr. G. Mount, Canterbury, and fully maintained the high standard of excellence achieved by him in his exhibits of these. As usual, those cut with long stems produced a most telling result, as may be expected from superb specimen flowers supported on strong stems 2 feet long splendidly clothed with handsome leaves. Some of the best were La France, Mrs. John Laing, Catherine Mermet, Duke of Edinburgh, The Bride, Niphotos, Marie Finger, and Ulrich Brunner, while *Maréchal Niel*, *General Jacqueminot*, *Anna Olivier*, and others were equally good (silver Banksian medal). Another grand exhibit of Roses came from Messrs. W. Paul and Son, Waltham Cross, these comprising standards, half-standards, and bush specimens in large pots. The plants were arranged in half circular groups on each side of the entrance. The plants carried large numbers of really splendid flowers, which in point of size and colour could scarcely be surpassed. Especially noteworthy was *Enchantress*, a lovely free-flowering Rose that improves with age, the plants now carrying handsome heads of four flowers to each shoot. The cream-yellow tone in the buds of this is quite a marked feature. Very fine also were La Rosière, dark crimson; Duchess of Albany, *Violette Bouyer*, white, very full; Duke of Edinburgh, Duke of Teck, La France and Gloire Lyonnaise. Jeannie Dickson was superb both in colour

and size: *Comtesse de Breteuil*, deep yellow, extra fine. *Eugénie Verdier* and *Mme. Victor Verdier* were also first-rate. One called *Danmark*, in the way of a silvery La France, was very fine. It is a grand Rose, being full and charming in colour. These groups were surrounded with Ferns and boxes of cut Roses—Teas, Hybrid Teas, Chinas, Hybrid Perpetuals and Noisettes (silver Banksian medal). Messrs. Wm. Cutbush and Sons, Highgate, contributed an interesting group of greenhouse flowering and fine-foliaged plants, among which were several *Ericas*, *Boronia heterophylla* and *Hydrangea Thomas Hogg*. Very attractive in this group was *Carnation Princess May*, a Malmaison kind. The group, backed by flowering *Wistarias*, *Palms* and the like, was edged with small Ferns, &c. (silver Banksian medal).

The bank of *Crotons* from Mr. H. B. May, of Dyson's Lane, Edmonton, was a great attraction, and, so far as a collection of well-coloured examples of the best kinds is concerned, of great merit. In the narrow-leaved section, such as *Youngi*, *Picturatus*, *Mrs. Dorman*, *Superbus*, *Warreni*, and *Flambeau* were noted, while the best things in the intermediate kinds were *Musaicus*, *Prince of Wales*, a fine spiral form; *Golden King*, *Sunshine*, *Mortefontaineensis*, and *Gordoni*, a drooping-leaved sort. In the broadest-leaved section such grand things as *Reidi*, *Thomsoni*, *Alexandra III.*, *Goldei*, and *Baron Frank Selliere* were most conspicuous. A few Ferns relieved the monotony of the richly coloured *Crotons*, which were all growing in quite small pots suited to table decoration and furnishing generally (silver Banksian medal). Messrs. Paul and Son, The Old Nurseries, Cheshunt, contributed an assortment of shrubs, such as *Pyrus* in variety, *Cerasus* (Waterer's variety), *Kerria japonica*, *Acers*, and such like, together with hardy plants such as *Iberis superba*, *Hutchinsia alpina*, *Myosotis rupicola*, *Primula rosea*, *P. Sieboldi* in variety, several *Phloxes*, such as *P. canadensis*, *P. stellaris*, *P. atropurpurea*, &c. (silver Banksian medal). Of somewhat similar character was a small group of mostly cut sprays of flowering shrubs, &c., from Messrs. J. Cheal and Sons, Crawley, this including *Genistas*, *Prunus sinensis* pl., *Exochorda grandiflora*, *Lonicera Ledebouri*, *Cerasus Padus*, *Ribes aureum*, the uncommon climber, *Akebia quinata*, with its curiously coloured flowers, several forms of *Pyrus*, and such like. A small collection of Tufted Pansies in sprays was also shown. Mr. Chas. Turner, Slough, had a fine display of *Azalea indica* vars. Good kinds were *Dryad*, double white; *Louise Cavelier*, double white; *President van Imschaut*, carmine-crimson. A charming variety of *Rosa Polyantha* called *Thalia*, with clusters of snow-white blossoms, was very pretty, while a couple of dozen well flowered examples of *Carnation Princess May* were showy. Messrs. Balchin and Sons, Hassocks, had a small group of *Browallia elata* with its lovely blue flowers, *Boronia serrulata* and *B. heterophylla*, both in quite small pots and abundantly flowered. A mass of *Erica perspicua nana* from the same source was delightful. A scarlet *Pelargonium*, *A. Tullet*, a sport from *Raspail*, was shown by Mr. Tullet, of Swanley, and a batch of East Lothian Stocks of a capital strain came from Messrs. F. Miller and Co., Fulham. Of more than passing interest was a batch of hybrid *Cinerarias* from Mr. W. James, Farnham Royal, the outcome of crossing *Cineraria cruenta* and the garden *Cineraria* in 1895, and a further experiment in 1896 by infusing the blood of *C. lanata* into these hybrids. The effect of the cross was apparent in the seedlings. Messrs. Veitch and Sons, Chelsea, brought a most interesting lot of flowering shrubs, including *Citrus trifoliata*, *Daphne Cneorum major*, *Hydrangea japonica Mariest*, a remarkable kind with very large spreading pink pips and fine handsome heads yet to expand; *Rubus deliciosus*, with lovely white flowers; *Notospartium australe*, with small mauve and white flowers on a *Genista*-like growth; and *Cytisus Schipkoensi*, a lovely white form with slightly drooping branches of lanate leaves. A fine inflores-

cence of *Dracena indivisa* came from Mr. Bennett, Chevrels Park, Dunstable, and received a vote of thanks. A series of *Carnations*, mostly selfs, from Mr. G. Stevens, St. John's Nursery, Putney, contained several really good things, though not necessarily improvements on older kinds. From Mr. D. Storrie, Glencarse, Perthshire, came a batch of sweet-scented, giant, golden yellow *Auriculas* that will doubtless prove of much value in the future in outdoor gardening. This remarkable strain, it appears, has been brought to its present state of perfection as a result of fifteen years' continued selection from a single yellow-flowered plant, which first appeared in an ordinary batch of seedlings. From that time the plants as presented at the Drill Hall on Tuesday last have been grown, flowered, and selected in the open, and have never under any circumstances received the least protection. In this way, by insect and wind agency all shades of colour have each year resulted, and this without hand-fertilisation at any time. One feature of this excellent strain is the fine masses of bloom and great all-round vigour of the plants, while as a hardy race of plants they surpass anything at present in cultivation. The raiser of this strain is Mr. D. Storrie, St. Madoc's Cottage, Glencarse, Perthshire.

Fruit Committee.

There was a fair number of exhibits before this committee, the magnificent Royal Sovereign Strawberries from Hatfield being a great attraction. The Radishes in great variety from Chiswick Gardens were also most interesting.

Awards of merit were given to the following:—

RADISH FORCING CARMINE OVAL.—A distinct Radish, deep carmine in colour, with very small top, flesh white and crisp. It is a very early forcing variety and admirably adapted for frame culture. Messrs. Sutton and Sons, Reading.

RADISH FORCING WHITE OLIVE.—This is equally early, with a very small top. Messrs. Sutton and Sons.

RADISH FIRST OF ALL.—A scarlet-fleshed, olive-shaped variety, of excellent quality. It has a small top and is an excellent forcing Radish. From Messrs. Barr and Sons, King Street W.C.

RADISH FIRST OF ALL WHITE OLIVE.—Similar in shape to above, remarkably early, leaves small. Messrs. Barr and Sons.

RADISH WOOD'S FRAME.—This is an old Radish, but in the trial at Chiswick still one of the best. It is an excellent forcing variety and good in the open. From Messrs. Watkins and Simpson, Strand, W.C.

Some twenty-four varieties of forcing Radishes had been on trial at Chiswick. These had received glass protection at the start, and some of the best known forcing kinds were past their best, it being a difficult matter to catch Radishes at the proper moment. Sutton's White Forcing is a small variety. Earliest of All was past, having been ready some days. Messrs. Toogood and Sons, Southampton, sent some excellent varieties; their Long-shaped and Turnip-rooted were equal to those given awards, but being earlier had lost flavour. Messrs. Barr and Sons had numerous varieties; their Early Forcing Scarlet Queen (a long root of excellent quality), Scarlet Perfection (a very early variety), Long White and Solid Round being excellent types of early Radishes, well worth extended culture. Messrs. Watkins and Simpson sent numerous kinds; Red Turnip, White Olive and others were good. Mr. Geo. Norman, gardener to the Marquis of Salisbury, Hatfield House, Herts, staged the best lot of Laxton's Royal Sovereign Strawberries we have ever seen. The fruit was perfect as regards size, but in our opinion rather pale in colour. The committee unanimously awarded a silver Knightian medal. Mr. Hudson, Gunnersbury House Gardens, brought up the first Nectarines of the season, excellent fruits, richly coloured, well meriting the cultural award given them. The variety was Cardinal, evidently an excellent forcing variety. The trees were started on December 2, 1897, and the fruit was ripe on May 2 this year. This

proves Cardinal to be the earliest Nectarine grown. Some excellent Alexander Peaches came from Mr. Ryder, gardener to the Dowager Countess of Limerick, St. Albans, well deserving the cultural award given them. Of Peach Waterloo, nice fruits from pot trees came from Mr. W. Taylor, Tewkesbury Lodge Gardens, Forest Hill. These, though a little smaller than the Alexander, were excellent for so early in the season. A very good brace of Melons came from Mr. W. L. Bastin, Buscot Park Gardens, Faringdon. It is a white flesh with thick rind, slightly netted, and excellent for so early in the season. The same exhibitor sent two dishes of Royal Sovereign Strawberries. Mr. Wythes, Syon, Brentford, sent a new seedling Lettuce, Syon Hardy Cabbage, a very good type. This the committee desired to be tried in the autumn at Chiswick. The same exhibitor sent a small collection of French Beans, the varieties being Syon House, Early Forcing, Ne Plus Ultra, Mohawk, and Improved Mohawk, new seedling of great merit which was given an award last year. The award was confirmed. This bears a very fleshy, broad pod, and forces well. Messrs. Wm. Paul and Son sent a new Asparagus named White Columbia, but we failed to see any improvement whatever in it on existing kinds.

The Veitch flavour prizes, the last of the series, brought forth a small competition. A dish of Pears from Mr. Herrin, Dropmore, received the second award, the variety being Beurre Bretonneau, a nice-looking fruit. In Apples, we would have preferred Calville Rouge, from Mr. Woodward, but this was second; a good dish, but flavourless, of Hereford Pearmain, being first from Mr. R. Bullock, Taplow Hall, Bucks. Six dishes were staged in the Apple competition.

SCOTTISH HORTICULTURAL ASSOCIATION.

MAY 3.

A CROWDED meeting of this society was held in the room, 5, St. Andrew's Square, on Tuesday, May 3, Mr. Todd, the president, in the chair. The subject was "Bulb Growing in Lincolnshire," by Mr. J. Alexander, of Revesby Abbey, in Lincolnshire, consisting mainly of some notes from observations in some of the largest and most successful bulb farms in the county. In the absence of Mr. Alexander, the paper was read by Mr. R. B. Laird. Referring to the vastness of the bulb trade from Guernsey, the Scilly Islands, &c., Mr. Alexander remarked that few flowers bore carriage so well as Daffodils. Mr. Kime grew some 15 acres of Daffodils on rather poor land some five miles from a railway station. The land was poor naturally, a sort of hybrid between moor and fen, but it had been greatly improved with liberal additions of spent tan and other refuse, and it now grows excellent bulbs and blooms. It was foul as well as poor, and abounded with Couch. A first crop of Potatoes proved an excellent cleaning crop. August and September are the best months for planting, the bulbs being planted in rows from 9 inches to 14 inches apart, or in beds 4 feet wide, the bulbs being from 4 inches to 6 inches asunder each way. The bulbs are kept clear of weeds throughout the season and top-dressed with soot and guano to give verdure and breadth to the leaves. About the middle of July the bulbs may be lifted and stored till planted in Potato chipping-boxes to more thoroughly mature them. These are shallow boxes in which seed Potatoes are stood on end with their eye ends uppermost. Most of the best sorts, such as Sir Watkin, Golden Spur, Princeps, Poeticus, single and double, are grown, while the popular and commoner varieties, such as Codrins and Cream, Butter and Eggs, &c., are not neglected. Great care is taken to keep the stocks true to character and name. By growing early and late varieties in proper succession, much is added to the season of these beautiful and popular flowers. To give some idea of the capital employed in this promising home industry, it was stated that it takes some 200,000 bulbs to plant

an acre. But Daffodils also increase rapidly under liberal culture, and it was mentioned as one of the most promising features of this new home industry that some labourers and small holders had made £20 a year of their bulbs, and that their bulbs were the best in the market. Packing and cool storing rooms are necessary adjuncts on bulb farms. A very simple means of storage consists in filling pails or tubs of water, laticing these over with laths, and running the long stems through between the laths into the water, leaving the flowers clean and dry. Here women can deal with the flowers, bunching them generally in dozens, and either tying the stems twice near the top and bottom or winding round the stalk a long piece of matting from top to bottom. The bunches are then packed in shallow boxes and travel safely. The tying and bunching are mostly done by women by the piece, at the rate of a halfpenny a dozen bunches of twelve flowers each, and it is said they bunch or tie fifty dozen bunches, or even 1000 single bunches in a day.

As to the quality of home-grown bulbs, it was stated at the meeting that none better came from the Scilly Islands nor anywhere else than those from Lincolnshire. D. T. F.

Royal Botanic Society.—At a meeting of the society held last Saturday, Dr. Cooke Adams gave the second part of his paper on the Cacti, dealing more particularly with the Opuntias, one species of which is the Prickly Pear of the south, whose acclimatisation in South Africa has been an unfortunate thing for the colonists, since it is over-running whole districts, and no one seems able to eradicate it.

The Temple show.—For the eleventh year in succession the Royal Horticultural Society will hold their great annual flower show in the Inner Temple Gardens on May 25, 26, and 27. Every year the desire of growers to exhibit increases, and the officials of the society have a very anxious task in endeavouring to do justice to those growers who support the fortnightly shows of the society held at the Drill Hall, and yet at the same time to encourage others also to come forward. The space is absolutely limited by agreement with the Temple authorities; no more nor larger tents may be erected; hence every new exhibitor whose entry is accepted means curtailment of the space allotted to previous supporters. A catalogue of the show will be given gratis to every visitor, and will contain a notice of new and rare plants entered on or before May 19. It will also contain a programme of the music to be performed each day. On the first two days the band of H.M. 2nd Life Guards, and on the third day the band of H.M. Royal Horse Guards will perform. The judges will meet at the secretary's tent at 10.30 a.m. on May 25, at which hour punctually the tents will be cleared of all exhibitors and their assistants. The fruit, floral, and Orchid committees will assemble at the secretary's tent at 11 a.m. sharp, and the show will be opened at 12.30. N.B.—All plants for certificate must be entered on or before Monday, May 23. Address: Secretary, Royal Horticultural Society, 117, Victoria Street, S.W. They cannot be entered under any circumstances on the day of the show.

Fragrant foliage.—The account in THE GARDEN of April 30 of Mr. Burbidge's lecture on "Sweet-scented Foliage," and the allusion to five of the best varieties of scented Pelargoniums brought to the meeting, will cause some misgivings by growers and persons interested in those plants by the uncertainty as to which varieties are really meant. Pelargonium fragrans, mentioned as one of the best five, I have seen under two other names. I found it here named Queen Mary, and I think at Kew some years ago I saw it under some other name. Even *P. radula majus* and *P. capitatum* are frequently seen under other names, and most of the other varieties which I have seen at different times are nearly all

unsatisfactory in the matter of their nomenclature, particularly Lady Scarborough. It is evident that this class of plants is yearly becoming more popular. Is it not time, therefore, that something was done to fix the nomenclature, so that when the name of any one variety is mentioned there may be no doubt which one is intended? Might I suggest that a collection should be grown at Chiswick during the present season, and the name of each variety decided upon by experts appointed for the purpose. Only by some such means can I see a remedy for the existing confusion. I hope this subject will be taken up by growers and those interested in these plants. I have about thirty varieties here, many with doubtful names.—J. EASTER, *Nostell Priory Gardens.*

NOTES OF THE WEEK.

Border Auriculas, so-called, are now in the very prime of their flowering, and few things are more deservedly popular than these sweetly fragrant and easily-grown plants. The strong Cowslip-like fragrance of many of these common kinds is very noticeable.

Escallonia exoniensis.—Some very handsome bushes of this grown in large pots are now very effective at Kew. The drooping flowers are smaller than in some species, but being a free-flowering kind, it should prove a welcome addition to these useful shrubs.

Cypripedium pubescens.—This neat and pretty species is among the hardy subjects now in flower at Kew, the brown and yellow flowers very distinct. The species, too, has the merit of being easily managed with ordinary care, and in time nice tufts are formed, bearing many flowers.

Moræa Pavonia.—If a rather small flower, this is one of considerable beauty, if not almost unique in the rich peacock-blue colour which always renders this so striking. Quite recently small plants of it were noted at Kew. The richness of colouring in the quite small blossoms gives it a beauty which is rare indeed.

A double Berberis stenophylla.—We are sending you by post a sprig of *Berberis stenophylla* flore-pleno. It originated at the nurseries here, and is not yet in commerce. We think you will agree with us that it is a beautiful plant for this time of the year.—Wm. ATKINSON, *Royal Nurseries, Handsworth, Sheffield.*

Hawthorn.—Notwithstanding the past winter was exceedingly mild, May Day was ushered in in 1898 without its May blossom, which, however, has since put in an appearance. To some extent this may be attributable to a very dry March and April, and also to the intense cold wind that kept most things at a complete standstill.

Carpenteria californica in pots.—A very fine plant of this handsome flowering shrub was the other day coming into bloom in the greenhouse at Kew. The plant is about 7 feet high, and bears a large number of flowering clusters, some of which contain as many as ten or a dozen buds. When expanded the flowers are pure white and very showy.

Kerria japonica.—The double form of this plant is, perhaps, more frequently seen than is the type, which is now flowering on one of the walls in the Royal Horticultural Society's gardens at Chiswick. Less showy than the double kind it may be, so far as mass of flowers is concerned; at the same time it is a very pretty and interesting plant.

Europe pectinatus.—In the general appearance of the flower-heads of this plant there is much to favour the yellow Marguerite, but the general habit of the plant and woolly leaves are distinct. It is, however, an attractive plant, and bears freely clear golden yellow blossoms of good form. Some large examples of this are now flowering in the greenhouse at Kew.

Rhododendron indicum amœnum is a richly-coloured shrub, unequalled for its density of habit and freedom of flowering, the bushes at the present time being a veritable mass of reddish scarlet flowers. Either in the rock garden or in beds devoted to this kind, or, again, with choice shrubs, this valuable plant should be freely planted for its value in the garden.

Tulipa retroflexa.—This is one of the showiest among the yellow-flowered kinds, and as a garden

plant one of the most useful. In the bud state the perianth is 3 inches to 4 inches long and tapering to a point. The shade of yellow is singularly bright and uniform, and the stamens also being of the same yellow hue, render it effective in a mass. This kind is of hybrid origin and attains nearly 15 inches high.

Calandrinia Tweediei, discovered by Mr. A. J. Johnson, of Astoria, Oregon, is a most notable addition to our alpine plants. It is of dwarf tufted habit. The flowers are bright red in the bud, flesh colour, edged with brooze when fully expanded. They measure 2 inches across and are very showy. Several plants have come through the winter here without any protection. It is presumably, therefore, quite hardy.—A. K. BULLEY, *West Kirby*.

Double-flowering Cherry.—One of the finest flowering examples of this we recently noted in a villa garden in the Hampton Hill district, the branches being simply loaded with handsome clusters of snow white flowers. It was a really fine display, every branch being loaded with the snowy rosettes. Some of the upper branches, spurred to a length of 8 feet or 10 feet, were a perfect mass of snow-white flowers. From its position on the lawn it was very effective.

Nepeta Glechoma foliis variegatis.—At a recent meeting of the Royal Horticultural Society some very showy plants of this variegated trailing plant were shown by Mr. Turner, of Slough. The neat trailing character of the plant alone is desirable, and where such plants can be freely employed for window-boxes and similar work, they should prove effective also. The silvery variegation is supported by a fair percentage of green, and therefore more likely to remain permanent.

Phyllocactuses at Kew.—Of these there are many beautiful and showy kinds now in flower in the large succulent house at Kew, the fine richly-coloured blossoms being in many instances very handsome. One marked feature of these Phyllocactuses is that the plants may be had in flower in pots 4 inches or 5 inches in diameter, this rendering them very valuable for decoration.

Bulbine latifolia.—In this plant we see at a glance characters of two genera. The above plant with its Aloe-like rosettes of leaves possesses an inflorescence, which both in form and in colour may be regarded as that of *Chrysobactron Hookeri*, also a liliaceous plant now referred to *Bulbinella*. It is certainly a peculiar combination this tuft of nearly succulent leaves, crowned with the erect scapes of yellow flowers, and may be seen in the succulent house at Kew flowering freely.

Aubrietias.—In their great variety and showy masses of colour these hold considerable sway in the garden at the present time, and by reason of the way they adapt themselves to varying positions are as valuable as they are useful and beautiful. In the rock garden such things are singularly at home, and equally so in any position where a quick-growing, free-flowering carpet plant is desired. The plants grow freely in almost any soil, and when in flower the richly-coloured tufts are most effective.

Magnolia Soulangeana.—A capital example of this fine hybrid is a conspicuous object in the Royal Gardens at Kew at the entrance from the green. Here a fine bush several feet through is crowded with its handsome fragrant cups, and by its very showy character attracts attention. The same variety is flowering on a wall in the Royal Horticultural Society's gardens at Chiswick, and here also it is making a fine display. The parents of this handsome hybrid are *M. conspicua* crossed with *M. obovata*.

Myosotidium nobile (Antarctic Forget-me-not).—Some very fine specimens of this come to us from Mrs. Rogers' garden, Burngoose, Perranwell, Cornwall, where it came into bloom about April 14. The large heads of flowers are blue in colour, deepening almost to purple, and the leaves are large and handsome. It is a native of the Chatham Islands, and no doubt is quite at home in the southern shore climate from which these specimens come. It was figured in THE GARDEN of December 18, 1886.

Rhodothamnus Chamæcistus.—Your interesting note on this plant needs one correction. It is not necessary to go so far as the Eastern

Carpathians to find it. I have seen it in the greatest abundance on rocky slopes near Cortina di Ampezzo, and Bennett's "Tourist's Guide to the Alpine Flora" (a most trustworthy book) gives as its habitat Tyrol to Carniola. I have a well-established plant, but have not succeeded in getting in to flower freely. Perhaps someone will tell us something as to its treatment at Kew.—E. R. BERNARD, *The Close, Salisbury*.

Tufted Pansy A. J. Rowberry.—This Tufted Pansy is one of the best of its colour among the rayless section. Of bright, but deep yellow, with well-formed flowers entirely free from any trace of the rays which are objectionable to some, but not to others, it is quite an ideal flower in its way.—S. ARNOTT.

** The flower is certainly very good, but in habit the plant is one of the worst we have. Were it not for the chance of getting an improvement in habit by crossing it with some of the true Tufted Pansies we should not grow it.—ED.

Gaultheria trichophylla.—Among other things flowering unusually well this season is *Gaultheria (Vaccinium) trichophylla*. After the severe frost of 1895 there were a good many flowers, and the few berries which the birds left ripened. I think three seedlings appeared on a plant of *Sempervivum Lagerri*. At the end of April a clump of this *Gaultheria* was flowering from every stem, and yet not a bloom is to be seen unless the foliage is moved to one side. I should think there are few true alpinists so easy to grow as the above, given pure air and plenty of moisture.—E. C. BUXTON, *Bettins-y-Coed*.

Styloporum diphyllum.—This is a very showy plant when in bloom, and one that might, perhaps, be more frequently seen but for the evanescent character of the flowers in common with other members of the Poppy tribe. In general appearance the species is not unlike the greater *Celandine*, but the flowers are considerably larger and rather more saucer-shaped. It is, however, worth a place in the border both for its distinctly cut foliage and early flowering, the blossoms appearing quite early in May in some seasons. The plant is about 18 inches high and produces numbers of its showy golden yellow flowers. It is a native of North-west America, is quite hardy, and easily raised from seeds or by division.

Tulips from Ireland.—Early in February I had a visit from Mr. Peter Barr, of Daffodil fame. The Daffodils were just in their prime, and he was much pleased. Since his visit I have had one unbroken display of bloom, and as I write Haworth's Bicolor, Shirley Hibberd, and Muticus are still beautiful. Then to carry on the season the Poeticus varieties are now one mass of bloom. I hope you will like the yellow sweet-scented Tulips. The great elongated sweet-scented one is *Fulgens lutea*, figured in THE GARDEN last year as *Golden Eagle of the Dutch*. This was in error, because, though the Dutch *Golden Eagle* is a very nice useful variety and equally sweet, it is quite in the shade compared with *Fulgens lutea*. I send blooms of all the yellows here.—W. BAYLOR HARTLAND.

** The various yellow Tulips sent are very beautiful, and, we think, the best of all the Tulips.—ED.

Rose General Jacqueminot.—I herewith send you a small gathering of this fine old Rose taken from maidens potted up during the autumn of 1897. The plants are all budded on the Manetti stock, and singularly enough, and contrary to some previous experiences of the same variety when budded on other and varying stocks, not a single plant was lost out of nearly 1200—a remarkable fact in newly-potted Roses. The plants have been allowed plenty of time under glass to make growth, &c., with the result that the earliest blossoms were cut during the opening days of April. Quite a large number of these flowers have been of the finest, both for size and colour as well as form. The flowers sent are but the fragments of the crop, and by no means re-

presentative blooms. The foliage and growth throughout have been splendid, without the least trace of mildew.—E. JENKINS, *Hampton Hill*.

** Handsome, richly coloured blooms on stems quite 15 inches long. In many cases the shoots had borne three and four flowers. The foliage, too, was exceptionally good, with that bright green and leathery appearance so desirable in cut Roses.—ED.

Flowering Apples and Cherries at Knaphill.—Asking ourselves which is the most beautiful of flowering trees of all the year, the answer seems to come to us emphatically in a magnificent group of flowering Crabs and Apples from Mr. Anthony Waterer, of Knaphill. It is difficult to decide among so many excellent things which is the most beautiful, but perhaps the variety of the Apple called *Pyrus Malus Scheideckeri* would carry the palm. It does in kind not look very like the common Apple, being more willowy in form. Also supposed to be a variety of the Apple, but apparently quite distinct in its graceful shoots and refined blossoms, is *Pyrus M. atrosanguinea*; but *P. Malus floribunda* is better known and is also a lovely tree. Then there is a brilliant series of the *Pyrus japonica* race, which perhaps are richer in beautiful and pure colours than any one shrub we know, chief among them being perhaps the one called *cardinalis*, the "Knaphill scarlet" being also a very beautiful form. Some of these beautiful varieties were raised by crossing the old *P. japonica* with *P. Maulei*, by which a more distinct and beautiful tone of orange-scarlet is gained. The value of these for the open air and for cutting it would be difficult to speak too highly of. We think very highly indeed of the cross between *P. japonica* and *Maule's Crab* for the beautiful colours. With these also come several fine shoots of the lovely large-flowered Cherries of Japan and excellent specimens of the small double Japanese Cherry (*Prunus japonica*), both rosy and white. These the light soil of Knaphill seems to suit admirably, the shoots being solid wreaths of bloom.

TRADE NOTE.

Messrs. B. S. Williams and Sons.—We learn that Messrs. B. S. Williams and Sons, of Upper Holloway, have acquired extensive grounds, forming part of the Manor Farm, Regent's Park Road, Finchley, for the purpose of further extending their business, and growing hardy trees, shrubs, general nursery stock, and plants under glass.

The weather in West Herts.—During the past week the day temperatures, although changeable, were on the whole about average. On the night preceding the 7th the exposed thermometer indicated 2° of frost, but since then all the nights have been warm. At both 2 feet and 1 foot deep the ground is now 1° below the respective averages for May. Some rain fell on all but one day of the week, the total fall amounting to nearly three-quarters of an inch. Throughout the 11th the wind remained very high, and at noon reached the force of a moderate gale—direction W. The record of bright sunshine proved small for the time of year, two days being altogether sunless. A Lilac growing in my garden came into bloom on the 11th, or two days later than its average date of first flowering in the previous twelve years, and later than in any year since 1891.—E. M., *Berkhamsted*.

Names of plants.—*Weekly Reader*.—1, the Bird Cherry (*Prunus Padus*); 2, *Scilla campanulata alba*.—T. H.—*Peperomia resedæiflora*.—F. J. Polkinghorne.—3, *Coronilla Emerus*.—J. Turner.—1, the Mexican Orange Flower (*Choisya ternata*).—H. O.—1, *Rhododendron Veitchianum*.—A. Kingsmill.—1, *Orchis maculata*; 2, *Habenaria chlorantha*; 3, *Coronilla Emerus*.—H. Sydney.—*Rubus odoratus*.

Names of fruit.—A. G. Hookings.—1, Wellington; 2, Nonpareil; 3, Striped Beanfin.

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ORCHIDS.

SACCOLABIUM AMPULLACEUM.

This pretty plant is more popular than most others in the same genus, as it takes up little room, is distinct when in flower, and, if carefully treated, easily grown. It does best in a light tropical house, where the temperature does not fluctuate much. The roots are not particularly strong, nor do they need very large receptacles. A safe plan is to plant them in pans or baskets, putting in as much drainage as possible at first, then placing the plant on the top, filling up with more crocks or charcoal to within a couple of inches of the top, this being reserved for the compost. Very small plants will, of course, need even less room, and, in fact, they can hardly have too little, for many of these small Saccolabiums would thrive well if potted in crocks and charcoal only, kept moist at the root and in the atmosphere. A little Sphagnum Moss over the crocks helps to keep the moisture about the roots; the only thing is to prevent it becoming too thick, especially during the dark months of the year, when it is apt to cause serious injury to the roots. The plants do not require to be often turned quite out of the baskets or pans. When it is apparent that a little new material is wanted, most of the old may first of all be picked out from among the roots with the fingers or a pointed stick, a thorough washing out with tepid water completing it. The plants may now be hung up in a warm, dry house or shed until roots and leaves are dry, when give them new material, cutting away a few of the worst of the roots should any be found decayed. Plants may be kept in health in this way for years without disturbing a single root, though in case of the plant getting too large for its basket or the latter decaying, more disturbance is imperative. The best time to carry out this work is in spring, or, if it is evident that a plant

is going to flower too early, leaving it until it has done so. Place back in the growing quarters with as little delay as possible, and if convenient the house may be kept a little closer and more shaded than usual. Keep up the atmospheric moisture well all through the summer months, and as the young roots begin to run in the new compost see that they also do not suffer from want of water. *S. ampullaceum* is none the better for heavy syringing over the foliage in summer. Light dewings may do no harm; in fact, on fine, bright days they do a lot of good, but at no other time. The foliage is almost as sensitive and as easily injured by superabundant moisture in dull weather as is that of a *Phalenopsis*, and if badly treated or exposed to extremes either way has the same way of showing its dislike—by dropping off in spring. Endeavour if possible to ripen the foliage or harden it in autumn by exposure to as much sunlight as it will stand without injury, allowing whenever possible a very free circulation of air. Plants treated in this way will be found to stand being kept drier at the roots in winter than others of a softer or more sappy nature, and this is, of course, an advantage. *S. ampullaceum* is liable to be attacked by a small brown scale, which should be kept under by careful sponging. It bears pretty carmine-rose flowers, the spikes being erect and varying a little in size, but not usually exceeding 6 inches in length. It is a native of Northern India, where it must be distributed over a rather wide area, and has been long known, having been figured as far back as 1832; but it is only within the last thirty years that the species has been well known to cultivators.

Dendrochilum glumaceum.—There are few more graceful plants than this when well flowered, the spikes of pale yellowish blossoms hanging all round the basket or pan in which it is grown and having a very fine appearance. It must, of course, be suspended to get anything like a good effect, and in this way, too, the plants do better. It

produces its flowers with the young growth and does not, as a rule, root much until after these are past, this being a suitable time for repotting or basketing.

Stanhopea Devoniensis.—This species is very like *S. tigrina*, the growth being stout and healthy-looking when in good condition. The spikes bear about three yellowish or orange flowers with large reddish-brown blotches. It should be grown in wire baskets in an intermediate temperature, and in summer the plants may be somewhat heavily syringed overhead with advantage. Plenty of water must also be allowed at the roots. Disturbance at the root is seldom necessary, the plants going on and flowering freely for years in the same basket. The best compost is Sphagnum Moss and a little loam with plenty of rough lumps of charcoal.

Epidendrum Wallisi.—The blossoms of this species are very distinct and pretty, and it is now flowering in several collections round London. The tall habit is against its becoming popular in small collections, but where there is room for it it has a very fine effect when in flower. The blossoms occur on loose racemes at or near the top of the stems, and are individually about 2 inches across, of various shades of yellow, spotted with purple, the lip being the most showy part of the flower. It does well in an intermediate temperature, and is nearly always in flower. It is a native of New Grenada, where it grows in light, open positions at considerable elevations, and was introduced in 1874.

Bulbophyllum Lobbi.—The blossoms of this species are a good deal larger than those of many others in the genus, and occur on single-flowered scapes. These are about 5 inches high, and the flower is yellow, with rosy purple bars and spots. The pseudo-bulbs are produced at intervals along the rhizome and are about 1½ inches high. It is best grown in baskets, over a thin compost consisting of three parts of Moss to one of peat, the rhizomes being pegged down carefully to induce the roots to enter the compost freely. The baskets need not be deep, but may be fairly wide, as this will prevent the plants growing out of them. Drain them well and disturb the plants no more than is really necessary. The best place to grow this species in is the East India house,

but while at rest rather cooler and drier quarters are advisable. The leaves may be frequently sprinkled over in hot weather, this being refreshing to the plants and serving to keep insects in check. A little of the surface compost may be removed annually and new substituted, always placing a few pieces of charcoal or crocks in with the peat and Moss. *B. Lobbi* is a native of Java, and was sent to Messrs. Veitch in 1846 by the collector whose name it bears.

Thunia Marshalliana.—This pretty plant is already in flower, the fine racemes of pure white blossoms, with yellow fringed lip, being very distinct from anything else. The most free-flowering plants are always those that are grown in a light, sunny position; they cannot, in fact, have too much sun while growing. The plants I have were potted singly into 5-inch pots and grown in the full sun at one end of a lean-to house. From the time the roots begin to run in the compost until the flowers appear they are never allowed to get dry at the roots, but never syringed overhead. They flower at various heights—some at about 15 inches, others run to 2 feet—but very seldom does a plant fail to bloom. If grown in large pots they do not always bloom simultaneously, and a patchy specimen is the result, else when grown in this way and well flowered they have a fine appearance. After flowering the plants are kept a little drier, and the water is still more lessened as the leaves fall. They may be placed quite out of doors for a few weeks in summer, turning them out of their pots when taken in and hanging the stems up in a fairly dry, light house until in spring signs of new growth appear, when they must be potted up again and kept dry until the young growths push roots.—H.

DENDROBIUM RHODOPTERYGIUM.

THE distinct colour of this *Dendrobium* makes it a very attractive species, for, in addition, it is extremely free-flowering, and small plants of it have dozens of the warm rose-purple-tinted blossoms open. There is no other *Dendrobium* exactly like it, yet it does not seem to be very much grown. The stems are stout and erect, growing over a foot in height, and these are covered almost from end to end with flowers in small racemes of about three from each node. The colouring on the lip varies a little on different plants, but is usually a deep crimson-purple. The plants are strictly deciduous, and during the winter must be kept in a cool, dry house without any water at the roots. When the flowers appear at the sides of the stems, give the plants a little moisture and keep them warmer, but they must not be hurried until the form of the flowers can be distinctly seen. Growth appears often before the flowers are open, so, when these are past, there must be no delay in getting the plants into their growing quarters—a warm, moist house, where during the greater part of the day they will be exposed to plenty of light. Especially is this needed in late summer and autumn, the stems being thereby well ripened, and this is the sure forerunner of plenty of flower. Newly-imported plants come away with a good deal of vigour, but should a little slackening take place in the course of a few seasons, the plants may be taken out of their compost during the resting season and thoroughly washed, a few weeks' drying afterwards doing them good. Then replace in smaller pots or baskets, and grow on as before. I have found this treatment successful with one or two other *Dendrobiums* not of the easiest culture, including *D. Bensoniae* and *D. Parishii*, all species that do well for a few years and then often go back. For all these species careful and timely attention to small and seemingly unimportant details is necessary. For instance, the surface of the compost in spring after the long drying is sometimes compressed and hard, so that moisture and air do not pass through it as freely as is desirable. Take a small pointed dibber and loosen this a little between the roots, and the latter will have a much better

chance of entering it. Insects, too, such as thrips and green fly are often left too long and damage the growth before remedial measures are taken. These small things make matters worse for the Orchids, and should not be allowed to go on. The best time to repot or rebasket is soon after flowering, using medium-sized pots or baskets only, and a rough compost consisting of peat fibre, Sphagnum Moss, and charcoal. *D. rhodopterygium* is one of the many species introduced by Messrs. Hugh Low and Co., and was sent home by one of their collectors from British Burmah in 1874.

SCUTICARIA STEELI.

THOSE who like quaint and singular-looking Orchids might do worse than add a few plants of this *Scuticaria* to their collections, the plants having a very distinct appearance, and the flowers, though not very freely produced, are handsome and richly coloured. The growth consists of short, almost imperceptible stems, and long cylindrical pendent leaves, from which it is known as the Whip Orchid. The blossoms occur on short racemes at the base of these, and seldom more than two or three are produced on each. These are individually about 3 inches across, pale brownish or cream yellow, with more or less heavy blotches of reddish brown. The crest of the lip is fleshy and bright orange.

The culture of this Orchid is not difficult, but many err in allowing too much compost or keeping it too dry. It may be best grown on cork blocks lightly dressed with Sphagnum Moss, the plants being wired down to these and kept moderately moist until roots are produced, and then giving more. Baskets are sometimes used, and are very suitable if the plants are kept well up in the centre, so that moisture cannot lodge in the base of the young growths. These must be nearly filled with drainage, and if the plants are first wired to small blocks and these placed entire in the baskets they will be all the firmer and easier to fix. The growths are very easily damaged when young. The best position for the plants is one as close to the light as possible. Some of the finest plants I have seen were grown on an end wall, where they were exposed nearly to the full sun. They were directly over a water tank, and this doubtless provided the atmospheric moisture that this species so delights in. But given free exposure to light and a hot, moist atmosphere the plants will generally be satisfactory if otherwise well attended to. The roots do not like disturbance, so when placing on blocks let these be large enough, and by placing a little fresh material about them annually the strength of the plant is maintained. Water must be freely given during the time growth is most active, the roots being large and fleshy. Afterwards a diminished supply will suffice, but at no time must they be absolutely dry for any length of time. Overhead syringing is advisable during hot weather, the plants quite reveling in abundance of heat and moisture. Insects are not usually troublesome, and may be kept under by the usual means. *S. Steeli* is a native of British Guiana, Demerara, and other parts of America, and was introduced in 1836.

NOTES AND QUESTIONS.—ORCHIDS.

Phalænopsis grandiflora.—Flowers of this *Phalænopsis* come from "J. H. G." They are of medium size and good substance, and evidently the produce of healthy, vigorous plants. *P. grandiflora* is a stout-growing species, as easily grown as any in the genus. It should be grown in baskets filled almost to the rim with drainage and in a house carefully ventilated and managed in other ways. The flowers, which occur on long stout racemes, are pure white in the type, with a few yellow markings about the lip. It is a native of Java, and was introduced in 1847.

Odontoglossum polyanthum.—Good forms of this species are very showy just now, the broad

clear cut segments having a massive appearance that is lacking in many more popular *Odontoglossums*. The pseudo-bulbs and leaves are green, the flowers each about 3½ inches across. The sepals and petals, yellow with large reddish-brown blotches, are broad at the base and pointed. The lip is very pretty, reddish-brown with a yellow margin. It does best in quite a cool house all the year round, and may have medium-sized pots, well-drained, and the usual peat and Moss mixture. Water very freely in summer, and in winter give enough to keep the pseudo-bulbs plump. It is a native of Ecuador, and was introduced in 1878.

Oncidium loxense.—This is one of the most beautiful of the scendant-flowered *Oncidiums*. I noted a fine plant of it in flower with Messrs. Williams and Son, of Holloway. The blossoms are each upwards of 3 inches across; the sepals and petals chestnut-brown, with bars of pale yellow. The lip in the plant noted is a very beautiful deep orange. It is thriving well in company with *Odontoglossums*, *Masdevallias*, and other cool house Orchids, the plants growing in fairly large pots of peat and Moss. *O. loxense* is probably a rare plant in its native habitat, for, though discovered as far back as 1842, it was not introduced in any quantity, if at all, until 1883, and even now it is by no means plentiful.—H. R.

Vanda Batemanni.—The very large growth of this species is against its being generally grown, but now and then one comes across a large old specimen, which when in flower is always admired. The stems are very stout, the leaves nearly 2 feet in length, and the large racemes of flower bear as many as three dozen blooms yellow with reddish or purple spots. It requires a large house with plenty of atmospheric moisture, and of course plenty of head and elbow room. The blossoms are remarkably lasting, and from three months to four months is no uncommon time for a spike to be open. It is an Orchid of many names, having received the one it is now best known by from Dr. Lindley. Mr. Bateman was the first to flower the plant in this country, though as *Fieldia lissochiloides* it was known as far back as 1826.

Dendrobium amcenum.—Though small individually, the flowers of this species now open make a very pretty show, and the faint though pleasant fragrance will be an additional recommendation to those who like scented flowers. It is a slender-growing plant, usually needing a little support, and the flowers occur singly or in pairs. They have pure white outer segments tipped with amethyst-purple in the type, but sometimes there is a light suffusion of this colour on each. The lip is white, downy, with a yellow centre and a large spreading blotch of amethyst. It is not difficult to grow, many cultivators choosing the warmer part of the intermediate house in preference to the warmest house for it while making its growth. During the resting season it may be kept cool and for a time quite dry. It is a native of Nepal, where it was discovered early in the century by Dr. Wallich, but not introduced till much later.

Miltonia vexillaria.—Very lovely now are the flowers of this popular Orchid; indeed, it is questionable if there is such another in existence. But the very beauty of the flowers leads many cultivators who have not seen the best varieties to fancy they have something much better than anyone else, and forthwith proceed to name it. It does not matter when they keep the name to themselves, but many are exhibited and occasionally listed by trade growers that are not superior in any way to existing types. Then many of the finer varieties are individual plants only, and the constant publication of the names of the places where they first appeared, or those of the owners, gives no clue as to what they are really like. By all means keep a good form when it appears, and the greatest care should be taken of it, but the list of names is certainly much too long, and should only be extended when a special award is made to a plant.

A PERGOLA AT TRESSERVE.

HERE is a pergola at Tresserve, and a very charming thing too, with many climbers, Ferns, and shade-loving plants underneath. The structure explains itself. There is no doubt that strong and fairly lasting structures of the kind can be made of Oak or Larch, or the most enduring wood to be found in any given district, but perhaps the best and most satisfactory way is to use stone pillars if one can—brick pillars are not quite so good, but they are very good and lasting too—and having got our pillars enduring and often picturesque with

son, but it is unfortunate that it is so rarely seen in flower. What can be the cause of this? It may be that it requires a warmer climate, but one would imagine that the defect arises from the prevalence of the general law which seems to deny to variegated-leaved plants the perfection of the flowers which is reached in those with green leaves.—S. ARNOTT.

APRIL IN SOUTH DEVON.

DURING the past month the rainfall has amounted to 1.27 inches on 11 days, against 3.98 inches on 20 days during the corresponding month of last

age of 465 hours 20 minutes. Considering the backwardness of vegetation, it is somewhat surprising to find that the mean of the highest and lowest daily temperatures, 48.5°, is exactly 1° above the mean of April, 1897, while it is slightly above the average for the month—48.1°. The high mean is, however, explained by the increase of 60 hours' sunshine over the record of April, 1897, which additional sunshine ran up the day temperatures, while the mean of the nightly readings was below that of last year. The highest sun temperature was 111.2°, and the highest screen reading 57.6°, while the lowest screen temperature of the month was 34.0°, and the lowest on the grass 29.2°. Night temperatures were generally low, but, as has been shown, on no occasion fell below 32° in the screen, while the mercury in the grass thermometer showed only 6 frosty nights. The total horizontal movement of the wind was 6774 miles, against 7931 miles in April, 1897, while for the first 4 months of the year the movement has been 28,493 miles, against 33,232. The greatest run in the 24 hours, 633 miles, occurred on the 10th, and the highest hourly velocity recorded by the anemometer, a rate of 35 miles per hour, was recorded between 3 and 4 p.m. on the same date. On 16 days the direction of the wind was from the north or east. On account of the prevalence of these winds the average amount of ozone in the air was only 52 per cent., while the register of humidity shows 75 per cent., against 79 per cent. in April, 1897.

The spring appears still reluctant to commence her reign, and another month of retarded growth must be chronicled. Though it is May, many of the trees show scarce a sign of green on their twigs, that seem to have thickened but little during the past two months. Looking up at the sky through the tall tops of the Elms, there is no leafage to obstruct the view, but, seen against a dark background, a palpable hint of verdure is apparent on the boughs. A yellow glow envelops the distant Oaks, and there is green in the spreading fans of the Horse Chestnut as well as in the young foliage of the Larch, the delightful tint of whose vernal mantle is unsurpassed in our woods and gardens. The leaflets of the Walnut and Sycamore are slowly unfolding, and the Beeches give but a faint hint of their June-tide glory. The Ash, as yet, makes no sign of bursting its buds, and if the couplet that presages a dry year in the event of the Oak being first in leaf holds good, there would appear to be a probability that the rainfall of 1898 will be decidedly scanty. On May Day the great Lilacs that grow on either side the winding village road are in most years odorous with blossom, but this season not a flower-spike has as yet expanded its blooms. Swallows have arrived, but not in plenty, and the cuckoo's call, that at this time is usually echoing in the air from dawn to twilight, is still infrequent. In February we appeared to be almost on the threshold of spring, but cold winds and frequent, though slight, frosts have unduly delayed its advent. There have been but one or two perfect days, warm, sunny and still, during the month, and these were succeeded by ungenial weather. April, however, although disappointingly backward, has not been devoid of beauty in field and hedgerow. The wild Cherry trees have been white with blossom, and the Pear and Apple trees are covered with flower and half-expanded buds. Banks are yellow with Primroses, starred here and there with the bending flower-scapes of the Wood Hyacinths, that have not as yet arrived at their full perfection. In the damp soil by the watercourse's verge the Marsh Marigolds' golden cups gleam brightly, and the pale Cuckoo flowers, or Ladies' Smocks, both single and double, bear on slender stems their faintly-tinted flower-heads. By the unfolding Fern fronds beneath high hedges the Wood Sorrel's frail white chalices nestle, and the spikes of the purple Orchis stand boldly up from their spotted leaves. Here are Dog Violets in profusion, and in a neighbouring orchard the Water Avenis is in bloom. Cowslips are so rare in Devon that it has been said that none exist in the county. A few miles across its eastern border, however, they



Pergola at Tresserve with Ferns and flowers beneath. From a photograph by Miss Willmott, Warley Place.

little plants attached to them, the labour of renewing the top trellising is very little. The use of covered ways is more imperative in countries a little hotter than ours, and in such countries also the plants enjoy the shade, so that one can perhaps grow a greater number of things under the partial shade of a pergola, as in this case. In our country, however, of recent years we have had so much heat as to make such embowered walks very welcome.

The silver-margined Crown Imperial.—The form of the Crown Imperial with silver-margined leaves is a handsome plant in its sea-

year, the average for the month of April being 2.42 inches. During the past 4 months of the year 6.26 inches of rain have fallen on 44 days, while in the same period of 1897 the rainfall amounted to 15.33 inches on 69 days, or nearly three times the fall of the present year, which is less than half the average for the first 4 months, which stands at present at 10.75 inches. The past month has been unusually sunny, 192 hours 5 minutes having been registered, against an average of 178 hours 35 minutes, the record for April, 1897, being 132 hours 35 minutes. For the first 4 months of the year 458 hours 20 minutes of sunshine have been recorded, compared with 388 hours 20 minutes for the corresponding period of 1897, and an aver-

bloom in thousands in the fields and along the railway embankments.

HARDY FLOWERS.

In the garden the yellow blooms of *Adonis vernalis* are bright and the *Anemones* have mostly remained in bloom throughout the month, in the early days of which I saw the Apennine Windflower naturalised on a grassy slope under thinly-planted Oaks. The *Anemones* were interspersed with *Primroses*, and the contrast of the pale blue and yellow, with their accompaniment of green grass and grey tree boles, formed a charming picture. The Star *Anemone* (*A. fulgens*) has ceased to bloom in most gardens, and the flowers of the Poppy *Anemone* (*A. coronaria*) are smaller than in March, but I noticed *A. blanda* and its white variety in full bloom in a sheltered spot late in the month, and masses of the lovely silver-blue *A. Robinsoniana* in the same garden, naturalised in the grass, created a delightful effect. The Pasque Flower (*A. Pulsatilla*) is still in flower here and there, and the golden *A. ranunculoides* has been a bright spot amid a breadth of Forget-me-not, while the wild Wood *Anemones* are blooming in their thousands beneath the trees by the higher waters of the Teign. The bright yellow of *Alyssum saxatile* has become more conspicuous, and last year's plants of Sweet *Alyssum* are commencing to flower. *Arabis alba* is seen on every hand, swathing rockery, wall, and path edging with a compact mass of countless white blossoms. *Aubrietia violacea* and *A. Leichtlini* are in fine bloom, and *Armeria setacea* has commenced to flower. On grassy garden slopes the white Wood *Hyacinths* have a charming effect, but the pink variety is not particularly pleasing in tint, and in this respect is surpassed by the wild *Bluebell*. *Cardamine trifolia* has produced its white bloom-heads, and the *Fumitories* (*Corydalis*), yellow and pink, are also coming into flower. *Clematis montana* is blossoming on warm walls, but in shadier or more exposed situations it will not be in flower until mid-May. *Dicentra spectabilis* (the Bleeding Heart of the cottagers) is bearing its racemes of pink lyre-shaped blossoms, the double *Daisies* are in full bloom, and *Doronicum plantagineum excelsum* Harpur-Crewe, with its wealth of large golden stars, is the most conspicuous plant in the garden. A beautiful colour-scheme is formed by growing this *Doronicum* in company with the purple German Flag *Iris*. The two are now in full bloom, and the contrast of the breadths of rich purple and bright gold is most effective. In the rock garden *Dondia Epipactis* is still producing its greenish blossoms, and the American *Cowslips* (*Dodecatheon*) are bearing their umbels of drooping flowers. The Mexican *Daisy* (*Erigeron mucronatus*) has commenced its blooming period in dry and sunny situations. In a garden not far distant, well known as the home of many rare and beautiful plants, *Erythronium Johnsoni* and *E. revolutum* were blooming, and many clumps of *Gladiolus tristis* were in flower. This *Gladiolus* has at a little distance the appearance of a light yellow variety of *G. Colvillei*. It attains a height of rather over 2 feet and is most effective, its sheaves of clear light sulphur blossoms being singularly pleasing in the month of April. There would appear to be a certain amount of uncertainty in the application of the varietal name of this *Gladiolus*, as the one I have mentioned is certainly distinct from the form illustrated on p. 301, vol. 52, as *G. tristis*, while this in turn differs from the description given in some botanical dictionaries. In the same garden a fine strong plant of the Virginian *Cowslip* (*Mertensia virginica*) was in flower, as was the *Celandine Poppy* (*Stylophorum diphyllum*), whose large golden blossoms were very striking. A beautifully netted form of *Iris iberica* was also in bloom, and the *Fritillaries* naturalised in the grass made a pretty picture. The Crown *Imperials* have lasted well this year, remaining in bloom for six weeks. *Fritillaria armena* has also been in flower, and the many-blossomed beads of *F. persica* were worthy of note at the commencement

of the month. *Gentiana acaulis* is rapidly filling up the gaps in its mantle of deepest blue, and the lovely little blossoms of *Gentiana verna* are now more frequent. The double scarlet *Geum* (*G. coccineum fl.-pl.*) is growing strongly and makes bright spots of colour here and there, while *Geum montanum* is beginning to expand its yellow flowers. Of *Hellebores*, a few occasional blooms were borne by the *H. niger* family, but the *H. orientalis* section, the foliage of which has been much injured by the cutting winds, being in bloom remarkably early this year, has hardly produced any late flowers. I found a plant of *H. viridis*, not many days ago, growing in an old orchard a long distance from any dwelling. The white *Honesty* (*Lunaria*) is now in flower and is very decorative in the wild garden. The dwarf *Candytuft* (*Iberis corifolia*) is already thick with bloom, and I have also seen *I. gibraltaria* in flower. The *Violet Cress* (*Ionopsidium acaule*) is in many gardens a mass of flower, and seeding itself year after year gives no trouble. In some soils, however, it has to be raised annually from seed. The purple Flag *Iris* has been flowering grandly in some positions, whilst in others it will not bloom until May. *Iris florentina* has also commenced to blossom in forward situations, and the varieties of the dwarf *Irises* *pumila* and *olbiensis* have been in flower. The Snake's-head *Iris* (*I. tuberosa*), usually a rather shy bloomer, was, I noticed, particularly floriferous in a neighbouring garden, there being thirty flowers on one clump. On the banks of the Dart, *Ixias* and *Sparaxis* were in flower, and *Lithospermum prostratum* was blue with blossom, while the *Mesembryanthemums*—scarlet, crimson, rose, orange, and white—were becoming more decorative day by day. *Megasea cordifolia* is still in bloom, and *Myosotis dissitiflora*, over the banks of the wild garden, in borders, and in old tree boles, among the *Irises*, the fast-growing *Lilies*, and the clumps of *Narcissi*, is a sheet of azure. Of the bicolor trumpet section of the *Narcissi*, *Grandee* has been especially fine, and has bloomed most abundantly. *Emperor* has also done well, and succeeds when naturalised in the grass, where the distinct *Johnstoni Queen of Spain* proves most healthy and is seen to best effect. It is noticeable that two forms of *Queen of Spain* are found in the bulbs sent out by nurserymen. One, which is the typical form, has a straight trumpet, without a suspicion of a turned-out rim; in the other the trumpet has a spreading rim after the fashion of the rest of the trumpet section. It is a pity that these cannot be separated before being sent out, as the straight-trumpeted form has the merit of possessing a shape totally distinct from the remainder of the trumpet section, while that with the spreading trumpet does not share the same advantage, and a group composed entirely of the former type would be far more striking than if, as seems invariably to be the case, a proportion of the flowers is of the less distinct form. *N. Leedsi* and its varieties are particularly adapted for naturalising, their white starry flowers gracefully poised on tall slender stems being especially attractive in the natural environment of a grassy glade. In such a situation they seem perfectly at home, and I have lately seen groups growing in the grass which are surrounded by self-sown seedlings now growing strongly. *Katharine Spurrell* is a beautiful flower of this section, but its price still remains at a figure that renders prohibitive the planting out of any quantity. I saw *N. triandrus pulchellus* flowering well in a border during the month. It evidently possesses a far more vigorous constitution than its relative *N. triandrus albus*, but lacks somewhat of the grace of the latter lovely variety. *N. Burbidgei* is a handsome *Daffodil*, and is in great request for cut bloom. Here it flowered early in April simultaneously with *N. poeticus ornatus*. *N. poeticus recurvus* and *N. biflorus* are just commencing to expand their earliest blossoms.

The creeping Forget-me not (*Omphalodes verna*) and its white form are in flower, and *Orobus vernus* is also in bloom. The Tree *Pæonies*, that in 1896 were in bloom in April, will not perfect

their blossoms until May is on the wane. Many of them have been so cruelly used by the bitter winds, that both leaves and buds were destroyed, and the plants will require the whole season to recuperate. The Tufted *Pansies* are already bright, *Border Witch* being a very taking variety. The *Polyanthuses* have been very fine, and the old double lilac *Primrose* has had a pretty effect naturalised in clumps in out-of-the-way corners. The deeper colours of the blue *Primroses* are very attractive, some of the purple tints being especially rich. There is, however, at present a considerable diversity of tint in the plants produced from a packet of seed. *Primula denticulata*, *P. marginata*, *P. rosea*, and *P. Sieboldi* have also been in bloom. The pink *Pulmonaria* has been flowering freely, and is quite a pretty plant when in full bloom. *Ranunculus amplexicaulis*, with its white, golden-centred blossoms, created a charming effect in a garden I lately visited. The Blood-root (*Sanguinaria canadensis grandiflora*), which I met with in a garden towards the end of April, is particularly ornamental when grown in large patches, its white flowers being of singular purity. I also saw some well-flowered plants of *Shortia galacifolia*, the white blossoms being well set off by the bronzy leafage. *Sisyrinchium grandiflorum* and its white variety were in bloom at the commencement of the month, and ere its close, in contrast to the general backwardness of our flowers, the first bloom-cluster on a *Solanum jasminoides*, which has reached the eaves of the house, expanded its white blossoms two months earlier than its usual date. For the first time during some years the plant in question has passed through the winter absolutely unscathed, which may account for its early bloom-production. *Thalictrum anemoneoides* ceased to flower early in the month, but towards its close I noticed *Tiarella cordifolia* coming into bloom. *Trillium grandiflorum* has been exceptionally fine, but *T. sessile californicum* in my garden has not been so satisfactory, the growth being weaker than usual and the flower petals very narrow. However, I have seen it in vigorous health in other gardens. *Triteleia uniflora* and its light blue variety have been in bloom, and the charming *Tulipa sylvestris* and *T. retroflexa* have produced their quaintly fashioned flowers. The *Vincas*, double and single, have also been in flower, and the *Violets* have been enabled by the cool weather to show an undiminished profusion of bloom, while the *Wall-flowers* have been loading the air with fragrance.

TREES AND SHRUBS.

The plant of *Rosa laevigata*, figured on p. 207, produced its first large white bloom early in April, and gives promise of abundant flower later in the season. *Abutilon vexillarium*, mentioned in my last note, is coming into fuller flower, and at Kingswear, in the garden that contains the *Rosa laevigata* alluded to, *Acacia Riceana* and *A. verticillata* were in flower in the open, as was a healthy young tree of the Fire Bush (*Embothrium coccineum*), whose clusters of vivid vermilion-tinted flowers were brilliant in the extreme. *Azara microphylla* is also in bloom, as are *Berberis Darwini* and *B. Mahonia*. The white and ivory yellow *Brooms* are already in flower, and here and there *Choisya ternata* has opened its blossoms. *Coronilla glauca* and *C. Emerus* are flowering. *Cydonia japonica* still carries some scarlet blossoms, and *Cytisus racemosus* is in full bloom in many gardens. Through the early part of April the *Forsythias* were sheets of bright yellow, while the orange flowers of the double *Jew's Mallow* (*Kerria japonica*) have afforded rich colouring. The common *Laurels* have been a mass of bloom, large specimens, over 15 feet in height, growing by the verge of a wooded lakelet, being very effective, though the heavy odour of the *Laurel* flowers that filled the air was distinctly oppressive. The *Yulan* (*Magnolia conspicua*) has been in fine bloom in spots sheltered from the north and east, but where exposed to the cutting winds it has presented a sorry sight. *Magnolia stellata*, or *Halleana*, has also produced

its comparatively small sweetly-scented flowers. *Olearia stellulata* in some gardens has a few sprays of expanded blossoms, but *Pyrus Malus floribunda* has, from the few trees I have seen, not flowered so profusely as usual. The early *Rhododendrons* are in bloom, and a fine plant of *Ribes speciosum* growing in the grass has its branches thickly set with bright crimson pendent flowers, while the well-known Flowering Currant (*R. sanguineum*) and its white form are covered with blossom. *Rubus spectabilis* commenced to flower in April. The bloom on *Spiræa prunifolia* fl.-pl. has increased little during the month, but the white flower-clusters of *Staphylea colchica* are nearing perfection. S. W. F.

TREES AND SHRUBS.

NOTES ON TREES AND SHRUBS IN FLOWER.

THE DOUBLE-FLOWERED GEAN (*Prunus Avium* fl.-pl.).—Perhaps the loveliest of all the trees in flower during this early May-time is this old and well-known Cherry, a variety of the wild British tree from which a race of the fruiting Cherries of our orchards has been derived. A native of our own land, the Gean in all its various forms, as might be expected, thrives well, and is superior to the inclemencies of weather that have this year spoiled the beauty of many things that have come to us from South Europe, the far East, or elsewhere. Of the several varieties in cultivation none is more beautiful than this popular double-flowered one. It is, indeed, one of the most satisfying of ornamental trees, blossoming without fail every year and producing its flowers in wonderful profusion. Every branch and twig is now wreathed with flowers from end to end, hanging in thick clusters on the lower side. In the gardens near London and in some of the parks fine old specimens are now in their fullest beauty.

RIBES AUREUM (the yellow-flowered Currant).—With the possible exception of *Ribes sanguineum*, this species may be accepted as the best of all the forms of *Ribes*. Taken together, these two species with their varieties are, as ornamental shrubs, worth more than all the rest of the genus put together. Both have been introduced from the western side of North America, but whilst the true *R. aureum* does not reach any further west than the inland slopes of the Rocky Mountains, the other is common to the coast region of California, &c. *R. aureum* is a shrub of free and graceful habit, less sturdy than its fellow species, and grows 4 feet to 6 feet high. The flowers, crowded on short racemes, are of a bright clear yellow, which in the better varieties takes a distinctly golden shade. They have at times a very pleasant, slightly aromatic fragrance, but this is not always very perceptible; it is strongest in the dewy morning or evening or after a shower. Several named varieties are grown in gardens, the most attractive being *aurantiacum*, which has large flowers nearly three-quarters of an inch across, and of a deeper yellow than in any other. The variety most distinct from both a botanical and a geographical point of view is *tenuiflorum*. This is found on the Pacific side of the Rocky Mountains (where the true *R. aureum* never reaches), and its flowers have not the fragrance of the type. The fruits also differ in colour, being yellow instead of black. As a plant for the garden this var. *tenuiflorum* is inferior to the true *R. aureum*, which this year is flowering with perhaps more than its usual freedom.

THE DOUBLE GORSE (*Ulex europæus* fl.-pl.).—The best form of Gorse to cultivate in gardens and pleasure grounds is undoubtedly the double-flowered variety of *Ulex europæus*. Whilst it flowers with all the profusion that makes the common Gorse or Whin the greatest glory of our English commons and wild places, it has as a garden shrub two distinct advantages over the type from which it sprung. First, the doubling of the flowers, and the consequent relief, in a great measure, of the plant from seed-bearing, allow the blossoms to remain much longer in beauty, which is a strong recommendation. Second, the plants themselves are always of a dwarfer, sturdier, and more compact habit, and therefore do not become gaunt and leggy, as the common Gorse so frequently does in garden soil. Owing most probably to this character, the double Gorse did not suffer anything like so much as the common one did during the severe weather of January and February, 1895. The double Gorse has to be propagated from cuttings, and the following I have found to be a successful method: The cuttings should be taken in July or August, when the young wood has become moderately firm, and they should be cut just below a joint and left 2 inches to 3 inches long. No artificial heat is needed, and they may simply be put in in sandy soil under a frame, handlight or bell-glass. The cuttings should be dibbled almost as closely together as they can conveniently be put. Shading should be given them during sunny weather, especially after being first put in. They will be rooted sufficiently to pot off during the following summer, and must then be grown on till large enough to plant out. On account of the difficulty in transplanting Gorse, the cuttings should never be planted out except in the place where they are finally intended to remain.

RHODODENDRON RHOMBICUM.—This is not only the earliest of all the hardy Azaleas to come into flower, but is also a distinct and beautiful species. It is a native of Japan, and has long been represented by a fine specimen in the Azalea garden at Kew; but until within the last few years it was one of the very rarest of hardy shrubs. Now, although still uncommon, it is being raised from seed by nurserymen, and has also been imported direct from Japan. It will, no doubt, in time become much better known. It is deciduous, and its leaves in the fall of the year turn a rich bronzy purple colour. It is to their rhomboidal shape that the specific name refers. The flowers are each upwards of 2 inches in diameter and of a shade of purple that is a distinct approach towards blue—nearer blue, in fact, than any other Azalea. At the present time the leaf-buds are only bursting. It comes from the mountainous parts of Japan, and when once it has passed the juvenile stage is quite hardy in South Britain; but, like numerous trees and shrubs from the far East that are perfectly hardy when fully grown, it is tender when young, and when raised in this country from seed requires careful watching during the first three or four years of its existence.

PYRUS FLORIBUNDA.—There are numerous species of *Pyrus* flowering at the end of April and the beginning of May, but of them all, none, perhaps, appeals to the lover of hardy trees and shrubs so strongly as this shrubby species. A bush growing 8 feet or 10 feet high, it is of spreading habit, and sends out in every direction its long, graceful branches—now transformed into wands of beautiful rosy blossoms. And it not only flowers with remarkable profusion, but with unfailing regularity. On the whole it may safely be said that no shrub is better worthy of cultivation. In the typical

form the flowers are of a pale rose when fully expanded, but in the bud state of a deeper, richer hue. It is when the plants have half their flowers expanded and half yet in bud that its greatest beauty becomes apparent, the one shade contrasting with and increasing the effect of the other. The variety known as *atro-sanguinea* is becoming very popular; its flowers are of a richer rose than those of the type, especially when fully open.

CYTISUS KEWENSIS.—The finest of the taller Brooms in flower at the end of April and early in May is *C. præcox*. Of the dwarf or prostrate group the most beautiful is *C. kewensis*. Both are hybrids and both have the white Broom (*C. albus*) as one of the parents. *C. kewensis* is the latest addition made to the garden varieties, having been raised at Kew within the last half a dozen years, *C. Ardoini* being the seed-bearer. The most striking character is its perfectly prostrate habit, this being more marked even than it is in *C. Ardoini*, from which species this mode of growth was inherited, *C. albus* being very erect. Something analogous occurs in the time of flowering of *C. præcox*, which comes into bloom considerably in advance of both its parents. The flowers of the Kew hybrid are creamy white and of goodly size, the standard petal being half an inch high. The flowers appear with all the characteristic profusion of the Brooms on the long slender shoots made last year, and often 1 foot or more long. The original plant now covers about 1 square yard of space, but still keeps within 3 inches of the ground. As a plant for the rock garden it is very promising, especially to plant in positions where its long trailing shoots can hang over and drape some miniature cliff or sloping surface.

RHODODENDRON CAMPYLOCARPUM.—Counting Azaleas amongst the *Rhododendrons* (as botanists do now-a-days), there are, of course, numerous yellow-flowered species and varieties. But among the hardy evergreen ones those with yellow flowers are the rarest of all, and it is to being one of them that this Himalayan species owes its charm. It is represented by several plants in flower now at Kew. When out of flower it resembles in a great measure the better-known red-flowered *R. Thomsoni*, having leaves of about the same size and shape and of the same blue-white colour beneath. The plant itself is dwarfer and more compact in habit. The flowers have a well-opened corolla, and are each between 2 inches and 3 inches across. They are borne loosely in the truss, and the colour is a very pleasing soft yellow. When fully in bloom this species is not only one of the most distinct of *Rhododendrons*, but one of the most beautiful of the dwarf kinds. In regard to hardness it ranks with such species as *R. ciliatum* and *R. Thomsoni*, which means that whilst near London and in places with similar climatic conditions it does not require artificial protection, still the best sheltered place should be given it.

PRUNUS PUDUM.—This tree (which deserves a prettier name) is one of the true Cherries (or *Cerasus*), and is a native of the mountains of Bhotan and Sikkim, where it grows at altitudes of 8000 feet. It is one of the most uncommon of all the Cherries in cultivation, but, judging by a tree about 15 feet high in the arboretum at Kew, it has been undeservedly neglected. Just now this tree is a perfect mass of blossom, rivalling even the beautiful *Prunus Mahaleb* in its profusion. The flowers are almost pure white, having only a faint rosy tint, but in the matter of colour Indian travellers state that in a wild state the species varies from deep rose to pure white. Its fruits are about the size of the common garden Cherries, and, like them,

are red and hang on long slender stalks, but they are different in shape, the upper part being tapering and rather conical. When ripe they are very palatable, being less sweet than the Bigarreau Cherries, but not so acid as the Morellos.

CYTISUS PURGANS.—Although it is an old garden shrub (having been introduced in 1768, according to Loudon), and, moreover, one of the parents of the popular *Cytisus præcox*, this Broom is quite an uncommon plant now-a-days either in nurseries or in private gardens. It is by no means so vigorous a grower as *C. præcox* and I have never seen it blossom with quite the same freedom, yet it is, nevertheless, a beautiful shrub and worth growing for the unusually rich yellow of its flowers. None of the early-flowering taller Brooms have flowers of so rich a golden shade as this. It is not so tall a grower as *C. præcox*, and, if stopped a few times when young, makes a comparatively dwarf shrub and does not become leggy and bare at the bottom so quickly as many Brooms do. It is a native of the mountains of South-western Europe, and can be increased by means of cuttings inserted under a bell-glass or cold frame in early August, or by means of seeds, which are produced most years.

KALMIA GLAUCA.—Of the three *Kalmias* at present introduced to this country, this is the first to come into flower. It is, indeed, some six weeks ahead of the other two, being already at its best; whereas they are not in bloom till June. Its bears its flowers at the ends of the branches in a flattish, corymbose cluster. They are of a bright reddish lilac, the individual flower being saucer-shaped and between half an inch and three-quarters of an inch across. All the three species of *Kalmias* are very distinct from each other in foliage. In this the distinguishing marks of the leaves are the glaucous white under surface and their rolled-under margins. It is a twiggly shrub, usually seen under 2 feet in height and consisting of a little thicket of erect thin branches. It has been in cultivation 130 years, and is, like the other two species—*K. latifolia* and *K. angustifolia*—a native of Eastern North America. A couple of large beds behind the Palm house at Kew filled with this shrub are at present very bright and full of flower. W. J. B.

Amelanchier canadensis var. oblongifolia.—*Amelanchier canadensis*, or the Juneberry, as it is called in the United States, is widely spread over the eastern side of North America. In consequence probably of the different climatic conditions under which it exists, it varies a good deal in time of flowering. Some of its earlier forms were past by the middle of April, but the variety known as *oblongifolia* is still (in the second week in May) in beauty. Besides its later flowering it is distinguished also because of its shrubby habit. A group of plants at Kew is only some 4 feet or 5 feet high, and instead of making a small tree with a single stem, as is the usual habit of the species, the plants are bushy, and send up sucker growths freely from the base. The flowers are pure white, and are borne in short racemes. It is a charming little shrub, and is useful for grouping in places where the commoner sorts would be too big. Some of the varieties of this *Amelanchier* are being selected and cultivated in the United States for their fruits, one of the best being a form of this shrubby variety known as the Success Juneberry.

Kerria japonica.—There are three forms of *Kerria japonica* at present in cultivation: 1, the typical, single-flowered, green-leaved plant; 2, the variegated one, also single-flowered; and 3, the old double-flowered variety that was first introduced, and was originally called *Corehorus japonica*. Of these three, the single-flowered

typical plant is the most uncommon, although as a hardy shrub away from a wall it is the most satisfactory of them all. It forms a graceful low-spreading bush, and bears its bright yellow flowers profusely at this season. It likes a situation sheltered from north and east winds, such, for instance, as the Bamboo garden at Kew, where there is a plant now flowering very prettily, but it does not require the protection of a wall to bring out its full beauty. The double-flowered variety does, in most districts, satisfactorily only as a wall plant. Its growths are curiously thick, succulent and vigorous, compared with those of either of the single-flowered varieties, and perhaps because of this it requires the heat of a wall to ripen off its growths properly and to prevent them being cut back in hard winters, as they usually are in the open.—B.

—There are three forms of this *Kerria* in cultivation, but by far the oldest and most generally met with is the double-flowered (*flore-pleno*), that has been grown in this country for nearly 200 years. It is in many districts a favourite plant with cottagers; indeed, some of the finest examples are often to be met with in cottage gardens. It is frequently seen crowded up in shrubberies or in some similar spot, and even then it will hold its own fairly well, while, given a good open position or even treated as a wall shrub, it will keep up a succession of its charming golden Rose-like blossoms for some time. The single-flowered form, which was not introduced into this country till 1835, is even now very uncommon.—T.

Rhododendron Smirnowi.—One of the most promising and interesting of the newer species of *Rhododendron* is this from the Caucasus. It is promising because its perfect hardiness and unusual dwarfness of habit are likely to prove of value in the hybridiser's hands. The first plants seen in this country were raised at Kew (along with a nearly allied species discovered at the same time—*R. Ungerni*), and these flowered for the first time in May, 1893. Both these species have very distinct foliage, resembling that of some Himalayan species more than that of their nearer neighbours. The leaves of *R. Smirnowi* on first opening are covered on both sides with an almost pure white felt; afterwards the upper surface becomes smooth and dark green, but the lower one retains its tomentose covering, which ultimately turns a pale brown. The truss is nearly as large as that of the best garden varieties, and the individual flower, bright rose-purple in colour, measures between 2 inches and 3 inches across. When it first flowered at Kew in 1893 it was crossed with some of the best garden varieties then in bloom. Some distinct-looking plants were obtained, one or two of which are now showing flower. Its fellow species (*R. Ungerni*), discovered and introduced at the same time, has not, for some reason or other, proved a success under cultivation here, although both it and *R. Smirnowi* are found wild in the same locality.

The Chinese Magnolias.—There are few trees and shrubs, even among the hundreds that have been introduced to the British Isles, that furnish a more striking contrast to the tree vegetation of Britain (or even of Europe) than the Chinese *Magnolias*. Of the species from the Celestial Empire hardy in this country, the best known are *M. conspicua* (the Yulan) and *M. obovata* (or *M. purpurea*), the former a low, spreading tree, the latter a shrub. Both are very beautiful, but neither is so valuable as are the *Magnolias* that have been raised from them by cross-fertilisation whilst under cultivation in Europe. There is now a continuous series of *Magnolias* originating from these two species that give us flowers from early April right into June. *M. conspicua* itself is the earliest to flower, swelling its large flower-buds through March, and being fully open soon after that month has passed. Its beauty is then, perhaps, greater than that of any other *Magnolia*, the trees being a complete mass of large white fragrant flowers. Its great defect is that it so often falls a victim to that

treacherous time. *M. obovata*, although its early flowers may be open before those of the other species are quite past, is, on the whole, a month or five weeks later. By the hybridisation of the two a succession of varieties has been obtained which fills up the intervening time. *M. Soulangiana* was the first hybrid that appeared. It usually follows *M. conspicua* in ten or twelve days. Then comes a series of very similar forms known as *Norberti*, *Alexandrina*, *spætabilis*, *nigra*, &c., whilst last of all is the fine variety called *M. Lennéi*, now at its best. In some respects this is the most useful of all this group of *Magnolias*, because it is least likely to be injured by unseasonable frosts. It is also one of the richest coloured varieties, the outside of the petals being a deep vinous purple. The whole series should, however, be grown in every garden where there is accommodation for them. They are amongst the most wonderful flowering trees of the north temperate zone.—W. J. BEAN.

Dwarf shrubs and bulbs in beds.—In a garden set apart for shrubs and hardy plants principally I have some beds of *Rhododendrons* and hardy *Azaleas*. Some of these beds are on the side of a hill, and the under stratum being limestone, the *Rhododendrons* would not thrive. Accordingly, I resolved to destroy them. The site being within sight of the abbey, it was necessary to plant something that would thrive and give a continued display. After removing some of the peat soil and adding some of a more lasting nature, I obtained some nice young plants of *Berberis Darwini* and *B. stenophylla*, *Clethra alnifolia*, *Olearia Haasti*, *Rhododendron hirsutum*, *Moutan* and herbaceous *Pæonies*. These I planted at one time, keeping the *Berberis* at the back. The *Olearias* are placed equally about the bed with the *Moutan Pæonies* amongst them, and towards the outside are the *Rhododendrons* and *Clethras*, allowing room for planting herbaceous *Pæonies* near the front. These *Pæonies* are kept far enough back to allow of clumps of early-blooming *Narcissi*, *Tulips*, &c., and as the *Pæonies* are the late-blooming kinds they do not begin to grow early, thus giving the foliage of the bulbs time to ripen. Near the front I have planted clumps of late-blooming *Tulips*. In the centre of the bed I left room amongst the shrubs, and here I plant *Gladioli* of several kinds, from ten to twenty bulbs in a place. This bed is very effective for a long time, one thing following the other from February till October.—DORSET.

THUJA.

(ARBOR-VITÆ.)

THIS name is unfortunately too well known in catalogues and books, and too well represented in gardens by numbers of worthless shrubs and mean trees; happily, the species are not so numerous as they seem from the immense numbers of names that have been given to mostly ugly forms of trees such as the *Western Arbor-vitæ*, a native of Canada and the Southern States of America, and which in gardens has varied so much in colour and foliage and form, that numerous Latin names have been applied to worthless varieties, over twenty being found in some catalogues. Some trees which break into a number of varieties are themselves beautiful, but in this case the original tree itself is, we think, neither a good tree nor a decent shrub. It is sometimes used to get shelter fences and hedges rapidly, though by no means so good for that purpose as our own native shrubs like the *Yew* and the *Holly*, and it would be no great loss to omit the *Western Arbor-vitæ* from the garden altogether; all the more so, perhaps, as it is one of the cheap ever-greens often used to form the middle mixture of the common shrubbery. *Thuja gigantea* of North-western America is, on the other hand, a noble tree, fine in stature and form. It is also known as *Lobbi*, and the form *plicata* are re-

ceived many names. The Japan Arbor-vitæ is supposed to be a variety of this.

Perhaps the most graceful and dignified of the whole group is the plant generally called Thujiopsis, which is a distinct and graceful tree, fine in colour and wonderfully hardy, and enduring frosts that even killed Apple trees in France. Happily, of this as yet few varieties have been invented, these being a worthless dwarf and a variegated kind. This is a good background tree in the flower garden or pleasure-ground, but it is not long enough in our country to say whether it will attain the growth it does in its own country, though in any case we are sure of a graceful subject. The next Arbor-vitæ of any importance is the Chinese T. orientalis, a native of Northern China and Japan. This has also broken out into many varieties, variegated and differing somewhat in form, many of them poor and ugly, the variegated ones especially so. Mr. W. Goldring writes of the Chinese Arbor-vitæ:—

This is no doubt one of, if not the hardest of the eastern conifers, though in heavy soils in inland districts it makes miserable growth, and I should not think of planting it in the midlands except on very dry, friable soils. I have no affection for it and seldom plant it. It is too "lumpy," and there are so many things better that produce the same effect almost. But its tender green makes it different from other conifers, and serves as a pleasing foil for deeper greens, such as usually seen in gardens. Dotted about singly on the lawn it has a poor effect, but it groups well with tall spiral things. The golden (or so called golden) form of it is the most usually seen, and this is very much worse than the species planted singly, as it is squat and globular. It is the common thing in cemeteries, and for that reason I avoid it for gardens. There are about a dozen different forms all dearly loved by the nurserymen, and one is sure to find it in the common or nursery style of planting—another reason for avoiding it. All along the Bagshot ridge and in gardens about the New Forest it thrives.

NOTES & QUESTIONS.—TREES & SHRUBS.

Cydonia Maulei superba is a very valuable acquisition of recent introduction. It is a great improvement on *C. Maulei* both in colour and size of flower. Very small plants of it flower freely.

Ribes aureum.—I have of late seen several bushes of this shrub in cottage gardens which were blooming very freely, their light golden flowers showing to great advantage against the deep green glossy foliage. In all instances no special cultivation seems to have been given, the plants growing for the most part in the flower borders attached to the cottages. Many seem to have been in their present positions for a good many years, and one would think that they must have exhausted the soil within reach of the roots some time ago. Nevertheless, they appear to be quite at home in their surroundings, and when seen in full flower are very effective.—A. W.

Shrubby Veronicas.—Mr. Buxton's note on page 383 is interesting. Here several of the shrubby Veronicas seed. *V. speciosa*, *V. Lyalli*, *V. parviflora*, *V. salicifolia*, and some others produce self-sown seedlings. Old plants of *V. parviflora* are sometimes killed in winter, but seedlings come up plentifully enough. *V. Arc-en-ciel*, which was planted out in a dry position in the rock garden two years ago, has survived two winters without protection and has now attained a good size. Experiments with some of these variegated hybrid Veronicas would be of interest, although, like all variegated plants, they must be used carefully. The deep red flowers of *V. Arc-en-ciel* are very showy.—S. ARNOTT, *Cursethorn, by Dumfries, N.B.*

Pyrus Malus floribunda Scheideckeri is an improvement on the old favourite floribunda. Its flowers expand much later and are very valu-

able for this reason. Apart from this, however, the blossoms are semi-double and the tiny little buds are of a rich ruby colour before they unfold, developing into a delicate blush-pink as they expand. These Pyruses are very effective if planted in clumps. Maiden or two-year-old plants set out rather thickly and kept well spurred in after the manner of upright cordon Apples make a splendid show when clothed from base to summit with their attractive flowers. The varieties named, either mingled together or brought into juxtaposition with each other, would make an effective mass of colour in spring, especially if the ground around them were carpeted with *Aubrietia Hendersoni*, *Polyanthuses* or other showy spring flowers.

FLOWER GARDEN.

RANUNCULUS LINGUA.

This is one of the showiest of British waterside weeds, and one also that occurs in some quantity in certain districts. It is a most useful plant for the position indicated and gives no



Ranunculus Lingua. From a drawing by H. G. Moon.

trouble once it has been planted or introduced to any given position. It appreciates the rich mud usually inseparable from the back waters of large rivers or streams, and in like manner when introducing it to artificial waters, as lakes or ponds, this requirement should not be lost sight of. It is easy, of course, to say the plant will do well treated as an aquatic or even when grown in moist soil away from water. All this is very true and is often done for convenience's sake. At the same time those who want to make the most of one of our showiest native plants will not err in giving it a bed of rich mud earth to grow in. In grouping the plant at the side of an artificial lake or pond, it will be found a good plan to dam the water back for the moment with a clay bank of the size and shape of the required group, which need not be wide if long, i.e., extended at the margin, which is its true position. Into this cavity the soil, preferably somewhat retentive, may be placed, and once the plant takes root it is safe. Where heavy soils naturally obtain, the introduction of such water-loving subjects as this is quite simple. In nature the plant frequently clings to the bank of wet earth and sends its glaucous cups nearly 3 feet high. E. J.

NOTES ON CALOCHORTI.

The interest that is being taken in the Calochorti makes it desirable that there should be a better general knowledge of the nomenclature and affinities of these lovely flowers. As a grower and collector for many years I have had peculiarly favourable opportunities for studying the genus. The latest revision of the genus was by Sereno Watson, published in "Botany of California," vol. ii., and reprinted in *The Garden* and elsewhere. This was in 1880, and since that date many new species have been discovered and much new light shed on the species already known and their variations. The time is coming for a thorough revision of the genus. The genus *Calochortus* grows from Nebraska to the Pacific Ocean and from British America far into Mexico, an area over fifteen hundred miles square of the most varying altitudes, soil, moisture and heat. It is not at all surprising that in such a widely distributed genus there is some confusion, but the surprise is rather that so much of the work of the earliest botanists has proved stable. In many species the years of later study have only amended the work of the discoverer by extending the range or showing some variation which only the specialist would recognise. In other groups, notably in *C. venustus*, *C. Weedi*, *C. splendens*, and *C. Gunnisoni*, we find species so peculiarly prone to cross-fertilisation or hybridisation, that the variety of colour forms is endless, and the observer has the greatest difficulty in telling where species begin, or whether after all he is only observing many forms of one extremely variable species. In this article I refer the reader to the descriptions in Watson's revision, unless otherwise specified.

SECTION I.—EUCALOCHORTUS (STAR TULIPS).

GROUP 1.—SUB-GLOBOSE FLOWERED.

C. ALBUS (Douglas).—Watson's description covers this closely, except that in colour it merges into rosy shades. I do not think the var. *paniculatus* well founded. *C. albus* as found in the Sierra is larger in leaf and flower and very much larger in bulb than the form of the Coast Range, but otherwise it seems identical.

C. AMIGENS (Greene).—This is a lovely new species from a small region of the Southern Sierra. The leaf and habit are as in *C. albus*, but the flower is differently formed, short in the petal, and in a few days becomes nearly campanulate; gland broad, densely covered with reddish brown hairs; colour an exquisite satiny shade of pink, very distinct.

C. PULCHELLUS.—Exactly as described by Watson, excepting that in Mendocino Co. the flowers frequently have a dark brown spot at base of petal inside. In Sierra, Eldorado Co.; in Coast Range, Monterey to Mendocino County.

GROUP 2.—ELEGANS.

In all of these there are a single glossy radical leaf, a graceful habit, erect or semi-erect campanulate flowers, exquisite in form and shadings, and pendent capsule. All, too, are plants of the woodland and none bear offsets, propagation only by seed except in *C. apiculatus* (see below). Nearly all have at some time been referred to *C. elegans*.

C. BENTHAMII.—There is nothing to add to Watson's description excepting that a form is common with a dark brown spot at the base of each petal. This was once sold as *C. Wallacei*. Last year I found a much larger paler form which there is reason to believe is a hybrid between *C. Benthamii* and *C. Maweanus* v. *major*. Hybrids in the Star Tulip group are not unfrequent, but so far as I have seen never fertile.

C. MAWEANUS.—This species ranges from the Columbia River to San Francisco. Watson well describes the type from small specimens. This

the case in several *Calochorti*, and is misleading and unreliable. A forest fire sweeping over a field will treble the size of a *Calochortus* as a rule, and the difference between sunshine and shade or of soil causes similar diversity. The species of the elegans group are of about the same size under identical conditions excepting *C. Maweanus v. major* and *C. Tolmiei*, which are much larger.

C. MAWEANUS v. MAJOR.—In the Northern Sierra occurs a form which I have named *major*. It varies in no way excepting that when they are grown side by side it is larger than the type in bulb, leaf and flower. Well-grown flowers of this are as much as from 2 inches to 3 inches across.

C. MAWEANUS v. ROSEUS.—A form from Oregon in the decided rosy tinge of its flowers, and a bulb easily distinguished from that of all other *Calochorti*. The bulb of *C. Maweanus* is a light brown tissue, rather stringy and fibrous. In var. *roseus* the coat is a dark mahogany brown, tissue not at all stringy, otherwise as in type.

C. CERULEUS.—Watson describes it accurately, except that he again had dwarfed specimens. Its most salient points are the short orhicular capsule, the ciliate hairs on margin, and its usually umbellate inflorescence. In nine cases out of ten the flowers are in an umbel. To Watson's range I would add Mount Shasta.

C. ELEGANS I have not seen. Several specimens sent as such were *C. apiculatus*.

C. APICULATUS.—In this species lack of a range of specimens caused error. Mr. Baker described it from Idaho. I add freaks in Oregon and Washington. I sent Mr. Baker large specimens from Mount Hood, Oregon, and he identified them as exactly like his type. In the same lot of specimens I had some of the tiniest plants. This species was erroneously figured in *Gardeners' Chronicle* as *C. Howelli*, a very different thing.

C. TOLMIEI.—This species is a large tall grower. It differs only from fine specimens of *C. Maweanus v. major* in a deeper blue colour and the absence of the scale above gland. I often find the two confused in herbariums, and suspect they run together.

C. UMBELLATUS (Wood), *C. COLLINUS* (Lemmon).—This species has been sadly confused by botanists. Wood's description, as early as 1870, exactly covers it. It has, however, been confused with *C. elegans*, *C. Maweanus*, and *C. lilacinus*. Watson refers it to the last species. Prof. E. L. Greene called my attention to Wood's earlier description. From *C. uniflorus* (*C. lilacinus*) it is easily distinguishable. In the description of *C. uniflorus* in "The Botany of Beechy's Voyages," and Dr. Kellogg's original description and drawing of *C. lilacinus*, *C. uniflorus* is portrayed as bulbiferous. It is a plant of wet, open meadows, while *C. umbellatus*, like others of the elegans group, grows in shaded, well-drained woods. *C. umbellatus* in leaf and capsule is clearly allied to *C. Maweanus*, while its bloom is very like that of others of the elegans group, its flowers being nearly naked and white.

GROUP 3.—SWAMP STAR TULIPS.

C. UNIFLORUS (Hooker and Arnold), *C. LILACINUS* (Kellogg).—I have examined the original descriptions and drawings and specimens from the original localities as well as from many other points as far north as Southern Oregon, and am thoroughly satisfied that there is but one species. The older name, *C. uniflorus*, must be retained, although not nearly so appropriate. *C. uniflorus* is a plant of open, wet meadows, where in the rainy season it may be covered with water for weeks at a time. Its habit is leafy, the flowers are produced in numbers, and it bears offsets very freely, and, when protected, the growth of these offsets produces dense masses. I have found fifty well-formed bulbs in a clod 1½ inches square.

C. NUDUS.—Watson's description is exact throughout its range, from Yosemite Valley to Southern Oregon. It grows in open, wet meadows, does not offset, and has a single broad, shiny leaf.

It is much smaller and less vigorous than the latter.

SECTION II.—MARIPOSA TULIPS.

GROUP 1.

In this little-known group the capsule is unlike that of the other Mariposas, but, like the Star Tulips, usually erect. In leaf, too, they are rather like the Star Tulips than the other Mariposas, the leaf being single, long and glossy, and usually equalling the stem. The five described species are closely related, forming as close a chain as in the Weedi group. I am inclined to think them only colour species, but much more extended observation is needed before the lines can be properly drawn.

C. GREENEI is lilac, barred with yellow.

C. HOWELLI is pale yellow.

C. LONGIBARBATUS, lilac-purple.

C. CILIATUS is very similar to *C. longibarbatatus*.

C. NITIDUS.—This is a wide-spread species, occurring from Eastern Oregon into Montana and varying but little. The flowers are lilac, with a large indigo-coloured blotch in the middle of each petal. Flowers large, open, cup-shaped. A very showy species, closely related to *C. longibarbatatus*.

GROUP 2.—WEEDI.

In this group the leaf is single, long, and glossy, and very much like that of *C. albus*. The bulb is a reliable character, being heavily covered with a coarsely netted dark coat. No other Mariposas have such bulbs. In flower they are extremely variable. The type has large, full, orange-coloured flowers; the petals ciliate within with yellow hairs. A similar white form is found, which, oddly enough, blooms among the first Mariposas, while the type is the last to blossom. In petal the forms become more and more truncated, until in

C. OBISPOENSIS (Lemmon) we have a very free-flowering form, in which the petal is less than one half the length of the sepal, and densely covered with brown hairs.

C. PLUMMERÆ (*C. Weedi* var. *purpurascens*) is a full-flowered form, in which the petal is purple or lavender above and yellow in the centre. It is a better grower than the type of *C. Weedi*. A peculiarity of this species is the bulb division. The bulb divides into two nearly equal bulbs. This division is inside of the coat, and what is apparently one bulb will often be found to be two closely pressed together.

GROUP 3.—VENUSTUS.

The most brilliant as well as most widely represented of the genus in California is that great group of wonderfully varying forms, including *C. luteus*, *C. venustus*, *C. clavatus*, and *C. Vesta*, and which is connected with *C. splendens* by *C. Catalnæ* (*C. Lyoni*). The forms have been variously referred to *C. luteus* and *C. venustus*. Watson makes most of them forms of *C. luteus*. I prefer Mr. Baker's former arrangement under *C. venustus*. Many of the forms cross-fertilise readily in a state of nature, and each form may be found growing either separately in monotypic forms over large areas, or in equally large areas, so confused, that it seems impossible to properly define them. It must not be thought that the varieties which I will describe are merely types picked from a confused mixture of hybrids. Such is not the case, for they each can be found separately, sometimes for hundreds of miles, clearly answering to description. Often one of the group will be found surrounded by another form, yet without transitional forms. At other points the transitional forms are numberless.

C. LUTEUS.—Watson's description well covers this. It is a dwarf, small, yellow-flowered form, marked with delicate lines of brown. It has a range of over 200 miles in length, and plants

from the extreme limits are indistinguishable. From Mendocino to Monterey County.

VAR. 1.—Within this range, and apparently only differing from it in being a major form. Also in the Sacramento valley for 200 miles.

C. VENUSTUS OCLUSATUS, *C. v. CITRINUS*.—In Watson's revision these are described as varieties of *C. luteus*. They are colour forms of the same thing. In habit they are more leafy and stronger growing than the type of *C. luteus*. The flowers are large, the gland lunate; at centre of each petal there is a conspicuous eye of brown or dark brown. In *oculatus* the flower is from lilac, through white, to cream and buff; claw purplish and eye oculated with yellow. This form is one of the best defined of the group and occurs in Northern and Central California. *C. v. var. citrinus* (*luteus*), a deep lemon-yellow-flowered variety with a dark brown eye. This occurs in a monotypic form in a large area north of San Francisco, while in the Central Sierra foothills 200 miles away the same form is found.

C. v. (Benth.), *C. v. ROSEUS* (*Gard. Chron.*, July 6, 1895).—This is the type of *C. venustus*, but for convenience amid the multiplicity of forms it had better be known as *C. venustus* var. *roseus*. It is of low, dwarf growth. The petals are very broad, broader than long, marked with an eye in the centre, a reddish brown base, and as a distinguishing mark a conspicuous red blotch near apex of petal; colour white to lilac. Within its range, which is from San Francisco Bay south to Los Angeles, it varies but little.

C. v. VAR. SULPHUREUS.—In the extreme southern end of the San Joaquin valley, Central California, there grows the form I have named as above. It is exactly like var. *roseus* in every respect except that it is yellow. It has the rose blotch at apex of petal. Collected by Miss Alice Eastwood.

C. v. (Eldorado strain).—This is found in the Sierra Nevada from Eldorado County south to Tehachipi, and probably to Los Angeles Co. While var. *roseus* is a dwarf species, this is tall, leafy and vigorous. In var. *roseus* the petals are broader than long, in this, cuneate, longer than broad. To the eye this makes a marked difference. In var. *roseus* the range of colour is from yellow to white and lilac. In the Eldorado strain the range is from rich cream, through white, to lilac, deep purple and a satiny rich red. Usually all of these and numberless other intermediate shades are found growing together. In var. *roseus* the red blotch is a constant feature; in this strain it is not the rule, and the blotch varies to gold. In some instances any one of the colours mentioned may be found growing alone. One of these is

C. v. VAR. PICTUS, described in *Gard. Chron.*, July 6, 1895. This is the white form of the strain.

C. v. VAR. PURPURASCENS (Watson) was undoubtedly the purple form of the Eldorado strain of *C. venustus*. The name has for years been used for another and quite different variety. The *C. venustus* var. *purpurascens* described in *Gardeners' Chronicle*, July 6, 1895, and figured in THE GARDEN as Watson's description, by no means clearly describes either variation; the name had better be kept for the variety described and figured more recently. This is a sort growing in heavy, sticky soil in a very limited range. It is very leafy and strong-growing. This species and *C. Vesta* have a peculiar habit of offsetting. The offsets are very large and soon form bulbs, and a single bulb if undisturbed soon forms a colony.

C. VESTA (*Gard. Chron.*, July 6, 1895).—This is the strongest grower and most leafy of the *venustus* group. Its increase by offsetting is remarkable. It is tall, with long pedicels, bearing large white or lilac flowers, with a brown band across middle of petal and reddish centre. The gland is narrow and undulate. Native of a heavy, sticky soil, localised in a few places north of San Francisco.

Besides these there are many other variations of *C. venustus*, some of which I will call attention to in a future article.

C. SPLENDENS VAR. *ATROVIOLEACEUS*.—A small-flowered dark lilac type from Southern California. At base of each petal is a dark red spot.

C. FLEXUOSUS.—Low, leafy, and flexuous, pale lilac. Said to be native of saline meadows and growing in tufts of grass.

C. PALMERI.—Leafy, low, stem stiff; flowers very pale lilac. There are several forms of this not as yet well known.

GROUP 4.—MACROCARPUS.

This species seems to have no near relatives among the Calochorti. It varies scarcely at all, and answers closely to Watson's description. In sandy Sage brush plains from North-east California to Washington.

GROUP 5.—NUTTALLI.

The type of *C. Nuttalli* is well described by Watson. It ranges throughout Nevada and Utah to Colorado in a monotypic form usually, but in sections of Colorado it breaks into numberless shades, through yellow to white, lilac, and the most exquisite light pink. None of these colour forms have been named.

C. LEICHTLINI.—In the high Sierra is a dwarfed form having sagittate anthers and a smoky white colour, with very dark spot at base of petal.

C. GUNNISONI.—In this species the gland is transverse and the leaves very different from any other Calochortus. In colour it is as variable as *venustus*, ranging from buff to white, light lilac and pink. No varieties have been named.

Ukiah, California.

CARL PURDY.

ANEMONE ALPINA.

From a garden point of view this lovely alpine Windflower may safely be regarded as the handsomest of its race. Many fail to grow it in lowland gardens, or even to succeed in establishing the frequently inadequate pieces too often made to do duty as plants. Being vigorous and deep rooting, it should only be planted where there is a good depth of prepared, or at least good sandy soil for the roots, as failing this it is not likely to do well. Every year large numbers of its crowns, with some 3 inches, more or less, of fibreless root-stock attached, come to hand in late summer or early autumn, bearing always the impress of having been roughly torn from their place. This, coupled with the green foliage, the long time packed, and sweating consequent thereon, adds to the difficulties of any would-be cultivator. To plant these fibreless stumps late in autumn in the average garden soil is to throw them away to the extent of fully 90 per cent. The same pieces, if planted thickly in cocoa-nut fibre for the winter months in boxes 4 inches deep or thereabouts, will emit root fibres during winter, and to the extent of 70 per cent. or more will be ready for planting out quite early in April. This is no mere guess work, but the outcome of practice. The way in which *Adonis*, *Cypripediums*, the alpine *Anemone*, and other such plants produce fibrous roots in cocoa-nut fibre is surprising, and in some of these at least the same material is helpful when finally transferring the plants to their permanent quarters. Winter division of the alpine Windflower is usually attended with failure even when good established plants have been employed, and this should never be attempted. The largest isolated example of *Anemone alpina* I have ever seen was growing in the specimen border in the Hale Farm Nursery upwards of twenty years ago, the plant in question being upwards of 2 feet high and as much through. It was growing in the ordinary border in company with other good hardy plants.

Where fresh seeds can be obtained this is undoubtedly the simplest way of raising vigorous and reliable stock of this *Anemone*. The work, of course, requires patience, but in the end repays the trouble. Seeds of this species are best sown in the open in shallow drills in fairly rich soil, and rather thinly when it is known the seeds are

fresh, allowing the seedlings to remain at least eighteen months without disturbance, and when large enough transplanting always in the early spring. Usually good plants are forthcoming in two years from the seed, and in another two years the plants will flower for the first time. When properly planted in sandy loam, leaf-mould, grit, and sandstone chippings this *Anemone* may remain for years without disturbance. In summer the species, and also the lovely variety *A. a. sulphurea*, delight in plenty of moisture. E. J.

ISOPYRUM THALICTROIDES.

At page 330 the Rev. C. Wolley-Dod refers to this pretty little plant as a "seductive weed," and by subsequent remarks proves the truth of the assertion, so far, at least, as the garden at Edge Hall is concerned. As to the hardy nature of the plant, I have no knowledge that this has ever been questioned, but that it is not a success in very many gardens I am aware from frequent inquiries concerning it. Quite recently I have twice been appealed to respecting this plant and its requirements. I quite agree with Mr. Dod that the plant loves moisture, and have repeatedly recommended its being planted in such positions. I have, however, a distinct experience of failure with this plant when grown in moist, sandy peat in company with *Trilliums* and *Dentarias*, and another of it thriving well in the open in the light sandy soil of Tooting. The very small bits of it that one meets in hardy plant collections generally give but little idea of its weedy nature, and I take it that in Mr. Dod's case some local influence is altogether favourable to its development. Near London no sort of treatment appears to make much difference to the plant. The peculiar suitability of Mr. Wolley-Dod's garden to this plant is proved by Mr. Dod's own words, viz., "Two or three other rough spots, either damp or dry, seem to answer all its requirements," so that the plant is obviously quite at home in any position at Edge Hall, though frequently becoming less in other instances. Even more curious is the fact that *Thalictrum anemoneoides* is not a permanent success in the same garden, which latter Mr. Dod regards as more choice. And yet in the small white blossoms and delicate foliage of each there is a good deal in common.

The above is not an isolated instance so far as Mr. Dod's garden is concerned, as I remember another plant—*Primula capitata*—which gives considerable trouble to some who grow it, is one of the most successful of *Primulas* at Edge Hall, not merely growing and flowering freely, but seeding and springing up in all directions. The success of the latter, coming as it does from a great elevation in the Himalayas, proving quite content in Mr. Dod's Cheshire garden, is both significant and interesting. Indeed, such an experience would justify anyone regarding it as a most accommodating species, though in a general way this is not confirmed, but rather the reverse.

E. J.

Flag Irises.—The common blue and white Flag Irises are the showiest of every-day hardy plants at the present time. Almost regardless of position, one sees these flowering in the same profusion, with the same vigour of growth, and year by year sending forth a splendid array of blossoms on lofty spikes that are as valuable as they are effective. Plants such as these, moreover, that can, and indeed do, take care of themselves need but little recommendation, and even when the flowering is past there is a picturesqueness in the strong tufts of blue-green leaves that cannot fail to commend them to all lovers of beautiful plants.

Tulip Dame Elegante.—I find that I have unwittingly been led into error regarding the origin of this Tulip through the statement of the vendor that it was of French origin. Messrs. E. H. Krelage and Son, of Haarlem, have kindly informed me that they introduced this variety to the trade and gave it the name. Messrs. Krelage consider

it to be a Dutch cottage Tulip, and, although not knowing its origin, say it is certainly not French. The name was chosen in accordance with Dame Blanche, the pure white strain of the same Tulip, introduced by Messrs. Krelage at the same time. The latter is also a very pretty Tulip which I grow here.—S. ARNOTT, *Carsethorn*, by *Dumfries*, N.B.

Tulip Golden Crown.—This old Tulip always attracts the attention of those who see it here. In its various stages, from that of the bud until it dies off a bright red, it finds favour with many. The flowers are very beautiful in their early stages with their prettily coloured and pointed yellow buds. This self-yellow colouring of the segments afterwards assumes a red edging, which gradually extends until the flower is almost self-coloured before dying off. In the last days the flower opens out very widely to the sun, and is really gorgeous in its colouring. It would, indeed, seem bizarre were it not toned down by the greenery of other plants. I have grown it for some twelve or thirteen years in this garden, and have never found it necessary to lift and dry the bulbs either to keep the stock or to induce flowering. Both in the border and the rock garden it has given great satisfaction.—S. ARNOTT, *Carsethorn*, by *Dumfries*, N.B.

Saxifraga Rhei.—Few fail to admire this mossy Saxifrage now in full bloom. Very pretty is a mound of its Mess-like verdure spangled over with pink flowers raised well above the leaves. It is also known as *S. globosa*, a name by which it has been sent out by some nurserymen. According to the "Index Kewensis," *S. Rhei*, of Schott, Nym., and Kotschy, is a synonym of *S. muscoides*. The plant to which I refer may be only a variety of that species, but it is distinct enough to have a separate name. It is larger in all its parts. Perhaps some one who has access to the work by Schott and his colleagues referred to may find something which will throw light upon the matter. If the colouring of the flowers is mentioned, it is likely we should be able, even in the confused and puzzling nomenclature of the Saxifrages, to arrive at some conclusion. For garden purposes it would be unfortunate to merge this plant with *S. muscoides*.—S. ARNOTT, *Carsethorn*, by *Dumfries*, N.B.

Corydalis Scouleri.—It is difficult to say whether in the charming foliage of this *Fumitory* or the distinct and pretty flower lies its principal merit. For either of these the plant is well worthy of being grown. One thing necessary is a position sheltered from strong winds, especially from the north and east, which destroy the tender leafage and shrivel it up as by fire. Last year I had this pretty *Corydalis* almost destroyed by several days of bitter winds from the east. Fortunately, the tubers were unharmed, and this spring they were removed to a more favourable position. Like most of the *Corydalises*, *C. Scouleri* likes partial shade. The racemes are pleasing with their long-spurred light and darker purple blooms, while the Fern-like leaves are attractive, especially before the flowers appear and when they have not lost the fresh green of youth. *C. Scouleri* is a native of North-west America. It forms a large tuber, which may be divided for propagation.—S. ARNOTT, *Carsethorn* by *Dumfries*, N.B.

Convolvulus Cneorum.—This is certainly the handsomest as it is the most striking and effective of hardy plants now flowering in the Royal Gardens, Kew. The only fault in connection with so well marked and desirable a species is the fact of its not proving absolutely hardy in all positions in the open. The position accorded to the Kew plant is a decidedly favourable one so far as warmth is concerned. At the same time similar positions must surely exist in almost every garden. Trained to a warm wall that receives a certain heat from within, the plant is thereby protected in severe weather, and what is of importance with woolly-leaved subjects such as this, a certain dryness of the foliage is more or less maintained. The Kew plant is some 3 feet or 4 feet across the

fan-like surface and about 3 feet high, this amount of space being well-nigh covered with the clusters of blossoms, which when expanded are snow-white and each $1\frac{1}{2}$ inches across, a long profusion of flowers being maintained, owing to the number of buds in each cluster. The plant offers no difficulties to the cultivator and may be freely rooted from cuttings where this is desired, and where a warm wall can be given it no plant is more worthy of the accommodation than this.

NOTES AND QUESTIONS.—FLOWER.

Narcissus Burbidgei Little Dirk.—While we have doubtless too many varieties of Burbidge's hybrid Daffodils, there are some charming flowers among them, valuable alike for the garden or for cutting. Little Dirk, one of Mr. Backhouse's seedlings, is one of the most distinct by reason of its small size. All do not admire big, lumpy, floppy flowers, and Little Dirk is so neat and pretty in its way that those who like such blooms will despise it. It has a short yellow perianth, which passes to creamy-white, and a short cup broadly margined with bright orange-scarlet. Here the flower is this year exactly $1\frac{3}{4}$ inches across, and this is its normal size in this garden.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Sweet Peas in May.—Towards the end of last August some Sweet Peas were sown between two glasshouses that stood about 10 feet apart in the hope of obtaining a few blooms in the late autumn. In this, however, the sower was disappointed, as after reaching a height of about 3 feet 6 inches growth stopped. The plants were left undisturbed, as the ground was not required for other subjects, and no hard frosts having been experienced, they have come through the winter unharmed and are now expanding their blooms. Large plants of the Paris Daisy in dry situations have also endured with impunity a winter in the open air, and in many gardens old plants of Ivy-leaved Pelargoniums are breaking into fresh leaf.—S. W. F.

Saxifraga peltata.—This Californian species is so dissimilar from the other Saxifrages, that very few would take it as belonging to the same genus. The large peltate leaves, suggestive of an umbrella, are as much as 18 inches across, that is if the plant is favourably situated. To attain these dimensions it needs quite a moist, even wet soil, though it will grow and flower year after year in a much drier spot, but under such conditions its vigour is impaired. The flowers are decidedly pretty, being borne in a many-flowered flattened cluster on a tall, stout stem. They are in colour a pleasing shade of pink. This species forms a large flattish creeping rhizome, that in yielding soil travels quickly. *S. peltata* was introduced from California in 1873.—H. P.

The Winter Aconite.—In the interesting note that appeared on the above pretty winter flower (p. 394) no hint was given that it sometimes proves difficult to establish. I do not suggest that this difficulty is general, but I know that in my own case a colony that I some years since endeavoured to naturalise on a lawn and beneath a spreading standard Fig tree gradually became less and less and eventually disappeared, while, as far as my recollection serves me, I think I remember reading accounts of other unsuccessful attempts to establish it. Luckily, since the gold of its cups spangling the grass is one of the few outdoor brilliancies of mid-winter days, its culture offers no difficulties to the majority. It flowers, withers and disappears, to reappear again as certainly as do the wild Lent Lilies and wood Hyacinths that star the orchards with saffron and spread the azure of the skies around the woodland paths.—S. W. F.

Leucojum æstivum.—I must thank Mr. Arnott for so kindly making observations of the growth of the summer Snowflake in various positions for my benefit. I am growing the majority of my bulbs in a considerably drier portion of the garden than formerly, but the change at present

does not appear to have had any beneficial effect as far as flower-production is concerned. As soon as the foliage dies down I shall remove some to the driest spot I can find and endeavour to materially lighten the soil. It has, however, occurred to me lately that very possibly it is the heaviness rather than dampness of the soil that is prejudicial to flower formation, for the other day a friend of mine told me that in County Mayo, Ireland, *Leucojum æstivum* flowered excellently in damp meadows, with its roots sometimes below the water level. In this case, however, the soil is comparatively open and not close-grained and clinging, as is the soil in which my bulbs are growing. In the case of *Iris Kæmpferi*, I could do nothing with it until I lightened the soil and replaced the heavy loam by leaf soil. With the latter no amount of moisture at the root came amiss to it, but with the former as soon as the soil became sodden the plants became unhealthy.—S. W. F.

Anemone ranunculoides.—In his notes on "Hardy flowers at Coed Efa" (page 337), Mr. J. Wood mentions this *Anemone* as flourishing in the loose, gritty soil of the rock garden. As Mr. Wood says, it is often met with in an unsatisfactory condition, and, therefore, any particulars as to the circumstances under which it succeeds are worthy of note. A few years ago I received some roots from Herefordshire, which I understood had been grown in soil that was not of a particularly loose nature. With some misgivings I planted them in ordinary garden soil, a heavy loam, being unable at the time to give them a prepared compost. However, instead of a dwindling such as I was prepared to witness, the plants made sufficiently strong growth to warrant their being left undisturbed, and have since spread into a fine clump, which in spring-time is bright with dozens of golden blossoms. Their position is a very sunny one. The behaviour of the plants in question shows that *A. ranunculoides* sometimes succeeds in heavy soils, though doubtless for choice a lighter and more porous staple would be preferable.—S. W. F.

Aubrietia Leichtlini from seed.—I note that "R. D." (page 357) writes that seedlings of this *Aubrietia* show but little variation. I do not know if this is the general experience, but a case has lately come under my notice where very considerable variation occurred. The bed of seedlings of which I write, 6 feet long by 4 feet broad, contained comparatively few plants with the bright rose-coloured flowers that mark *A. Leichtlini*. Various shades of purplish pink were present, as well as purples, dark and washed out, and pale lavender. Fully three-quarters of the bed had to be weeded out, and even then the remainder were not all of a uniform tint. "R. D." deprecates the custom of using these plants on rockwork edgings, and suggests that they do not bloom so freely in such positions as when grown in cooler and moister quarters. In the south-west, at all events, this does not hold good, as plants may be seen on every side at the present moment that cover rock walls and sloping banks with unbroken masses of bloom. I know one old masonry retaining wall, 12 feet high, not far from where I write, the face of which is now a sheet of *Aubrietia* bloom.—S. W. F.

Gas-lime.—The various purposes for which gas-lime is used in gardens are numerous. Among bush fruits it is sprinkled over the surface of the soil, and the fumes ward off caterpillar, which is so common and destructive. Among young crops, such as Onions, Carrots, and Parsnips, I have seen it used with great success, but if used injudiciously it is most injurious, and when fresh and not long exposed to air and damp, great caution is necessary when applying it. A friend who had several loads carted into a heap on a piece of ground could not get anything to grow on the land for two years. This necessitated the removal of the soil about a foot deep and filling the space with fresh loam. Many years ago I incautiously dusted fresh gas-lime too liberally on a break of young Onions, and the most of the

plants were either destroyed outright or much injured.—M. T. CARRON, *N.B.*

—Mr. Tallack's further communication in your number for the 30th ult. seems to call for a reply from me. I purposely avoided giving any explicit directions as to the quantity of gas-lime which should be used, preferring to quote Dr. Voelcker, whose opinion must be of more value than mine. And now that you have published his article (p. 303), I think all who have read it must possess every requisite knowledge. The methods of purification of gas by lime now in use in large gasworks are too complicated and too technical to be described in your paper, but I may say that whatever they are there is only one kind of lime used, and that it is owing to the different processes adopted that two kinds are produced as refuse. This I have explained in my previous communication. That which Mr. Tallack uses appears to be obtained from a very small gasworks with only one purifier, so that he obtains from it several qualities or strengths of lime. But in every large gasworks no lime is removed from the purifiers as refuse until the whole of it is fully saturated with crude gas impurities, and there is no doubt whatever that it is much stronger than that which Mr. Tallack uses, and that, therefore, more care should be exercised in its application. The gas-lime analysed by Dr. Voelcker was produced at an ordinary gasworks, and the remarks made by him with regard to it had reference to such gas-lime, and not to such as would be produced at a private gasworks, which probably might be used with advantage where an equal quantity of ordinary gas-lime would be injurious. I advise your readers before using gas-lime to carefully study Dr. Voelcker's article reprinted by you, bearing in mind that he was referring to refuse as produced at large gasworks where there are appliances for making the lime take up a very much larger percentage of impurity than could possibly be the case in such a gaswork as Mr. Tallack appears to obtain his supply from.—R. S. C.

GARDEN FLORA.

PLATE 1171.

ALBERTA MAGNA.

(WITH A COLOURED PLATE.*)

I CONSIDER this to be one of the most useful shrubs for the winter or sub-tropical garden that have been introduced within the last ten years. Although unrelated to *Embothrium coccineum*, it is likely to occupy a corresponding position with that plant as a garden shrub. As yet Alberta is scarcely known outside botanical collections. It was introduced to Kew ten years ago by means of seeds sent by Mr. Medley Wood, curator of the Botanic Gardens at Durban, Natal. For some years it was cultivated in pots, the first plant to flower being a pot specimen grown along with Cape Heaths at Kew. A much finer specimen was, however, grown in a bed in the winter garden, and in the warmer section of that house there are now several good examples planted out in beds, where they flower several times during the year, one being in bloom now. In habit the plant may be said to be intermediate between an *Ixora* and a *Cherry Laurel*, the leaves being glossy green, evergreen, opposite on the erect branches, upon the apices of which the erect crowded panicles of tubular bright blood-red flowers are borne. These last about a month and are decidedly ornamental.

According to Sir Joseph Hooker, *A. magna* forms a large evergreen shrub or small tree 30 feet high in the rocky mountains of Natal, at

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew. Lithographed and printed by J. L. Goffart.



ALBERTA MINNA

elevations of 3000 feet to 5000 feet, where it is a conspicuous and beautiful object from the glossiness of its leaves and the beauty of its flowers. The Kew plants have borne panicles 6 inches high and as broad at the base; probably larger, stronger plants will produce panicles of still larger dimensions. Mr. Bull, of Chelsea, included *Alberta magna* among the new plants he offered in 1891. The allies of *Alberta* are *Mussenda* and *Ixora*. Whilst the corolla is fresh, the calyx has short regular lobes, as shown in the plate, but after the flowers have faded and the seeds begin to swell, two of the calyx lobes lengthen into leaf-like appendages an inch long. These, however, have not been developed on cultivated examples. Only two species of *Alberta* are known, namely, that here figured and a second one, native of Madagascar. It commemorates a Dominican friar of the 13th century, Father Albertus Grotus, and was founded in 1838 by the botanist Meyer on the species here represented.

W. W.

THE WEEK'S WORK.

KITCHEN GARDEN.

CLEANING THE GROUND.—With genial rains during the past week or so, the land will now need frequent hoeing to prevent weed growth. This advice is needed in light soils, as weed growth is so rapid, that unless taken in hand at once it is difficult to cope with it. No matter how light the soil, by early attention to weed destruction now, much labour will be saved later and the crops will be benefited. Land waiting for crops may soon be cleaned by running the hoe through in fine weather, and it will then be in condition at any time to crop. The same remarks apply to growing crops. Here one may often use a small hoe and facilitate thinning, as it is slow work to thin weedy quarters. A small hoe will destroy many of the weeds in the rows and remove a greater portion of the surplus seedlings not needed. Walks are much better taken in hand at this season, and in many kitchen gardens tiles or permanent edgings are employed. Here a weed killer may be used to advantage, but if Box or plants form the edging it is well to omit these aids, as with a sudden storm the weed-killer is carried to the sides, causing much injury.

CABBAGE CROP.—At no season of the year are Cabbages more in demand than in the spring, and in private gardens the small early Cabbages have of late years found more favour, as they are less subject to running, and turn in more quickly than the larger kinds. There will now be no lack of material. Small seedlings of the autumn sowing left in the beds are often employed to provide a later supply, but I depend largely upon seed sown in February or March. A pinch of seed sown in a frame at the season named will furnish the supply from May to June, or a later supply if sown in the open in March. Many think that summer Cabbages are not needed. I do not care for them unless quickly grown and perfectly clean. We have now some excellent types, and such kinds as *Favourite*, *Tender* and *True*, *Miniature Marrow* and *Matchless* are splendid summer Cabbages. I am not in favour of leaving old plants to produce sprouts—I am aware in this matter many think differently—my contention being that young Cabbages can be grown so quickly that there is no need to leave old ones to bear sprouts. Plants for the summer supply are now being planted, and in many gardens shifts have to be made, as space is none too plentiful. I frequently plant rows between other crops. For instance, Cabbage may be planted between rows of *Seakale* just coming through the soil, as the small Cabbages will be cleared before the *Seakale* at 3 feet to 4 feet apart will need the space. Cabbages also do remarkably well on

Celery ridges—indeed, any place that may be spared for a quick-growing crop. Autumn Cabbage, such as *St. John's Day*, *Christmas Drum-head*, or *Favourite*, will now need attention. I usually plant these out at the end of this month or the early part of June. For this crop an open quarter is best, as the plants are longer on the land. Mine usually follow late Leeks, and they delight in the well-worked soil. These are not large types, so that they may be planted rather close. I plant at 18 inches between the rows, and *Favourite* 12 inches each way. These autumn Cabbages must not be confounded with the Autumn Colewort, which is hardier than the *Rosette*, but not unlike it in quality. It is not too late to sow for midwinter supplies, and in severe winters few vegetables are more serviceable, as the Coleworts are hardier than many of the Brassicas; at the same time, being dwarf they are not readily injured by severe weather.

EARLY LEEKS.—For exhibition, Leeks are sown in heat early in the year, and are given special culture. I do not like extra large Leeks. For early autumn supplies seedlings raised at the end of February or early in March will now be ready to plant out. I prefer trenches, having a light soil to deal with, as moisture can be given more readily. In making trenches many give a large quantity of food in the way of manure, but it is not a necessity if the plants can be given liberal supplies of liquid manure, soot, or fish manure during growth. Early Leeks are best grown in single rows, and, should land be scarce, I have well manured a piece of land, drawn deep drills at 2 feet apart, and got excellent table produce grown thus. In lifting from the seed-bed it is essential to get the roots intact, as if broken they receive a check. For early supplies *The Lyon* and *Holborn Model* are specially good.

CAULIFLOWERS.—Autumn-sown Cauliflowers are now making good progress, but I fear there will be a gap between the late Broccoli and the earliest Cauliflowers, so that it will be well to encourage rapid growth by giving fertilisers in showery weather. So far my earliest Cauliflower is *Walcheren*, and *Erfurt Mammoth* is but little behind it in this respect. The latter is a splendid type, doing well in strong soils. To eke out the Broccoli supply I have this week been lifting a few rows of *Model Broccoli*, placing under a north wall and shading from bright sun. This retards growth, and will, I hope, give heads till the Cauliflowers are plentiful. In many gardens a succession is needed, and here the value of late Broccoli is seen. Succession crops of Cauliflowers may now be planted for July and August supplies. I plant between rows of Peas, Beans, or other places, as grown thus the plants do well, getting partial shade at the start, and are ready to be cleared off with the taller crops. When using small plants it is well to draw drills, as watering in dry weather is more easily done.

AUTUMN CAULIFLOWERS.—In many gardens the autumn supply of Cauliflowers is as important as the spring supply, and, to get the best results, the plants should now be placed in their permanent quarters, as they need a long season's growth. A rich quarter is essential to get large heads. There is no better variety than the *Autumn Giant*, of which there are several types. These are large growers, needing much room. I find 2½ feet to 3 feet none too much between the rows, and 2 feet between the plants, if possible growing the crop in an open position in land not recently cropped with Brassicas, and planting early. By this means the plants get a good start and do not suffer in dry seasons. I usually plant two quarters and get a succession, but where land is none too plentiful it is well to rely upon the *Autumn Protecting Broccoli* for late supplies, as this is one of the most serviceable winter vegetables grown, and hardier than the Cauliflowers. In planting Cauliflowers for succession it is well to have the quarters some distance apart, as, should disease attack one, another may be spared. In planting, choose dull weather, and a dressing of soot or wood ashes in the rows will ward off slugs and caterpillars.

BRUSSELS SPROUTS.—These plants should now be in their growing quarters. A rich root-run is conducive to early growth, but even then I would advise a medium grower, as the large growers in seasons of drought are strong and not so valuable for a private garden. Of course, for certain purposes large sprouts are the most profitable. I usually make three plantings—a small early one, giving the plants an open quarter, ample space, 3 feet apart each way, and planting in drills so as to give liberal supplies of moisture at the start. The main crop is planted in June from seed sown in the open in March. The plants are given 6 inches less space. These give the best sprouts, being solid, and the supply lasts from November to February. A late planting is made in July. This usually follows early Potatoes. I give 2 feet between the rows and 18 inches between the plants. A dwarf variety is preferred, *Dwarf Gem* being my favourite. This will bring the supply well into March. It will thus be seen these three plantings provide a six months' supply.

BROAD BEANS.—Many do not trouble to grow late crops of Broad Beans, as the plants are very subject to attacks of fly. Such attacks may be prevented by sowing in cooler quarters and topping the plants as soon as the first flowers appear. Select the heaviest soil, and if in a damp corner so much the better, as the plants love moisture. Much may be done by mulching along the rows with heavy manure, this keeping the roots moist and a certain crop is the result. Those who are fond of this vegetable may not like the Beans when the skin of the Bean hardens and becomes black at the edge. I find it an excellent plan to skin each Bean before boiling after being taken out of the pods. They are thus very tender and equal to the youngest Beans early in the season. It may be asked is it worth while to grow late Broad Beans. I find many calls for them; if treated as advised they are equal to Green Peas, and it is well to give as much variety as possible. I sow on a north border at this date, using a Green-pod, as this turns in quicker. By sowing between rows of tall trees a late supply is secured. I have had *Beck's Gem* well into the autumn by sowing as advised, the principal points of culture being shade and moisture. If small kinds are grown it is essential to gather the pods in a young state, as they soon harden.

S. M.

FRUIT HOUSES.

FIGS IN POTS.—FIRST EARLY PLANTS.—These, where forced extra early, will now have ceased to be productive; occasional fruits may be had, but as a crop not remunerative. Now will be a capital time to repot these early plants, better in many respects than leaving this work until the leaves are either on the point of falling or have done so. If potted now the roots will while still active lay hold of the fresh soil, and thus assist the plants in the completion of their growth. Of course, in potting now it will not be safe to reduce the balls; I will assume, however, that a shift into pots one size larger will be beneficial. In doing this work guard against disturbing the roots more than is necessary. If this precaution be taken the plants will scarcely show any symptoms of distress, this being mitigated by temporarily shading them until re-established. They will afterwards revel in heat and moisture for a few weeks, after which a gradual process of hardening off will be advisable. Some Figs when disturbed at the roots just prior to restarting them into growth are disposed to cast their first crop; hence the greater desirability of potting thus early. Good fibrous loam with a calcareous tendency will be the best soil. Figs enjoy old lime or mortar rubble; hence this should be added if the loam be not of the character indicated. Drain the pots well, and over the drainage place a layer of horn shavings or half-inch bones. Pot firmly, and leave sufficient room for a future top-dressing. Look also to the younger stock of early Figs, those which have not yet fruited. These may also need a shift, after which with a good brisk

heat they will complete another growth and then ripen in good time. The three greatest enemies are the brown scale, mealy bug, and red spider. Sponging with either of the three following insecticides will be sufficient for the purpose if a second application be given before another stock can be re-established—viz., Chelsea Blight Composition, Bentley's Insecticide or XL All Insecticide—each according to directions given; the spider can be successfully attacked with rain water and with a solution of sulphur if it be a bad case. The mealy bug needs to be attacked by a stronger solution than for scale. Mid-season Figs in pots must now be freely supplied with water, and if carrying a heavy crop, with manurial stimulants in addition. Should there be any room for an addition in the way of a top-dressing it had better be applied now. Continue to stop these plants at least after making five or six leaves; do not on any account let the strongest shoots still gain strength. Syringe this stock whenever it is possible between crops. Latest Figs in pots for yielding supplies during September and onwards should now be on the move. Mine are now starting kindly in cold pits. They will remain there until room is provided in the other fruit houses now occupied with Strawberries and pot Vines. The best kinds for late work are, without any doubt, Negro Largo and Nebian. Just in advance of these in point of earliness are White Marseilles, Bourjasotte Grise, and Violette Sepor. These last will give a good return after the latest of the planted-out trees are over. It is scarcely safe to plant out Negro Largo unless in a severely restricted border, as it grows so rampantly. If any repeating of these late pot Figs is needed it may still be done, but do not err in this matter by being too liberal; better depend upon surface-dressing. As regards Figs in borders, still take note that over-generous treatment is not accorded where the leaf and wood growth is showing any tendency to be of a rank description. Too much feeding when the trees are not bearing heavy crops will tend to produce leaves of excessive size; these cause too much shade, with other attendant evils. Stop all shoots as in the case of pot trees unless they be leaders, and then even too much extension is undesirable. Some fire-heat had better be continued through this month regularly; it assists in respect to flavour and keeps down any atmospheric excess. In the case of young and newly-planted-out trees endeavour to furnish them as well and as evenly as possible from the base. This can be accomplished by timely pinching and by depressing any over-luxuriant growth. Although these young trees must of necessity be watered freely, they should not be supplied with stimulants. With respect to Figs outside on walls, scarcely anything can be added. It is, of course, assumed that all such are nailed now. The border had better be examined as regards moisture, but probably it will be moist enough for the present. It may, however, be advisable to fork over the surface and add a fair dressing of bone-meal and a light covering of fresh loam.

PINES.—All the stock should now be making good progress. With the warmer weather and early closing so as to run up the temperatures to between 90° and 100°, and with a nightly range of 70° to 75°, Pine-apples make rapid growth, more especially if kept quietly resting during the past winter season. The earliest Queens will now soon be giving indications of colouring; when this is seen to be the case, be rather more cautious in the use of the water can. Do not, as some writers have recommended, withhold the water entirely from that time onwards. At this time of the year this is a mistake, the fruit when ripe not being so full of juice under the drying process. Should the crowns appear to be making too much growth it may be checked by thrusting a hot iron into the centre, but not low enough to injure the fruit itself. Remove also any small suckers, usually termed gills, which grow out around the base of the fruit. This needs to be done carefully, so as not to injure the stem. The best indication of a perfectly ripened fruit at any time is the fresh, plump, and firm condition of the stem.

This cannot be had if too much exhaustion is in process, festered as it is by the withdrawal of the water supply. As soon as the last tinge of green fades away, a Queen Pine is at its best for eating at this season of the year, there being but very little fear of any black centres now. The stock of Smooth Cayennes to fruit during the autumn should soon be showing indications of the shorter leaves which precede the fruits. These will probably appear in a month's time for September cutting and later. The stock for winter supplies should still be growing freely, being in fact encouraged to do so up to the middle of July or thereabouts. Separate beds of plants will facilitate this work of successional supplies. Suckers taken off early in the year or potted then into 8-inch pots should now soon be fit to shift again into their fruiting pots, say 11-inch to 12-inch pots. These plants will then by the autumn have well filled their pots with roots and be well calculated to start into fruit early another season to give ripe fruit in twelve months or so hence. These should be Queens as a matter of course. The same work as it relates to Smooth Cayennes and other winter Pines should be left for another two months. After the first ripe Queens are cut any needful stock of suckers should be secured, but as almost every sucker may be relied on to grow, it is not advisable to overstock. Look to the fermenting material, and add fresh if the heat be falling or the manure becoming too much decayed. A fresh surface-dressing of tan will oftentimes be handy and effective, giving also a better appearance to the pit or house as the case may be.

THE BANANA.—The fruiting of this is not always reliable as regards time, but at any period the addition to the dessert is most acceptable, in spite of the almost constant supplies of foreign-grown samples, which cannot compare with those grown at home as regards quality. About four months may be taken as an average period from the first showing of the flower-spike and bunch until the ripening is completed. If any plants can be induced to show during the next month or so the fruit will be useful when fresh outdoor fruit again becomes scarce. Treat the plants liberally now with that object in view. Remove all suckers when large enough to handle with safety, so as to secure a few roots if for stock, but if not so required these should be cut away sooner. If scale be causing any trouble, sponging, as in the case of Figs, should be resorted to without delay.

OVERCROWDING FRUIT HOUSES.—A few words of warning at this season of the year may in some cases be necessary. It is, we know, a difficult matter to accommodate everything that has to be grown in private gardens; therefore to draw comparisons, as some clever people do, between what is accomplished by those who can devote one house or one department of a range to one particular kind of fruit for market supply or for seed, and preface these remarks by hints calculated to reflect on others who have in private establishments to provide for a more continuous supply, is unfair and misleading. It requires more oversight to manage a private supply when that has to be constant than a crop of any given fruit which immediately it is ripe is cleared off. The mistake that is made in private gardens is that of expecting too much from the given space, and the additional one of mixing flowers and fruit far too much, and that to the disparagement of both crops. A congested condition of the houses through the spring months is a great drawback to the attaining of high-class fruit. Bedding plants have to be accommodated, plants for furnishing and to supply cut flowers must also be provided, and the fruit houses oftentimes are taken undue advantage of to meet these emergencies. My plan is to always clear every vinery of the plants as soon as the Grapes are in flower, and when the thinning is commenced the houses are entirely free of any other occupant. It would be done sooner, but as plant houses are short there is no alternative but to manage in this way. Strawberries in vineries at this season are most dangerous—anything, in fact, that adds to the risk of insects attacking the Vines should be

studiously avoided. If it had not been for this over-crowding, many Vines would not have been ruined by that dreaded pest, the mealy bug.

HORTUS.

STOVE AND GREENHOUSE.

HYBRID GREENHOUSE RHODODENDRONS.

At this time of the year the different hybrid Rhododendrons—that is to say, those which have originated from the intercrossing of the various Himalayan species—strongly assert their claim to extended cultivation, possessing, as they do, so many desirable features. Their cultural requirements are not at all exacting, while they simply need to be kept from frost during the winter, and the blossoms of many are deliciously fragrant. The profusion with which the flowers are borne and the grand effect produced by a well-bloomed plant is well shown in THE GARDEN in the recent illustration of *R. Sesterianum*, which, though an old variety, is still one of the finest for growing into a large bush, though in a small state there are several others more free blooming. Most of the numerous varieties with white or nearly white blossoms that are of hybrid origin have been obtained by the crossing and intercrossing of a few distinct species and the many forms raised therefrom. The species that have principally contributed to the formation of this class of Rhododendrons are *R. Edgeworthi*, *R. ciliatum*, *R. Gibsoni* or *formosum*, *R. virgatum*, *R. Veitchianum*, and *R. Dalhousiae*. The first-mentioned, *R. Edgeworthi*, with peculiarly rugose leaves and large white blossoms with a yellow blotch towards the centre, has been very largely employed by the hybridist, and the delicious fragrance of its blossoms has been transmitted to the progeny. In conjunction with *Gibsoni* it has given us *Sesterianum* and *fragrantissimum*, while *Princess Alice*, which at one time was thought highly of, was obtained by crossing *R. Edgeworthi* with the little free-flowering *R. ciliatum*. The *Moulmein* *R. Veitchianum*, whose magnificent crisped blossoms are so much admired, is one of the parents (*R. Edgeworthi* being the other) of *R. Forsterianum*, whose flowers are the largest of any of this class. They have the thick wax-like texture of *R. Veitchianum*, and, taken altogether, it is a magnificent greenhouse Rhododendron. From the twiggy-growing *R. virgatum* was raised the pretty free-flowering *R. multiflorum*, which with *R. Edgeworthi* has given us several desirable varieties, all characterised by deliciously fragrant blossoms. These varieties are *Countess of Derby*, *Countess of Sefton*, *Duchess of Sutherland*, *Lady Skelmersdale*, and *Mrs. James Shawe*. *R. exoniense*, a very distinct and desirable variety, resulted from crossing *R. Veitchianum* and *R. ciliatum*. A species with very beautiful flowers is *R. Dalhousiae*, but the habit of the plant is, as a rule, neither good nor vigorous. In its Himalayan home it is an epiphyte, often growing on large trees, and stretching forth its slender branches to obtain light and air. Though not much grown, it has in conjunction with *R. ciliatum* yielded *Countess of Haddington*, one of the most popular of this class of Rhododendrons. It is of good, free growth, while the blossoms are large, bell-shaped, pinkish when first expanded, but becoming afterwards almost white. There is a good deal of individual variation to be found among the plants of this variety, in all probability owing to several seedlings having been raised, as they vary a good deal even when the product of the same pod. *Duchess of Buccleuch*, another well-known variety, was raised from *R. Dalhousiae* and *R. Gibsoni*. There are two very pretty free-flowering forms, *Queen of Dwarfs* and *Pixie Queen*, which were in all probability raised from *R. multiflorum*, as they have many of the characteristics of that variety.

While on the subject of hybrid Rhododendrons, a word or two may well be said in favour of that section known as *R. kewense*, which resulted from

the crossing of *R. Aucklandi* and *R. Hookeri*. There is a considerable amount of variation in the colour of the flowers, as may be seen by referring to the coloured plate of these *Rhododendrons* in THE GARDEN, October 9, 1897. Though plants of this group have proved hardy at Kew, they form grand subjects for the conservatory where there is any doubt about their passing the winter without injury. Apart from the various hybrid forms above enumerated, most of which have been raised with the object of obtaining varieties that will flower well in a small state, nearly all the original

HIMALAYAN SPECIES

are magnificent plants for the greenhouse or conservatory where the winter's frost is too much for them. *R. grande* or *argenteum*, as it is often called, is the first of all to unfold its blossoms, sometimes by the end of January. It is of quite tree-like habit, the major portion of the leaves being clustered towards the points of the branches. The flowers, which are borne in large closely-packed heads, are deep pink in the bud state, but after expansion they become almost white, except a crimson blotch at the base of the interior. This derives the specific name of *argenteum* from the undersides of the leaves, which are of a silvery whiteness, but individuals vary a good deal in this respect. I have been told that this will cross particularly freely with *R. Falconeri*, and have been shown young plants which in leafage at least appear about midway between the two. *R. argenteum* is essentially a plant for a large structure, it being in fact quite a tree. Sir Joseph Hooker, in speaking of specimens 40 feet high, says: "I know of nothing of the kind that exceeds in beauty the flowering branch of *R. argenteum*, with its wide-spreading foliage and glorious mass of flowers." The just-mentioned *R. Falconeri* is, like *R. argenteum*, remarkable from a foliage point of view alone. The leaves of this are large and of a greater substance than in any of the others, while they are thickly clothed on the under-sides with reddish brown tomentum. The flowers, which are borne in closely-packed clusters, are bell-shaped and of a light purplish tint, with a deeper blotch at the base. *R. Nuttalli* is another large-growing kind with handsome leaves, which when young are tinged with red. The flowers of this are very large and of a creamy white when first expanded, but they afterwards become purer in tint. The huge blossoms of this *Rhododendron* are not arranged in a compact head, as in most of the others, but are disposed in a horizontal tier, which usually rests on the large leaves that surround the blooms. *R. Aucklandi*, or *Griffithianum*, is another grand *Rhododendron* for a good-sized structure, the large shallow blossoms being so arranged that each stands clear of its neighbour. The flowers of this are white, flushed with pink. *R. arboreum* is represented by several forms, which vary in colour from pink to crimson, but all are beautiful. The brilliantly coloured flowers of *R. barbatum*, *R. Thomsoni*, and *R. fulgens* entitle them to a place among the very best of the *Rhododendrons* of this class, and, being less in stature than the several species immediately preceding, they may be grown in less lofty structures. The primrose-coloured *R. campylocarpum*, though rarely seen, is a very handsome species, while the lilac blossoms of *R. campanulatum* are borne in great profusion. The white-flowered *R. Jenkinsi*, or *Maddeni*, known also by several other names, is noteworthy from the fact that it flowers after all the others are past; indeed, this will sometimes bloom as late as midsummer. Some of the species, notably *R. Aucklandi* and *R. barbatum*, possess an additional feature in the long bracts which surround the leaf-buds, and which when growth recommences hang down just below the newly-formed leaves. These bracts are in *R. Aucklandi* of a reddish pink tint, and in *R. barbatum* crimson. In *R. Keysi* and *R. blandfordiae* the blossoms are in shape somewhat like a *Correa*, the colours being orange and red. As many of these *Rhododendrons* are hardy in several districts of

this country, exception may perhaps by some be taken to including them with greenhouse species, but it is only in particularly favoured parts that they can be depended upon, for even if they pass unscathed through the winter the spring frosts are liable to injure the blossoms, as many of them flower early. Planted out in the temperate house at Kew these *Rhododendrons* used to be quite a feature, and so are those that still remain, though many have been removed.

T.

Hoya bella.—Very beautiful now are the flowers of this little climbing stove plant. They are produced in umbels of about eight or nine, are pure white, with a spot of amethyst purple in the centre, the whole flower having a frosted appearance. It is not a plant that is well grown as a rule, yet it is by no means difficult to grow. The stems and leaves contain a white milky juice, which exudes very freely when the plants are cut, showing that pruning is not to its taste. The best plan, in fact, is to grow it in a basket suspended from the roof in a shady, moist stove or Orchid house and let it take its own way. Every point in spring will grow and nearly every joint will have a small bunch of flowers at the base of the leaf. It is best grown in a rough, open material such as suits terrestrial *Occhids*, equal parts of peat and loam, with lumps of charcoal interspersed. Cuttings may be made of the young stubby side shoots, rooting freely in small pots of sandy soil in a propagating frame. Pot off singly and pinch the growth when young to induce several young shoots, when let them have their own way. Grow on one season at least in pots, afterwards basketing as advised above.

Pelargonium fimbriatum album.—One cannot help admiring this beautiful white-flowered *Pelargonium*, yet, like your correspondent "H." (p. 378), I find it to be such a weak grower that its value is greatly discounted thereby. Still, Messrs. Hayes, of Edmonton, would appear to make light of any difficulties in this respect, as they turn it out in splendid condition, for neat little plants, even in pots 4 inches in diameter, carry several trusses of bloom, and, what is more to the point, their leafage is all that can be desired. The larger plants, too, are equally perfect. Few cultivators succeed so well with *Pelargoniums* in general as Messrs. Hayes, yet their plants do not present the appearance of having been at all highly fed, one thing being that they do not deteriorate as those do that have been given strong stimulants. Of white flowers, another poor grower is *Queen of Whites*, with semi-double blossoms, some of which are very pretty, but taken altogether it is not trustworthy. *Princess Alexandra*, as stated on page 378, is indeed a vigorous form, and if grown too freely is apt to get coarse. This originated as a sport from *Mme. Thibaut*, and I have several times found it revert to the typical form. One plant of this nearly always produced striped or flaked flowers, while another divided into two branches, one of which bore the true *Princess Alexandra* flowers, while the other was simply *Mme. Thibaut*.—H. P.

Winter-blooming zonal Pelargoniums.—Whilst so many who have greenhouses like to have these plants blooming well in them during the winter months, too few do have them, due to lack of preparation at the proper time. In one of the best private collections of these *Pelargoniums* I have seen, and which is during the winter literally a mass of flower of rich and varied colours, the cuttings are taken at the end of January. It is too late now to take cuttings, but in many gardens there are nice rooted plants from early spring-struck tops, now becoming sturdy stuff in 3-inch pots. It is really of little consequence what the variety is, for good summer bloomers will with proper treatment bloom well in the winter. So soon as practicable the young plants may be shifted into $\frac{1}{2}$ -inch pots, potting firmly and using good turfy loam chiefly, so that growth is hard and leafage not unduly coarse. Kept in these pots for a few weeks,

roots are soon plentiful. In the meantime it will have been needful to pinch the points out of the shoots to induce compact and bushy growth. A further shift may be made into 7-inch pots, the plants also being soon after stood outdoors in a sunny place and on a hard ash floor, where for a couple of months pinching out of tops and bloom, occasional turning the plants to the sun, liberal waterings, giving occasional ones of weak liquid manure, constitute the chief needs. By the end of August pinching may close and the plants be allowed to make proper growth. About the middle of September they should be got into the greenhouse, and soon after a little fire-heat should be given. If the temperature ranges from 55° to 60°, by the middle of October the plants will be in full bloom, and with ordinary care they may be kept so for fully three months, presenting for the time of year singular beauty and rich colouring.—A. D.

PROPAGATING FROM HIGHLY-FED PLANTS.

REFERENCE is made on page 359 to the fact that highly-fed plants are not suitable for propagating from, and in many cases are almost useless for growing on another season. This is a question that does not receive the amount of consideration that it should, and many of the failures in striking cuttings result rather from the cuttings themselves being unsuitable than from the treatment given them. The particularly exciting and stimulating manures, of which we have now so many, render a plant totally unfit for propagating from, as in many cases the cuttings fail to strike, and even when they root, the plants seldom grow away with their natural vigour afterwards. As it is a well-known fact that we learn quite as much by our failures as by our successes, I may mention that the subject of propagating from highly-fed plants was once (now many years ago) brought home so forcibly to me, that it made a lasting impression. It was in 1880, when the double-flowered *Bouvardia Alfred Neuner* was first introduced from America and the demand for it was very great. I was fortunate enough to receive some plants in good condition after their journey across the Atlantic, and soon propagated a considerable number therefrom. Then in an evil hour I began using stimulants to push matters forward, the result being that though I obtained plenty of cuttings, many of them refused to root, and it was some months before the effects of this wore off, so that I could propagate as readily as before. True, the plants grew well, and I had soon many good flowering examples, but this was at that time of minor consideration compared with a good stock of young plants. That highly-fed subjects are unsuitable for propagating from is beginning to be recognised, and for this reason many of our large *Chrysanthemum* growers keep plants to supply cuttings, and do not take them from the highly-fed flowering examples, unless it be any varieties that they specially require. In taking cuttings of all kinds, a general rule to be observed is to select shoots of moderate vigour only, preferably those that have been well exposed to the light, while their condition should be neither too hard nor too soft; indeed, they are best in what is known as a half-ripened state. There are plants that require special treatment, but the above general remarks will apply to the great majority of plants.

T.

Browallia elata.—Very few persons grow this. There are very few plants that give such a rich deep blue colour, and as it lasts a fair time in bloom, it is most useful for spring decoration. For many years the *Browallia* was a great favourite. For early spring bloom seeds sown next month will make nice plants. I sow in a cold frame and grow on till September, exposing freely, and syringe to keep off red spider and thrips. The plants delight in a cool rooting place. I grow on ashes, but leave the sashes off at night till the weather is cold, stopping two or three times during the summer and potting on

into 6-inch pots. In the early spring if very large plants are needed another shift may be given, but for early blooms I prefer the smaller pots.—W. B.

Henfreya scandens.—This is a decidedly pretty stove climber, far more frequently met with at one time than it is now-a-days, for it is at the present a comparatively rare plant. It is naturally a climber, but not a particularly vigorous one, and is most at home treated as a rafter plant in the stove or in some such position. Trained round a few sticks it will also flower well, and forms an uncommon and pleasing feature when in bloom. Though belonging to the Acanthads, the flowers bear a good deal of general resemblance to those of a Bignonia. They are somewhat trumpet-shaped, nearly a couple of inches long, and of a creamy white tint. It was introduced from Sierra Leone in 1845, and to succeed in its culture the warmest part of the stove is necessary. A plant of this trained to a rafter was recently flowering freely in the T range at Kew. Though generally known under the above name, the genus Henfreya, which commemorates the name of the late Professor Henfrey, is now merged into that of *Asystasia*, which also includes the plant long known as *Mac-kaya bella*, the subject of a recent note in THE GARDEN.—H. P.

Caladiums at Messrs. J. Peed and Sons.—The leading feature in these nurseries at the present time is the Caladiums. These are represented by large specimens of all the leading varieties. A few of the most prominent varieties already in commerce are *C. Duke of Teck*, a dwarf form, with bold leaves of a bright red on a grey ground, and veined with deep scarlet; *C. Louis Van Houtte* with bronzy red leaves; and *C. l'Automne*, a distinct variety, leaves pale green, spotted with white. In *C. Mons. S. Waller* the leaves have a crimson centre, with a broad margin of two shades of green, the whole thickly spotted with white and red. The most prominent among new seedlings raised in the establishment are *C. Mrs. J. Peed*, a pretty variety, carmine centre with green edges, dwarf, and of fine habit; *C. H. J. Chapman*, a distinct and desirable variety, the leaves soft salmon-rose, shaded with amber, and veined with rich purple. *C. Charlotte Hoffman* is a lovely dwarf form, the whitest I have seen. *C. Gustave Mellin* is green, centre purple,

veined with a lighter purple and blotched with red. Gloxinias also are represented by thousands of plants in all stages of growth. The named varieties are in a forward condition and will be ready for the early shows. Prominent amongst

seed. These showed remarkable form both in size and substance. Other divisions are devoted to Orchids, Palms, Clivias, Cannas, Anthuriums, and various sections of soft-wooded plants of all descriptions.—VISITOR.

Brownea coccinea.—Some of the large-growing species of *Brownea* are well known as gorgeous tropical trees, but to bloom them in this country a large structure is necessary, therefore flowering examples are very rarely seen, though at Kew, Glasnevin, and a few other places they may be met with. *Brownea coccinea*, on the other hand, is a much smaller-growing subject, and in the stove its bright coloured blossoms have been remarkably attractive for the last six weeks. This species forms a freely-branched bush clothed with pinnate leaves. The flowers, which are borne in small drooping clusters often from the old wood, are of a bright vermilion colour, very striking and effective among the ordinary occupants of a stove. It can be recommended as flowering freely when not more than 4 feet or 5 feet high. Though *Brownea grandiceps*, one of the finest of all, needs a lofty structure to flower it well, it is worth growing from a foliage point of view alone, as the young leaves, which are pendulous, are of a peculiar pale tint marked with reddish brown. The *Brownneas* succeed with ordinary stove treatment, a suitable soil being good turf loam, kept open with a little peat and sharp sand. They enjoy frequent syringing during the growing season, but towards autumn this should be lessened, as well as the supply of water at the roots, in order to ripen the wood and encourage the production of flowers.—T.



Roses at Tresserve. From a photograph by Miss Willmott.

ROSE GARDEN.

CLIMBING AND OTHER ROSES.

How to have Roses in bloom for as long a portion of the year as possible, and in all sorts of positions, is a matter worth serious consideration. There are two classes of Rose growers besides those who grow for sale; the one has for his principal object the production of blooms for exhibition, while the other grows them for decoration and the production of flowers for cutting. Now there are so many families of the Rose, and so many varieties belonging to each family, that suitable Roses may be found for almost all kinds of uses and positions in a garden where flowers of any kind can be used. The following are some of the uses to and positions in which Roses may be put in a garden—viz., beds, borders, shrubberies, poles and pillars, arches, arbours, walls (north, south, east, or west), hedges, screens, &c. If only the commoner kinds of Roses be grown, the kind of soil is a matter of small importance. The old summer-blooming climbing Roses belonging to the Boursault, Ayrshire, and sempervirens classes, as well as most of the varieties belonging to the Gallica, Hybrid China, Hybrid Bourbon, Austrian Brier, and many other summer-blooming families, are not at all particular in the matter of soil, being able to thrive and grow in that of almost any description. Where the best kinds of continuous-blooming Roses are required to thrive and repay the cultivator, there the soil must either be naturally good or adapted to the purpose by artificial means. For poles, pillars, arches, arbours, walls, sides of houses, and high buildings, &c., only those Roses are suitable which have more or less of what is called a climbing habit of growth. The Banksian Roses are excellent as climbers, but should only be planted against walls in rather sheltered positions; they are only summer bloomers. The old blush and crimson China Roses will also run up the face of a wall freely to a height of 30 feet, and, as before stated, for continuous-blooming qualities they

the varieties in flower was Beacon, a dark crimson-purple variety. I noted some thousands of tuberous-rooted Begonias in all stages of growth. Primulas, principally white, filled the whole of one division having been set aside for

are unsurpassed by the varieties of any other family of Roses. The old-fashioned summer-blooming Roses before alluded to are capable of almost anything in the way of height. They completely cover themselves with flowers during the blooming period if rightly treated, and all the treatment they require, if in good soil, consists in tying them to their supports, pruning out weak and exhausted wood, and encouraging to the utmost such vigorous young shoots as may be required. No growths need be shortened except to keep them within the bounds allotted to the plant and to take off unripened ends. Climbing Roses away from walls should not be planted in very exposed positions, or, as a rule, they will fail to gratify the cultivator. Climbing Roses may be used to screen unsightly buildings, &c., by training them to painted galvanised wire or other fences or supports, and, except when the leaves are off, they answer this purpose admirably. All the above methods of growing Roses not only produce good decorative effects, but give supplies of flowers for cutting.

IMPROVEMENTS AMONG HYBRID PERPETUALS.

THERE is an impression that the Hybrid Perpetuals are played out as far as novelties are concerned. It is true our continental friends have sent us nothing lately of any particular merit, but this only proves that they are wide awake to the popular taste. It does not follow, however, that because continental raisers have not given their attention to the production of such Roses nothing further remains to be gained among the Hybrid Perpetuals. The point is, what do we require, or what should we term desirable improvements? I think all exhibitors will agree that there are very few Roses of the splendid deep-petalled form of Mme. Marie Verdier. We should welcome this type in all colours. Flowers with the depth and form of petal of this fine Rose would be most valuable to the exhibitor; more so if vigorous constitution were also added. Then take white H.P. Roses. We really have not a show Rose among the H.P.'s that can be said to be pure white. Until we obtain such an one with the form of A. K. Williams or Alfred Colomb, it must be admitted that the raiser's work remains unfinished. For my part I do not consider it impossible or improbable that such Roses will eventually be secured. One might have thought that we had an ample supply of pink Roses until the advent of Mrs. John Laing, but as soon as this splendid Rose appeared, then all others of its colour were quite eclipsed. So it would be with crimsons, scarlets, whites, and very dark shades. What I object to is the introduction of Roses totally void of perfume. If they appear in the most beautiful colours and forms, and fragrance be wanting, then are they deficient of the greatest charm of the Rose. The novices, who greatly outnumber the exhibitors, care nothing for such Roses. They see them at exhibitions and are attracted by their false dressing, but they quickly discard them for the free-flowering, sweet-scented Roses. I really believe we must gradually eliminate the Victor Verdier race from our collections to make room for others that have all the good points of this fine Rose minus its scentless characteristic. Good autumnal Hybrid Perpetuals of a brilliant colour are much needed. Let raisers strive to improve this grand class on the lines indicated above, then shall we be doing something to still further popularise a type of Rose that is so easily propagated, and that has done so much to engender a love for this popular flower. P.

IN THE ROSE GARDEN.

THE severe check our Roses received a few weeks back convinced many anxious growers that they were not yet too late in pruning. Indeed, few of our Roses appear to the average amateur to be so forward as was the case during the middle of March. I note that my own are very backward, and from inquiry find others of the same opinion. Some consider theirs fully three weeks later than usual, and mine are equally backward. I do not mind this, believing it far safer than if they were as forward as usual. We so seldom escape a sharp frost at the end of May and early in June that a somewhat later break than usual is likely to be more satisfactory. Then, again, how very rapidly Rose growth comes on as soon as genial weather sets in. Once more has it happened that our Hybrid Perpetuals, as a class, have proved less able to bear a sharp spring frost than the majority of the Teas and Noisettes. I have shoots of such as Duke of Connaught, Fisher Holmes, and Ella Gordon cut down to the base, and yet these same shoots were perfectly sound when pruned. Not so with the Teas—if we except a few notoriously tender varieties—which have undoubtedly greater vitality than the H.P. class. The majority of the Hybrid Teas also are hardier than the Hybrid Perpetuals; at least such is the case here. While doing some late pruning (May 2) I note that Maman Cochet has carried even the extreme shoots of its growth safely through the winter. It would be difficult to name a more useful and reliable Tea Rose than this, whether for the open or under glass.

Buds are looking particularly well, and, although very backward, are now breaking strongly, both upon dwarfs and standards. A mulching of well-rotted manure, or a little artificial stimulant given now, and worked into the soil before drawing it up to the Rose-bud a few weeks hence is certain to be beneficial. Stocks must be looked over and suckers removed. It generally happens that suckers are more forward than the Rose-buds. Cut them out rather deeply, or the side eyes will soon push up. As the Rose growth upon maiden plants advances, pinch out the tip if you wish for a bushy plant. You will lose the first flower but gain a better plant and several blooms later on in the season.

It is by no means too late to plant out Roses if those from pots are chosen, and such will come on quite as well as the early-planted ones from the open ground. In some cases a few plants that were forced early and have just finished blooming might be turned out to advantage at any time now, and would give a summer show if we except the Hybrid Perpetuals. R.

NOTES AND QUESTIONS.—ROSES.

Rose W. F. Bennett.—With the exception of Papa Gontier, it is questionable whether there is a better red Rose than the above for winter and early spring forcing. The Meteor requires very strong heat, and somehow Francis Dubrieux does not fulfil all that was claimed for it when introduced. In the bud and half open state the colour of W. F. Bennett is bright and rich, and it is only when the blossoms are fully open that the objectionable magenta tint is seen. It is really a most free blooming Rose, quite equal to the Chinas in this respect, and also wonderfully fragrant, almost rivalling La France. I do not recommend it for outdoor culture, although some richly coloured buds are produced in the autumn.—P.

Rose Francisca Kruger (Tea).—It may be said that all Tea Roses are beautiful under glass, but, granted that this is so, some few varieties are exceptionally so, and this most certainly applies to the above fine introduction of M. Nabonnand. It requires to be well thinned of its small growths, retaining a few strong well-ripened shoots, then really grand flowers may be had of a coppery yellow colour, with a pretty peach shading. The

blossoms are large when thus thinned and of exquisite form. Like most of M. Nabonnand's introductions, vigorous constitution is its strong point, this rendering it an excellent garden Rose either for beds, for low walls, or for standards.

Rosa berberifolia Hardi (Rosa bracteata).—The culture of this delightful Cistus-like single Rose should only be attempted under glass, unless a very favourable spot can be found for it outdoors; even then it is very liable to be killed by frost, so very tender is it. But given the protection of glass then is it seen to perfection. A most suitable place for it would be upon a conservatory or greenhouse wall, where it could obtain all the sunlight possible. A little peat should be added to some good loam and the drainage must be ample. Its flowers are very fugitive, but when out they reveal a truly beautiful combination of colours, clear yellow, with rich maroon spots at the base of each petal. It is unfortunately much addicted to mildew, and for this reason must be planted where cold draughts can be avoided.

ORCHARD AND FRUIT GARDEN.

NOTES ON HARDY FRUITS.

THE season so far has been very favourable to hardy fruits, the welcome rains so badly needed having done an immense deal of good. Frosts of more than usual severity have occurred during April, but little harm has been done, as far as I have seen, to the blossom. The cold snap experienced in March was very beneficial to fruit growers and provided the very necessary check to growth, and though the outside of Cherry and Pear bloom was quite browned from cold winds, here the flowers have opened freely and the abundance of pollen has caused a good set. Some trees of Bcurré Diel here are quite covered with buds, or rather small fruits, for they have all set and are beginning to swell, and will have to be thinned rather heavily. On the walls Peach and Nectarine trees are growing rapidly and a little disbudding is necessary. We are so subject here to blister on the foliage that very early disbudding would be a mistake, for often the most likely looking basal shoots are the worst hit by this. Trees over-protected during the flowering period are very liable to blister, and a few rough pieces of old fish-net are often of more practical use than expensively-fitted screens. But none the less it is a mistake to let the growths become much crowded before thinning them out a little.

Bud-dropping outside is in evidence this year, and although many other causes have been assigned for this, I have little doubt that a dry state of the roots is one of the principal ones. One of the most frequently neglected operations in fruit growing out of doors is disbudding such trees as Apples, Pears, and Plums. Where grown on espaliers there are always more shoots than can be found room for, partly owing to the pinching and pruning practised. While quite young they may easily and quickly be rubbed off with the fingers, and no kind of check to the tree results, but if left until a few inches in length and the base getting hard and woody, it is quite different. The top branches are usually those that need most removed, and it is the neglect of this that often leads to the lower branches getting bare and unfruitful. The good results of liming old trees are very apparent now, bark that was covered with Lichen having quite a fresh green appearance, the lime having now been nearly all washed off. Mulching is being pushed on as rapidly as possible, for the soil has never become really cold this winter. Strawberries are looking uncommonly well out-

side, those planted last summer especially throwing up immense trusses that, should severe frosts hold off while in flower, cannot fail to produce large crops. Many growers leave Raspberry canes far too thick when tying them in, and an hour or two spent among the plantations just now will often do good. The majority of gardeners never think of lessening the number of shoots on these, with the result that by midsummer they are quite matted together on the top. Finer fruit and more of it would follow judicious thinning now. Where new plantations are to be made in autumn, the suckers chosen should be encouraged as much as the fruiting ones for next season, and the soil may be loosened about them frequently. Gooseberries on walls or any form of trellis need a lot of care now. To get the best results the spurs must not be crowded, and the removal of all superfluous shoots should be early attended to. Where the trellis is not filled, select a strong shoot for leader and disbud back to it if it does not occur at the top. Heel the shoots in with a flat strand of raffia or bass before they become too hard.—SUFFOLK.

— We have in 1898 some unique features in connection with the setting of outdoor fruit and the prospects of the same different from anything I remember in some thirty-three years' experience, some fruits, for instance, that are invariably good being this year a failure, whilst others that from one or more causes often fail have set remarkably well and promise a full crop. For the second time in sixteen years a double thickness of half-inch mesh fish-netting has failed to save the majority of Peaches and Nectarines, all bloom being destroyed that was fully expanded when 14° and 16° of frost were registered on successive nights, and the latter after a heavy storm of sleet and snow. Early-flowering trees that had set the bloom and others that were late and not expanded have come through safely. Growth moves very slowly, and, as a consequence, the enemies in the field, like aphides and red spider, have already been troublesome and necessitated heavy and constant syringing. One enemy to fruit is likely to be conspicuous by its absence. I mean the wasps. Queens are generally plentiful, and some hundreds are annually killed in the garden and its vicinity, but this year the total up to the time of writing (May 10) is only half a dozen. This is a minimum record, and is the more strange when the very mild winter and absence of wet are taken into consideration. A welcome crop with me is dessert Cherries, and these have set well and are swelling away kindly. Plums respectively on south-east and north-east walls, the former covered with fish netting, the latter unprotected, all promise well. The expansion and setting of the bloom on the colder aspect have taken place since the severe weather experienced in the end of March. I have never before had so good a show for Plums on a north wall. It is likely to be a good Pear year. Plenty of fruit has set on old trees and cordons four and six years planted, and as the foliage is now well developed we are hardly likely to get frost of sufficient severity to do any mischief. Apple trees are a picture, standards, both old and young, espaliers, bushes and pyramids all being a mass of bloom. The maggot is a little in evidence, but nothing to the extent I have experienced in former years. Despite, therefore, the partial failure of Peaches, Nectarines, and Apricots, I think I am justified in saying that in the case of larger fruits the crop is likely to be over average, and with bush fruits and Strawberries very heavy. The coldness of the ground, the result of the weather

experienced six weeks ago, has been responsible for late blooming of Strawberries, and very probably a much heavier crop will be the outcome of the check.—E. BURRELL, *Claremont, Surrey.*

FERTILITY IN "EXHAUSTED" SOIL.

ONE of the most interesting questions to the fruit grower is whether additional fertilisers are needed in bearing orchards to make them more productive. That trees whose cultivation and manuring have been long neglected cease to produce fruit, and that when they have both of these restored the trees become productive again, are facts of common observation. It has consequently been assumed, perhaps too hastily, that the soil had become exhausted, and only needed additional fertilisers, in available form, to make the trees growing on it as productive as they ever were. This seems to be the view of W. T. Mann, of Barkers, N.Y., who writes in "Green's Fruit Grower" the result of an experiment on this subject which was entirely opposed to what he supposed it would be.

The trees were planted in 1874. Peach trees were also planted in alternation, with the expectation that until the time the Peach trees were done bearing, the Apple trees would have all the room they required. But the Peach trees soon died with the yellows, and for a number of years the orchard received very little cultivation and no manuring. Under these conditions it produced nothing. Mr. Mann says the land on which this orchard was planted was so badly run down that the last crop of wheat it produced was not worth gathering. In this view we think Mr. Mann is mistaken. There is a great deal of fertility in soil which has become too much exhausted to grow wheat whose roots do not reach far, and which cannot gather the mineral elements that are required for a good wheat crop. Analysis always shows, on clay lands especially, that soils which have seemed to be entirely exhausted, as judged by their crops, have yet a great amount of plant food which it only requires time and cultivation to develop. If left long enough, Nature, through the operations of frost, snow, rains, dews and air, will disintegrate the soil so that more of its fertility becomes available. A few years running wild will do this. It is the method commonly adopted by Southern cotton planters after their fields have been exhausted.

About 1894 this long-neglected orchard was thoroughly tilled and sprayed. The crop was a light one, for what there was had only been made possible during the long previous neglect. In 1895 experiments with fertilisers began. This was the first application of either farm manure or chemical fertilisers to the orchard since it had been planted. Muriate of potash, 80 to 85 per cent., was applied at the rate of 200 lb. per acre to four rows of Baldwins, and omitted from the fifth row. A similar test was made on Mann Apples. No effects of the fertiliser were observed. The Baldwin and Mann Apples gave light crops, while the Greenings were overloaded. In 1896 the tests were repeated, adding 100 lb. of ground bone on a part of the orchard, with 150 lb. of the muriate of potash per acre. That year both Baldwins and Greenings gave large crops, and the trees were overloaded, so that they had to be propped up. The Manns gave a fair crop. In 1897 the tests were repeated, but the fertilisation apparently made no difference. The Greenings and Manns gave fair crops, and the Baldwins none.

From these facts, Mr. Mann's conclusions are that the mineral manuring did no good whatever, and that even the long-exhausted soil contained enough of potash and phosphate to make the crops of Apples secured in 1895 and 1896. The latter year was in all the country so prolific in Apple yields that trees everywhere bore without much regard to conditions, if their foliage had not been destroyed the previous year. This large yield possibly made the trees unable to bear so large a crop in 1897, but even then the Greening

and Mann Apples gave fair crops. The soil varied in different parts of the orchard from sandy loam to clay. We should like to ask Mr. Mann if the Baldwin Apples, which in each year, save 1896, gave the poorest crop, were not on the sandy part of the orchard. If they were, it would confirm our diagnosis of the case.

Apparently Mr. Mann has the past three years used up in these Apple crops a part of the reserve fertility which always remains in all soils, even after they have been seemingly exhausted of all mineral plant food. There is much more of this reserve fertility on clay soils, which as vegetable matter decreases are apt to bake into clods, which roots cannot penetrate. In sandy soil there is less storing up of fertility, as roots can go nearly everywhere. Yet in sand, mineral manures, especially potash and phosphate, are apt to revert and become insoluble. But in winter frost breaks down the clay clods, and even in the sand it every spring sets free a little of the potash and phosphate which it contains. This in two or three years makes the soil fertile enough to be cropped again. After so long a rest as Mr. Mann's orchard had there was enough potash and phosphate to make two or three good to fair crops of Apples. But if potash and phosphate had been applied when the orchard was first abandoned and good yearly cultivation had been given, it is probable that good crops might have been grown in most of the years since, if the leaves were sprayed to keep the foliage from being blighted.

Most of the Apple crop and also of the wool growth is taken from the air through the leaves. All that will burn is carbonaceous. Only the ash is mineral. But it must be remembered that such applications of potash and phosphate as Mr. Mann gave are too small to entirely supply a large crop of any kind of fruit. The entire supply in any soil of potash and phosphate is never exhausted, though there will be more needed in poor soils than thorough cultivation can make available. There is one advantage in applying these fertilisers, that, unlike nitrogenous manures, they are very unlikely to leach from the soil. Once there, some of them can always be made available each year by good cultivation, and thus lessen the amount which must be yearly applied to make good Apple crops.—*American Cultivator.*

VINE LEAVES UNHEALTHY.

COULD you kindly tell me the cause of apparent disease on Vine leaves? The Vines were not dressed when in a dormant state. They have been well syringed morn and eve up to the time of flowering. The borders were dressed with slaughter-house manure. The berries are now stoning and the Vines seem to grow vigorously. The variety most attacked is Black Hamburg. Foster's Seedling, Madresfield Court, Muscat of Alexandria, and Mill Hill Hamburg are in the same house. Air has been admitted on all favourable occasions. There is a quantity of air roots upon the rods, some about 6 inches in length. The Vines, which are about six years old, are carrying a fair crop.—T. H.

* * * After a close examination of the leaf sent, I have arrived at the conclusion that it is not affected by disease, and, though not in a perfectly healthy condition, it is well developed, thick in texture, and dark green in colour. There is a warty appearance, or a conglomeration of small green excrescences, on the under-side of the leaf, and this may to a certain extent interfere with its functions, but I should say "T. H." has little to fear from its effects generally. This occurrence is most noticeable in the case of thick-leaved varieties of Grapes, notably Black Hamburg and Gros Colman, and in some positions, or during some seasons, is difficult to prevent. Experts are of opinion that these abnormal swellings, and which are frequently more pronounced than in the case under notice, are caused by the maintenance of too much moisture in the atmosphere, coupled with faulty ventilation. It is

rushes of cold air that do the most harm, and these can usually be prevented by careful ventilation. Instead of waiting till the sun has run up the temperature 10°, 15°, and not unfrequently 20° before admitting air, the top ventilators should be opened slightly soon after the sun shines on the house, gradually opening them sufficiently wide to keep the temperature in the house to the desired height. It will be found that early opening obviates the necessity for excessive ventilation during the rest of the day, the atmosphere being different or more congenial than is the case when much cold air, with its accompanying rush, has of necessity to be admitted owing to opening the house too late. Up to the present time there has been no necessity for opening front ventilators—at any rate, in all well-constructed houses, and in my case they will not be opened in May. Rushes of cold front air sometimes bring on an attack of mildew as well as other evils. “T. H.” may not have erred greatly in the matter of early and sensible ventilation, but according to his own showing the Vines under his charge have been subjected to rather more heat and moisture than are good for them, as shown by the adventitious or air roots on the rods. If we treat Vines like Cucumbers they will push out air roots, especially if they are rooting in a cold outside border, and, in addition, are forced early. A moist, stagnant atmosphere is not good for Vines, while the other extreme—a dry, arid atmosphere—is equally injurious, this being particularly favourable to the spread of red spider. It is the happy medium that “T. H.” and all other growers should strive to maintain, and fewer partial failures would then be heard of.—W. I.

Pear Pitmaston Duchess.—This fine Pear is no doubt destined to play an important part in the future as a market kind. As it is, great numbers of trees have, I believe, been already planted with the view of supplying the market, but there is yet an abundance of room for further enterprise in this direction. It is such a free-fruited variety, and the tree succeeds so well either as a bush or pyramid, that it may be planted without much fear as to results. Low and high standards are also to be had, and although one would naturally pause before deciding to plant many of the latter, on account of the fruits weighing down the branches, I consider it to be worth the trial. With regard to the produce, there never need be any fear of difficulty arising as to its disposal, as size alone would secure a ready sale for the fruit, whether offered in the open market or privately to fruiterers. Although not equal in point of flavour to Marie Louise and several others, it is superior to many, and when ripe the bright golden yellow fruits are very beautiful. There is many a tract of land in our fruit-producing counties now carrying Pear trees of indifferent, and in many cases worthless, varieties which might be turned to better account. If the owners of such would plant a fair number of trees of this Pear, if only as an experiment, I venture to think they would find it a profitable investment.—A. W.

Vines at Chiswick.—When recently looking through the Royal Horticultural Society's garden at Chiswick I observed one or two things connected with Vines that seemed to be very interesting. First, there is the fine Cannon Hall-like sport from a spur on one of the long rods on the Muscat of Alexandria Vine on the right-hand side of the great vinery and just within the west entrance. Already the two laterals that have broken show strength fully double that seen on any other lateral growths on the Vine. There is every probability that the setting qualities of the sport will be more fully evidenced this season, as two good bunches may result. So far with small bunches setting has been excellent. A few eyes from this sport have already been struck. In the old orchard house near the entrance to the gardens, and where now Muscat of Alexandria Vines hold sway, there is again this year a marked difference between the

bunch shows on the downward rods and those which are trained flatwise on wires across the centre of the house. In the former case the shows are capital, those at the extremities and just over the pipes being very fine. Those on the flat or level rods in the centre are at the best but of moderate size. It is here quite evident that Muscat wood needs ample light and air to mature it, and must be near the glass for that purpose; also that ample warmth from pipes is highly conducive to wood formation, to plumping of eyes, and to the production of fine bunches. In the long corridor house where two years ago the supplementary rods on the Vines—chiefly Gros Colman—were brought down and pegged into the soil and thus rooted, the effect is now most marked, as the lateral growth is in every case much stronger than are the growths on rods going direct from the old stems and which could not be layered.—A. D.

GRAPE VINES ON OPEN WALLS OR BUILDINGS.

For covering walls we have few more useful climbers than the Vine, as its beautiful tints in the autumn make it an especial favourite. The Grape in many parts of the country may be grown to a fine state of perfection. Only last autumn, in the western part of the country, I saw some splendid fruit of the Esperione variety on a trellis used as an entrance to the house, and it was pleasing to see the health of the Vines and the excellent condition of the fruit, as this had been thinned and was above the usual size. Years ago more attention was paid to the Vine in the open, and it was surprising the crops such Vines gave. As a boy I can well remember the bunches being gathered in large baskets, and should the season be unfavourable, the fruit was valuable, as it made excellent wine. The Vine I refer to was the Royal Muscadine, which covered a large space on a west and south-west aspect. Only last year on an east wall I had Royal Muscadine ripen well. Crowding of the shoots is one of the principal causes of failure; it is impossible for the fruit to mature with a thicket of wood. If new wood can be laid in yearly there will be good fruit. The wood must have space to develop, as if at all crowded it is impossible to ripen the wood for another season. It is an excellent plan to grow the Vine on the long rod system if the position is a favourable one—that is, taking up new rods yearly and removing old ones. It is not usually carried out, but is well worth adopting by those who wish to grow for fruit and not leaves only. Weak shoots should be spurred hard back to one eye, and in many cases it would be well to cut out a goodly number of old spurs altogether, as these crowd the Vine and prevent the sun reaching the fruit. The removal of spurs where placed too thickly is often overlooked; in fact, in many cases the plants are so overburdened with top growth that the fruit has no chance at all. If thinned out, those left will be strengthened and next year bear fruiting wood. No matter how the Vines are trained, it is well to lay in young wood whenever obtainable, and in the case of old Vines on buildings, at times it is difficult to get new wood from the base, but it can always be secured at higher points and made good use of. Another thing worthy of note is summer stopping. How often is this neglected; whereas it should be done as early as possible and the growths stopped at the first or second joint beyond the bunch, stopping others close back to the Vine where at all thick or where two or three shoots proceed from one branch. I am aware the plants often suffer from mildew, but this is frequently caused by the foliage being too dense. Now is a good time to stop mildew, well covering the Vines with sulphur and Gishurst or other insecticide. Those who wish to grow Vines on a low wall may do so if they adopt the cordon mode of culture, as strong rods will furnish Grapes freely. The spur system of pruning will be the simplest, but I would advise double cordons, removing an old cane occasionally, running up new ones, or, if

single cordons, taking up a new cane from a lower bud and in time cutting out the older one. For cordon culture, Miller's Black is an excellent variety, but the Black Esperione is earlier and an abundant bearer. Foster's Seedling does well on a south wall, but is later than Muscadine. In unfavourable seasons it is important to grow those that mature early. Old Vines well repay copious supplies of liquid manure when the Grapes are set and a mulch of rich food when the roots can be got at. G. W. S.

APPLE ECKLINVILLE SEEDLING.

MANY condemn Ecklinville Seedling as a market Apple, giving as their reason for so doing that it is too soft, especially if the fruit has to be sent any distance. There is, of course, a certain amount of truth in the assertion, but at the same time it is a difficulty that is not insurmountable, as, after all, it depends a great deal on the time at which the fruit is gathered. A great many people err in allowing the fruits to hang and become mellow, or nearly so, when, of course, they are then very soft-fleshed and as difficult to deal with as very ripe samples of Lord Suffield, and are in consequence quite unfit for despatching long distances or to send to market. On the other hand, if the gathering is done some ten days or a fortnight before they would mature if allowed to remain on the tree; the flesh is then firm, and if packed with ordinary care they will not take the slightest harm, however long the distance may be. Last autumn I had occasion to send away a large quantity of this particular variety by rail. They were gathered as indicated above, and packed much in the same manner as the Americans pack and send their fruit to this country. They had to travel a long distance, but they reached their destination in splendid condition and gave great satisfaction. It should, perhaps, be mentioned that this slightly premature gathering does not in the least affect the good qualities of the fruit, while it is an easy way of overcoming the only drawback belonging to this fine Apple when grown expressly for market. When sent to market in the right condition, the grower secures a good and satisfactory return for his produce; in fact, it is a most profitable kind to grow for this purpose. The large and symmetrically-formed fruits are more easily and economically packed than is the case with many other varieties, as they fit so close together that very little space is wasted. When the packing is properly done and the package made secure by the tying down of the lid, it is almost impossible for the fruits to move out of place.

Ecklinville Seedling is a great bearer, and it is so accommodating that it may be grown either as a bush, pyramid, or standard with equal success. A well-laden standard presents a fine picture in the late summer or early autumn months, particularly when the summer has been marked by an abundance of sunshine. The fruits then colour to perfection, their clear yellow skins—with the rather large russet dots peculiar to the variety—being flushed with red on the sunny side. In an ordinary way the fruits may be pronounced as being handsome, for, although minus the flushed cheek, they always command attention. It is not a long-keeping Apple, but for cooking it is excellent. To sum up, Ecklinville is a valuable kind both for private use and market, and those who do not already possess it would do well if they added it to their collections when planting time again comes round. A. W.

Strawberry Royal Sovereign.—To Mr. Norman, of Hatfield House Gardens, is due the credit of having produced the finest fruits of this most popular variety yet seen. Nothing shown at the Drill Hall on the 10th attracted so much attention. Generally the fruits were twice, and some even three times, larger than are the average fruits of Royal Sovereign, many weighing two ounces each. In spite of their great size they were very solid and excellently flavoured; indeed, they showed that, so far as the variety is con-

cerned, size and quality could co-exist. Mr. Norman invariably grows some 6000 plants in pots, using 6-inch pots for fruiting in. He also relies absolutely upon plants put out specially for the purpose, and from which the blooms have been pinched, to give runners. These, after layering into pots, are well watered, as securing roots quickly is an important element in culture, and at no time afterwards are the plants permitted to suffer from drought. When potting is done, fully one-third of each pot is filled with rubble drainage. The soil used is almost exclusively turfy loam that is almost fresh, an admixture of soot only being given. Potting is very firm. Each plant carries from 8 to 10 fruits. The main body of plant's is wintered out-doors, but if excessive rain comes they are laid on their sides. As the fruit is swelling some artificial manures of home mixing are applied, and the fruits ripen in a comparatively low temperature close to the glass.—A. D.

— Often have we seen mentioned the good qualities of Royal Sovereign. When I visited the gardens at Gorddigon (the seat of Col. Platr) on April 23 I was surprised at the heavy crop and immense size of this Strawberry. The plants carried on an average fourteen fruits each, some ready for gathering. Upon inquiring about the weight of the largest, I was surprised when Mr. Coates, the gardener, informed me it only required thirteen of them to make a pound. It would be interesting if Mr. Coates would give us his mode of culture.—VISITOR.

GRAPE COOPER'S BLACK.

BEFORE I had an opportunity of growing the two varieties in the same house together my impression was that Cooper's Black was another name for Gros Maroc. That, I believe, is the almost general opinion, and which only a limited number of growers do not agree with. Having once ventured to express this view of the case, Mr. D. Thomson very kindly sent me eyes of what he considered the true Cooper's Black from Drumlanrig, and these were established on rods of Black Hamburgh by the method known as bottle-grafting. The wood I received was very strong, but well ripened, and the rods that formed the first season were equally stout and firm. Bunches were freely produced, two or three showing on most of the breaks, and a moderately heavy crop was borne the first season. I soon saw that the bunches of Cooper's Black would surpass those of Gros Maroc, more especially as regards length and form. The bunches of Gros Maroc are in most cases "dumpy" in appearance, whereas those of Cooper's Black are of a good breadth across the shoulders and taper down to a point, as shown in the accompanying illustration. Exhibitors will appreciate this difference at its true worth, and as far as appearance goes no handsomer or more attractive bunches of Grapes will be seen than those of the variety under notice at their best. The berries are large, more oval than round in form, thick skinned, colour superbly, carry a thick bloom, but, unfortunately, are of poor flavour, or neither better nor worse than Gros Maroc. It is my belief that Cooper's Black is grown in some gardens as the true Gros Maroc, and also, owing to the too-much-alike character of the two forms, they will never be separated, all being grown as Gros Maroc.

In some vineries where Gros Maroc is grown on its own roots and pruned nearly or quite as closely as are Black Hamburgh rods, too few bunches are produced, and these smaller than desirable. The first Vine I planted of it failed to start properly—a common occurrence I have since learnt—and, wanting bunches the next season, two short lengths of matured wood were inarched on to Black Hamburgh Vines. As it happened, this was the best thing I could have done, and, by adopting the long-rod system of

pruning and training, a short supply of bunches was never noticeable during the years those vineries were under my charge. The same line of treatment was adopted with Cooper's Black, and it answered remarkably well. No Grape is more easily coloured, and if only the quality could be brought up to the level of that of the Black Hamburgh, it would be classed as one of the grandest varieties in cultivation. The only instance known to me of Gros Maroc, or what passes as such, being really good to eat was in the case of a crop obtained from rods inarched on Foster's Seedling in one of the vineries at Hindlip in the late Mr. Barker's time. That stock would appear to answer well as far as improving the quality is concerned, but the bunches that I saw were on the small side. Unlike that other large-berried Grape Gros Colman, the quality of which is also condemned

ing the advantages and disadvantages peculiar to that variety. The specimen shown in the photograph is from a graft on Gros Colman, and which was procured by Mr. Leslie, Pitcullen House Gardens, from a friend who assured him that it was the true Cooper's Black. Wishing for his own satisfaction to settle this question, he has paid particular attention to these two varieties, but he has failed to find the slightest difference in character between the two. Like Gros Maroc, it is one of our best market Grapes, being easily grown, a free setter, and bearing exceedingly well, although perhaps in the matter of flavour it can only be ranked as second class.

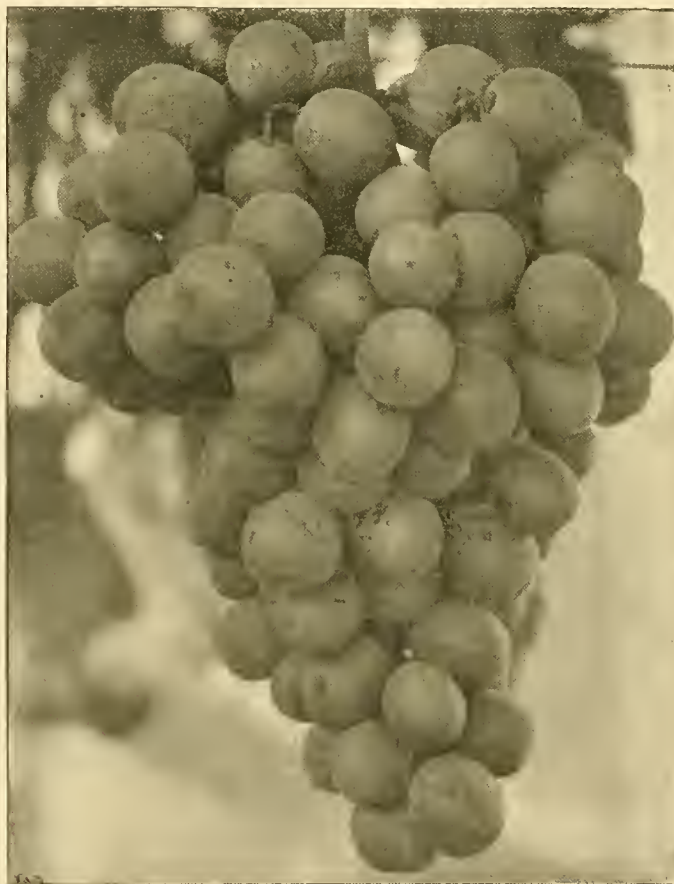
NOTES AND QUESTIONS.—FRUIT.

Fruit prospects.—It is generally believed that the fruit crops will be abundant this season, every fruit tree and bush in the garden under my charge being thickly studded with fruit buds. But for fifteen years past they have been in the same condition. Apples, Gooseberries and Currants are always abundant. All have been lifted and replanted, with the roots well up to keep them above the ground, which cannot be drained properly by reason of its low-lying position. When trees are left untouched their roots speedily get to the sub-soil and decay at once begins.—M. T., Carron, N.B.

The spineless Gooseberry.—Under the heading of "Misleading Descriptions" (p. 92, vol. lii.), I referred to the Gooseberry sent out under the above appellation. I there said that it appeared to be grafted on the Currant. I now find that the stock is the Buffalo Currant (*Ribes aureum*). The plants in question are anything but spineless, being furnished with numerous long and sharp thorns, and they do not excel in the matter of heavy fruiting. What distinctive qualities the flavour of their berries may possess I have yet to learn.—S. W. F.

Apple Gloria Mundi.—Having known this sort for forty years, I am not able to speak in its favour. When grown as a standard, it produces a few perfect fruits, the others being one-sided and very uneven. On the Paradise stock it gives excellent examples, but only a very few of them, while it is true it makes a grand dish of showy fruit for exhibition. I cannot recommend it for general culture, as so many are better in all respects—say, Tower of Glamis, the little-known Belle de Pontoise, Newton Wonder, and Alfriston. On the Continent it is generally called Belle Dubois, and has also found its way here under several other names. King of Tomkins Co. is yet grand in our fruit-room.—GEO. BUNYARD.

Plum Early Prolific.—The crops of this valuable early Plum promise to be unusually heavy this year, the fruit on all forms of tree without exception, whether in gardens or orchards, having set very freely. The blossoming has been one of the most profuse on record, and the trees



Grape Cooper's Black. From a photograph sent by Mr. A. W. Brown, Bellwood Cottage, Perth.

by connoisseurs, the flavour of Gros Maroc or Cooper's Black does not improve by keeping. It is neither better nor worse in October than it is when ripe in August. I have had no experience with either Cooper's Black or Gros Maroc as market Grapes, but have no doubt a limited number of bunches would sell readily enough, say during August and early part of September, but would not be in good demand after well-grown Gros Colman could be had at the same price.—W. IGGULDEN.

Mr. A. W. Brown, who sent us the photo from which the illustration was prepared, in writing of this Grape, says:—

It is the general opinion, in this district at least, that this Grape is identical with Gros Maroc and resembles it in every particular, hav-

—whether as single specimens, in groups, or in their serried ranks in the plantations—formed quite a feature in the landscape for the time being. Unless overtaken by very severe frost they are comparatively safe, as the trees have now developed a great deal of foliage. Early Plums are therefore likely to be very plentiful. Early Prolific is the first to ripen in quantity, and the demand is in consequence always brisk. A. W.

Apple Lamb Abbey Pearmain.—The appreciative note by "S. H. B." as to the merits of this splendid little Apple is well-timed, for any kind that not only keeps firm until now, but retains its delicate flavour, is worthy of inclusion in any collection. At Livermere, where the premier fruits he speaks of were grown, there is still a nice lot of good even samples. The fruits are conical, with a small, deeply-sunk eye, yellowish green, with streaks of crimson on the sunny side. The flesh is pale yellow, of brisk flavour, but sweeter than that of many of the small kinds. There is not the least meanness in the fruit, however, and it is apparently as firm now as when gathered.

Growing Apples for profit.—Some two years ago I had a splendid crop of a bright red Apple of the Dutch Mignonne type, large and of the very best quality. Its season is up to the end of November. Having a big lot I had to sell them, and I sent them to a large seaside town on the south coast at 5s. per sack, the buyer paying carriage. Out of the same orchard I gathered some fine samples of Sturmer Pippin the same autumn. The following March I sold some of these at 8s. a bushel. A thin crop of really good fruit of a kind that will keep till February and March will pay better than a big crop of midseason kinds. Many of our Apples for keeping are gathered far too early. They will stand light frost well enough.—DORSET.

Raspberry Semper Fidelis.—Many growers of the Raspberry like those with a distinct acid flavour for tarts and preserves. The above variety is specially good for the purpose noted, and though not included in many growers' catalogues, it is a first-rate kind, its slightly acid flavour being much liked. In Worcester and adjoining counties Semper Fidelis is a great favourite. This is, I consider, the best preserving Raspberry grown. The newer Superlative runs it hard both for flavour and colour and is a very fine introduction. Still, there is room for both. For field culture Semper Fidelis is an excellent variety, as it may be grown without supports if given ample space. This is a great gain in gardens, and is a point often overlooked.—G. W. S.

Wintering pot Strawberries.—It is very interesting to learn that gardeners from so far south-west as Devonshire and north-east as Livermere Park, Suffolk, should be in entire harmony with Mr. Bowerman, at Hackwood Park, in the matter of storing Strawberry plants plunged in ashes in pots outdoors as the best method for the winter. Bicton is fully 100 miles below Basingstoke, and Livermere Park is much farther than that to the north, and situated in what is invariably a cold district. Thus three such widely-separated gardeners agree that the rough exposure to all weathers, the pots being properly plunged in ashes, is the best method of wintering, because the best results follow. Mr. Tallack does not tell us which varieties he regards as best for forcing, but almost universally Royal Sovereign is admitted to be one of them.—A. D.

Mildew on Vines.—At p. 366 there is a valuable note on the above, and I am in a great measure in sympathy with the writer. At times it is not the fault of the cultivator, but of the house. The grower cannot help old, badly ventilated houses and those needing repair. The weather in the last week of March in this part of the country was such that only in well-glazed houses, waterproof or nearly so, could mildew be avoided, as, no matter how well treated in the way of temperatures, the blizzard found out the

weak spots and mildew was the result. One great evil with many old houses is imperfect ventilation. This is noted at p. 366 as one of the chief causes of mildew. Only this year I saw some splendid pot Vines infested because the joints of the house were so bad, it was impossible to prevent draught cutting the tender foliage during the storm noted. In iron houses, if at all old, mildew is always prevalent, as the sashes warp and twist and the temperatures fluctuate very much. Many vineries in private gardens—I mean old houses—are much too flat, and in such mildew is soon apparent with hard forcing, a cold north-easter finding its way through the laps of the glass or between the sashes. It may be said our predecessors grew Grapes in such houses. Certainly, but in nine cases out of ten they did not force hard, and that is where the evil comes in.—S. H.

Green Gooseberries.—Green Gooseberries and Whit Sunday are somehow or other associated together by country people, and one often hears the matter debated as to whether the berries will or will not be ready for use by the time the above-named festival falls due. Those who are in the habit of looking forward to having their first Gooseberry tart on Whit Sunday will not be disappointed this year, as the berries are growing apace, and those on the early kinds will be of a good size by that time. The fruit has without exception set very freely, too much so for the bushes to be able to carry the crop through to maturity. The sooner, therefore, gathering is commenced the better for the remainder of the berries, whether they are to be gathered in a green state or to be left to mature. When grown for market the bushes will experience speedy relief once the berries are sufficiently large enough for gathering, but in many private places the process is much more slow. Still, much may be done to relieve heavily-laden trees by taking the most forward of the fruits for tart-making, bottling, and last, but not least, for preserving. With regard to the latter, opinions vary, but there are a great many people who prefer to use the fruit while green for this purpose. So far the bushes are very clean, and there is not the slightest sign of caterpillar, while growth is being rapidly made under the influence of the warm rains and sunshine of the past few days.—A. W.

Pear trees unfruitful.—I have some Pear trees which are thickly covered with short spurs, but of which the immensely larger number produce only leaves. Would you kindly say whether it would be advisable to prune off a good number of these leaf-spurs? The trees are a mass of foliage, with four or five spurs of fruit-blooms at most. The Pears are of good kinds.—JERSEY.

* * Thinning out the spurs would probably meet the case, but I should prefer reducing the number of branches. Not till more sun and light can reach the interior of the trees will any great quantity of good fruit be produced, pyramid and bush trees, such as I presume "Jersey's" trees are, resembling standards in this respect. Every branch ought to stand out straight and clear of its neighbours, allowing them to form in such numbers as to practically smother each other having anything but satisfactory results. Branches may safely be cut out at the present time, inexperienced operators really forming a better idea of the number that should be retained with advantage when the pruning is done while yet the trees are in full leaf. Admitting sunshine to the reserved branches will have the effect of strengthening and developing fruit spurs, which are rarely too freely produced on garden trees. "Jersey" should carry out his idea of thinning out the spurs on some of the trees, and adopt my suggestion of reducing the number of branches on others, in particular removing those crossing each other, and be governed in the future by results. It is just possible "Jersey" is referring to wall trees. Wall trees sometimes behave somewhat as he describes when grown in a position where little or no sunshine can reach them. They will occasion-

ally produce crops of fruit under such conditions, but more often than not very few fruiting spurs develop.—W. I.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

MAY 11.

THE summer exhibition of this society was favoured by fine weather, and the exhibits arranged in the large tent on the undulating banks displayed the various groups to the best possible advantage. The pot Roses from Messrs. G. Jackman and Son, Woking, were well grown and splendidly flowered. Similar exhibits from Mr. Rumsey and Messrs. Wm. Paul and Son, Waltham Cross, were also excellent. The Tulips from Messrs. Barr represented all sections of this gorgeous flower in season. A group of Rose Crimson Rambler from Mr. H. B. May, Edmon-ton, interspersed with Acers and Spiræas, was very effective, while Japan Maples from John Waterer, Bagshot, were in their many forms very interesting. Mr. Turner's Azaleas were well grown; Messrs. Peed's Caladiums and Dracenas also excellent, the former especially so. A similar remark applies to the mixed group from Messrs. John Laing and Sons. Orchids and Clivias from Williams and Son, Holloway, were varied. The vegetables from Mrs. Wingfield formed quite a unique exhibit for the season, difficult to equal. Hardy flowers from Tottenham were pleasing in their charming variety. The floral designs from Forest Hill and Holloway showed much originality.

Mr. W. Rumsey received first prize for a charming group of Roses, embracing pot plants and cut blooms, Mrs. W. Rumsey, the new pink, being in fine condition. Other good kinds were Claire Jacquier, a lovely climbing sort, apricot shaded with yellow; Souvenir d'un Ami, very fine, lovely pink flowers; La France, grand and full; Senateur Vaisse, fine; and Mme. Montet being among the best. The ten specimen plants for which Messrs. Jackman and Son, Woking, obtained first prize in Class two were excellent, many of them 4 feet through and splendidly flowered. La France was a grand plant, covered with splendidly coloured blooms of fine size; Celine Forestier, Crimson Rambler, Mme. Lacharme, Senateur Vaisse, Magna Charta, and others completing a fine exhibit, uniform in size and well flowered throughout. For twenty-four zonal Pelargoniums in pots Messrs. A. Young and Co. were awarded first prize for King of Denmark, a richly coloured salmon-pink, with splendid trusses of large size. For twenty-four trusses of zonal Pelargoniums, Messrs. Young and Co., Stevenage, obtained second prize with good trusses of King of Denmark. For twenty-four blooms of cut Roses, Mr. G. Mount, Canterbury, obtained first prize, his best being La France, Catherine Mermet, Caroline Testout, Mrs. John Laing, Prince Arthur, Ulrich Brunner, and General Jacqueminot. Mr. W. Rumsey, Waltham Cross, secured the second prize with handsome blooms of Duchess of Albany, Safrano, Prince Arthur, Alfred Colomb, Alba rosea, Maréchal Niel, Ethel Brownlow, and others. For a group of Orchids, Mr. G. Cragg, gardener to Mr. W. Walker, Winchmore Hill, obtained first prize with a beautiful lot of useful plants, consisting of Odontoglossum crispum, O. Pescatorei, Cattleya Schroederae, C. citrina, C. Aclandiae, Dendrobium thrysiflorum, Odontoglossum Halli, Oncidium Marshallianum, Lelia grandis tenebrosa, &c., interspersed with small Palms.

MISCELLANEOUS.

The Roses from Messrs. Wm. Paul and Son, Waltham Cross, arranged in a half circular group, were also a fine lot. The blooms of Maréchal Niel were splendid; La France, Empress Alexandra of Russia (a lovely buff-apricot, tinted with carmine-rose), Souvenir d'un Ami, and Augustine Guinoiseau were excellent, other good kinds

being *Triomphe de Caen*, *Jeannie Dickson*, Duke of Edinburgh, Danmark (a full pink), *La France*, *Enchantress*, *Violette Bouyer* (a nearly pure white), *Duke of York*, and *Jean Ducher*. Another fine lot of cut Roses was that from Mr. G. Mount, of Canterbury. Here Catherine Mermet, Mrs. John Laing, *Maréchal Niel*, *La France*, *Marie Fioyer*, *The Bride*, and *Niphotos* were very fine. Messrs. T. Rivers and Sons, Sawbridgeworth, had a splendid exhibit of their new *Nectarine Cardinal*, the plants each carrying a score of splendid fruits. There were some fifteen of these plants, all splendidly fruited, and forming one of the chief attractions of the show. Ripe fruits of the same variety were also shown in baskets. The Japan Maples from Mr. John Waterer, Bagshot, were a unique lot, the plants numerous and grown in quite small pots, which at once demonstrated their value for the table. All the leading kinds were shown, and displayed a wonderful diversity of form and colour. Mr. Chas. Turner, Royal Nurseries, Slough, brought a fine batch of *Azalea indica* in variety, also *Princess May Carnation*. Of the former, *Dryad*, *Anna Klein*, *Fritz Seidel*, and *Louise Cavelier* were grand whites; Mrs. Turner is a lovely pink; *Marie Verveane*, white, flaked scarlet; *La Printemps*, scarlet-crimson. Many of the plants were of specimen size, and well grown and flowered. Mrs. Abbott, South Villa, Regent's Park (gardener, Mr. Kelf), showed a mixed lot of Palms, *Crotons*, *Dracenas*, *Gloxinias*, and *Lilium Harrisii*. These were tastefully arranged, and margined with Ferns and Grasses, had a good effect. A group of *Rose Crimson Rambler*, set in a groundwork of Ferns and relieved by well-grown *Spiræas* and *Acer Negundo* fol. var., was extremely attractive, everything being disposed to the best possible advantage. Some *Hydrangeas* and *Begonia Gloire de Lorraine* were also included in this pretty group, which came from Mr. H. B. May, of Edmonton. Messrs. B. S. Williams and Son, Upper Holloway, contributed a fine bank of Orchids and *Clivias* of more than ordinary interest, the plants well flowered and in endless variety. Among the Orchids were fine examples of *Cattleya Mendeli*, *Odontoglossum crispum* in charming variety, *O. Pescatorei*, *O. cirrhosum*, *O. Ruckerianum*, *Calanthe veratrifolia*, *Vanda tricolor*, *Calanthe Sanderiana*, *Cypripedium grande*, &c. This handsome lot was flanked with groups of *Anthuriums* and *Clivias* on each side, with Palms and Lilacs as a background, and here and there relieved by *Begonias*, *Azalea mollis*, *Cannas*, *Ericas*, and such like, a margin being formed with *Maiden-hair* and other Ferns. Messrs. Wm. Cutbush and Sons, Highgate, staged a fine mixed group of Palms, Heaths in considerable variety, *Azalea mollis*, *Malmaison Carnations*—especially *Princess of Wales*, a lovely full pink of the finest size, and most profusely flowered—*Boronia heterophylla*, *Hydrangeas*, fruiting Oranges in pots, *Acers*, Palms, and the like, forming a remarkable exhibit of greenhouse flowering plants at this season. The Forest Hill group, from Messrs. J. Laing and Sons, was tastefully disposed, the flowering plants in this group rendering it most attractive. Particularly noteworthy were the finely-flowered *Gloxinias* and *Begonias*, both single and double representing the latter, and these of fine form and distinct colour. *Caladiums* and *Dracenas* were also a great attraction, the *Crotons* and Palms here and there adding a charm to an attractive group. The handsome Palms in the background told in a most effective manner in this group, which is one of the best we have noted for some time past. Messrs. J. Peed and Sons, Roupell Park, staged a grand lot of *Caladiums* and *Dracenas*, the former especially good and well grown. The *Dracenas* were also a most effective lot, the plants of good useful size, and in the leading kinds now in commerce. *Alexandra*, *Frederici*, *Mme. Bergman* and *Salmonia* were among the most distinct. Messrs. Barr and Sons, Long Ditton and Covent Garden, had a magnificent bank of Tulips, representing the several sections of these gay flowers, the self-

coloured kinds being particularly striking. A few of the most telling were *Fairy Queen*, *May Queen*, *Queen of Roses*, *The Shah*, *The Sultan*, *Coquette*, *Salmon King*, *Dorothy* and *Phyllis*; other good kinds were *Picotée*, *Maculata*, *Macrosiph*, *Bouton d'Or* and *Golden Eagle*. At one end a variety of hardy plants, including *Erythroniums*, *Spanish Irises*, *Narcissus poeticus*, *poetarum*, *Orchids*, *alpine Phloxes*, *Cheiranthus Marshalli*, and *Flag Irises* were shown, constituting a most interesting display. A mixed bank of hardy plants also came from Mr. T. S. Ware, Tottenham, among which were *Mertensia virginica*, *Ranunculus speciosus* pl., *Tulipa Greigi*, *Aubrietias*, *double yellow Wallflowers*, *Trollius*, *Trillium grandiflorum*, *Darlingtonia californica* in flower, *Iris lupina* (with glossy back falls, feathered at the tip with lighter shade), *Iris missouriensis*, *Orchis fusca*, &c. Messrs. J. Peed and Sons also had blooms of *Begonias* and *Gloxinias* in boxes, representing a fine and varied strain of these showy greenhouse flowers. Messrs. A. W. Young and Co., Stevenage, had a mixed arrangement of hardy plants.

Floral designs and dinner-table decorations were shown by Messrs. B. S. Williams and Sons, baskets of handsome *Roses*, on stems 2 feet to 3 feet long, being superb. Bouquets of *Odontoglossum*, *Lily of the Valley*, and white *Roses* had only *Asparagus* to relieve them, and the effect was charming. An arrangement of *Odontoglossum* and *Pink Malmaison Carnation* was good, while a showier bouquet wholly of scarlet *Pelargoniums* and *Anthuriums* was very striking. A basket of *Spanish Irises* and long white *Lilies*, with *Smilax* over the handle, was also fine. A table of yellow *Spanish Irises*, with *Grass* and *Pheasant's-eye Narcissus*, was arranged by Mr. J. Prewett, 11, Lancaster Street, Bayswater, a third exhibit in this way coming from Messrs. Laiog, of Forest Hill. Baskets of white *Pelargoniums*, *Spanish Irises*, and white *Lilies* were effective. Bouquets of *Roses* and *Lily of the Valley*, and a horse-shoe design of white *Roses*, *Lily of the Valley*, and *Gardenias*, set in a groundwork of scarlet *Pelargoniums*, were also shown.

The vegetables from Mrs. Wingfield, Amptill House, were a really fine exhibit and comprised everything possible for the season of the year, such as *Leeks*, *Rhubarb*, *Cabbages*, *Radishes* in great variety, *Onions*, *Carrots*, *Tomatoes*, *Cucumbers*, *French Beans*, *Mushrooms*, *Potatoes*, *Broccoli*, *Seakale*, *Asparagus*, and *Peas*. *Apples*, *Bananas*, and *Strawberry Royal Sovereign* were also included.

THE ALEXANDRA PALACE.

MAY 18, 19, 20.

THERE is no building in London so well adapted for a flower show as the spacious concert hall here. It is roomy, well lighted, and everything is seen to the best advantage. It is regarded by some of the leading exhibitors on this occasion as an ideal horticultural hall, and were it in the centre of London instead of on its northern extremity it would supply a pressing want. The exhibition held on this occasion might be considered as an experimental one. The directors feel that some extra attraction is necessary, and, having regard to the marvellous growth of population on this side of London, they think the time is favourable to the revival of flower shows in the district. Should the success of this venture be commensurate with the wishes of the directors, it is possible that a *Rose*, a *Dahlia*, and a fruit and vegetable show may be arranged during the present season.

Along under the arched roof of the hall was arranged a very fine circular group of miscellaneous flowering and fine-foliage plants from Messrs. J. Peed and Sons, nurserymen, Lower Norwood, which was awarded the first prize in class 1; also at the opposite extremity an equally fine group from Messrs. W. Cutbush and Sons, nurserymen, Highgate, which, not competing in any class, was awarded a large gold medal. Be-

tween these two was a group of remarkably fine Orchids from Mr. Geo. Craggs, gardener to Mr. W. C. Walker, Percy Lodge, Winchmore Hill, rich in *Lælias*, *Cattleyas*, *Oncidiums*, *Odontoglossums*, &c., some beautiful varieties of *Odontoglossum Alexandræ*, and a large flowered form of *Oncidium Marshallianum* being especially striking. This was deservedly awarded a first prize. Mr. Mr. L. H. Calcutt, Fernbank Nursery, had near this a table of charming floral decorations, vases, bouquets, and other designs of great beauty: this was awarded a gold medal. Mr. Amos Perry, Hardy Plant Nursery, Winchmore Hill, took a first prize for a table of cut flowers occupying a space of 60 feet; this contained some charming varieties of *Iris pumila*, also of *Geums*, a rosy-tinted form of *Trillium grandiflorum*, and other specialties in bloom at this season of the year. At the opposite end of the hall in the centre was a group of nine fine-foliaged plants from Messrs. J. Peed and Sons, consisting of *Palms*, *Phormium tenax variegatum*, *Dracenas*, *Crotons*, &c., which was awarded a first prize; and close by a table containing the bouquets, one bride's and two bridesmaids', shown in class fourteen. The first prize went to Messrs. Perkins and Son, nurserymen, Coventry, for a charming arrangement, pale-coloured Orchids predominating; Mr. H. O. Garford was second, and Mr. L. H. Calcutt third. At the sides, Mr. S. Mortimer, Swiss Nursery, Farnham, had some boxes of *Cucumbers* and *Tomatoes* of high quality, and was awarded a gold medal. Messrs. Edwards and Son, Sherwood, Nottingham, had a table of their pretty arrangements in Ferns. Mr. Thos. S. Ware, Hale Farm Nurseries, Tottenham, had a very large table filled with seasonable hardy plants in pots and pans, and was awarded a gold medal. Mr. J. Williams, Oxford Road, Ealing, sent new designs in flower-holders with chaste arrangements of flowers, and was given a silver medal. Messrs. Paul and Son, Old Nurseries, Chess-hunt, showed cut flowers, occupying a space of 120 feet, *Azalea mollis*, *Tulips*, *Rhododendrons*, *Pæonies*, *Saxifrages*, &c., predominating. To this a first prize was given. The same award was made to Mr. George Mount, nurseryman, Canterbury, in two classes for cut *Roses*, one for twenty-four and the other for twelve blooms. The leading varieties were *Caroline Testout*, Mrs. John Laing, *Prince Arthur*, *Ulrich Bunner*, *Catherine Mermet*, *La France*, *Perle du Jardins*, *General Jacqueminot*, *Anna Olivier*, *Merveille de Lyon* and *Niphotos*.

A collection of Cacti from Mr. H. G. Bowne, High Road, New Southgate, attracted much attention from the singular character of many of the specimens, and it was deservedly awarded a silver-gilt medal.

Messrs. W. Wood and Son, Wood Green, had an imposing stand of horticultural requisites, which attracted much attention. The Ichthemic Guano Company also had a stand of their manures, &c., and there was also a stand from the Lawes Chemical Manure Company.

Flower show in Paris.—The annual flower show of the Société Nationale d'Horticulture de France was opened on May 17 under a spacious structure in the Jardin des Tuileries. In spite of the dull and cold weather the display was marvellous and the attendance enormous.

Grubs in soil.—On two large borders in my garden there are a great many grub worms, each about 2 inches long and as thick as an ordinary quill pen, which have practically destroyed about 2000 *Strawberry* plants, both young and old. I think they must have come from some manure which was put upon the borders some months ago. I should be extremely obliged for your advice as to the best means of getting rid of these pests, which are present in thousands. I have tried paraffin oil, corrosive sublimate, soft soap, turpentine, and chloride of lime, but the worms are not killed by any of these. The worms lie

about 2 inches below the surface, except at night, when they come out to feed.—P. A. SIMPSON.

From your description it is impossible to do more than guess at what insect is attacking your plants, but I expect from what you say that the culprits are the caterpillars of the common dart moth (*Agrotis segetum*). It is very difficult to kill any insect when it is 1 inch or 2 inches below the surface of the ground, as the insecticide loses its strength in passing through the soil, which acts as a filter. A heavy watering with worm soapsuds, so that all the cracks and holes in the earth are filled, is said to bring the caterpillars to the surface at once, or they may be collected by turning up the ground with a small fork or spud. Watering plants with 1 oz. of salt to 1 gallon of water has been found effectual in keeping this insect away, and soot laid thickly on the ground and dug in has been found useful for the same purpose.—G. S. S.

NOTES OF THE WEEK.

Anemone and Scilla.—A rather unusual combination of two white-flowered plants was noted recently at Kew, when the double white Wood Anemone and *Scilla impanulata* alba were growing together, not indiscriminately, but in alternate groups. The two were in flower together and formed a distinctly pretty arrangement.

Saxifraga sarmentosa is a very old garden plant, yet well-nigh unique in its graceful panicle of elegant blossoms. About the rockwork in the conservatory or where slight moisture is obtainable, as in the fernery, this is a capital plant, very pretty in flower and not at all particular in respect to general cultivation when given slight protection.

Polyanthus Black Prince.—This, as the name implies, is one of the darkest of this useful race of spring flowers, and one of the few found deserving of a distinct name at Winchmore Hill. In the same collection another fine kind called Favourite is a remarkably free-flowering variety. This has blossoms of a rich velvet-crimson. Both are singularly free and robust.

Viola cucullata.—This is perhaps one of the largest species of this genus and a plant well suited to semi-moist spots and shady places generally. It is a good plant, in common with its variety alba, for carpeting the ground where such moisture-loving Lilies as *L. pardalinum*, *L. superbum* and *L. canadense* are grown, and in such places it grows and flowers freely.

Rhododendron Princess Alice in the open air.—Herewith I am sending you a box of flowers of Princess Alice *Rhododendron* cut from plants growing in the open air without any protection excepting shelter from the cold winds.—T. TYLER, *The Gardens, Creech Grange, Wareham.*

Neither the foliage nor the flowers could be better in the house.—ED.

Richardia melanoleuca.—This very distinct species was recently noted at Kew in the No. 7 range, and with *R. Elliottiana* near by was bearing good spathes. The former, though now the smallest of the yellow-flowered class, was included among the earliest of this group, the pale yellow shade being intensified by a dark base internally. Elliott's *Calla* is rich in colour, and the spathe also of great substance.

Primula involucreta.—This pretty moisture-loving kind is flowering freely this spring in many gardens, doubtless assisted by the frequent showers during the past few weeks. It is, however, not essentially a moisture-loving species, but likes a good deal of water when ready to begin its spring growth. In shady places where a certain uniform dampness prevails it is generally satisfactory and produces its white-lilac shaded umbels of flowers rather freely.

Schizanthus pinnatus is certainly one of the showiest of plants for the border during summer, and as such well known and appreciated. As a pot plant flowering in the greenhouse in April and May it is not so often seen, yet it is even here serviceable, offering a strikingly distinct piece of colour. The plant is thus grown in some quantity for the decoration of the greenhouses in the Royal Gardens at Kew.

Tulip York and Lancaster.—This showy garden Tulip may have another name besides the

above, which is quite inappropriate when it comes into bloom. At this stage it is red and yellow, instead of, as one would expect, being red and white. The yellow dies off white. It is, however, an effective Tulip with its large red blotched flowers and tall habit. It is valued here, as it may be left from year to year without particular care.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Iris bosniaca.—A lovely and valuable *Iris* of fairly easy culture and flowering in the open ground almost simultaneously with *I. nudicaulis*. Its chief value is in the lovely clear yellow blossoms, that appear on stems each 12 inches or 15 inches long. It is one of M. Leichtlin's introductions and a really useful and valuable plant from a garden point of view. The plant is flowering freely with Messrs. Wallace, of Colchester, just now, where it is a great success.

Rose Crimson Rambler.—What may be accomplished with this free-flowering climber was very well exemplified by Mr. H. B. May, of Edmonton, at the Royal Botanic show last week, where a half-circular bank was covered with small bushes in pots, *Acer Negundo variegatum* and the so-called *Spiraea japonica* being used among the well-flowered bushes to relieve the colouring of the large clusters of Roses. In this way its decorative value was at once seen.

Trillium grandiflorum roseum.—The spotless purity of the Wood Lily needs no improvement when it is well grown and in good condition, for then it is doubtless one of the best, as it is also one of the easiest to manage among the hardy plants of spring. The above plant, however, is a very pretty variety of the type with blossoms of a distinct rose colour. A small batch of it is very promising with Mr. Perry at Winchmore Hill, where side by side with the species it is very charming.

Phlox amœna is one of the showiest of all the alpine Phloxes, a perfect mass of rosy lilac blossoms that completely cover the leaves. Although a dwarf and in some respects a slender plant, this Phlox is one of the hardiest and most free-flowering of all the dwarf kinds, and one particularly well suited to the rock garden or any position where a rich soil is at hand. Unlike many kinds, this frequently flowers in autumn also, and in this way is helpful when most of its class are at rest.

Genista hispanica.—The Spanish Broom is very effective in the rock garden at present. Large bushes are covered with bloom, and are admired even in districts where our common Broom is very abundant. It makes a neat, compact bush and is quite hardy, although at times little dead patches appear on the bushes. These are usually soon covered with the young growth. The Spanish Broom is very easily grown, and in the sun a plant in full bloom is very effective.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Outdoor Camellias.—It may be of interest to your many readers to hear of the hardiness of the Camellia in exposed outdoor positions 450 feet above sea level. I send you a blossom from a tree planted years since in an open north-easterly position, not in a pot, but in a heavy clay soil, and it has always produced a goodly number of blooms. This tree is always in the best of health and vigour.—JAMES EPPS, jun., *Norfolk House, Baulah Hill, Upper Norwood.*

A very good bloom and good foliage.—ED.

Iris pumila from Winchmore Hill.—Mr. Perry, of the Hardy Plant Farm, Winchmore Hill, sends us a collection of *Iris pumila*, a little plant which is perhaps too much neglected as an edging and border plant. His varieties are very strong, and some of them delicate in colour; but we miss among them a certain striking white and purple form, looking like a miniature *Victorine*, which used to be grown in some northern gardens years ago. The yellowish greens are delicate in colour, but such colours should not predominate.

Lithospermum hirtum.—The blue and purple Gronwells are more admired than the species

with yellow flowers, but the latter are welcome in large collections as well. *L. hirtum* is now in flower, and, although it is said to come from the southern United States, is hardy here. It grows about 6 inches high and has orange-yellow flowers. It was introduced upwards of eighty years ago, and has also been known as *Batschia Gmelini*. I grow it here on a level spot in the rock garden with a full south exposure.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Iberis gibraltaria.—Despite the fact that this is the largest and, indeed, also the showiest of the Candytufts, there is ever the fear about losing it in winter. In other words, it is a better biennial than perennial, and in its first year appears to fear neither frost nor cold, but having once flowered, this apparently youthful vigour and hardiness are greatly diminished. For these reasons it is worth raising in limited quantity periodically from seed. Seedlings raised in April or May preferably in the open ground soon make headway and flower grandly when a year old. The seedlings are always vigorous, but cuttings rarely make good patches.

Androsace rotundifolia glandulosa.—This, in so far as its beauty is concerned, is in no wise a second-rate plant. The flowers are rather larger than those of *A. sarmentosa* and of a pink and white shade, the latter predominating. The compact trusses of blossoms are supported on erect scapes, each 4 inches or 5 inches high even in the small plants I have seen, these being covered with a short glandular pubescence. The foliage is between round and reniform, the stems each 2 inches or 3 inches long, which renders it quite distinct from that of other kinds. The plant appears to be of the same easy culture as *A. sarmentosa* and should make a good companion to this kind.

Turban Ranunculus from Waterford.—I have pleasure in sending you some blooms of seedling alpine Auriculas, all raised by myself. I think you will be pleased with some of the pink and crimson shades. You will also find some flowers of Turban Ranunculus. Rev. W. W. FLEMING, *Coofin, Portlaur, Waterford.*

The Persian and other Ranunculi are very fine, and seem to grow better in Ireland than they do in general, no doubt owing to the warmth of the soil. The Auriculas are the usual mixed strains. Nobody seems to pick out self-coloured Auriculas and increase them. When this is done, people will then see how much better the simple and natural colours are than the weak mixtures now grown.—ED.

Acantholimon venustum.—The beautiful example of this rare alpine figured at p. 405 interested me considerably, as it is the finest of its kind I have ever heard of. Some few years since I flowered a very nice plant with upwards of forty of its pretty arching spikes of pink blossoms, and at the present time I have still a nice plant showing about fifty spikes. My former plant was, unfortunately, lost in the great frost of three years or so back, the present plant being a cutting I luckily rooted from the original. At the same time both these are much behind the plant illustrated with sixty-seven spikes. Unlike *A. glumaceum* and some others, the above is difficult to increase and equally difficult to obtain seed of. This is so, notwithstanding its freedom to flower, since every rosette will produce a spike if the plant is in good health. The plant also is a shy seeder, and upon more than one occasion I have tried to fertilise with its own pollen to secure a batch of seed, but without success. Indeed, I have at the present moment batches of supposed seed from the past two or three years' saving, but not a single plant has appeared, and I am still loth to throw away the soil. The chief value of the species is its lateness to flower, the first half of July being about the date, so far as memory serves me, when most alpine flowers and things generally in the rock garden are scarce. Individual flowers of this species do not last long, but the number on each spray is considerable, and in this way a good plant is most effective. It is still to be classed among scarce if not, in-

deed, rare alpine plants, yet not difficult to cultivate where healthy plants are available at the start.—E. J.

Calandrinia Tweediei.—If, as presumed at page 420 of THE GARDEN, this plant is quite hardy in British gardens, it will be an undoubted acquisition to present lists of really good and distinct alpinists. I have, however, some doubts concerning its absolute hardiness, and the past winter has been accompanied with so little both of frost and wet—the chief features of an average British winter—as to be scarcely a test for any new plant. So many of the plants that succumb in our gardens in winter are quite hardy in localities that for actual lowness of temperature and frost are much colder than our own; but, then, these plants usually have the benefit of a deep bed of snow for a long period each year, and here they remain dry, snug, and, above all, quite free from the ever-fluctuating changes that in the British Isles go much farther in destructiveness than any frost we know. It is the complete exposure to these elements that so keenly tests the hardiness of many of our best things. Should this *Calandrinia* prove quite hardy, as I trust it may, it will be welcomed. In the tuft of leaves it is not unlike a small *Statice* for form, yet not possessing the same deep green tint of this plant. In the alpine collection at Kew some plants of this have been flowering late; the blooms of these were a sort of yellow-buff, with bronze edge and whitish base, interesting rather for their novelty than their showy character. From the description at page 420 it would therefore appear a variable plant in colour at least, and from a decorative standpoint of all the more value.—E. J.

BOOKS.

FLOWER FAVOURITES: THEIR LEGENDS, SYMBOLS, AND SIGNIFICANCE.*

This is a type of book that used to be published very much more in the past than now. It seems to be well done, and is a graceful, if not very useful, addition to the garden library. Perhaps it will be news to some that the Rose has a funereal aspect in its symbolism. In mediæval times a bride on her wedding morn would throw some petals into water with the words "Rose de ma jeunesse ne quitte pas ma vieillesse." The place of the Lily in Christian symbolism is well known—the Greeks dedicated it to Juno. The Cowslip is known to the Germans as *Himmelschlüsselchen*, or "Keys of Heaven," and there is a very quaint legend which professes to account for this. To the same people the Anemone is known as the *Windröschen*, or little wild Rose, a name almost as pretty as our *Windflower*. To the Greeks the Anemone was the Bride of the West Wind (*Zephyr*). No one associates Saffron Hill—nowadays one of the dingiest corners of London—with the Saffron Crocus, yet the association was at one time a fact when the Bishop of Ely, of Strawberry fame, had his famous garden in Hatton Garden, and the Saffron Crocus grew in such profusion as to give its name to the quarter above mentioned.

The weather in West Herts.—A cold week, both during the daytime and at night. On no day did the temperature in shade exceed 60°, while on several nights the exposed thermometer indicated readings below the freezing point, and on one of these it showed 4° of frost. The ground is still about 1° below average, both at 2 feet and 1 foot deep. There occurred but one day without some rain; the aggregate fall for the week, however, only amounted to about a quarter of an inch. The sun shone brightly for 7¼ hours a day, which is a good record for a spring month. A Horse Chestnut tree growing in my garden came

* "Flower Favourites: their Legends, Symbols, and Significance." By Lizzie Deas. George Allen, Charing Cross Road.

first into blossom on the 16th, which is six days later than its average date for the previous seven years, and later than in any year since 1892.—E. M., *Berkhamsted*.

Notes from Baden-Baden.—Among the early Tulips the red-flowered variety of *T. Batolini* is very conspicuous, the form being good, and the brilliant deep red is enhanced by a glaucous bloom outside. *Allium zebdanense* has this season been more beautiful than ever; the snow-white flowers are borne on long stalks, and it has the advantage of *A. neapolitanum* in being perfectly hardy, whilst the flowers are of a purer white. *Iris Meda*, of the Cushion Iris group, was very showy; the flowers are straw-yellow, netted and veined with brown streaks and lines, the falls adorned by a violet blotch. *Iris bosniaca* has greatly improved under cultivation; it is a free-flowering early species, the large, shining, citron-yellow flowers attracting attention. A fine specimen of *Tchichatschewia isatidea*, planted horizontally in the alpine garden, is a great beauty. *Leontopodium alpinum* var. *tibeticum* flowers very freely, but the colour is not so good as in the European type, which flowers three months later. *Cyphomattia lanata* is not a showy garden plant, but very interesting to the true amateur and botanist. It belongs to the Borage family and is a hardy perennial. The flower-stalks and pedicels are clothed with a thick woolly tomentum, the brick-red flowers scarcely visible and the stamens protruding. A new *Paracaryum* and a new *Geranium* from the Hazara district, Afghanistan, promise to be good garden plants, early and free flowering, in the brightest shades of blue. *Geissorhiza kermesina* is a desirable plant, for the rich crimson flowers are charming. A ten-year-old *Lathyrus undulatus* on a wall is now covered with hundreds of spikes of its bright magenta-red flowers. *Ramondia pyrenaica* *Nathalia* and *R. serbica* compete for first place. *R. serbica* bears the larger, and *Nathalia* the deeper-coloured flowers. In pots plunged in a shady place they are of the easiest cultivation. There is, besides *Jankæa Heldreichi*, now discovered a fifth species, of which I will give a description when the flowers expand. *Ranunculus nyssanus* is a yellow large-flowered Buttercup from Servia. *Bornmüllera tymphaea*, from Greece, is a hardy, neat little Iberis-like bush, bearing freely pure white flowers.—MAX LEICHTLIN, *Baden-Baden*.

PUBLIC GARDENS.

Botany in the London parks.—A scheme for providing means for practical botanical tuition in three London parks was approved at a meeting of the London County Council on Tuesday last.

Churchyard Bottom Wood.—This, which was recently purchased for public recreation, has, says a correspondent, been re-named "Queen's Wood," by the Hornsey Urban District Council, in commemoration of Her Majesty's Diamond Jubilee.

The Postmen's Park.—At last the Postmen's Park, or at least that portion of it which has been threatened by the builder, has been rescued by the parish of St. Botolph, Aldersgate. Under an arrangement which has now been made £6000 will be paid for the western frontage, and the parish will have the option of paying the remaining £6000 within two years from midsummer.

An appeal for a cricket ground.—The London Playing Fields Committee are appealing for £10,000 to purchase their Prince George's Ground, Raynes Park, Surrey. The committee now provide over 100 cricket pitches and 18 football grounds in various places round London for the use of clubs of clerks, working-men, and boys, who, though not able to give the high rents necessarily demanded by persons who let for profit, can yet pay a sufficient sum for maintenance, and thus leave the limited area available for games in the public parks and commons entirely free for the poorest players. The com-

mittee state that if the present exceptional opportunity is missed the land will be built over.

The Queen and London's open spaces.—Mr. G. Shaw-Lefevre opened on Saturday afternoon Charles Square Recreation Ground, Pitfield Street, Hexton, acquired by the London County Council and the Shoreditch Vestry at a total cost of £1000. Since the year 1604 the ground has been used exclusively by the inhabitants of Charles Square, and, as the result of lengthy negotiations, it was purchased by the Vestry for £300. Close upon £700 has been expended in laying out the ground by the Metropolitan Public Gardens Association. In declaring the ground open, Mr. Shaw-Lefevre said that within fifteen miles of the centre of London there were 25,000 acres of land maintained for the use of the public, and of that they were indebted to the Queen for 5000 acres in the shape of Royal parks.

Richmond Hill.—Richmond Hill is again in danger. The hon. secretary of the Preservation Committee writes as follows: "A scheme is on foot for the construction of a railway actually over the Hill. The proposed line is no mere tramway, but a standard gauge railway for the conveyance both of goods and passengers, applied for under the powers of the Light Railways Act of 1896, and intended to pass along the public highway called the Queen's Road, past the Star and Garter Hotel and Richmond Park gates, down Petersham Hill, through the lovely spot known as Petersham Common and the pleasant village of Petersham, through 'umbrageous Ham,' and so to Kingston and Hampton Court. The proposed mode of traction is electricity, conveyed by cables suspended on hideous overhead standards from a generating station somewhere on the Middlesex side of the river. The line is one for which there is no public requirement whatever, and is designed merely in the interests of the promoters, and possibly of the Hampton Court tripper.

Open spaces.—At the monthly meeting, on Wednesday, of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Sir William Vincent, vice-chairman, presiding, a letter was read from Lord Beauchamp offering to provide the association from time to time with a supply of plants and shrubs, and a donation of £60 was reported for the erection of a drinking fountain in Barnsbury Square Garden. It was agreed to communicate with the London County Council respecting the erection of buildings on the forecourts in King's Road, Chelsea, the maintenance of Kennington Green, and the acquisition of the central space in Nelson Square, S.E., as a public garden, to undertake the laying out of a disused burial-ground in Long Lane, if the Bermondsey Vestry acquire a lease of it, and to communicate with St. Bartholomew's Hospital respecting an enclosure adjoining Portland Place, New Kent Road, with a view to its adaptation by the association for public use. It was announced that the laying out of the East Street site having been completed, the ground had been informally opened and was being largely used by children, and that Browning Garden and Charles Square would be ready for opening very shortly. Progress was reported regarding schemes for the acquisition of vacant land in New Cross, the Clapham Road, and Sumner Road, Camberwell.

Names of plants.—*Mrs. Rogers.*—*Homeria colina* (S. Africa).—*Collins and Gabriel.*—Impossible to name from such a scrap.—*Truro.*—*Tulipa carinata rubra.*—*J. Higgs.*—1, *Viburnum macrocephalum*; 2, *Lonicera tatarica*; 3, *Orehis purpurea.*—*Medway.*—The Bird Cherry (*Prunus Padus*).—*Subscriber, Co. Cork.*—Tulips: 1, orange form of *Gesneriana*; 2, Gold Flake; 3, old garden form, scarcely worth a name; 4, yellow form of *Gesneriana*.—*S. T.*—*Berberis stenophylla.*—*Springhill.*—Yes; this is always the case; 1, send better specimen; 2, *Spirea Thunbergi*; 3, not recognised; 4, see article in this week's issue.—*Mrs. Hubert.*—We cannot name florists' flowers.—*G. F. Ashton.*—*Ornithogalum arabicum.*

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FERNS.

POWDERLESS GYMNOGRAMMAS.

If the gold and silver Gymnogrammas are the most decorative, it does not follow that the species with no powder on the under side are not worth cultivating. There are among these some highly interesting plants, such, for instance, as the Malayan *G. caudiformis*, the Peruvian *G. ferruginea*, the Bolivian *G. Hookeri*, the Australian *G. Muelleri*, the extremely curious and beautiful *G. trifoliata*, the Chinese *G. vestita*, and many other species. In this section there is a much greater variety of forms, and also of sizes, some of the plants having fronds barely a few inches long, whereas others measure as many feet. In nearly all cases the plants are totally devoid of any powder whatever, and in many instances that is replaced by a covering of either rusty brown, reddish or silvery hairs or scales, giving the plants a downy aspect, which is very attractive. The geographical distribution of the numerous species belonging to this section is also much more extensive, and we even find among them a truly British representative—*G. leptophylla*—which is distinguished from all tropical kinds not only by its superficial appearance, but also and especially through its short-lived nature, as it is essentially an annual, lasting but a few months in good condition. A few of the species described here require the same soil and the same general treatment as that recommended for the powdered Gymnogrammas, but the greater part of them only require a mixture of two parts peat, one part loam, and one part silver sand, and a place among other plants in either the stove or the greenhouse, according to the nature of their native habitats. Species belonging to this section are very numerous, but in the following list of descriptions only the most distinct ones are given.

GYMNOGRAMMA AUREO-NITENS.—This species, of medium size, distinct from all others through the

conspicuously flexuose and woolly nature of the stalks of its fronds, is a native of Peru. The fronds are furnished with pinnae 4 inches to 6 inches long, 2 inches to 3 inches broad, and cut down into irregular pinnules nearly triangular in shape, their under surface being densely matted with wool of a bright rusty colour, with which the stout stalks are also thickly covered. This species requires stove treatment.

G. CAUDIFORMIS.—A very singular species, native of Moulmein, the Polynesian Islands, and New Caledonia. Its curious fronds, of a leathery texture and entire, are produced from a creeping rhizome of a woody nature, which is densely clothed with pale brown scales. The fronds are borne on firm, erect, glossy, pale brown stalks 6 inches to 9 inches long, and their leafy portion, which in the barren ones is 6 inches to 9 inches long and 3 inches to 4 inches broad, although of the same length, is seldom more than 2 inches broad in the fertile ones. To grow luxuriantly this requires stove temperature.

G. CHEROPHYLLA.—This elegant species, native of the West Indies and of various parts of South America, is rare on account of its being essentially an annual. In general appearance also it differs from most other members of the genus. Its delicate fronds, of a soft, papery texture, are borne on slender stalks 3 inches to 4 inches long, green in their upper part and chestnut-brown near the base. They are of a pale, bright green colour, with which the brown sori, which are abundantly produced and disposed in close lines, form a very pleasing and striking contrast. Although of only short duration, this species, which requires stove temperature, produces fertile fronds in abundance, and as the spores germinate freely, it usually makes its reappearance in various parts of the house where the plants have grown the previous season.

G. CORDATA.—A very singular stove species, much resembling in general appearance and dimensions our common Scale Fern (*Ceterach officinarum*). Its fronds, 3 inches to 5 inches long and 1½ inches to 2 inches broad, are borne on black glossy stalks seldom 2 inches long and more or less scaly. The pinnae on the upper surface are naked, while the under side is densely clothed with scales of a rusty brown colour. It is a native of Cape Colony and the Bourbon Island.

G. FERRUGINEA.—In this very distinct-looking species, which thrives equally well under stove or greenhouse treatment, the principal attraction lies in the stout tufted stalks, which are densely clothed with woolly down of a rusty brown colour, which substance also thickly covers the under side of the fronds. These are about 12 inches long and 3 inches to 4 inches broad. It is a native of Peru and Panama.

G. GRACILIS.—A very elegant species of large dimensions, produces handsome fronds each 3 feet to 4 feet long and 12 inches or more broad. The central pinnae are 4 inches to 8 inches long, and 1 inch to 1½ inches broad. It is a native of Jamaica and Guadeloupe, and delights in a warm, moist atmosphere all the year round.

G. GRANDIS.—This is another gigantic-growing stove species, and a native of the Andes of Colombia and Ecuador, with fronds 3 feet to 4 feet long, 1½ feet to 2 feet broad, borne on strong, naked stalks sometimes 2 feet in length.

G. HISPIDA.—According to Eaton, this greenhouse species, of small dimensions, native of Mexico and the valley of the Rio Grande, and *G. triangularis*, previously described, are the only two Gymnogrammas found in a wild state in North America, *G. hispida* having a much wider habitat, as it is also abundant along the San Pedro and the Gila, growing mostly on rocks. Its fronds, 2 inches to 3 inches each way, are produced from a very slender creeping rootstock, and are borne on hairy stalks 4 inches to 6 inches long.

G. HOOKERI.—A very distinct species, with fronds 9 inches to 15 inches long and 4 inches to 5 inches broad. The general appearance of this interesting species, which is a native of the Andes of New Grenada and Bolivia and requires stove treatment, is that of the better-known *G. ochracea*, but the yellow powder in this instance is replaced by a coating of rusty brown woolly substance, which is not only observed on the under part of the fronds themselves, but extends to the firm, dark chestnut-brown stalks.

G. INVOLUTA. also known as *Selliguea involuta*, is an interesting, but curious plant provided with a creeping rhizome densely clothed with large spear-shaped scales of a dull brown colour, from which simple or undivided fronds, 8 inches to 12 inches long, about 2 inches broad, very pointed at their extremity, but gradually narrowed to

wards their base to a short compressed stem, are produced. It is a stove species, and a native of Northern India, Ceylon, and the Solomon Islands, also of Southern India, and, according to Beddome, very abundant on the higher ranges of the Neigherries and other mountains on the western side of the Madras Presidency, usually growing there on rocks and trunks of trees.

G. JAPONICA.—A highly decorative species, better known in gardens under the names of *Dietyogramma* and of *Selliguea japonica*, and one which has very little the appearance of a *Gymnogramma* of the conventional type, for the general aspect of the plant is much more like that of a broad-leaved *Pteris cretica*, of a dark colour and stiff habit. Its fronds, 18 inches to 24 inches long and 8 inches to 12 inches broad, are produced from a stout, fleshy, underground rhizome, and borne on stout stalks of quite upright habit and chestnut-brown colour. As its name implies, this plant is a native of Japan, and is of a fairly hardy constitution, thriving when planted outside in a sheltered situation. It is almost an evergreen Fern, its old fronds remaining on the plant until the new ones make their appearance. It is a great lover of moisture at the roots all the year round, and the soil which suits it best is a mixture of fibrous peat and loam. It may be here noted that *G. japonica* particularly dislikes water on the fronds, which, if subjected to frequent syringings, turn black in a very short time.

G. JAPONICA TESSELLATA is a very pretty and totally distinct garden variety, differing from the species through the lively colour of its foliage, which is of a thinner texture than that of the type, being of a mottled yellowish tint produced by the transparency of the veins, which are reticulated and conspicuous at all times, but particularly so when the plant becomes fertile.

G. LEPTOPHYLLA.—Although a small-growing species, and a short-lived one besides, this singular little plant is very interesting for various reasons, but especially on account of its being the only representative of the genus which is or may be considered a native of Great Britain. The earliest information of its being a native of the British Islands dates from 1852, when Mr. N. B. Ward found it growing wild in various localities in Jersey, besides near St. Aubyns and St. Lawrence, "where it was growing on moist banks with a southern aspect and where the common Liverwort flourishes." But it may be stated here that this little species is of a very cosmopolitan nature, and possesses an uncommon and nearly unlimited range of habitat. The barren and fertile fronds of this little plant are totally dissimilar. The fronds are produced from a small crown, which completely dies away when they fall, at which time it is advisable to keep the surrounding soil constantly moist to induce the germination of the spores which may have fallen around it. *G. leptophylla* may also be propagated from spores specially gathered, preserved, and sown in spring, as young plants attain their full size in the course of a few weeks.

G. MICROPHYLLA.—A distinct greenhouse species of small dimensions, native of the Khasya Hills. The general appearance of the plant is that of a slender form of our common Parsley Fern.

G. MUELLERII.—This species is probably the most distinct of all those in cultivation. When in a young state it greatly resembles the common *Ceterach officinarum*, the upper surface of its fronds copiously dotted all over with white. When fully developed its fronds are each 6 inches to 12 inches long and 1 inch to 3½ inches broad. It is a native of North-east Australia and Queensland, and succeeds equally well under either cool or warm treatment.

G. RUFIA.—The fronds of this distinct species, which is a native of Mexico and the West Indies, are 12 inches to 18 inches long, 3 inches to 5 inches broad. The pinnae are thickly covered, especially underneath, with reddish brown hairs, which also densely cover the upright, firm, chestnut-brown stalks.

G. TOMENTOSA.—This stove species, native of Brazil and Peru, somewhat resembles *E. rufa* in

general habit, as also in the colour of the hairs which clothe the underside of its fronds, but it is readily distinguished from that species through the distinctly bipinnate character of its fronds.

G. TOTTA.—This is another species with a wide range of habitat, for, although usually given as a native of Madeira and Cape Colony, it is also reported from Ceylon, Japan, Hong Kong, the Himalayas, and the Neigherries. Its fronds, produced from a decumbent rhizome and borne on stalks 6 inches to 8 inches long, are of a soft, papery texture, 12 inches to 18 inches long, 6 inches to 10 inches broad. It succeeds well in an ordinary greenhouse.

G. TRIFOLIATA.—Through its mode of growth and the climbing nature of its fronds, this most remarkable species, native of Brazil and Peru, bears no resemblance whatever to any other member of the genus. It is a robust grower, and under liberal treatment and when grown in such a place that its gradually extending fronds can be trained near the glass, it forms a very picturesque object. Its fronds, which are produced from a single crown, and borne on stout, upright stalks 4 inches to 6 inches long, of a dark chestnut-brown colour, often extend to 5 feet in length. It succeeds well in a warm greenhouse, in well-drained, light, porous soil, with an abundance of water at the roots at all times.

G. VESTITA.—A distinct species, with fronds 8 inches to 12 inches long, 1½ inches broad, borne on wiry stalks 4 inches to 6 inches long, and densely clothed with more or less matted, bright rusty brown, very narrow scales of a soft, silky nature. It is a native of Pekin and of the North-western Himalayas, where it is found up to 8000 feet elevation, and succeeds equally well under cool or warm treatment.

G. VILLOSA.—This distinct stove species, with fronds 12 inches to 18 inches long and 6 inches to 8 inches broad, is a native of Brazil. S. G.

Pteris arguta.—I was pleased to see the favourable notice of this old species in a recent issue of THE GARDEN. Some years ago, when I required a quantity of fine-leaved things for room decoration, I found this Fern very useful, as it bears the dry atmosphere of rooms remarkably well, and will remain in good condition for a long period in constantly heated apartments if well attended to in the matter of watering, with occasional cleansing of the foliage. For planting out in cool conservatories it is of great value, quickly growing into large specimens. In a large winter garden of which I once had charge I employed it for carpeting the ground under large Palms. The amount of water required for these latter would have injured most Ferns, but this *Pteris* is so hardy and vigorous, that it fairly revelled in the copious supplies necessary at frequent intervals. There is no difficulty in keeping up a stock of young plants, as this species comes with the greatest freedom from spores. It is one of the most prolific Ferns I am acquainted with.—J. CORNHILL.

NOTES OF THE WEEK.

Narcissus poeticus is one of the best of every-day flowers at the moment, the clear purity of the large-eyed blooms making a most sumptuous and fragrant group. As a late flower it is of especial value in the garden, requiring but little care to make it a success.

Phlox Nelsoni.—The masses of pure white flowers characteristic of this plant render it valuable in the rock garden at the present time. It is a good plant for the rock garden and will well repay more than ordinary care and cultivation, and quickly responds to a soil liberally enriched with short manure and of good depth.

Cheiranthus alpinus.—The pale sulphur heads of the alpine Wallflower have been for some time very showy. Its free growth, dwarf habit, and abundant flowering should commend it to a large number of those interested in spring gardening, espe-

cially as the plant may be freely raised from cuttings during the summer months.

Iris Thunderbolt.—This is one of several names applied to one of the handsomest, as it is the most popular, of the bulbous Irises. Not only does the variety possess much greater vigour than is usual with Spanish Irises in general, to which section it belongs, but the size of the blooms is greatly increased, to say nothing of earliness and its unique colouring.

Gentiana verna.—Many as are the gems of this lovely genus, few species can surpass this in the intense brilliancy of its flowers under a warm May day sun. In some forms the white tube is more clearly seen, and appears in striking contrast with the petals. One of the most remarkable items in respect to this *Gentian* is the great variety of shades that appear in a batch of collected plants, showing at once the freedom with which the plants are cross-fertilised in their native alpine meadows, and also the freedom of such things from seed.

The Fuchsia Currant (*Ribes speciosum*).—This is sometimes called *Ribes fuchsoides* from its resemblance to a *Fuchsia* in the form of its graceful and curious shoots of red bloom. We often see it nailed on a wall, on which it flowers usually very well, but on warm soils at least there would seem to be no need of so growing it, as it is blooming very freely quite in the open at Kew, and so grown forms a handsome shrub.

Narcissus Ajax Border Maid.—Border Maid is a bicolor raised by Dr. Stuart, Chirside. Flowers are on the table before me and are very beautiful, with their neat, small-sized trumpet of a clear yellow and large, broad white perianth segments. The latter appear inclined to reflex a little, so as to show the crown more fully. There are many who appreciate such flowers more than the massive blooms which some consider the only perfect type.—S. ARNOTT.

Phlox divaricata.—This distinct species we recently noted in the alpine house at Kew, where it was flowering quite freely as a pot plant. Usually anything that pertains to a slate-blue shade in *Phloxes* is disapproved of, but this is an exception, for the species is generally a favourite. It is not at all difficult to grow in sandy loam, and strong plants form a neat and attractive group thus early in the year. The species is usually about 12 inches or 15 inches high and flowers most freely.

Cypripedium acaule (the Stemless Lady's Slipper).—That a plant having a flower-stem 8 inches or more in length should by its specific name be pronounced "stemless" seems rather a contradiction in what undoubtedly is one of the finest of its race. Beautiful in colour and singularly fine in form, it is full of interest in the spring-time. Not too robust in constitution, unfortunately, and frequently difficult to establish are among the chief hindrances to its being successfully grown. In a small peaty bed the great drooping pouch of this species is now a striking feature.

Oenothera ovata.—We are not too well supplied with dwarf day-blooming Evening Primroses suitable for association with the smaller alpine plants. The one under notice—*O. ovata*—is now in flower, and is in every way worthy of being grown. It is a Californian plant, and may be tender in some places. Here I have had no lengthened experience of it, as it only found its way to my garden last year. Last winter was a mild one, but the rainfall was heavy, and such plants as this are apt to suffer under such conditions. It has, however, come up as strongly as can be expected from so dwarf a plant, and is now quite healthy and flowering freely. The prefix "evening" is unsuitable to this species. *O. ovata* is a low-growing plant, barely 2 inches high here when in flower, with bright yellow blooms each 1½ inches across. The leaves form a flat rosette, and are rather deep green on the upper surface, ciliated at the margin and with a narrow brown edging. They are, speaking broadly, ovate in form, but pointed and slightly twisted at the extremities. *O. ovata* appears in the Kew Index.—S. ARNOTT, *Carsethorn*, by *Dumfries, N.B.*

LOGGIA AT DROPMORE.

At one time making garden houses, summer houses or temples was a very popular amusement, but, unhappily, the result was not always good, and many of the larger and older gardens and pleasure grounds are disfigured by too great a number of such structures, often in a very uninviting state. When such buildings are some distance from the house they are very apt to be neglected and occasionally good work destroyed. The misuse of things, however, is no evidence against their careful use, and the loggia at Dropmore is perhaps one of the most beautiful in our gardens. When not too far from the house—and we often think it is better to have them almost part of it—and made of perfectly clean and sweet materials, such structures have various charms and uses which make them worth having. These qualities are pos-

sed by the one we illustrate. A summer or garden house made of rapidly decaying materials like thatch and sapwood boards is hardly ever worth doing, because it generally becomes a nest of vermin and begins to rot before it is well put up. The question is really one of use and need, and it is an excellent rule not to build unless we really require the structure, and if a house of this sort has any actual value for the sake of getting a quiet corner in the sun away from the house, it is pretty sure to be carefully looked after. Simplicity of design is of course most important, and also the use of quiet coloured material.

THE GARDEN OF EDMOND DE GONCOURT.

The following translation (made originally in 1887 for inclusion in a second edition of the translator's "Praise of Gardens") is from the French of the late Edmond de Goncourt, and describes the garden attached to his house, No. 53, Boulevard Montmorency, Auteuil, just



Loggia at Dropmore. Engraved for THE GARDEN from a photograph by Mr. J. James.

outside the Bois de Boulogne. It is taken from vol. ii. of his "Maison d'un Artiste," wherein he gave in 1881 a catalogue raisonnée et littéraire of the treasures collected throughout a long life of research, consisting of drawings, books, engravings, etchings, manuscripts, bronzes, tapestries, autographs, and pamphlets illustrative of 18th century art and life in France, and of the "Foukousas," the embroideries, and examples of the plastic and graphic arts of Japan. Goncourt and his brother, Jules, were the pioneer-collectors in all these branches of taste, introducing into France the passion for "Japanoiseries" and reviving the rage for the minor (though not less fine) art of the 18th century; the genius of O-kou-sai was as near to them as the genius of Clodion, of Chardin, of St. Aubin, and of Watteau. Both these predilections are apparent in the present paper, in the choice of plants and bushes of Japanese growth, and of statuettes and porcelain of the 18th century for the decoration of Edmond's garden. But his admiration for this period did not blind him to

the beauties of later art, or to the charm of that produced in our own country. He pointed out to the present writer, when showing him over his "grenier"—his "attic," as he called it—in 1890, an etching by Seymour Haden—a river flowing past a bank fringed with dark trees—as one of the most precious things in his collection: its artistic value to himself being quite beyond words. The writer regrets that in the crowd of delights he forgot to ask to see the garden, although his introduction had taken place in connection with this very translation. In this he has despaired of reproducing the nuances of the great colourist-writer's felicities of phrase, but he hopes that its *bouquet* has not all evaporated in decanting from one language into the other.—A. FORBES SIEVEKING, F.S.A.

A few square yards of earth of one's own, where the things of Nature shoot up green and blossoming: the inner and personal enjoyment for an old Parisian, for a man in "rooms"! And what a "passionet" seizes you for this nook of earth, and what follies you commit there! On how many November days did I, rising at day-break, beat up the horticulturalists and nurserymen of the big suburb, floundering ten hours at a stretch through the mud, returning at night wet through, frozen, worn-out, famished! And how many more days of this same November were spent in watching the planting, and in myself planting, the shrubs delivered by cartloads, after which, at nightfall, the whole day's exposure to the north blast, the pleasant and immense out-of-door lassitude, often sent me to bed dinnerless! And, in truth, what a Providence is a garden amid great sorrows, when all a man's energies are shattered, when he has no more courage for work, when he shuns the society of those who are happy on the earth, and when life hangs heavily upon him in loneliness and supineness of thought! To such a man, who will not hear of diversion, what a subtle and imperceptible solvent of his grief is that occupation, which he takes to be only a mechanical means of filling up time, and how, by setting himself to love plants and flowers, he resumes quite gently and unconsciously the love of life!

The garden, which I had bought with my house, although planted with common, vulgar, philistine shrubs, still possessed one beauty. At the bottom of it stood a superb group of huge trees of the ancient Montmorency Park, all draped in Ivy and spreading over the head of a low rock one of those great fans of verdure with which Watteau shades the repose and siesta of his courtly groups. This I had to preserve, while uprooting all the rest, and to set this bouquet of great trees in a centre of hardy evergreen shrubs, which simulate a summer garden under winter sunlight; and these shrubs I had to choose from rare sources, for the rare in everything, whatever may be said, is almost always the beautiful. There was something further to do in the state of research and actual progress of horticulture, and in the rehandling and *artist* recoloring of natural verdure, it was the duty of a *colourist* man-of-letters to make a painter's garden, and to set before his eyes on a large scale a palette of greens shading from the deep greens to the tender ones, through the range of the blue-greens of the Juniper tree,* the golden-brown blends of the Cryptomerias, and all the varied blendings of hue of Hollies, Spindle trees and Aucubas, which, by the pallor of their leaves, give an illusion of flowers in their absence. Let us confess that in this style of gardening, which has a touch of bric-à-brac about it, the bush elegantly branched, charmingly trained, coquettishly variegated, becomes a kind of art-object, which we see again with closed eyes, dream of in bed, and imagine ourselves seeking in the private garden of a great horticulturist, just

* "And myddis every herbere might be seen
The sharp, green sweet Juniper,
Growing so fair with branches here and there."
—The Poet-King James of Scotland, in captivity, on
the Royal Garden of Windsor.

The dry season.—The note on the dryness of the season (p. 376) is interesting to dwellers in the south-west, since it shows that the district in question stands in a far more enviable position as regards rainfall—though this has been admittedly below the average—than do the southern counties and London. For the first four months of the

as we might pursue a rarity hidden upon the shelf of the private collection of a great curio-hunter. And the shrub at last acquired, we place it in our garden precisely as we would place a dainty piece of furniture in our room. But shrubs, even the rarest and costliest, did not suffice. Italy, with her villas, had given me a taste for the "furnished" gardens—those gardens where objects of bronze, marble, terra-cotta, and porcelain on every side peer through the green of the foliage. Instead of antiques, which were quite beyond my means, I erected at the garden gate against a trellis, executed after a model of the 18th century, two porcelain terminal statues ending in women's necks, and little smiling cherubs' heads crowned by baskets. At the slope of a staircase, with balustrades and the lower steps carpeted with Ivy, I placed two bronze Cupids, hailing from a sale of Monbro, of defective workmanship, but of a pleasing conceit. At the top of the small lawn I placed a great Japanese crane, with the leg thrown forward and the head back, and so life-like upon its Water Lily leaf, that once a dog crouched, pointing, at its bronze stilts. Into a stone cippus, garlanded with creepers, I had fitted a terra-cotta—it crumbles away, alas! in the air—a low-relief of Cupids by Angelo Rossi, the powerful and robust sculptor of the Angels of St. Peter's at Rome, who, as everyone has failed to remark, is the true father of our Clodion, but a father after the stamp of Michael Angelo. Finally I surrounded my clamps with a framework of biscuit-porcelain, the invention of which I credit to myself, and shaped some open-worked hoops, which, half buried in the earth, and half crossing one another, form a completely ornamental network. For my favourite nook, my little rock under the great trees, I sacrificed a bit of white Saxe porcelain, a dolphin with the body, snout, and fins modelled amid the ruggedness of a graceful rockery, forming in the centre of the dark vegetation of the fountain the most successful white blotch. Once inside, shears in hand, how short seemed the long hours, and you say to yourself every five minutes, "Now then, I must go upstairs," which you don't do, going on with your lopping, cutting, and pruning.

Every month the garden has its entertainment. Even in winter Nature has its flowering season, which keeps you planted on both legs before a shrub in the attitude at once idiotic and beatific, so well represented by that garden-lover, Gavarni, when he drew his own caricature. Have I not in my garden a certain yellow Jasmine, which flowers in mid-December; a paradoxical Heath which blossoms with the Laurustinus all January; a spring Honeysuckle, which sheds its orange-flower fragrance on the moist-frosty air of February? But the first month in which the garden actually grips you, secures you, keeps you, makes you loth to return to your work-table, is the month of April, the month in which your eyes are every day surprised by the green renewal of life in tree and shrub. Then, upon the dried-up shoots of the Deutzia, the shrub symbolising the spring of the remotest East, little curled leaves begin to sprout. Then the pregnant buds of the Japan Quince trees show a speck of red beneath the rainy sun-stroke of a shower, which hangs, a crystal pearl, to the point of each spray. Then the infant green of the Japan Clematis wraps itself up in a silvered down. Then the Japanese Mahonias, leather-leaved, disclose a little yellow of their immortelle berries. Then the Azaleas in their globing extremities assume a burnt-almond tint. Then the Magnolias, with fallen leaves amid their branching skeleton, disclose through the brown envelopes of their flowers a little greenish white, if they are white, or white streaked with violet if they are mauve.

In Japan, you solemnly betake yourself in March into the orchards of Muméyashi, on the Tokaido, to behold the flowering of the Plum trees, *mumé*; in April you repair to Muko-Sima, to Tlèno, to Oji, to see the snowing of the Cherry trees*; I, being only a lover of the blossomings of

trees, descend every month slipped into my garden to see the Plum trees *tritoba* flower, the White Broom, which, stricken by the sun, is like molten silver amid shadows of burnished silver, and the Ebony trees, with their great yellow clusters, and the Japanese Quince trees, which look like the stars of an officer of the Legion of Honour gathered into constellations, and the purple Magnolias, with large cups half opening to the air, which present the appearance of those pink porcelain bowls from which the eighteenth century drank its milk. And, although I may not yet be Japanese enough to hang a commemorative sonnet upon the branches of the admired tree, I do happen to pause a long time enjoying the outline against the blue sky of those fair clusters, whereon birds, building their nests, drop in their flight bits of straw too heavy for their beaks. Here is June with the flowering of the Rhododendrons, and the crumpling of their pink and mauve tulle, which calls up visions of ball dresses, and with their lovely tawny and black spots like drones cradled in the core of the flower; and here with the flowering of the Rhododendrons come the blossoms of the climbing Roses which mount into the great trees and are lost in the Ivy. Trails, wreaths, cascades, arranged as deftly as those of the old Venetian masters around the curves of their ewers: cascades of white, yellow, and pink Roses, which, with the sun enclosed in their translucent petals, illumine the dark verdure. And, at dusk, days which fade to the scent of Pepper blent with the savours of Eastern spices, to the slowly modulated songs of the weary birds, and where, upon a sunless day, a lingering ray of the vanished sun gilds even at eight o'clock the green of the lawn. It is the moment beneath the twilight for the sport of young and imprudent blackbirds still unfledged, watched over by an old, grave, and very ebon blackbird. And amid the sinking into sleep of Colour, when the white of a great headed Viburnum, the yellow of a bunch of Iris, the cerise of a Broughton Rhododendron, are no more than phantoms of white, yellow, and cerise, the zigzags of little blurred bats no longer seem like flights, but the shades of the darkened garden, nothing but the almost spectral pallor of a streaked Negundo, silvery pink in foliage beneath the rising moon, calls to mind an enchanted midnight tree, whither, in a shroud of white satin, a slender wraith of old Italian Comedy comes to cut ghostly capers. In July, still a whole month amid the foliage of coral-red, currant-red, crimson-red, poppy-shaded-red, amaranth-red, velvety scarlet, blackish purple illumined by fire, bright and soft pink of satin texture, carmine-pink, lilac-pink, salmon-pink, pink with a bloom of bishop-violet and pink of Maiden's cheek. This is the month when the tree at whose foot Chateaubriand slept a whole night with the heads of the two Florida girls upon his breast, the tree of love's remembrance so affectionately cherished by him in his "Valleé aux Loups," when the Magnolia loosens upon the convex lustre of its leaves the marrowy white of its magnificent scented flowers, with their bold design, their turgid and curling convolution.

August is here; a dripping of light, as though liquified, upon the glossy crinkling of Holly, a light faceted and micacized* on the quiverrings of the Juniper, a metallic light upon the gloss of the Magnolias, the Laurels, and the Cratægus, whose head seems lacquered with rouge—all gleams, all shines, all is illumined. The scorching sun spreads over all this exotic verdure a dazzling varnish, and I, who am reproached with my love for zinc trees, look on in perfect contentment

(S12 A.D.) the Dairi went to the garden of Sin-Yea-Sen (the garden of the Geni Spring) to amuse himself by looking at the flowers and making verses. It is at this period that the taste for flowers in Japan begins." And since then successive Emperors never fail to enter this garden to see the shrubs blossom into flower, and the leaves of the trees redden at the fall.

* Mica is a finely-foliated mineral, of a pearly metallic luster.

from a little alley in scented shadow, towards the pebbly stream so charmingly white after a shower, which coils around Ivy-clad tree-trunks, and is banked by little rough shrubs, akin to the Oaks in china pots. From this alley, which winds round my Saxe dolphin, I often witness the amusing spectacle of a bird coming to take its bath in the basin, the noisy splashing and almost rage with which it douches itself with water, and from which it rises with heavy wing, shaking out drops of rain. Then in September, in the exuberance of its foliage, in the projecting disarray of a lustreless verdure which you feel to be no longer permeated by the moist life of the sap, a few Roses peep out with scanty petals, a few maimed Japan Clematis, a few laggard Magnolia flowers amid bronzing leaves. And it is still the time for the scorched flowering of the mauve-hearted Althæa and the dishevelment of the Fuchsias, the thousand small flowers with long pistils, all resembling little tassels of red trimmings tacked to a shrub. And amid the last reds of the flora in the deflowered garden, the time of the intense, brutal, death-dealing note of the Geraniums, those flowers which seem painted with the minium* with which iron is coated. October: Rhododendrons, clutched till noon by the white frost of the mornings, the great failing leaves of the Magnolias, their green devoured by snails, and their woven nets in the day-time like a spider's web spangled with dew, the foliage of the Azaleas turned purple; and over the purple, russet and yellow, and over the black of the twigs and the small branches of the great half-stripped trees, and over the strangling of the last leaves, and over this, winter purple, which begins to creep in among the thickets, slight sun rays bounded by cold shadows. November: A light of eclipse, in which the rust of the last leaves takes flight. December: Snow, snow everywhere. A garden vanished, swallowed up, whence, from time to time, beneath the whiteness, a green branch with contracted and choleric leaves emerges, whilst a thick flake descends to earth, hovering like a feather fallen from the wing. And in the garden gradually appear the two Cupids of the flight of steps, keeping for whole days upon their heads a heap of snow, which make huge white periwigs above their little dainty bodies. Or if, indeed, there be no snow, you have the view, in a bath of yellow light, of the great trees filigreed with sleet, and looking like gigantic crystal madrepores seen in the murky waters of a deserted aquarium.

Unfortunate garden, perhaps lying dead, killed by the winter's frost at the very moment I am describing it! How often, returning from a dinner of men of letters, my eyes smarting from the reflection of the gas, my head still heated with the fumes of the ideas, the paradoxes, the wit of a few minutes ago, I throw open a window to the night, and leaning upon the sill, my head thrust into the darkness, the stillness, the scent of wood rising from below, in this great calm of Nature, only penetrated now, *pianissimo*, by the croaking chorus of frogs in the Auteuil pond, I experience, as it were, a delight in feeling myself so near to, and at the same time so far from, Paris!

Netting as an investment.—I could but notice recently in a large garden the great use made of fish netting, which was employed for covering probably half an acre of Peas, all staked. When I inquired why this unusual precaution, the gardener said that between pheasants, when the Peas were in the early stages of growth, and small birds, when they were in pod, were not the rows netted up there would be no Peas. In the case of the main crop varieties, several, of numerous rows of each, had been sown in one big block, and the nets ran right over the whole lot, so that once under the nets it was possible to get at the Peas when ready with comparative ease. It would be well, perhaps, if

* Minium is red oxide of lead, obtained by roasting metallic lead.

* We read in the "Annals of the Japanese Emperor":—"The second month of the third year

many who complain so sharply from time to time of the mischief done by birds to trees and crops would use netting more largely than they do. For Gooseberries and Strawberries netting is an invaluable protection, but it does seem as if more facility for its proper use might be afforded were rounded rods or strips of wood fixed temporarily on uprights driven into the ground at intervals some 3 feet or 4 feet from the soil, and over which the netting could be easily thrown. In the case of bushes and Pea sticks, the hauling of the nets over without tearing them is difficult; whereas with proper rounded bearers the work would be easy. In the case of Strawberries it is the rule to allow the foliage to sustain the nets, but after all the fruits are poorly protected. A light framework of supports, 2 feet or 3 feet above the ground, would cost little and be quickly fixed, and, once netted over, the work of picking could go on easily.—A. D.

ROSE GARDEN.

ROSES FROM MAY TO DECEMBER.

ONE often hears the remark, "My first crop of Roses is all over," and doubtless with small growers there are periods when their Rose plants yield a very meagre quantity of flowers. Of course with exhibitors and trade growers it is somewhat different, for by having a quantity of budded Briars and Manettis coming on, which generally follow the established plants, the feast of Roses is thus considerably extended. Again, when Tea Roses are grown in quantity, these true ever-bloomers keep up the supply, but what I more especially have in mind is the H.P. class, that provides us with so many of our grand, richly-coloured, sweet-scented Roses. Unfortunately, even the freest bloomers among them have a considerable period between their first and second crop, because, unlike the Teas, they are not thoroughly perpetual. In my opinion, much could be accomplished to render this excellent H.P. tribe more useful than it hitherto has been. In the first place, in order to have some flowers at the end of May and early in June to follow the indoor crop, I would recommend that some plants should be potted into 6-inch and 8-inch pots in early autumn. Plunge these outdoors in a sheltered spot until February, and then place in a cold south pit, still keeping them plunged and lights on at night and on cold days. It will be found that such plants will give some excellent blossoms useful for cutting. By the time these are out of bloom we shall have what are known as summer Roses in flower, *i.e.*, the Gallicas, Hybrid Chinese, Mosses, Damasks, &c., and some Teas on walls and sheltered spots, to be followed by the general display of Hybrid Perpetuals and Teas. But we have to look ahead and provide a supply for the end of July and early August. As I said before, unless we have plenty of Teas or young plants budded last summer, we must make our H.P. and H.T. Roses give us this supply. Something in this direction may be done by transplanting a portion of our plants in February and March, or by planting late in spring some bushes that have been well retarded. As an additional means of continuing the supply, the growths of some of the general collection should be stopped about the commencement of June. The arrested flow of sap will quickly mature the shoot and young growths will break out, to be afterwards crowned with flower-buds that should be ready to unfold from the middle of July to August. This practice can only be attempted with really free-flowering sorts like Mrs. John Laing, La France, Alfred Colomb, Marchioness of Lorne,

Dr. Andry, Caroline Testout, General Jacqueminot, Ulrich Brunner, &c. By the time these have finished flowering the second crop of the H.P. and Tea Roses will be on the way, and with the Bourbons and Chinas flowering to October we can thus have a really good supply. Still further, by a simple covering of glass over some of the latter Roses and Teas, in order to ward off damp and keep the flowers clean, the season may be prolonged even to December in favourable seasons. Some China Roses and semi-double Teas should also be potted up and grown outdoors during the summer months to augment the crop in late autumn and early winter. All bloom-buds must be pinched off as they appear until the month of September. If tied out the plants will form a quantity of flower-buds by October, which will expand readily if assisted with a very gentle heat. Under favourable conditions such plants should be most profitable to those who have large demands for cut flowers at all seasons. P.

Rose Princesse de Venosa (Tea).—I cannot say much for this as a garden Rose, for even last summer the flowers would not open at all freely, although its vigorous habit is all one could desire. It resembles a highly-coloured Comtesse de Nadaillac. There is, however, a difference in form in addition to a distinct violet shading. Perhaps as a cut-back plant upon a low wall exhibitors may obtain some good blooms.—P.

Rose Ferdinand Jamin (Hybrid Tea).—In the above fine variety we have a Rose resembling in a marked degree in colour and habit the popular Mme. Abel Chatenay, and yet the difference in form between the two varieties is very pronounced. Ferdinand Jamin has its petals incurved in a way that recalls to mind the old favourite Felix Genero, and altogether the flowers are larger and fuller than those of Mme. Abel Chatenay, but I am afraid the scent of the latter Rose is wanting in the newer variety. It will, however, become a useful Rose for the exhibitor as well as for garden decoration.—P.

Rose Ferdinand Batel (H.T.).—The collection of Hybrid Teas is steadily increasing, and it looks as though it would become the class in the near future. Under glass the colour is of that pretty nankeen-yellow shade that lends such a charm to that fine climbing Rose Mme. Chauvy, but the edges of the petals are almost white. Outdoors the flowers are rather variable, and sometimes there is a shade of rosy flesh upon the yellow ground. As its growth is vigorous and the colour so distinct and novel, it appears likely that this Rose will become very popular for garden decoration.

Rose William Warden (H.P.).—The variety Mme. Clemence Joigneaux, from which the above Rose sported, was thought much of thirty years ago, and even to-day it is recommended as a very good garden variety, possessing a delightful fragrance. But of William Warden even more can be said in its favour, for, in addition to its fine vigorous habit, splendid leathery, mildew-proof foliage, and rich pink flowers, it has proved to be an excellent variety for pots. Under glass with cool treatment the pink colour is very attractive, and its large, massive flowers are regular in form. Like its parent, William Warden has the sweet perfume of the old hybrid Chinese Roses. I can thoroughly recommend this variety for town culture or for districts generally bad for Roses.—P.

Rose Dr. Grill (Tea).—The above Rose is the reputed pollen parent of Mme. Abel Chatenay and Antoine Rivoire, and I should not be surprised to learn that the other recent novelties of M. Pernet-Ducher, namely, Mme. Cadeau-Ramey and Ferdinand Batel, have also this fine Rose for one of the parents. Dr. Grill is an excellent Rose for the novice. It grows well and blooms freely, and one can always depend upon it for a pretty button-hole flower. The colour is rose, with

coppery shading; usually, however, the coppery tint predominates. Under glass when grown very gently its buds come very long. The expanded flowers are flat, and, as is common with Teas, there are several buds to follow when the full-blown blossom has fallen. It is not an old Rose, for it was sent out by M. Bonnaire in 1886, but it is not nearly so much grown as it should be.

Rose Jean Ducher (Tea).—Although most Tea Roses prefer a high temperature under glass, there are a few that show their best tints when grown in light, airy houses under cool treatment. This is such an one. The colours of this superb variety are a remarkable mixture of old gold and bronze, the centre flushed with rich carmine-red. The form of flower is globular, each petal when half developed curling slightly over the edges and the outer ones pointed as in Maréchal Niel. The full-blown flower, however, is somewhat flat, in the way of Gloire de Dijon, and in this stage the unusual mixture of tints is very conspicuous. Jean Ducher is a very uncertain Rose outdoors, but given a dry summer and planted near a wall or grown as a standard some grand flowers are obtained, but they generally lack the carmine centres which the flowers have that are grown under glass.

ROSA GIGANTEA.

ACCORDING to Johnson's "Gardener's Dictionary" this Rose was introduced from Burmah or Siam, both countries being named as its habitat, in 1888, but little has been heard of it since in the horticultural press. In vol. xlii. (p. 83) there appeared a note from a correspondent at Reigate, mentioning that with him it grew luxuriantly on a west-south-west and also on a south-east wall, but that there had been no sign of bloom, and asking for the experiences of other growers of this Rose in the open. To this query I can find no reply. In vol. xlv. (p. 375) "A. H.," in an exhaustive article on single Roses, wrote: "Rosa gigantea, the giant of single white Roses, lately introduced from India, is of doubtful hardiness, otherwise it would be a great addition." These two are the only notices of the Rose that I have been able to discover in the back numbers of THE GARDEN. The authorities above quoted give three countries, Burmah, Siam and India, as its home. Nurserymen also seem divided in opinion as to its habitat, one giving the Himalayas and another the mountains of Burmah, and it may be that it exists in a wild state over a large extent of country. As to its flowers, the dictionary already quoted gives their diameter as 5 inches, while a Rose catalogue mentions 5 inches to 6 inches, but many blooms of Rosa levigata exceed 5 inches in diameter. As to its free-flowering qualities, the only statement bearing on the point is the negative one from which I have already quoted. I myself have known plants grown in the open ground which have never given a symptom of blossoming, and I should like to reiterate the question of the Reigate correspondent of six years ago and ask whether anyone has bloomed this Rose in the open, and if so, under what conditions. Then, again, comes the question as to its hardiness. I have lately heard of a case where a specimen, grown on a pillar in a Surrey garden, after passing safely through the winters of 1895 and 1896, was killed by a "pretty severe" frost after it had started into strong growth in the past spring. Doubtless, even in the warmest localities of the British Isles, Rosa gigantea, as well as R. levigata, should be afforded the protection of a wall, but as I have known the former endure winters in the open without protection, I should imagine that it was little, if anything, more tender than the latter. But on this point again I am anxious for information from those who are in a position to give an opinion. Is the Rose sufficiently hardy to be grown in the open, with the protection of a wall, in the southern counties? Provided that it is so, is there a fair probability of its flowering? If either of these questions has to be answered in the negative, the Rose is worthless for open-air culture in this country. S. W. F.

TREES AND SHRUBS.

CATKIN BEARERS.

THE pleasures of a country walk or ride are perhaps most keenly enjoyed by those people whose eyes are always open to the interest and beauty of their surroundings, be the season the depth of winter or the height of summer. They enjoy the first signs of returning spring long before the bursting of bud and leaf and the gradual change from rest to activity in native plant and animal life. The awakening of spring is most apparent among those trees and shrubs which for some mysterious reason begin their round of active life by flowering before the leaf-buds burst, and in native woods one sees the catkin-bearers—the Willows, Poplars, Hazels, Alders, and others—flowering with other delightful harbingers of spring. The most familiar is the common Hazel, which begins to catkin before even the nuts are browned in September, and throughout the winter is thickly hung with catkins, which in February and March give a glow of soft yellow to hedgerow and enliven the woodland—so beautiful, indeed, that a young wood of Hazel in full catkin is among the most delightful phases of country life. The Filberts and Cob Nuts, usually banished to the orchard and kitchen garden, are worthy of the garden lawn, as no small trees are better for shade when full grown, and give interest to a lawn throughout winter and spring by their multitudes of dangling catkins. In late autumn, too, the foliage when dying away puts on a rich yellow hue, and ranks among the richest of autumn tints.

Alder catkins.

The purple-leaved Hazel, now commoner in gardens, has made the same appearance in catkin as the common sort, as do also the American Hazels, *C. americana* and *C. rostrata*.

THE CONSTANTINOPLE NUT (*Corylus Colurna*), a rarer Hazel only to be found in old places, where it grows sometimes 50 feet or 60 feet high, also bears catkins freely when leafless, and its long fringed nut-cups add interest to it in autumn. It is a worthy tree to plant, and ought to be more readily obtainable from tree nurseries.

THE POPLARS are all catkin-bearers, but are not of equal value in this respect. Everyone must have noticed the ground beneath the great trees of the Abele, Black, Grey, Balsam, and Balm of Gilead Poplars strewn with ruddy-tinged caterpillar-like catkins, but for the garden the Aspen and its relatives, being of less stature, give the best spring effect in catkins. The Aspen is a beautiful lawn tree to plant wherever the soil is moist or even wet, not otherwise. Of all the Poplars for a lawn, the graceful weeping form of the American Aspen is the best. This is the Parasol de St. Julien (*P. tremuloides* var. *pendula*), or, as named in some collections, *P. Juliana pendula*. In early spring one sees its leafless twigs thickly festooned with large ruddy, drooping catkins in a most graceful way. Its branches are long and pendulous, its foliage pale green, and, like that of the true Aspen, sensitive to the breeze.

THE ALDERS are, perhaps, in spring more beautiful than at any season, when hung with male catkins, and those who have seen in March and April the fringe of the common Alder on the banks of the sluggish Mole, in the vales of Dorking and Mickleham, must have enjoyed the sight



Hazel catkins. Engraved for THE GARDEN from a drawing by H. G. Moon.

if they have an eye to the really beautiful in Nature. The great trees of the cut-leaved Alders (*A. glutinosa laciniata* and *A. incana incisa*) one sees by old ornamental lakes are of great beauty in catkin time, as is also that most valuable Alder *A. cordifolia*, the greenest of trees, and one which flourishes in the driest soils. The new Japanese *A. firma* promises to be of value as an ornamental tree. It has wrinkled, Hornbeam-like leaves and long, slender male catkins, but as yet there are no big trees of it. It is certainly a tree worth planting for trial.

THE WILLOWS in all their bewildering variety are among the commonest of catkin-bearers, and the most familiar in this respect is the Goat Willow (*Salix caprea*), found in all dampish woods and hedgerows. Its flowering branches are what country folk call Palm, and its association with Eastertide is quite orthodox. It is represented in gardens in a more refined way by the Kilmarnock Willow (*S. caprea pendula*), one of the best of the Weeping Willows, as it is so pretty in spring flower. Among choicer Willows that bear catkins and may be planted by a garden stream or pond are *S. daphnoides*, *purpurea*, *acutifolia*

(*violacea*), which, in addition to their catkins, have richly tinted bark, so pleasing in winter. One of the best for catkins is *S. mollissima*, called the Velvet Osier, which bears a profusion of silky catkins, but it is doubtful if it is grown for sale in nurseries.

THE BOG MYRTLE (*Myrica Gale*), that delicious aromatic shrub which is often the only growth in



Willow catkins.

swampy places, bears winter catkins so sweet when bruised that it is worth growing in damp spots in the garden in company with its relatives, the Wax-berry Myrtle (*M. cereifera*) and the graceful, Fern-like *Comptonia asplenifolia*, both of which can, fortunately, be bought in nurseries.

There are various other native catkin-bearers, such as the Birches, Oaks, Hornbeams, Hop Hornbeams, and others, some of which are very beautiful in later spring, but not so conspicuous as those that bear catkins early.



Fruit-bearing catkin of *Garrya elliptica*.

Among foreign catkin-bearers the most popular is

GARRYA ELLIPTICA, from California, a beautiful evergreen that has found a home in our warm coast gardens, where it thrives as a bush to perfection. During the past winter I have seen it in Devonshire gardens in company with Aucubas and such like shrubs, and in as great vigour. At Nutwell Court, a delightful old tree garden on the banks of the Exe, I saw it finest, and with catkins quite a foot in length hanging on all sides of the plant in a most graceful way. In more inland gardens it must be grown as a wall shrub, and is quite hardy enough for a northern exposure. The male form is by far the better to grow, being more graceful in catkin than the female. *G. macrophylla*, a newer shrub, is one that we know very little about in this country at present; it may prove as hardy as the other, though it is doubtful.—W. GOLDRING, *Kew*.

A writer in an interesting article in the *Pull Mall Gazette* on "The Catkin Days" says:—

The catkin days might be said to commence in the autumn, when the Alder catkins form, although they do not flower until early spring; but country folk do not look for the catkins until late in the winter or early in the spring. February and March are the early months of the catkins, for then, before the leaves appear, the Sallow and Sweet Gale flower by the riverside and in damp hollows of the moorland. The Hazel has been described as a "look-ahead" tree, because it puts out its grey catkins before all the nuts have fallen and while the squirrels and nuthatches are still busy among its branches. It is essential that the flowers of these and other wind-fertilised trees should open before late spring and early summer verdure covers the branches and hinders the carrying away of the pollen. In summer the

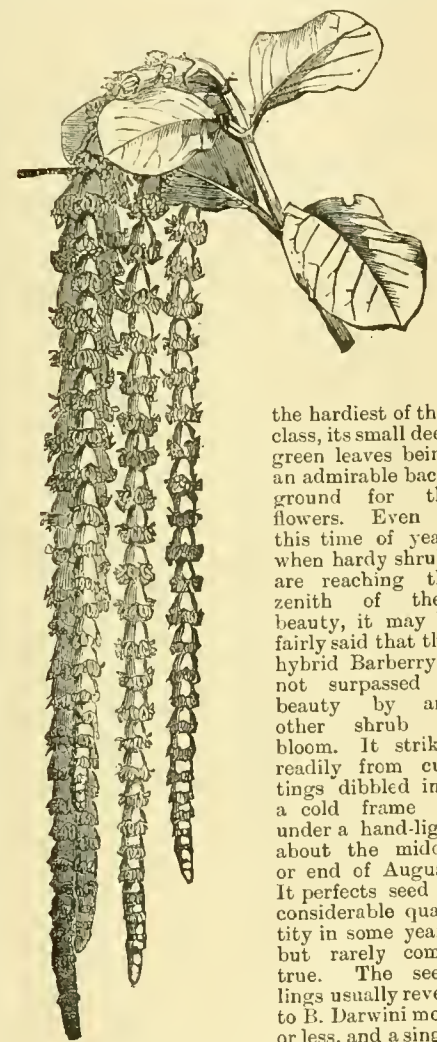
dense foliage almost conceals the flowers of many trees, and the breeze cannot fertilise them; so while the copses and hedges are almost leafless, and only the young seed leaves are visible on the banks and in sheltered nooks of the woodlands, the Hazels, Alders, Sallows and Willows hang out their catkins from their otherwise bare branches. These trees and shrubs thus adapt themselves to their conditions of life; for none of them is fertilised by insects, nor are there insects abroad so early in the year, with the exception of the winter night-flying moths. Besides flowering before the leaves appear, the catkins contain loose pollen, which the wind can easily bear away. The catkin flowers are, therefore, the earliest of our wild flowers, blossoming before the Marsh Marigold opens on the bleak fen, and while the winter winds blow keenly from the north and east. Children call the Hazel's pendulous catkins "cats'-tails," and some of them are fond of telling their companions that they are caterpillars, which, if laid on the palm of the hand, will crawl up the arm. The leafless twigs of the Goat Willow or Sallow, which bear soft, downy catkins, are often cut off during the last week in Lent, and used to decorate churches on Palm Sunday.

While the soft, purple-tinted catkins of the purple Willow are appearing on their richly-coloured twigs, the barley is sown and the rattle of the drill is heard in the fields. The shepherds have many sleepless nights in the sheltered folds, where the lambs, after being warmed into vitality by the fires in the wooden huts, are placed with the ewes beneath straw-thatched hurdles or under thicket hedges. Berries still deck the Hollies, Thorns, and Alders; and here and there the fruit of a wild Rose hangs like a red jewel among the withered stems of Bryony, wild Clematis, and Bindweed. Often during the early weeks of the year the cold winds cease to blow, and there are pleasant intervals of warm weather. At such times small swarms of gnats may be seen when the sun shines, and the frogs and toads leave the mud at the bottom of the dykes and ponds, and are seen lying, like creatures which have grown listless through long inactivity, on the growing weeds and rain-beaten Sedge. As yet they do not seem equal to uttering even a feeble croak; but as soon as the weather becomes more settled they bestir themselves more vigorously, and the tremulous trilling of the natterjacks is heard among the marshes. As the Hazel catkins lengthen, the flightshooter stays at home more, the punt-gunner leaves his boat moored for days together in the creek, and the decoyman rises less early in the morning to see whether the night frost has frozen the waters of the inlet which leads to the mouth of his decoy. Linnets and starlings, which have been flying about in flocks during the winter, resume their spring and summer habits, and the jackdaws return to the churches and other old buildings.

So the catkin days carry us beyond the first blooming of the Windflowers and Dog Violets and the arrival of the swallows. They represent a time of transition, of gradual but increasingly perceptible change from winter into spring. Some of the Willow catkins do not flower until late in the spring, and others, such as those of the dwarf and Whortle Willows, do not shed their pollen until early summer; but before then the white Poplar, the Aspen, and the Birch have been fertilised by the winds. The work which the boisterous breezes do for these trees and bushes is done for the later wild flowers by the butter flies, bees, and moths, and when these are abroad the catkin days are almost over, and the time of sunny days and peaceful nights has come.

BERBERIS STENOPHYLLA.

AMONG hardy shrubs no greater success has been obtained than that represented by *Berberis stenophylla*. It was raised in the Handsworth Nurseries, near Sheffield, and its parents are *B. Darwini* and *B. empetrifolia*. The latter is a dwarf shrub, rarely more than 1 foot to 2 feet high, with thin, decumbent branches. The better-known *B. Darwini* is a sturdy, erect-growing bush, attaining possibly some 20 feet in height in its native country and extremely beautiful when seen at its best, but here, near London, apt to be often seriously cut back during hard winters. Whilst *B. stenophylla* has got all the beauty of flower of *B. Darwini*, it has also inherited the greater hardiness of *B. empetrifolia*, and whilst it grows 10 feet or perhaps more in height, the influence of the dwarf parent is seen in its singularly graceful habit. It sends out every year long arching shoots 2 feet or more long, which during late April and early May are wreathed with beautiful deep yellow blossoms. It is perfectly evergreen and one of



Male catkins of *Garrya elliptica*.

the hardest of that class, its small deep green leaves being an admirable background for the flowers. Even at this time of year, when hardy shrubs are reaching the zenith of their beauty, it may be fairly said that this hybrid Barberry is not surpassed in beauty by any other shrub in bloom. It strikes readily from cuttings dibbled into a cold frame or under a hand-light about the middle or end of August. It perfects seed in considerable quantity in some years, but rarely comes true. The seedlings usually revert to *B. Darwini* more or less, and a single sowing will produce quite a variety of forms, none of

which, so far as I have seen, are equal to itself. Mr. Smith, of Newry, has sent out one of the best of these forms under the name of *B. reflexa*.

B.

Spiraea arguta.—Whilst most of the early *Spiraeas* have this year been a failure, this hybrid has been as beautiful as ever. The opinion has been more than once expressed that it is the most valuable of all the *Spiraeas* that flower in April and early in May, and certainly the experi-

ence of the last two seasons supports that conclusion. It seems, indeed, to be indifferent to all kinds of weather. It was raised at Münden, in Hanover, by Herr Zabel—the leading authority on Spiræas at the present day—from *S. multiflora* (the seed-bearer) crossed with *S. Thunbergi*. *S. multiflora* is a hybrid between *S. crenata* and *hypericifolia*, so that the present plant is the product of three distinct species. The leaves are of a vivid, rather pale green. The flowers, borne in compact clusters on the upper side of the thin and wiry, but graceful and arching twigs of last year's growth, are of the purest snow-white, and last long in perfection. All lovers of hardy shrubs ought to obtain this Spiræa as soon as possible. Several groups of it may be seen at Kew, these having been in flower since the middle of April.

Rhododendron Vaseyi.—It is remarkable that a shrub of so striking a character as this species and a native of (as one would imagine) so well-traversed a part of the world as North Carolina should have been unknown to cultivation in this country till within the last decade. But it is only about ten years ago that there is any record of its being sent to England, seeds of it having been about that time received at Kew. It is a deciduous shrub, and really belongs to the Azaleas. On the mountains of North Carolina it is described as forming huge bushes 15 feet high, and when in flower one of the most beautiful objects conceivable. The flowers begin to open towards the end of April, and at first are of a clear pale pink, with red-brown spots on the three upper petals; as they get older they change to an almost pure white. Each flower is about 1½ inches in diameter. There is a group of plants now fully in flower in the Azalea garden at Kew. This species bears a considerable resemblance to the rare Japanese *R. rhombicum*, both flowering at the same time and whilst they are still bare of foliage.

Citrus triptera.—This is one of the most distinct of all our shrubs, and particularly interesting from the fact that it is the only member of the Orange family hardy in this country, while in places where it is now in flower it is very attractive. It does not, however, bloom everywhere with equal freedom, as it needs a position where the wood will be thoroughly ripened; hence it should not be planted in moist or shady spots. A flourishing plant of this Citrus is a decidedly formidable object, as it forms a freely-branched, sturdy bush, thickly studded with stout spines, which are all the more conspicuous from the fact that its leafage is but scanty. These spines, the bark of the shoots, and even the branches (except the very oldest) are bright green; hence in winter, when devoid of foliage, it is almost as effective as an evergreen. The leaves, which are trifoliate, die off in autumn richly tinted with yellow. The starchy, white flowers, so conspicuous just now, are each about a couple of inches in diameter. The fruits, which are like small Oranges, are rarely produced in this country. The above name is that under which it was figured in THE GARDEN, September 22, 1894, while in the Kew List it is referred to as *Egle sepiaria*. Other names that have been applied to it are *Citrus trifoliata*, *Limonia trifoliata*, *Pseudogle sepiaria*, and *Triphasia trifoliata*. It is a native of China and Japan.—H. P.

Cytisus albus.—Such a number of the Brooms have flowers of some shade of yellow that the value of this species is considerably enhanced by its having white blossoms. It is known as the White Portugal (or sometimes White Spanish) Broom. It grows 10 feet to 15 feet high, and when old is usually bare at the bottom, the upper part consisting of a heavy mass of long slender stems, which are almost devoid of leaves, but are themselves of a dark green colour. Like several others of this class of Cytisus, this may, in spite of the absence of foliage, be included among evergreen shrubs. It is now rapidly coming into bloom, its flowers being almost pure white, with no tendency towards yellow. It

appears, indeed, to be inclined rather to sport towards red, the charming variety incarnatus having flowers prettily tinged with pink. It is best raised by means of seeds, which it ripens in plenty every year. The young plants ought to be topped occasionally during the first two or three growing seasons so as to get a bushy, stocky base, otherwise they are liable to run up a single stem to some height and become lanky and bare at the bottom much sooner. This Broom is very effective planted either singly or in groups in the shrubbery, but it should be set back a few feet from the front so that dwarfier things may be grown to hide its base, and yet allow its dense, but still elegant mass of flowering stems plenty of room.

HIMALAYAN RHODODENDRONS IN ARGYLLSHIRE.

I AM glad to be able to give your correspondent, Mr. Stephen A. Marshall, some information regarding two very fine lots of these handsome Rhododendrons, one being in the gardens of Mr. C. P. G. Campbell, of Stonefield, Tarbert, Lochfyne, the other at the residence of Lord Malcolm, of Paltalloch, Lochgilphead. Stonefield is situated on the banks of Lochfyne and sheltered from high winds. A short time ago I visited Stonefield and saw the Rhododendrons in their glory—a grand sight. They were in lovely condition, fine in foliage, and laden with flowers. All are planted on sloping ground, and get no protection whatever except the shelter from the trees and shrubs growing through the grounds. They grow equally well in different exposures, and many of them get full sunshine. The following measurements kindly given to me by Mr. Robertson, the gardener, may give a better idea of the fine specimens to be seen at Stonefield growing on the lawn, which is adorned with large quantities of Wood Anemone (*A. nemorosa*) and yellow Primroses.

	Height.	Diameter.	
	ft.	in.	ft.
<i>R. barbatum</i> . . .	10	9	16 over 500 blooms.
<i>R. cinnamomum</i> . . .	18	0	20 covered with bloom.
<i>R. eximium</i> . . .	10	0	15 150 blooms.
<i>R. Falconeri</i> . . .	17	0	17 200 "
<i>R. niveum</i> . . .	17	0	— covered with bloom.
<i>R. fulgens</i> . . .	9	0	16 " " "
<i>R. Thompsoni</i> . . .	10	0	12 " " "

Ciliatum, *glaucum*, *Campbelli* and *campylocarpum* are smaller specimens, but beautifully flowered. At Paltalloch the Sikkim varieties thrive well, but *Falconeri* does not flower here as it does at Stonefield, although it grows strongly. *Falconeri*, *Thompsoni*, *campanulatum* and *campylocarpum* are our largest specimens, the last with its sulphur-yellow, bell-shaped flowers being very handsome at the present time. Lord Malcolm, my employer, informs me that *campylocarpum* has been planted out at Paltalloch for more than twenty years. *Hodgsoni* and *Wallichii* are small, but stand all weathers. The humid atmosphere and heavy rainfall on the west coast of Scotland no doubt have something to do with their well-being. D. S. MELVILLE.

NOTES & QUESTIONS.—TREES & SHRUBS.

Cratægus maxima.—It is doubtful if there is a finer Thorn than this. I measured some individual blossoms recently, and they were fully three-quarters of an inch in diameter. They were produced upon a standard plant that is pruned rather hard each season in order to keep it in bounds, and the head of the tree is one mass of blossom. The flower, however, is only one of its attractions, for it has handsome foliage prettily serrated, and in the fall the brilliant coral-red hedges are of great size and produce a brilliant effect.—P.

Ribes aureum præcox.—This early-flowered form of *R. aureum* is worthy of a place among flowering shrubs, and should be grown in preference to the type, as its earliness makes it more valuable, coming as it does into bloom well ahead

of most other spring-flowering shrubs. These yellow-flowered Ribeses are not seen so frequently as the common Flowering Currant (*R. sanguineum*), and probably they are not so cheery as that old favourite, but they help to give variety, which is one of the great charms in the garden or the shrubbery.—J. C. T.

Lawson's Cypress makes one of the best living wind-screens that can be planted, and useful for the purpose either as a fairly tall-growing tree for sheltering orchards or as a low hedge plant amenable to cutting in (with the knife) to keep it low and to prevent its spreading too much. It keeps its roots pretty much at home considering its rapidity of growth, transplants readily in spring, and is not prone to losing its lower branches, as are many other of the coniferous trees and shrubs, while the sturdy stem it makes enables it to resist wind-storms.—J. C. T.

Rubus deliciosus.—This must, I think, be regarded as the most chaste of all the different species. In general appearance it is very suggestive of a member of the Currant family, the bright lobed leaves as well as the unarmed character of its stems and branches lending colour to this. It forms a somewhat open, gracefully disposed bush, which is just now plentifully sprinkled with pure white Dog Rose-like blossoms, each about a couple of inches in diameter. This *Rubus* is a native of the Rocky Mountains and is perfectly hardy in this country, though it is occasionally treated as a wall plant, in which position it flowers profusely.—T.

Seedling Cydonias.—I would recommend growers to plant these extensively, and they will be agreeably surprised at the great diversity of colours. In looking over a batch of seedlings the other day, I could pick out such colours as apple-blossom, buff, brick-red, scarlet-orange, white tinged with sulphur-yellow, carmine, ruby-red, salmon, and peach. In shrubberies or the wild garden a quantity of these seedlings should be interspersed, and one never knows but that some beautiful colour will be found that will be really worth perpetuating. I like to grow these *Cydonias* as bushes. This form seems more natural to them than training them on a wall. Should a very superior kind appear, it can be best increased by layering.—P.

The common Box.—A favourite place for mixed borders of herbaceous plants is the foreground of shrubberies, and here many of the plants suffer from competition with the roots of the shrubs, and, unless the border is a wide one and the plants kept well away from the shrubs, manuring and replanting avail very little, as the ground is no sooner freshly turned than the shrub roots run into it seeking food, which their vigour enables them to rob from their weaker competitors. Quite the worst of these robbers is the common Box, the roots of which are out of all proportion to its top growth, and will run right through a wide border, forming a complete network, in a very short time taking all moisture out of the soil, and manuring anywhere near such plants only aggravates the evil, as they glory in it. Either Box should be kept out of such back-grounds or the borders should go, as the occupants can never make really satisfactory growth or withstand the effects of a dry time, looking miserable except during the first weeks of spring when they commence making growth.—J. C. TALLACK.

Worms in the soil.—I have been much troubled with earthworms in my garden, during the last two months particularly. They have been most destructive in dragging in young seedlings, and many patches of seed have quite disappeared owing to their ravages. In moderation, worms may be useful in keeping the soil open, but mine is a free loam, and my one great enemy is the earthworm, which appears as a veritable army of occupation. What can I do to make them beat a retreat?—H. H. WARNER.

* * * A showery spring invariably favours slugs and worms in their work of destruction among

advancing crops, seedlings as well as newly put-out plants being dragged down into holes wholesale by worms. Undoubtedly good service is done by the latter in bringing up fresh soil to the surface and in forming natural drainage holes for the surplus water that falls during the duller months of the year. Fresh or newly-slaked lime is one of the best remedies for worms I have ever tried. This should be applied prior to cropping the ground, at the rate of half a bushel or rather more to the square rod, and duly forked into the surface. I do not say that this dressing will wholly rid the ground of worms, but it certainly thins them down and acts beneficially in other ways. At the present time or during showery weather a light surfacing of newly slaked lime may be stirred in among rows of plants with advantage, and worms seldom interfere with plants or travel on ground lightly coated over with either lime, soot, or very fine ashes. Watering a large breadth of ground with lime water is a rather heavy undertaking, but is worthy of a trial. Slake and add enough lime to the water to make it the colour and consistence of milk, and this applied freely to either cultivated ground or a lawn brings worms to the surface very quickly, when they should be collected and destroyed. Watering with a weak solution of carbonate of ammonia has been recommended, but this I have not tried.—W. I.

BOOKS.

GARDEN-MAKING.*

GARDENING is so essentially subject to conditions of climate, that its practice in one country obviously differs materially from that in another, and particularly is this the case in countries so remotely separately and diverse in climate as America and England. Consequently a book written for the guidance of gardeners in America can be of but secondary value to us in England, however complete and excellent it may be. The book under notice that has just come to us from America is from the prolific pen of Prof. L. H. Bailey, and is written presumably for use in the Eastern States, where methods of culture differ somewhat widely from our own. But there is always interest to be found in reading what Americans have to say about gardening. They have a different way of expressing themselves in describing even the commonest garden operations, and we generally find some novel information about methods, differing from our more conservative and, to them, perhaps, antiquated ideas. This is more particularly noticeable in what are called labour-saving appliances, which in a general way the English gardener is sadly in need of.

In the first part of the book these various contrivances for saving labour are dealt with somewhat fully, and the illustrations of these implements and tools make quite a formidable array. If all these tools are used by American gardeners, their tool houses must contrast markedly with the modest assortment in English gardens. There are subsoil ploughs (plows they call them) of various types, as a saving of labour in the expensive process of deep trenching, harrows of wonderful design, wheel hoes, scarifiers, line markers, and cunningly devised rollers, while from the varied assortment of weeding weapons one is inclined to think that the American gardener has to contend with a particularly troublesome tribe of weeds. The forms of spraying pumps are complex, and much space is devoted to the ways of using the several mixtures for the annihilation of insect pests, which, like the weeds, seem to be of a virulent nature and a source of anxiety in American gardens. A chapter on labels does not teach us much that is new, and no mention is made of the cast raised-type label so general in use with us, nor of that best of all labels the

"Kew"—tablets of sheet lead stamped by steel dies, very legible and imperishable. Some of these implements, tools, and appliances might with advantage be introduced to our gardens, and this is why it would be well for gardeners in large gardens to add the book to their library. But so long as we continue to grow vegetables in private gardens in the way we do in confined walled plots kept as neat as flower gardens instead of the more rational plan of open field culture, the various kinds of horse-power tools will be of little use to us beyond the market garden.

The title of the book would lead one to suppose that its main object is to teach "garden-making," but the matter relating to this is quite subordinated to methods and details of culture. The book is curious in this way, that while the first part is devoted to methods of culture on a broad scale, suitable as we should term for market gardening on a big scale, the second part, dealing with garden-making and planting, is for the most part descriptive of how to deal with forecourts and backyards, so that the book does not add much to our knowledge of the art known under that much abused term, landscape gardening. There is the usual chapter dealing with what are called the "fundamental principles of landscape gardening," the full meaning of which can, perhaps, only be grasped by the writers of such principles. People who essay to teach the principles of designing and planting gardens seem always to overlook the fact that one can no more teach by written instructions how to make a tasteful garden than to teach by writing how landscape pictures should be painted. In both arts the conditions are infinite and ever-varying, and must be dealt with individually according to the skill of the artist.

Mr. Bailey is obviously in sympathy with the beautiful in gardens, in the free, unrestrained growth of tree and shrub, and an opponent of artificiality—if such, indeed, can be avoided in making gardens, seeing that in nine of ten cases a garden is purely an artificial creation. He condemns and ridicules carpet bedding, though it is curious to observe (at p. 243) that his colleague writes thus: "The beauty of the carpet bed lies largely in its unity, sharp contrast and harmony of colour, elegance of design and nicety of execution," &c. Fine language this in which to describe what in another part of the book is held up to ridicule and inferentially condemned as extremely vulgar. Carpet bedding in the public gardens of the States needs no encouragement. The fashion when I was there seemed to be in an acute stage, but it will no doubt die out (as it has in England to a great extent) when American gardeners can educate the public taste by more refined and quieter charms of tasteful gardening. The shearing of trees and shrubs into shapes is condemned by the author as barbarous. When this is practised on flowering shrubs we all know that it is the work of men of a low type of intelligence. It is pleasant to see that the methods of systematic arrangement of mixed borders is advocated, and a plan is given of irregularly-planted ones such as was done here years ago in THE GARDEN by Miss Jekyll. But the author praises a border and illustrates it which is "2 feet or 3 feet wide!" Let us hope that in a country of bold ideas borders thrice the width will be made in order to obtain a really fine effect from hardy flowers.

There is a copious catalogue of trees, shrubs, and hardy flowers which might with advantage be more amplified in description, so as to render it more useful. The chapters at the end devoted to fruit and vegetable culture are no doubt excellent and of value in America. What strikes one as singular is that among all the varieties of fruits and vegetables mentioned, very few indeed are the same as we grow, unless, indeed, the same sorts occur under other names.

On the whole it is a compact hand-book, though in our advanced stage of gardening we perhaps should consider that too many subjects are dealt with in too narrow a compass. The book is copiously illustrated, but for the most part the

illustrations are very inferior to the beautiful work in this way that one sees in American books.

W. GOLDRING.

THE MARKET GARDEN.

MAIDEN-HAIR FERN FOR MARKET.

THE Maiden-hair Fern (*Adiantum cuneatum*) is without doubt the most indispensable of the Fern tribe from the point of view of cutting. Despite the fact that its fronds are in daily demand, yet as a pot plant it is not so well suited to town work. Its chief use therefore is for cutting. Yet, popular as it undoubtedly is at the present time, it is equally certain that its use has during recent years been considerably modified, more especially during the summer months, when so much of the foliage of hardy trees and shrubs is put to good use. Apart from this, however, it has a fairly long season, and it is this fact which in the end renders it a profitable crop, provided, of course, it is well grown and of the right colour, both of which are most important. So far as its culture is concerned, it is so generally easy to manage and is so free from disease and the like, that almost anyone may embark in its culture, but not necessarily grow it to the standard of excellence required by the florists. Indeed, there is a very wide difference between growing this Fern for the costermonger and the West-end florist. Not only does it require to be well grown, but it requires both judgment and care in the picking and bunching also. A grower who makes this Fern a speciality is frequently put to his wits' end to maintain the supply, while his next-door neighbour is requested not to send any more for the present. This latter is frequent during summer when the demand is slack, and it is more frequently the outcome of work slovenly done. Some few years ago a neighbour was growing this Fern in quantity, but ever complaining of the price he received—a price, indeed, that would be ruinous if long continued. Calling upon him one day, he ventilated the same complaint, when I made a few inquiries, which resulted in my being introduced to his supply for the following day's market, then already bunched and in water. Roughly grasping some bunches from the tank, I was informed such bunches were only realising 1s. 6d. per dozen on the market, which was "ruinous." It was the grower's own fault, as at least half the bunch was composed of waste, and the best very inferior indeed. A closer inspection revealed the fact that the Fern in question had not been "picked"—this was too much trouble—but had simply been scrambled off by a schoolboy of a dozen years old, the bunches in question containing many young fronds just starting from the crown, and even roots, so ruthlessly had it been torn from the plant. Scarcely a frond in the bunch was worth marketing, and the plants were being ruined wholesale, yet the owner was confident it would not pay to let a more reliable youth gather it each day. Good Fern was then realising from 6s. to 7s. 6d. per dozen bunches, yet the grower in question was virtually bringing about his own ruin by a careless mode of culture. The item, too, was no inconsiderable one, as the range was some 350 feet in length, splendidly heated, and well suited to the work. Eventually the crop was discarded as worthless. This is a case of bad culture and its results. In my own immediate district there are many growers of Maiden-hair Fern, several in quite a large way, who can afford to have succession houses, say one to four in cut, as many more coming on, and an equal number resting. It is in this way the best Fern is produced, a way, moreover, that is not only much easier for the owner, but more sure to produce a good crop of fronds simultaneously. In smaller establishments much the same order prevails, only on a smaller scale, the crop being gathered throughout the house, taking what is ready from each plant

* "Garden-Making: Suggestions for the Utilising of Home Grounds." By L. H. Bailey. New York and London: Macmillan and Co.

individually, then passing to the next, and so on. The really

ESSENTIAL DETAILS

to good Fern growing are few, the chief of these being abundance of heat and low, compact, sheltered span-roofed houses. These houses usually are about 12 feet to 14 feet wide and 100 feet or more in length, 4 feet high in the outer walls, and 7 feet at the ridge. Such a house should have not less than six rows of 4-inch piping, and in truth many of this stamp have seven, and others slightly larger, eight rows. This is one of the most important items in the successful culture of *Adiantum cuneatum*. With the piping stated it will be quite easy to maintain a temperature of 70° to 80°, different growers keeping their houses at varying temperatures. In some instances there is no limit whatever to the consumption of fuel for Fern growing. In places such as these special men are kept, who do absolutely nothing else all the year through. Most frequently the pots are arranged on open wooden stages—stout laths nailed on at about 2 inches apart. In this way the heat percolates freely beneath and around the pots. The latter in the best Fern-growing establishments are never placed on a cold, solid bottom. On the open stage the roots receive the warming influence from the pipes, and these being in quantity are not necessarily kept at a high temperature. In these conditions growth is quick and the fronds assume a good length, which is a point always in their favour. Moreover, as at each picking all rubbish is cleared off, the fresh fronds have ample room to develop, and are not hampered in their progress by many existing fronds, so closely is the crop picked from time to time. It is here that a great difference exists between the Fern grown in private gardens and in market gardens. In the former much is grown for decoration in pots, in which case the plants are not picked. In the latter all is grown for picking, and therefore the fronds are usually removed as soon as ready, provided the season is right also. Overcrowding of crowns is rarely known in the best market-growing places, as the plants are subjected to division periodically, an item which means an enormous increase of stock, but this is not permitted beyond the limits of the glass, as the oldest stools are constantly being discarded. In this way I have seen as much discarded in one season as would fill three large houses 120 feet by 24 feet merely to make room for younger stock. Such great heaps as this are not wholly sacrificed; as the soil and Fern rot down they are used again for Fern potting, and make a capital mixture. Usually the

DIVIDING AND REPOTTING

of this Fern take place in summer, when the potting bench may be placed in the open, and when the demand for Fern is usually low. There is no special rule with division, a plant being cut into two or three, according to size, or it may be pared down to make a good central piece for potting again. Much of this depends on the stock, the amount of space to be filled, and whether there is younger stock to follow on. In some places a considerable quantity of seedlings is raised, and if grown rapidly from the first change of leaf, good plants suitable for 6-inch pots can soon be had. One great advantage of seedlings is the usually increased vigour of the fronds and the generally compact character of the crowns; yet, notwithstanding the seedlings do not meet with the favour one might expect, unless it be in the small pot plant department where Ferns in pots of 2 inches and upwards are a feature. The soil employed consists chiefly of loam, with a free addition of leaf soil, some sharp sand, and occasionally a little peat. As a rule, however, peat is not employed; indeed, in many places, with thousands of this Fern in 6-inch or 8-inch pots, peat is unknown, so to speak. Very little use also is made in Fern-growing of the endless manufactures of manure, though frequently some well-decayed horse manure is employed in the soil, and this with advantage. Artificial manures in

the soil or as a top dressing are chiefly objected to because of the tendency to make the Fern too dark in colour, when it is not so saleable. What is regarded as the best in point of colour is that of a rather pale green tint, as opposed to the heavy dark green shade so frequent.

PICKING AND BUNCHING

where this Fern is grown in quantity are of course a considerable item, and also requiring a good deal of care and judgment. In some nurseries both are done spontaneously, while in others it is taken to the flower packing shed and bunched by a separate staff. A bunch of good Fern may contain from twenty to thirty fronds, and when of the best, stems and fronds are some 12 inches or 15 inches long. The kind of bunch that is mostly favoured is a rather flat spreading one which is readily packed without much crushing. In all Fern nurseries special water tanks are reserved for its use when bunched, or where no tanks exist the water tanks in the houses have to do duty for the same. A good soaking of water is, however, regarded as necessary before placing it on the market, and in some instances it is in water for hours before being packed, while others work the day's supply one under another by keeping a day's picking always on hand in the tanks. In this way in the busy season the grower is ready in case of urgent telegrams being received. One aim of the Fern grower on a large scale is to provide a good stock for the winter months, when it usually brings the best price. As a rule, however, from the end of September there is a fair demand until the end of May, though it does not follow the price is uniformly good throughout. Fairly good Fern is often bought at 3s. per dozen bunches, the better samples realising more, while much of the finest Fern is ordered, and maintains a uniform rate between certain fixed dates, to be lowered or increased after according to season. "Ordered" Fern of course does not come into market competition, so to speak, though the regular buyers are the purchasers of it. According to the season of the year good Fern may realise from 4s. to 6s., later on increasing to 7s. 6d. per doz. bunches. In times of scarcity, however, 10s. 6d. and 12s. per dozen bunches is often paid for the finest Fern, though half this amount may be taken as more representative of average London prices.

A GROWER FOR MARKET.

HOEING.

It is little short of remarkable how, in many otherwise well-managed gardens, this most important of all summer cultural aids is neglected. Why is not the hoe used more? Were the hoe used a little oftener, far better results in fruit and vegetable culture would accrue. The garden here is not large, it is true, but, as a rule, the larger the garden the more strength allowed to keep it up, and I may say that nothing gives me less trouble to keep under than weeds, simply because in keeping other crops growing they are killed, or, if a vacant plot is in question, it is run over with the hoes fortnightly. There are few crops that are not benefited by running the hoe lightly through them as often as possible; it allows sun and air to get at the roots, and by the frequent disturbance of the surface makes a mulch of fine loose soil. Vegetable or fruit quarters frequently hoed give very little trouble, as the weeds have not time to get up, but once let them seed, and there is trouble in store for several seasons. Soils frequently hoed seldom crack badly in summer, so that the time spent in hoeing is more than saved in watering, to say nothing of the tidy appearance always presented when the hoe is freely used. I never have a single plot hoed, but begin at one end of the garden and go through it. No raking or sweeping up is necessary; a tidy man makes a clean sweep with the hoe, and the weeds being small, an hour's sunshine is fatal to them. Often, owing to the carelessness of predecessors, there are posi-

tions difficult to clean of perennial weeds, such as the wild *Convolvulus*, ground Elder, or Twitch, and various kinds of Thistles. In the open quarters these are rapidly got rid of, as no weed, however persistent, can stand being repeatedly cut with the hoe; but round Raspberry canes, on Asparagus beds, and in and about old clumps of herbaceous plants these are difficult indeed to thoroughly eradicate. These must be cleaned with the hand as often as the open quarters are hoed, a boy being put alongside a man to do it, and if this is done as often as possible, a neat and tidy air is given to the garden as a whole. B.

GARDEN FLORA.

PLATE 1172.

TWO CHRYSANTHEMUMS—LOUISE AND DELAWARE.

(WITH A COLOURED PLATE.*)

THOUGH the two *Chrysanthemums* shown in the accompanying plate belong to widely differing sections of the Golden Flower, they have one eminently satisfactory character in common, viz., dwarfness of habit, which fits them for inclusion in all collections, as they require no lofty-roofed houses in which to display their flowers. Louise, which was sent out in 1893, belongs to the incurved section of Japanese varieties, a section which has vastly increased in numbers of late years, and some of the latest arrivals are of such a formal type that, except to the eye of the specialist, who concerns himself more with the exact form of the tips of petals than with the form of the flower as a whole, it is hard to separate them from those of the true incurved type, and it appears to be only a question of a few years when the already vanishing barrier dividing the two sections shall have disappeared. It is to be hoped that this increase will only be tolerated so long as it gives us more beautiful varieties than we already possess, and that the incurved Japanese will not become fashionable enough to drive out of cultivation many of the older types of Japanese which are certainly more graceful in form. Against Louise, however, no charge of formality can be laid; it may be reckoned as among the best of its type, and there is always room for the best of all types. Moreover, it is one of the easiest to grow, and is so amenable to treatment that it may be had in good form for from three to four months in succession; it is also one of the best for cutting. By selecting early buds, good flowers may be had in October, and, as the plants form a quick succession of breaks, either of which will give good flowers, there is no need, except, perhaps, in timing the buds for exhibition, to trouble as to which bud is taken. The flower in the plate appears to have been grown from an early bud, and the colours and form of such a flower are truly represented; later selected buds would give flowers with more colour in them and with petals slightly less in breadth. I have had excellent flowers of this variety on plants not more than 2 feet in height, and it seldom reaches more than 3 feet high. Being a healthy grower it usually carries its fine leaves well down to the pot and makes a cheerful-looking plant. Delaware belongs to the large-flowered section of the Anemone varieties, and is certainly one of the most lovely of that little-grown class. The colour contrast between the lemon-coloured disc and clear white guard petals is sharp and well defined, a characteristic not

* Drawn for THE GARDEN by H. G. MOON. Lithographed and printed by J. L. Goffart.



TWO CHRYSANTHEMUMS. 1. LOUISE. (L. 1897)

common in Anemone-flowered Chrysanthemums, the coloured varieties of which are generally mixed and indistinct as to colouring. I have found Delaware rather delicate in constitution, but a little trouble taken with it is amply rewarded, and there are but few others which can be depended upon to give such good flowers from plants which remain comparatively puny during a great part of the year, though they increase rapidly in vigour when the cool nights of autumn come on. It is a variety that requires disbudbing to get full-centred flowers, and the best course of treatment is to select the first well-shaped buds which show, irrespective of the break on which they may occur. The earliest buds are often defective in form and will not make good flowers; this trait is common to the section. Delicacy of constitution is an inherent failing among many of the best-formed Anemone-flowered Chrysanthemums, whether they belong to the large-flowered, with their short and mostly straight guard petals, or to the Japanese Anemones, with loosely arranged and usually drooping petals, and I think it is due to this failing more than to anything else that they are not more often seen both in private collections and at shows, for the flowers themselves are beautiful, and give a pleasing variation in form. The pompon Anemone section embraces many beautiful and healthy-growing varieties; indeed, they are as a class better growers than the others. Having been much interested in Anemone Chrysanthemums for many years, during which a large number of varieties have been through my hands, I give here a short list of some that stand out very prominently in my estimation as good, healthy growers, and all have some special claims to favour—some for their beauty as individual flowers, others for their value as producers of attractive decorative sprays. All, too, have stood the test of time, so trying to Chrysanthemums generally, and the one true test for intrinsic worth. The list might be extended, but none of those chosen could be left out of a select list.

First and best among them all is a very old variety, *Fleur de Marie*, a lovely pure white flower, and magnificent whether as an individual flower or as grown in the spray form, for which it is well adapted, and always one of the most admired. *Mme. Robert Owen* is another good white, and if anything still more clear in its whiteness than the foregoing, but with me the plant is never so strong, and it has the disadvantage of being weak in the peduncle. *Lady Margaret* is also white, but not so pure; it is robust for an Anemone and large-flowered, but many of its biggest flowers come oval instead of round in outline. *Sœur Dorothee Souille*, a rather dwarf grower, gives beautiful sprays; the fringe of rosy lilac guard petals curls inwards and lightly covers the white disc: it is highly valued for the house. *John Bunyan* and *J. Thorpe, Jun.*, are two of the best yellows. *Descartes*, a dwarf-growing variety, should be grown in any collection for its colour, which is a good crimson-red. *M. Charles Lebocqz*, also dwarf-growing, bears well-shaped flowers, citron-coloured at first, but which become tinged with carmine as the flowers get old. It is excellent for sprays.

Among pompon varieties, the old *Marie Stuart*, though tall-growing for a pompon, is quite the best I have found for producing good sprays, which can be cut with a good length of stem and hold themselves erect; it has lilac-blush guard petals and a pale yellow disc. *Mr. Astie*, a pale yellow, dwarf-growing variety, is also good. *Reine des Anemones* has small

white flowers freely borne in spray form, and *Emily Rowbottom*, a creamy-white sport from *Marie Stuart*, is the worthy offspring of a worthy parent. J. C. TALLACK.

THE WEEK'S WORK.

KITCHEN GARDEN.

AUTUMN PEAS.—Those who have a large demand for vegetables will find autumn supplies invaluable. By the term autumn, the season from the end of August to early October is meant, a period there is never a great supply, as the tall varieties sown now are not reliable if the season is hot and dry or the rainfall excessive. In some soils late Peas give little trouble. This is often the case where there is a good depth of soil and moisture is not lacking in the earlier stages of growth, as should the latter occur mildew attacks the plant, causing a failure. I am not much in favour of the tall kinds for latest cropping. Even now, with so many excellent varieties to choose from, *Ne Plus Ultra* is difficult to beat, but even that variety does not succeed in all soils. To show how soils and locality influence the growth of Peas, when I lived in the north *Veitch's Perfection* was grown with little trouble well into October, but in different soil and a warmer locality I cannot grow it at all. This points out the necessity of cultivators growing those kinds which they find reliable. For autumn supplies I find dwarf growers, such as are suitable for May or June cropping, good. I rely largely upon *Daisy*, *Gradus*, and *May Queen*. All are good, but the last does well in poor soils, being a vigorous grower. As regards the cultivation of late Peas, the season and soil must be studied, as the plants have more adverse conditions to contend with than the earlier Peas. A rich root-run is needed for this crop, it being essential to rely upon a quick growth. Deeply-dug land well enriched is a necessity. Thick sowing is a mistake, as unless there is a good plant to withstand the rapid changes of weather, mildew is so prevalent that the crop does not pay for culture. For early September supplies it is well to sow at this date, and here large growers may find a place for such as *Ne Plus Ultra*, *Main-crop*, *Continuity*, or *British Queen*, but towards the end of June I would advise dwarf kinds. These, being rapid growers, mature more quickly. For weight of crop, these noted above are excellent. To get the best results in poor soil with late Peas it is advisable to grow in trenches if the varieties are tall, and even with the dwarf kinds it is well to manure freely or grow in deep drills, the latter being valuable in seasons of drought. Seed sown in drills or trenches should be placed at regular intervals, say 4 inches to 6 inches apart, not sown so that the seeds touch. If tall varieties are grown, it is best to give a good space between the rows. I crop between with dwarf plants, so as to give the Peas ample space.

DWARF BEANS.—There is often a demand for dwarf Beans, and in many gardens much space cannot be given to runners. In sowing the dwarf section at this season for succession crops, it should be noted that to do the plants justice there must be a deep root-run and ample food, as drought or poorness of the land is fatal, the plants becoming a prey to red spider. The newer varieties of the *Tender* and *True* types are invaluable for present sowing. As these bear so freely and so much longer than the smaller dwarf kinds they are more profitable. For mid-July and August supplies I find the dwarf Bean does best in an open position, as on a south border or sheltered place the plants are more liable to insect attacks. At this date, with rapid germination, there is no excuse for thick sowing, as the plants should have the space advised for late Peas. Any of the larger varieties, such as *Canadian Wonder*, do well for the season named, using the smaller *Ne Plus Ultra* or *Syon House* for latest sowings.

Plants just showing bloom in the open will be benefited, should the weather be hot or dry, by liberal waterings overhead late in the day, and as growth increases food may be given freely in the shape of liquid manure or a good fertiliser. In the case of plants in full bearing, it is well to gather every other day, as, once the pods are allowed to harden, the plants lose vigour and cease to bloom.

RUNNER BEANS sown or planted early in the month will now need staking. Staking is important with the runner, as, if neglected, the plants are later in flowering, and the season is none too long. Thinning should first take place, as if the plants are at all thick they become such a mass of top-growth later on that it is impossible for the flowers to set freely. The runner will bear a much heavier crop if given plenty of room, and to induce early podding the plants may be topped at 6 feet from the soil; indeed, some of the heaviest crops I have seen were from plants grown with 6-foot sticks, like Peas, and kept topped. In plants 9 feet to 12 feet high it will be found the bottom portion of the plant is bare. Such tall plants are difficult to gather pods from, and are the first to suffer from drought or frost. A succession sowing may now be made for latest supplies on an open border, giving the plants ample space in the row and between the rows. Those who have not much space at command and prefer the runner to the dwarf type may with advantage sow in rows 3 feet apart, and stop the plants at 15 inches from the soil. Repeated stoppings are necessary, as the plants must be kept dwarf. This plan is largely adopted in market gardens, and is suitable for gardens with none too much ground at disposal.

SEAKALE.—So much depends upon the culture of the plants during the next two months, that a few notes as to feeding, thinning, and other details may not be out of place. Thinning of the crowns is the most pressing work, as after the sets are planted they push forth numerous crown growths, and if all are left to grow they cannot develop into strong ones for forcing. One crown is ample. It may be necessary to go over the crown growths several times during the growing season to prevent new side growths making headway. With elder roots the growths should be restricted to two or three, one crown to each being sufficient. I do not advise retaining old roots, as better results are obtained from young ones, or those two years old at the most. Feeding may commence early. My first dressing is a liberal one of salt and soot given in showery weather. In poor land later on few plants are more benefited by liberal supplies of liquid manure. Fish manure and guano are excellent fertilisers where liquid cannot be obtained.

ARTICHOKEs.—The *Globe* variety is now showing heads freely. In some gardens liquid manure is plentiful, and it should never be allowed to run to waste. The *Globe Artichoke* will be greatly benefited by weekly supplies, and few plants will take it in stronger doses if not applied directly to the leaves. Failing liquid manure, other food should be given, as in light soil these plants need much moisture. Early in the month it will be well to give a mulch of partially decayed manure along the rows. This will retain the moisture given and prevent attacks of red spider. *Jerusalem Artichokes* are now large enough to thin out, as it often happens with plants occupying the same quarter in previous years, no matter how carefully lifted, that the sets throw up out of the rows, and it is well to thin to a good distance; a yard at least between the rows is none too much, and half that distance in the row. Frequently go over the quarter with the hoe whilst the plants are young to cut away stray growths.

SALADS.—Radishes, as long as they can be grown crisp and sweet, find favour with many, but to retain their solidity it is necessary to vary the culture in the early summer. There is more difficulty in getting good roots from this date than in the early spring or late autumn, heat and drought being fatal. A supply may be secured by sowing in cooler quarters, and doubtless the large, long-rooted kinds feel the effects of

heat and drought less than the Turnip-rooted section. A cool corner may be secured under a north wall; failing this, a moist situation, or between rows of Apple or Pear trees, the partial shade from the trees keeping the plants cool. If occasionally watered overhead after a hot day, the roots do not become strong, and last longer. Lettuces during the summer are more important than Radishes, and are worth more attention, as they cannot be grown too well. To have a regular supply I sow every three weeks. From February to the end of May the plants may be grown with little trouble, as they transplant so readily, but with uncertain weather they do not always lift well after midsummer. Failures often occur when the plants are grown in beds thickly and the thinnings transplanted. Lettuce to be good should never suffer from want of moisture. They like a rich root-run, but are not fastidious as to soil or position. For years I have obtained my best late summer supply from seed sown on Celery ridges. Lettuces delight in the fresh, loose soil. If not sown thickly they never run, and are cleared before the soil is needed to earth up late Celery. Another plan is to sow thinly on an open quarter, well manured, in rows 18 inches apart, and thin to 12 inches in the row. In a light soil, at this date, I usually sow in drills, as it is easier to give moisture in dry weather. I have found the Victoria, Brown Dutch and Continuity excellent Cabbage varieties, these being less inclined to run, and, in the Cos varieties, Intermediate is a specially fine summer type. This is a new introduction, but one that stood the hot summer last year. Bath Cos and Brown Sugarloaf are also among the best in this section for the purpose named. Small salads, such as Mustard and Cress, should be sown at the foot of a north wall, and if Endive is needed, a small sowing should be made of the Green Curled variety on a cool border. In hot weather it soon runs to seed, so that later sowings are best.

S. M.

OUTDOOR FRUIT.

CHERRIES (OUTSIDE).—This important fruit crop has never promised better than it does this season. The best kinds of dessert Cherries, both early, midseason and late, are in nearly every instance carrying so far exceedingly heavy crops. With the treatment practised as regards the trees in the early part of the year, I never apprehend any material loss during the stoning. This year the trees so far are remarkably clean and healthy. In one instance only thus far has any black fly been detected, and this was dealt with immediately by a strong dose of Bentley's quassia extract, which is perfectly safe and at the same time a most effective remedy for this insect pest. A constant watch, or at least three close inspections every week, will be the rule now. I find it is much more satisfactory to deal with the few as they appear than with the greater numbers at longer intervals. Very soon the first stopping by pinching will be performed; better by far do it thus than leave the wood until the knife has to be used. Early pinching and thinning, if it be necessary, are much better. The time taken to glance over a tree is infinitesimal compared with the after labour if it be deferred until the wood becomes semi-hardened. Fearing that possibly the trees are still on the dry side, I decided a week back to water them well, and have not the slightest doubt it will prove beneficial. Those trees moved last winter, if not already mulched, should have attention at once; for this purpose nothing equals well-decayed cow manure, assuming of course that it has not been freely used in the soil at planting time. If so used it might engender too rank a growth with its attendant evil—canker. Do not omit to net all the wall trees (and others too if possible) in good time, for immediately there is the slightest tinge of colour in the fruit the birds will attack it. I am disposed to favour for Cherries half-inch mesh netting hung on the square to any other gauge. This kind of old fish netting can be adjusted by the expert dealer in nets. The loss in length by this alteration is about 25

per cent., but it pays well to do it, and the actual loss when hung to the wall is far less, every part of a tree being covered equally. The additional shading of the half-inch netting is rather an advantage than otherwise in preserving the crop both from the heat of the sun and from heavy or repeated downpours of rain when the fruit is about ripe.

PLUMS.—It is a little premature yet, perhaps, to speak of the Plum aphid, which, like its black *compère* on the Cherry, soon tells its own tale. In my case the remedy is the same and at a similar strength. It is oftentimes more difficult to get at effectually, however, as it is the under surface of the older leaves which is attacked most. It is now quite time to look over the Plum trees on walls, to pinch those shoots which show signs of excessive vigour in the wrong direction. Although Plums do not like to be kept too dry at the roots, yet the other extreme must be avoided, otherwise it will tend to a sappy growth rather than short fruit-bearing spurs. As yet it is too soon to think of any thinning of the fruits where set thickly. It will be well to bear it in mind shortly in the case of the choicer dessert kinds, in which the flavour is frequently deteriorated when the trees are bearing very heavy crops. I am strongly in favour of the pot cultivation of the finest dessert kinds, notably the Gages, which grow luxuriantly, as, for instance, the Transparent and its golden form. These strong growers when in pots are more easily controlled, whilst a crop is practically certain if afforded protection during the flowering period. Young standard trees in orchards may need attention. In my case these are in grass land, hence I mulch with cow manure the trees from 3 feet to 4 feet across at the base, and also water at times, as the soil is very shallow. In exposed situations there may be some apprehension of damage to the Plum crop by reason of the recent change to colder weather with an occasional frost. Where, however, the foliage is well advanced, more protection will be afforded.

APPLES.—The show for bloom has been prodigious in the case of most varieties, and everything bids fair for a very heavy crop, although we know a deal will depend on the next two or three weeks in many cases. I have noted a slight attack of American blight on some dwarf, easily-managed trees, but, being fully resolved that strong measures shall prevail to prevent its spreading, that attention necessary has been seen to. I have used a strong application of XL All Insecticide with good effect, which kills in a most satisfactory manner. A large plantation of young trees on the Paradise stock was watered freely last week, after receiving the annual spring mulching of cow manure to keep the roots cool and moist. These trees are on grass, but with a good open space around each for manuring and watering, as may be necessary during dry weather and when bearing heavily.

PEARS.—Many of the foregoing remarks anent Apples will apply equally to Pears. With respect to watering even more so if any trees are growing against walls where there is a possible risk of premature drought, more especially if the borders be on a slope and the trees not old enough for the roots to have extended beyond the immediate surroundings. If time can be spared now it will pay to look over all trained or other trees easy to manipulate, removing some of the fruits where in dense clusters, pinching out points of shoots knitted together by the small caterpillar which attacks Pears, and also those which by their position are growing too strongly. So far as the crop can as yet be judged, it appears to be partial, some trees on walls in good positions not having set well, whilst others have. If not already done, take note that freshly planted Pears need to be mulched, those on the Quince stock in particular.

BUSH FRUITS.—Scarcely anything should now remain to be done amongst these. The hoe should be freely worked between the rows both to keep down the weeds, which may otherwise possibly get advanced through not coming so

much into notice, and likewise to keep the ground open. Catch crops of vegetables may be growing in any available space between bush fruits; if so, look well to it, that these latter do not suffer from want of water. Autumn-fruiting Raspberries should now be thinned down to five or six shoots to each stool, to give strength to those remaining. These should be treated liberally if dry weather sets in. A sharp look-out should be kept for the Gooseberry caterpillar where it has at any time given trouble. Fortunately, with me it is rarely seen. Liming may keep it in check, but a dose of quassia extract will be better. Should aphid attack the Currants—seen by the blistering of the leaves—the last-named remedy will prove efficacious. HORTUS.

ORCHIDS.

NOTES ON ORCHIDS.

GROWTH is now well away on most of the species, and the full growing temperatures must be maintained in all the houses. In the warmest division newly surfaced or potted Phalenopsis are pushing new growth, and the roots are taking well to the fresh, sweet Moss. The new material dries more rapidly than the old, necessitating rather frequent moistening, but until the roots have really taken freely to it it is safer under- than over-watered. The shading of such plants, too, needs care beyond the ordinary, and where a mixed lot of plants such as Angreecums, Saccoboliums, and the like are grown in the same house, one is often at a loss to know what to do. When in doubt, lowering the blinds is the safest rule to follow as regards the health of the plants, but shading is easily overdone. I recently saw a fine house of Cattleyas that are carrying very large pseudo-bulbs and healthy-looking foliage, but flowers have been few. Were they grown for the sake of the health of the plants alone these would be satisfactory, but unless a plant produces a fair complement of blossom it cannot be said to quite fulfil all that is expected of it. Heavy shading conduces to this flowerless state and should therefore be avoided. In these earlier stages of growth more shading is necessary than later on in the season when the leaves are a little inured to light. To a certain extent the same thing may be said of Dendrobiums, Epidendrums, and the distichous-leaved kinds named above, but these will not need consideration in a mixed house, for they probably will get quite as much shade as they need.

Oncidium Lanceanum is on the move, and this species seems to need a greater quantity of water than most, partly on account of the moderate amount of compost allowed it, and possibly to replenish the somewhat wasted leaves after their winter's rest. Overhead watering is not particularly relished by this Oncidium, and all such species require well moistening at the root while growing. The butterfly species, O. Kramerianum and O. Papilio, are flowering freely and growing, and, though not quite so strong as the last-named, may be kept moist. Saccobolium giganteum has often a rather flagged appearance just now, especially if it has been allowed to carry its flowers until they fade, but with the increased warmth and moisture they should soon pick up again. If very bare of Moss, a little may be added in the form of a surfacing, this being better than rebasketing or repotting, unless they have outgrown their receptacles. Thunias in flower may be removed to a cooler and drier atmosphere than that of the growing quarters, the delicate texture of the blossoms rendering them very easily injured. After flowering they will require a gradual drying off as the foliage falls. Calanthes

are rooting and growing strongly and need plenty of water. The late-flowering deciduous kinds must now be repotted and treated the same as the earlier ones were previously.

The *Cattleya* house is gay, and where a good stock of *C. Mossiae* is grown there will be a great abundance of flower. It is not yet too late to repot this, or even *C. Mendeli*, if the plants need this attention, but they ought not to be left long after the flowers are past. *C. Lawrenceana*, if left alone, is a little straggling in growth, so when the young leads show a tendency to droop about on plants recently potted a loop of raffia may be used to keep them in position, carefully avoiding a strain, this causing ungainly-looking bulbs. The hybrid *Cattleyas*, *Laelio-Cattleyas* and *Laelias* are now very numerous, and naturally they vary in their requirements. As a rule they are easily grown, and in this way do not give so much trouble to the growers as fine varieties, which, though very beautiful, have not the vigour of hybrids. This is in a general sense, of course, for there are weak-growing hybrids, just as there are strong, vigorous varieties. The culture of a hybrid *Cattleya* or *Laelia* can often be decided from a study of its parentage, giving it that most suitable to the parent it more closely resembles.

Cool-house species are often over-watered at the roots at this time of year, the appearance of the growths being somewhat misleading. A moist atmosphere now is much more to their taste than a lot of water at the roots, and occasional light syringings overhead are of great assistance. The *Sobralias*, *Anguloas*, *Cymbidiums*, *Disas*, and others of this class are taking full supplies of course, but many *Odontoglossums* and cool *Oncidiums* may easily be over-watered. *Odontoglossum citrosimum* is perhaps needing as much moisture as any, the roots apparently revelling in it after their long rest, and the spikes lengthening almost visibly. This plant does remarkably well here in a cool house devoted principally to Ferns, its principal Orchid companions being large *Cymbidiums*, *Odontoglossum grande*, and *Cœlogyne cristata*. Insects of all kinds must be diligently kept under by fumigating and sponging, and the houses kept free of all kinds of litter. Places out of order have always a good stock of woodlice and small snails, and the time taken to keep all smart and clean is nothing compared to the damage these pests are capable of when allowed to run riot.

Laelia grandis tenebrosa.—The earlier plants of this fine Orchid are now in flower, making a distinct and welcome change from the labiate section of *Cattleyas* and other *Laelias* now in flower. The plants are vigorous in habit and free-rooting, liking good open material and fairly large pots. Sometimes they flower upon the young pseudo-bulbs in late summer and autumn; at others they rest through the winter in sheath and bloom in spring. The blossoms are large, with brown sepals and petals, a deep purple lip, becoming paler at the front, but the colour varies a good deal.

Dendrobium suavissimum.—Very showy and beautiful are the flowers of this *Dendrobe*—one of the best of the evergreen kinds. The spikes are very freely produced, a large specimen in bloom having a very fine appearance. The flowers are very bright golden-yellow, rather loosely arranged on the spikes, and with bright maroon blotches on the lip. Grown in an intermediate house few give less trouble than this, and, unlike the deciduous kinds, no very distinct dry rest is needed. The plant rests longer than those with which I have compared it, but to dry the roots severely, even in winter, would lead to

shrivelled pseudo-bulbs and small flower-spikes, possibly to a cessation of growth entirely. The habit of the plant is very strong and the roots fairly vigorous, so it must not be too much pinched for pot room.—H.

Cypripedium Lawrenceanum.—The foliage and flowers of this fine *Cypripede* are both very beautiful, and several very fine forms of it are now in bloom at the principal nurseries. There were some magnificent varieties, too, in the group of Orchids put up at a recent Drill Hall meeting by Messrs. Linden. It is one of the best *Cypripediums* when seen in this form, and even the worst ones are good garden Orchids. Where plenty of warmth and moisture is at command with shade from bright sunshine it is as easily grown as *C. barbatum*, and it may be potted in the usual mixture recommended for *Cypripediums*.

Paphinia rugosa.—This is a very pretty little Orchid and worth attention. It has flowers each about 3 inches across, creamy white, barred and spotted with purple. The individual flowers are not particularly showy, but when a nicely-flowered specimen is seen it is sure to be admired. *Paphinias* are rather difficult to grow, or rather they require a good deal of care. The roots cannot thrive with anything in the least close or sour about them, yet they are easily damaged by frequent disturbance. The best of material should be used for them, and even this will not usually last for more than a couple of seasons. The roots must be very freely watered, as, owing to the small amount of compost they like, this soon runs dry. The leaves are of a rather thin texture, and, like those of most New Grenadan species, must be rather carefully shaded. They like light in abundance; cannot have too much of it, especially in our dull, sunless winters; but the rays of the sun when pouring through the roof-glass are too much for them. *P. rugosa* thrives best in the warmest house or in a moist part of the *Cattleya* house, and if the plants can be suspended from the roof, so that plenty of air plays about the foliage, the plants will be all the healthier for it. The leaves are very apt to be attacked by thrips, so the atmosphere must be kept moist and the vaporising fumigator used at intervals. If the thrips are left alone, they make ugly black marks all over the foliage and bulb, and quite check the progress of the plant. *P. rugosa* is a native of New Grenada, and was introduced to this country by Messrs. Sander and Co. about 1880.

ONCIDIUM SPHACELATUM.

This is an old and easily cultivated species, and not thought much of by many growers at the present day, yet there are few more useful or beautiful. When in good condition the bulbs and foliage alone are well worth growing the plant for, being strictly ornamental. Large, old specimens are occasionally met with in collections of stove plants, and when well flowered these are very fine, the long branching spikes being covered with blooms and lasting well in good condition. It is best grown in an intermediate house, in pots according to the size of the specimens, but never small, as it is one of the freest-rooting species under cultivation. This in a measure accounts for its being so easily grown, for with this class of roots mistakes in watering do not so frequently occur, or, if they do, they do not do so much mischief. When repotting, the upper part of the old compost will usually be found so full of roots as to make it impossible to separate them, and this should not be attempted, as the disturbance will be harmful. Lower, the compost will not probably be in such good order, and most of it may be picked out. If the plant is doing well, a good shift will be necessary, and abundant drainage. Cover this with a little Moss and fill up with good peat and Moss, with a little fibrous loam or leaf-mould for the strongest plants. Large lumps of charcoal and ballast must be put in at intervals, to ensure a sweet and open root-run, and there is no need to elevate the plants

much above the rim. When the pots are filled with roots, others are usually pushed upwards out of the compost if the atmosphere of the house is congenial. The house must be kept moist while the plants are growing, lightly shaded, and, if more convenient, they do quite well in houses devoted to plants other than Orchids. Growth is most active during summer and early autumn, and when the pseudo-bulbs are well finished up the water supply may with advantage be slightly diminished. During winter keep the pseudo-bulbs plump, and give the plants all the light possible, but avoid over-watering. These few simple details followed, the plants will go on increasing in size and vigour annually, and, when strong enough, throw immense spikes a couple of yards in length. The growth of this species keeps singularly free of insect pests; the only thing likely to be troublesome is green-fly, which appears on the flower-spikes, but is easily got rid of by passing a damp sponge up them once or twice a week. *O. sphacelatum* comes from Mexico, whence it was introduced in 1840.

Oncidium monachicum.—This is one of the scandent-flowered section, and somewhat in the way of *O. serratum*. The sepals are deep chestnut-brown, the upper one incurved, frilled at the edge with a narrow yellow margin, the petals—reddish-brown—having a similar edge. The front part of the lip is brown, the crest pale yellow. It is a native of New Grenada, and may be grown in fairly large pots in the cool house. The roots often starting above the compost line may be covered with a little Moss to prevent their being eaten by insects, as this is very weakening to the plants.

Odontoglossum nævium majus.—Flowers of this pretty plant come from a correspondent. They are from an ordinary form, not larger than usual, but not less beautiful on this account. The habit is dwarf, the flowers white, with spots of deep crimson-purple. Being found at an altitude of some 8000 feet in New Grenada, *O. nævium* naturally requires a cool, shady, moist temperature in summer, and the more air blowing about among the foliage the better. During winter keep the plants well up to the light, and never allow the roots to become really dry.

Odontoglossum sceptrum.—The tall stout spikes of this Orchid are quite distinct from those of *O. luteo-purpureum*, though whether its place is as a variety of that species or not is a moot point. As a rule the flowers occur further apart on the spikes, the sepals and petals being also shorter, so that it has not quite such a full effect. But good forms of it make a fine show, and the plants are so free that it is worth a place in any collection. It must be kept in the cool house all the year round, well watered at the root in summer and given enough to keep the pseudo-bulbs from shrivelling in winter.

Brassia verrucosa.—I noted a large, well-flowered plant of this singular Orchid this week, and when, as in this case, the plant is seen at its best there are few more beautiful. The spikes, at first erect, gradually arch over, and the long segments of the flowers give it a very graceful appearance quite apart from the quaint colouring of the individual flowers. It is of easy culture, thriving well in pots of peat fibre and Moss, and when the plants are well rooted a free water supply is essential. It is a native of Guatemala and Mexico, and was introduced about 1838. There are several varieties, differing principally from the type in size.—H.

Laelia elegans.—There are few more useful or beautiful garden Orchids than this, and it is as easily grown as any in the genus. The sepals and petals are rather narrow, pale rose in the type, but in the different varieties ranging from pure white to deep crimson-rose or purple. The lip is blotched with deep crimson. It is usually supposed to be a natural hybrid between *L. purpurata* and *Cattleya guttata* or *C. intermedia*, and produces its flowers at various times of the

year. Some are now and have been for several weeks very attractive, and the display—where plenty of plants is grown—may be kept up until quite late in the autumn.

Celogyne asperata.—This handsome and free-flowering species should be much more grown. It has large pseudo-bulbs and spikes over a foot in length, the individual flowers being nearly 3 inches across. The sepals and petals are yellowish or white, the lip streaked with reddish brown. It likes plenty of heat and moisture, and, owing to its size, may be given fairly large baskets and a rough, open compost. No drying off is necessary, only a graduated supply to meet the demands of the plant at its various seasons. It is a native of Borneo, and was first introduced in quantity in 1849.

LÆLIA SUPERBIENS.

As "H. J. C." and myself are now agreed respecting the amount of shade necessary for this Orchid, and I have never advised more or less, this may now, I should say, be dropped. But when he says that "any man having the least consideration for his plants would never put shading on them unless there was some sign of the sun damaging the foliage," he is, I venture to think, a little wide of the mark. I can assure him I have often shaded Orchids when I knew that the sun would not have harmed the foliage for another half-hour or perhaps longer, but would have so raised the temperature as to have made it difficult to have kept it right afterwards. Again, plants in flower often need shading before there is the least fear of injury to the foliage. With regard to my oft-repeated advice on houses for Vandas and other large-growing Orchids, I must, with all due respect to the experience of "H. J. C." at Messrs. Veitch's, adhere to my previous statement. To instance such houses as that at Chelsea is quite foreign to the point, as probably there are not half-a-dozen such houses devoted to Orchids in the country. I do not for one moment suppose that "H. J. C." or anyone else reading my note would have taken me as referring to such structures. A house of the dimensions given, viz., 18 feet wide and 12 feet high, I should consider excellent for Vandas, even had I not seen the very fine plants grown therein by "H. J. C." There is no need for cavilling or going to extremes, and I will not reiterate what everyone who has had experience with these lovely Orchids must know to be true, but I have had to grow Vandas of various species in a house 10 feet wide and furnished with side stages where almost before the sun reached the house the blinds had to be dropped. No one can say that such houses are the best for large-growing Orchids of any kind, though they are excellent for small-growing species generally. If "H. J. C." will bring forward evidence to prove me wrong here I shall have great pleasure in perusing it, but his arguments on p. 408 are not convincing.

H. R.

FLOWER GARDEN.

THE FOAM FLOWER.

(TIARELLA CORDIFOLIA.)

This lovely flower (here illustrated) will grow and bloom freely anywhere, but in partial or entire shade in a cool, moist soil it appears at its best, and is a lovely object for a month or six weeks in early summer. It runs so freely that there is not the slightest difficulty in extending the group, and though it makes a dense mass of bloom, the effect is singularly light and graceful. The short-tailed field mice seem specially fond of it, and on more than one occasion they entirely spoilt a large group, absolutely eating up every flower-spike that some of the plants produced. It is almost

worth growing for the sake of its pretty leaves, with their varied tracings of colour.

As a carpet plant to Lilies it would be found suitable, and in many other pretty ways it could be grown, associated with flowers of taller growth. Its popular name is very appropriate, as a group of it seen from a short distance is strikingly suggestive of a mass of foam. It should be divided every second year, as it appears at its best during the second season of growth in one spot. A good way would be to plant a new group every year, and this may be done at any moist time after it has ceased flowering.

TUFTED PANSIES—PROSPECTS OF THE SEASON.

In many respects the plants do not look so well as they did a month or six weeks since. At that time they were very promising, and one looked forward with considerable interest to the flowering just then commencing. Plants



The Foam Flower (*Tiarella cordifolia*).

put out in the autumn were fast developing buds on the healthy growths. The latter part of April saw these flowering freely and presenting quite a bright display, and a very welcome one thus early in the season. A check, however, has since been experienced, the cold winds prevailing during the past three weeks seem to have kept the plants at a standstill, and not only is this the case, but there are many instances in which the plants appear to be in a very unhappy plight. A mulching of some old horse manure, this having been passed through a coarse sieve, has applied to some beds with good results. Such treatment is undoubtedly beneficial to the plants during the prevalence of dry and cold winds, keeping the roots somewhat moist and affording protection to the young growths just breaking through the soil.

The present season and the trying weather of late have convinced me of the great advantage of autumn planting, and have given prominence to those sorts possessing a good constitution. It is interesting to note the results from plants which were propagated during August last and placed

in their flowering quarters during October. The freer-growing sorts have come out of the ordeal splendidly in comparison with the dwarf and compact sorts. With me the beautifully tufted sorts, such as Florizel, Blue Gown, Rosea pallida, Princess Louise, Christiana, and Blush Queen, each recognised as typical sorts for the hardy flower garden, just now are far behind those sorts first alluded to. This must not lead others to suppose that varieties of the kind named above have not advantages, later, which the others do not very often possess. For an early display there is no doubt an advantage in growing the freer-growing varieties, those less free in the style of their growth carpeting the beds and borders with their crawling-like growths a few weeks later, and flowering continuously through the summer and early autumn.

Spring planting this season has not been so satisfactory as one would have wished. The mild weather of last winter kept the plants steadily growing as the days began to lengthen, and although these were carefully hardened off previous to planting out, and afterwards even looked like outstripping those planted in the autumn, at the present time they will not compare with the latter. Several beds which are devoted to trials of new and old sorts, these grown together for comparison, have been provided with a little protection in the form of 6-inch boards, so as to break the force of the strong winds to which my garden is exposed and give the plants more normal conditions to grow under. Rarely have Tufted Pansies been subjected to such trying weather so late in the spring, or I may now say early summer. This experience we might expect during March, but at the present time more genial conditions usually prevail.

I must not omit to mention the names of varieties which are doing well and worthy of notice by those who are interested in this useful hardy flower. Foremost is Pembroke, a lovely rayless rich yellow, with large and almost circular flowers, sweetly scented, and with a splendid constitution. Mrs. C. F. Gordon is a flower very much like the Countess of Kintore, but of better form and with a much better habit than that variety. Devonshire Cream is also looking well, its pretty oval rayless flowers of rich cream standing out prettily above its beautiful green foliage. Isa Fergusson is a free-growing sort, but rather tall, with large purple-violet blossoms. Endymion has immense primrose flowers on plants with a capital constitution, but at the moment the flowers do not seem to stand out from the plant so distinctly as they should; no doubt this will be better later. Cottage Maid, another fancy flower, with alternate purple-violet and whitish lavender markings, is very pretty and free-flowering. Lord Salisbury, an immense primrose flower, with very dark and heavy rays running from the centre, is a vigorous sort, but a trifle too coarse at this time. It is better, however, during the summer months.

The foregoing are only a few of the best sorts in my garden, but there are many others just waiting for warmer weather to produce a very fine display. The miniature sorts, of which Violetta is the parent, are very late, only one charming little novelty named Tom Thumb, a

deep yellow with rays, being now in bloom. This will make a very pretty plant for the rock garden.

D. B. CRANE.

Highgate.

NARCISSI AT VALLEYFIELD, PENICUICK.

VALLEYFIELD, the residence of Mr. A. Cowan, is a charming nook in the valley of the Esk. It is not a large place, but every inch of it is utilised to the best advantage. Unfortunately, I was a fortnight too late for the cream of the Daffodils, though many good ones were still to the fore, and the foliage of others revealed how fine and perfect the flowers must have been. As most of the garden proper is flat and almost level in the trough of the valley, and the sensible system is adopted of growing the leading varieties in long beds or borders by fifties or hundreds in masses, one has exceptional opportunities of admiring their beauty and noting their superior cultivation.

A few of the more notable varieties noticed were Lady Somerset, Duchess of Westminster, Leeds, Flora Wilson, Snowflake, and Barri conspicuus, well earning its name. Among other good sorts were Mabel Cowan, William Goldring, Hogarth, Mme. Plemp, Weardale Perfection, and Maurice Vilmorin. I was, however, more anxious to hie away through the woods of Valleyfield, furnished with Daffodils of many sorts in broad masses, carpeted with Ivy, and varied with Penzance and other Sweet Briers, and flowering and other shrubs. Fortunately, rabbits do not eat either the roots or leaves of Daffodils of any sort. This a model site for the naturalisation of Daffodils and other hardy bulbs and plants, the hanging hill offering many advantages of shelter and shadow seldom so perfectly secured on the flat.

Returning through the garden, we passed through a pretty fernery and a greenhouse containing some very fine plants of Indian Rhododendrons and Camellias in large pots and tubs. The plants were in the most promising condition, and must have yielded enormous masses of bloom. Three vineries in succession were in excellent health and showing good crops. The kitchen garden was a model of cropping and cleanliness, showing that while Daffodils were a decided first all over the place, they did not prevent other things being well done. Next to hardy bulbs come hardy herbaceous and other plants at Penicuick. Such masses of Peonies, Delphiniums, Pyrethrums, &c., are seldom met with. Fruit trees on walls and trees in the open were whitened over with bloom, though a good many fruits, including such fine Pears as Marie Louise and Williams' Bon Chrétien, seldom have autumn sun enough to ripen them perfectly.

D. T. F.

ORCHARD AND FRUIT GARDEN.

STANDARD PEACHES AND NECTARINES.

As far as quantity of fruit from a house is concerned, there is no doubt that more can be obtained by planting low standard trees. With trees trained either on the roof or across a house on trellises there is a large amount of fruiting space exposed to the light, but there is not the equal distribution of light that obtains when open trees are planted at proper distances and kept thin. They have, moreover, a very pretty effect when in flower compared with those on a trellis, or the curved arrangement often used in lean-to houses out of consideration to trees on the back wall. For the reception of the trees the border will be made on exactly similar lines as for trained trees, and will be placed where most convenient, according to the shape and height of the house. The trees are best obtained small, before the leaves

have fallen, and encouraged to do all they will the first season. This is preferable to buying larger trees, that will have to be cut in hard. Disbudding the first season needs a lot of care, and should begin always with the strongest shoots, wherever they are placed. It is more important to get a regular and even break all over the tree than at first sight appears, for shoots that are unduly strong one season will throw strong, sappy shoots the next, while weak shoots perhaps at the base of the tree do not hold their own the first season, and gradually become weaker. The simple stopping at about the fourth or fifth leaf has a wonderfully steadying effect upon a very vigorous shoot, and is also the means of diverting a little of the energy to the weak ones. The oft-repeated advice to begin at the top of a tree with disbudding and later to take the bottom is sound enough, but in some cases it is followed too literally, with the result that the freely thinned shoots at the top grow even more vigorously than before, while the lower shoots that are supposed to be benefited are, as a matter of fact, left in a crowded condition, each striving against its neighbour. Disbudding, in fact, is one of those operations that cannot easily be explained in writing, and an hour's object lesson on a young tree is better than a page of written information. I do not wish to be understood as advising wholesale removal of shoots at one time, but simply to point out that disbudding at the top and leaving the shoots thick below sometimes defeat the end in view. After this class of tree reaches a certain stage there is not much pruning required, as the trees get into a habit of producing short, stubby shoots, not exactly spurs, but wood that does not elongate to any extent, and whorls of leaves instead of the long shoots characteristic of fan-trained trees. Very little trouble is necessary with these beyond the cultural routine, and the prunings of quite a large house may be carried away in a small truck basket. If in the first place the permanent trees are planted, say, 6 feet apart each way in diagonal lines, the intervening space in which they are growing may profitably be taken up by pot trees, this being better than planting supernumeraries and disturbing the border afterwards for their removal.

When they have filled their allotted space these trees require a lot of feeding, if the most is taken from them they are capable of producing. To keep putting soil on top of the border without seeing any surface roots is wrong, and instead of waiting until the spring and then top-dressing, it is a safe plan to pare the surface in autumn lightly until roots are found, and then firmly ram in a couple of inches of sound loam and burnt refuse. When I first practised this I was warned of bud-dropping and other evils, but so far this has not happened, and I am confident that it has a tendency to help the young buds to swell if gone about with proper caution and at the right time. Trees with healthy feeding roots at or near the surface seldom lose many buds, but if the upper roots are starved by drought or by the surface soil becoming so caked that air cannot pass into it, then we may look out for the buds shrivelling up instead of swelling properly. This is one reason why I like the burnt garden refuse, for it invariably contains a lot of sharp gritty material that mechanically prevents the souring of the loam or a pasty condition after watering. It may be noted that these trees, although further from the glass than others trained on the wires, are, if anything, more liable to scalding than the latter. Many more fruit houses than formerly are provided with means of shading, and it is undoubtedly a step

in the right direction, for the proper ripening—perhaps a better word would be developing—of fruit-tree wood is not merely a question of sun. Indeed, there is no doubt that after days of wet, unkindly weather, when the sun shines out brightly in autumn it would be a decided advantage to be able to break the force of its rays a little. To use a blind as a means of saving trouble in ventilation is obviously wrong, but there are many occasions when blinds are useful, especially in modern-built structures with wide panes of glass.

H. R.

VINES FAILING.

I ENCLOSE some Vine leaves, a bunch of Grapes, and the top of a leading rod for your inspection. The leaves enclosed are from some Vines in a late vinery; the sorts are Gros Maroc, Black Alicante, Lady Downe's Seedling, and Gros Colman. The house is a lean-to, 30 feet long by 12 feet wide; the border is inside. It is quite a new border. The Vines have only been planted five years. This spring I have used no fire-heat, neither have I watered them. I have had the house full of plants all the winter. I fancy the border has become too wet by constantly watering the plants. Nearly all the leaves are affected like the ones I have sent.—S. P.

*** When inside borders are covered with pot plants, this necessitating much trampling and watering, they are liable to become wet and impervious to warm air, to the great disadvantage of the Vines. This state of affairs may have been, and doubtless was, contributory to the loss of so much foliage, but was not the sole cause. Low night temperatures, followed by a sudden and considerable rise in the heat soon after the sun shines on the house, are mainly responsible for the mischief. The warm, moist air first condenses on the cold leaves, and rapid evaporation ends in their scalding badly. The points of shoots, young leaves, and bunches commencing to develop may all, and very frequently do, suffer from the same causes, but not often to quite such an extent as complained of by "S. P." I am afraid he will not succeed in producing good crops this season. If the bunches survive, the loss of the primary leaves will seriously militate against their arriving at perfection, secondary leaves or those formed on sub-laterals rarely doing good work. I should advise topping the injured shoots, laying in new growth to continue leaders or to provide a few healthy, well-developed leaves as quickly as possible. The varieties of Grapes named may be grown without the aid of fire-heat, but can only be produced to perfection with the assistance of artificial heat. The hot-water pipes ought to be kept comfortably warm every night from the time active Vine growth commences up to the middle of June at least, and the fires ought to be started whenever the weather becomes cold or dull and damp during the following four or five months, or till the bunches are all cut. Low night temperatures frequently lead to the loss of shoots and leaves, also to scalding of Lady Downe's, Muscat, Madresfield Court, and other Grapes during the stoning period, and to cracking and also premature decay of ripe berries. A genial warmth in the pipes prevents stagnation of air and the leaves and berries from becoming excessively cold. Then if a little top air is given in the morning before a great rise in the temperature has taken place, gradually opening the top ventilators wider as the sun gains in power, no sudden changes will take place and no necessity for admitting a rush of cold air occurs. Later on, or during the flowering, stoning, and colouring periods, a little warmth in the pipes renders it possible to leave on a chink of top air all night long without unduly lowering the temperature—another safeguard against scalding and cracking. I would advise "S. P." to clear his inside border of pot plants and to lightly fork over or loosen the surface. It may not be so moist as he imagines, and in any case a good watering should be given, preferably with liquid manure,

directly it is found a little on the dry side. Follow this up with a mulching of strawy manure.—W. I.

Strawberries and colour.—Some persons admire a beautiful rich colour in forced Strawberries more than mere size. One of the best Strawberries as regards colour and appearance is *La Grosse Sucrée*. This is a splendid fruit, and of such a rich colour that it always commands a ready sale. There are larger Strawberries, but this one is not at all small, and, in my opinion, is the most profitable variety next to *Royal Sovereign* that can be grown for forcing for private use. To send long distances the fruits when fully ripe are bruised much sooner than those of the newer variety, but for daily gatherings at home it is a splendid variety, cropping grandly, and forcing freely very early in the season. As a paying crop for sale alone *La Grosse Sucrée* cannot compare with *Royal Sovereign*.—S. H. B.

Nectarine Cardinal.—For forcing under glass this new Nectarine promises well. Its earliness alone is sufficient to make it a desirable variety for growers who need early fruits. This season *Cardinal* is the earliest of all Nectarines, as trees started late in December had fruits fully ripe in less than five months. For years I considered *Lord Napier* the best forcing Nectarine we have, but have been compelled to alter my opinion, as *Early Rivers* and the newer *Cardinal* beat it in point of earliness, though *Lord Napier* cannot be beaten for general crop either under glass or in the open. I am unable to write of the merits of the newer variety for open walls, but am of opinion it is sent out as a forcing variety only, and for that purpose it is specially good. After testing the three kinds named side by side, I find *Cardinal* is some days in advance of *Early Rivers*, a grand fruit for open walls. The older *Lord Napier* will be quite a fortnight later than *Early Rivers*.—G. W.

Thinning Cherries on walls.—This season Cherries on walls promise grandly. As regards the larger kinds there are far too many fruits, and if all are left, the trees cannot perfect the same and thinning will be needed. Some of the best Cherries, such as *Bigarreau Napoleon*, *Noir de Guben*, *Emperor Francis*, and *Géant de Hedelfinger*, are so large, that thinning is a necessity if the best fruits are needed, while medium growers, such as *Governor Wood* and *Early Rivers*, fruit so freely that thinning must be done. Many are afraid to thin Cherries at this date, as they fear dropping, which is often caused by leaving all the fruits that set too long on the trees, with the result that many drop. I am in favour of thinning earlier than is often practised, as anyone who studies the growth of the tree may see at a glance what fruits will take the lead and thin accordingly. It is impossible for wall trees with restricted growth to finish all the fruits that set, and unless thinning is done early, at times they shed their fruits wholesale. Feeding is equally important. The Cherry is impatient of drought, and no one will err in giving liberal supplies of food and moisture before the fruits begin to colour. In dry seasons a liberal mulch should be given.—G. WYTHES.

Apple Lane's Prince Albert.—Owing to its keeping qualities, this is one of the best Apples to grow in quantity for the purpose of storing, with the view of disposing of the produce in the early spring months when Apples of English growth are scarce. So firm does the flesh of this variety remain, that it ranks next to *Wellington* in keeping properties, while it surpasses it in point of size and productiveness. The fruits are also invariably clean and attractive in appearance, the shape rendering them just the type of Apple suited for market work. In cold localities the fruits colour but slightly, but on warm soils they assume a depth of colour which renders them very handsome. Owing to the even contour of the fruit, it is a sort which lends itself readily to convenient packing. Like *Warner's King* and many other popular market Apples, there is not

the slightest difficulty in obtaining good prices for *Prince Albert*, provided grading and packing have due attention. Another point in its favour is that owing to its being a firm-fleshed kind it is a good traveller, and can be sent any distance if packed with ordinary care. As has already been mentioned, the variety under consideration is very productive, and it may be added that it is also a constant bearer, and this season it seems likely to prove no exception to the rule. With regard to growth it is both healthy and hardy, but I have had no experience of it when the tree is grown in standard form, but should imagine that the branches would be too weak to support the great weight of fruit which this sort is capable of producing. As a bush tree I can confidently recommend it. Cultivated in this form, with a distance of from 9 feet to 12 feet between each tree, an immense quantity of fruit could then be grown on a given area, and, to my mind, bush trees would be the best to select for forming a plantation of this particular variety with. If planted at the above-mentioned distance and the trees allowed to grow away—if not altogether unrestrained, certainly to curtail them no more than is absolutely necessary to prevent them encroaching on each other—I fancy the results would prove eminently satisfactory.—A. W.

MELONS GROWN AS CORDONS.

I HAVE found cordon-grown Melons useful for small pits or houses where roof space is limited, and specially good for early and late crops, as the fruits are secured on the first break. My first attempt at this mode of training was many years ago. I had a new span-roofed house of large dimensions which I wanted for *Chrysanthemums* in the autumn, and having only a limited time, I worked up a stock of plants some 200 in number. Fearing that by turning out such large plants—they being in 7-inch pots—I should lose a little time, I plunged them in 9 inches of soil just as they were and at a distance of 15 inches between the plants. I was surprised to note how quickly they fruited and also the fine fruits the plants bore. Grown thus, I allowed a little longer growth before stopping than usual, as, having a fair amount of roof space, it was my aim to get the fruit at the upper portion of the house, as here more light was obtained. Since then I have grown cordon Melons in low pits, stopping the plants at 18 inches from the soil and getting equally good results. It is essential to secure the first fruits that show on the laterals, as the roots being restricted, the plants do not make a second growth freely. Melons in a rich root-run frequently run too much to wood and the fruits are none too plentiful. The cordon mode of culture checks gross growth and there is no need to use pots, as these add to labour, provided a narrow border can be given. One season I used old window boxes 8 inches deep and 12 inches wide. A hard and fast rule as regards root space is not needed. Of course, with Melons grown thus feeding is a necessity, but it is surprising what good fruits may be grown in a limited space. One year I used 6-inch pots, but only took one fruit from each plant. I plunged the pots 10 inches apart in a bed of cocoa fibre. Grown thus the plants make a short, sturdy growth and the fruit sets freely, while the lower laterals that form are not allowed to grow away after the first stopping. If necessary, the fruiting ones may overlap each other, as they can be trained so that there is room for the fruits to develop. By judicious training there will be no crowding, and stopping will take much less time than with plants given more space. I have found it advisable to plunge the pots over the rims, as this encour-

ages the surface-roots to come away freely into the plunging material. The plants, if in beds or pots, can be fed more easily if the roots are allowed to run on the surface. It is not absolutely necessary to plunge the pots, but it is best to do so, as it saves labour in watering. If not plunged I would advise 10-inch pots, which should not be quite filled at planting to allow of top-dressing later. The space between the plants will in a great measure regulate the number of fruits to be carried. At 15 inches apart I have got three fruits from medium-sized kinds and two from larger ones. For the earliest supply I do not think it wise to fruit such plants too heavily. Plants grown thus finish at one time, so that the house may be cleared for other things, or the temperature may be lowered so that the fruits will keep if needed. Melons grown thus are not wanting in flavour, as the moisture at the roots can be lessened at the right moment, which one cannot always manage in borders or with more root space. Objection may be raised to the number of plants needed, but this is soon met, as, unless the varieties be new or scarce, Melon seeds are plentiful enough in most gardens after a crop is once grown. I would advise growing only one or two kinds the grower has a partiality for, and if the plants are wanted for seed, of course only one kind must be grown.

G. WYTHES.

THE PEAR CROP.

IN this neighbourhood Pears have set remarkably well, and although rather premature to pronounce a decided opinion in the matter, appearances certainly point to the fact that the crop will in all probability be more than an average one. The trees are freer than usual from insect pests, and with but few exceptions they are very healthy and fully clothed with well developed foliage. The amount of blossom borne by the trees was very heavy, and both the dessert and perry kinds vied with each other in assisting, with the help of Plums, Damsons, and Cherries, in converting the whole country-side for the time being into one vast floral display. Although frost occurred on several occasions, the embryo fruits were not damaged in the least, and the result is as has already been stated. The surface soil, it must be mentioned, was in a very dry condition throughout the flowering period, and this fact would exert a great deal of influence in neutralising the harmful effects of frost. Unless the unforeseen should occur in the shape of very severe frosts, the crop may now be considered as being quite safe, but such a visitation is hardly likely to take place at such an advanced date. From observations extending over a period of many years, it is but seldom that we experience frost here after the middle of May. In the low-lying ground in the valley and contiguous to the river frost has before now occasioned loss in the orchards and gardens after that time. Its effects have, however, not been felt on the slopes of the hills or on land situated above the fog line, and we always feel secure after the time named in consequence.

Owing to the scanty rainfall throughout the winter months, wall trees were in danger of becoming too dry at the roots at the time they commenced to blossom. Water was, however, withheld until the falling of the perals betokened that the time had arrived when it could be given with impunity. Then it was applied in liberal quantities after the surface had been dusted with a quick-acting stimulant, and the border was mulched as soon as possible afterwards. The water was, I feel convinced, applied just

in time, for the fruit commenced to swell off at once, but had it been withheld, many a tree would, I am afraid, have cast the majority if not the whole of its fruits. Fortunately, the necessity for applying water by artificial methods has not since then arisen, as the copious rains which have fallen within the past three weeks have set this matter at rest for some little time to come. The mulch mentioned will prove of immense benefit in conserving moisture, also enticing the roots to the surface, where they can be fed as occasion may demand. The trees in the open did not feel the effects of the winter drought to any appreciable extent, and the rainfall has placed them beyond all risk of danger arising from over-dryness at the roots. The crops on these trees compare most favourably with those on the wall and matters are about equal as regards quantity. Some sorts have set very many more fruits than they can eventually mature without unduly distressing the trees, and these will of course have to be thinned. This must perforce be deferred for the present, or until the fruits have developed sufficiently to distinguish those which seem to be the most likely to swell to maturity. It is a mistake to thin Pears too early, as some sorts when they have apparently set a heavy crop have a bad habit of casting their fruits in a most annoying manner when swelling off. Therefore, it is always best to wait until they have passed this stage, or say the end of May, when it can then be done with safety.

Fruits of old and well-proved favourite kinds promise to be plentiful. Of these Colmar d'Été, Williams' Bon Chrétien, Souvenir du Congrès, Jersey Gratioli, Beurré d'Amanlis, Beurré Superfin and Marie Louise may be mentioned. Many others might be named, but the above will suffice, as the object in penning this note is more to record the satisfactory condition of the Pear crop as a whole than to give a detailed list of sorts in bearing. It is also pleasing to note that many of the newer introductions are fruiting. The ripening of the fruits of these will be interesting, as some are undergoing their third year's trial, others the second year's trial, while a few are bearing for the first time.

A. W.

Stoke Edith, Hereford.

WOODLICE AND WIREWORM AMONG CUCUMBERS.

At this season failures with Cucumbers in pits and frames are frequent. In many cases the mischief is done before the cultivator is aware of it, with the result that the crop is lost and much time wasted. In some cases woodlice are not always at fault; wireworm is equally injurious. For years I was troubled with wireworm when I grew the plants in turf stacked and cut from old pasture land, as the wireworm was carted in wholesale, and when placed in heat soon became active. The plants attain a fair size before the woodlice become numerous, and if not noticed they begin their ravages upon the plants just below the soil, completely destroying the bark or skin all round the stem. The plants suddenly collapse after a hot day or when fairly covered with fruits. Unfortunately, there is no remedy with plants so badly injured, as once they flag badly they cannot be got into condition, as the sap ceases to flow up the stem. The wireworm eats the tender roots and is more difficult to combat than woodlice. The best remedy I have found is to see that the soil is clear of them when placed indoors. I use the second spit, as it is an easy matter to add food to make it rich enough. I use bone-meal freely during the fruiting stages, and if the soil is at all heavy, a liberal proportion of old mortar passed through a coarse sieve. To prevent attacks from woodlice is more difficult, as these pests

have their hiding-places out of reach and come forth at night. I have seen a crop of Melons destroyed in two nights. To prevent these attacks I bare the stem and place round it powdered charcoal, and over this a band of cotton-wool soaked in petroleum; they will then leave the plants and attack the young fruits. The old plan of trapping is also good—that is, hollowing out some large Potatoes or Turnips and placing on the soil, the hollow portion downwards. Small pots lightly filled with hay make good traps, emptying these into hot water. In this way their numbers will soon be reduced.

S. M.

NOTES AND QUESTIONS.—FRUIT.

Plum The Czar.—This, like Early Prolific, has set heavy crops of fruit this season and promises to be quite as plentiful as the variety just alluded to. Fortunately, it is a sort that ripens early, following, as it does, close on the heels of Prolific; consequently the fruit can be, and is generally, disposed of before a glut in the market is likely to occur. The Czar Plum is held in high estimation by market growers, and rightly so too, as it is both hardy and prolific, the fruit travels well, and good prices are invariably realised for the produce. It is also a good kind to grow in private gardens either as a bush, as a trained tree against a wall, or as a cordon, it being equally prolific grown in either method.—A. W.

The blossoming of Strawberries.—Strawberry plants without exception are showing a great wealth of blossom, and so far the crop seems likely to equal in yield that of last year. The flowers on Royal Sovereign were the first to open, and were followed closely by those of Leader, Veitch's Perfection, Monarch, Sir J. Paxton, Cambrian Prince, &c. Oxonia has not yet begun to flower. The plants are all furnished with plenty of bold, healthy-looking foliage, Royal Sovereign, if anything, having made more growth than usual. Recent rains have done the plants an infinite amount of good, and the mulch of stable litter having been placed between the rows some time previously, this is now in a clean, sweet condition for the fruits to lie upon.—A. W.

KITCHEN GARDEN.

NOTES ON TOMATOES.

So accommodating is the Tomato and so useful that many and various places in gardens can be planted with every prospect of success. Where warm sunny walls are devoted to Peaches and other fruits there are often small stations where a few plants may be put in, such, for instance, as where a large old tree has been replaced by a younger one, or under riders. The great advantage in planting Tomatoes is that they harbour few insects likely to harm the permanent occupants of the wall, and the plants may be stopped at any given point where they are likely to interfere with them. It has been said that if Tomatoes are planted about a viney, wasps will not enter it, but though this is going too far, there is no doubt these voracious insects dislike the smell of Tomato foliage, and a few leaves or parts of leaves freshly cut keep them at a distance for a time. I always pot up plenty of plants and treat them as well as circumstances will allow until there are places ready for them, and just now I have plants in 9-inch pots ready to take the place of May Queen Peas that have been gathered from a cool Peach house. In newly-planted vineries they may be set out between young Vines or kept in the body of the house in large pots or boxes, the fruit being often earlier from such plants than that from the house devoted to this crop alone.

In the open garden here Tomatoes are not worth growing, but, as noted, on warm walls, they give a splendid return for the very little trouble necessary when they are once planted. It may not be the best practice, but I always let my plants for outdoor culture get rather more pot-bound before setting out than those for indoors, and if possible allow them to set a bunch of fruit. Under glass the plants are in one's hands, so to speak, and it is a simple matter to get the first bunch of fruit set, say, at 10 inches to 15 inches from the soil, according to the variety. Outside, although they may be covered from cold winds, they are not so easily managed, and warm, showery weather, so kind to many crops, is often fatal to a good set of outdoor Tomatoes. I like to see them flag a little under a hot June sun soon after being planted; they will make headway fast enough when once they become established. Plant in rather poor soil, adding only a little burnt refuse to the usual kitchen garden soil. Where this is heavy or cold naturally, keep the plants well up, even if a few of the upper roots are bared. They will take no harm for a while, and may be covered later on when feeding becomes necessary. Ram the soil firmly about the roots, and give the plants time to settle before tying or nailing up. Rub out the lateral shoots as they appear, keeping strictly to the single stem, and let no shoots get up from the base. At first make no attempt at cutting the foliage; the fruit is none the worse for a little shade while swelling, but later on, before it begins to turn colour, tie the foliage back where possible, and where this cannot be done reduce it a little by cutting off first the tips, next time going a little farther back. A mulch of good farmyard manure may be laid on in July, and when a good crop of fruit is set feed the plants rather liberally. Stopping the plants when sufficient fruit is formed is not always best, especially should the autumn prove wet.

Raising Marrow plants outdoors.—The rule at Hatfield in relation to the raising of Marrow plants is not to sow indoors and grow on in pots, as is the customary method, but to throw out a broad trench in one of the kitchen garden quarters, fill it full of manure that has been once or twice turned, tread it well down, and cover with several inches of soil. Seeds are then sown in thin clumps, some 3 feet apart, and over them hand-lights are placed. Germination is quick, and under the hand-lights growth is rapid, so that the plants, being undisturbed, receive no check and soon cover the soil. As they spread, a top-dressing of other soil and short manure is given. The clumps are thinned down to about three plants to each. The plan is an excellent one in all cases, as it saves much trouble. It is very easy, too, in that way to have the plants up early if desired.—D.

Round Potatoes.—So many long or kidney-shaped Potatoes generally, coming from Magnum Bonum, have been put into commerce, that we naturally welcome any of distinctly round form, that have excellent qualities. Of comparatively recent introduction, Syon House Prolific is excellent, and still more recent are the Scottish Challenge and The Crofter. These three have fine, handsome, flattish round tubers, that are so much alike generally it would be difficult to separate them, but, like so many that have closely resembling tubers, they have diverse tops. All three may be regarded as valuable additions to the true round type. Probably the most popular true round in cultivation so far is Windsor Castle. Satisfaction is a remarkable cropping variety, commonly termed round, but the tubers too much belong to that indefinite section that is neither round nor kidney. A few other *bona fide* white rounds are White Perfection, Goldfinder, Schoolmaster, Abundance, Snowball, London Hero, and

Renown, so that there is ample room for selection from varieties that are really round and admit of no question. Of coloured rounds, none excel Reading Russet, King of the Russets, The Dean, Lord Tennyson, Conference, and Purple Perfection, all being of the desired shape. A very special recommendation of true rounds is that they do not grow out or elongate in the same way that the kidney forms are apt to do when second growth takes place, after a check has been given by heat and drought. The tubers then, as a rule, when rain comes swell all over, whilst the long ones become most unshapely. We shall see this season how the new Scotch varieties behave in the south of England.—A. D.

Japanese Mushrooms.—Mr. Robert P. Porter, who has been conducting investigations into the industries of Japan, states that one of the most interesting studies in that country is the growing of Mushrooms in the Shikoku Island, where most of the camphor is produced. This is an important article of export, mostly to China, and during the year 1895, the last year for which the returns are available, the quantity of Mushrooms exported from Japan to all countries amounted to 1,780,597 pounds. Of the numerous species of edible Mushrooms, the one called Shitake is the most important, being abundantly exported abroad and also used for many cooking purposes at home. Logs which are used for cultivating this Mushroom are various species of Oak. The principal districts where this Mushroom is produced are the provinces forming Shikoku, Kiushiu, Wakayama, and Shiozuka prefectures. Oak trees twenty-five to thirty-three years old are felled in the autumn, and incisions made with axes at intervals of 3 inches or 4 inches, the incisions generally reaching the woody layer. The trees are then cut into logs of 4 feet or 5 feet in length and left in dark, secluded parts of the forest. After the third year Mushrooms make their appearance in the incised portions. When the growth lessens they are replaced by new logs. The Mushroom grows at each season of the year, winter, spring, summer and autumn, but the growth in winter and spring is the result of artificial stimulus. The logs are steeped in water for a number of hours, according to the dryness of locality, and then struck with pommels or axes to prepare the beds for facilitating the growth of the Mushrooms. The autumn crop is the most abundant. After being collected, the Mushrooms are dried either in the sun or by artificial heat.—*Jour. Soc. Arts (Sci. A.)*.

Thinning Potato stems.—Could every Potato tuber that is planted be first sprouted, then disbudded to one or two shoots at the most, a good deal of gain would result. We find the advantage of this method when planting for early crops or for the production of fine even tubers for exhibition. With late or main crops the plan is not always practicable. But it is possible to materially thin the shoots, which as a rule break up far too plentifully from tubers, that have not been disbudded, as commonly five, six, or seven such growths will come up in a cluster. These, where labour can be spared, will be all the better if thinned by pulling the weakest ones out, although the operation must be conducted with great care. Apart from benefitting the plants by thinning, and also improving the average character of the tuber crop, there is gain in doing so before the customary moulding up is performed, as otherwise the soil compresses the stems together into one solid cluster, leafage is crowded and often much covered with soil. That should be so far as possible invariably avoided. Moulding up is not always intelligently done, and leaves and stems often suffer injury. If the plants be rather tall before earth is drawn to the stems, there is danger if hoes be used for the work that the leaves will get much bruised. If done whilst the plants are dwarf, their leaves and stems may be too deeply buried. No doubt moulding is best done with short, flattened forks, a long rod being used to lift the leafage before the soil is placed against the rows of plants. But to enable that form of earthing to be conducted the rows should

be from 30 inches to 36 inches apart at least, and if the soil be good and fine tubers are desired, the width between the rows is not at all excessive. Leafage fully exposed to the light and air is the stouter and healthier and the more effectively manufactures starch in the tubers.—A. D.

STOVE AND GREENHOUSE.

THE LION'S-TAIL.

(LEONOTIS.)

Of the Leonotises, *L. Leonurus* (the Lion's-tail) is the best-known variety, throwing up spikes of bright red flowers during the summer. In the south-west of England it blooms profusely, but being a denizen of the Cape of Good Hope it succeeds but indifferently in the open air under



The Lion's-tail (Leonotis Leonurus).

less favoured climatic conditions than are experienced in the moist atmosphere of the shores along which the slow tide of the warm Gulf Stream flows. Where, however, it will not thrive in the open, it will be found valuable if grown in pots for the greenhouse. Where it flourishes in the garden no association is better fitted for it than that of the finer foliaged plants, which, with their grace of outline, show off its charms to the best advantage. *L. Leonurus* is easily raised from cuttings in heat during the early spring. S. W. F.

Browallia elata.—The Peruvian Forget-me-not has been in cultivation over 100 years, and in some gardens it is regarded as a very useful subject for the embellishment of the greenhouse or conservatory at different periods of the year, the pretty blue blossoms supplying a tint but little represented among indoor plants. Some lovely examples of it were shown at the Royal Horti-

cultural Society's meeting on May 10 by Messrs. Balchin, of Hassocks. The pure clear air of the Southdowns with their proximity to the sea seems conducive to richness of colouring in the case of plants grown within its influence, and this applies not only to flowers but to foliage as well, both outdoors and under glass. *Browallia elata* is most satisfactory when treated as an annual, and it may be had in bloom almost throughout the year if sown at different times. By some it is valued for its winter-blooming qualities, and for this purpose the seed is usually sown about July, and when large enough to handle the young plants are potted three around the edge of a small pot and shifted on as they require it.—H. P.

ARUM LILIES.

UNFORTUNATELY, I had not paid much attention to the discussion of this question until I noticed a statement by "S. W. F." in a recent number that the testimony of your correspondents has been in the ratio of eight to two in favour of pot culture. If such is the proportion, no one can wonder that "S. W. F.'s" conclusion is that for market work pot culture is preferable. A good deal, however, depends upon where the pots are during their period of rest and their initial stages of growth. Not a few cultivators seem to mix up the pot culture of the Arum Lily in such a way as if it were synonymous with growing the plant under glass all the year round. The latter, however, is but seldom done. Arum Lilies are generally rested and started into growth in the open air or in cool pits—structures equivalent to the open air; and hence it makes less difference to the plant than many assume whether these preliminary proceedings take place in pots or out of pots.

When growing Arum Lilies largely I gladly adopted planting out as a labour-saving expedient and a strengthening agency of great force and value. By planting out Arum Lilies in shallow trenches prepared as for Celery, I was always sure of successive batches of fine-foliaged, free-flowering Arum Lilies from December to May. I potted up through August, September, and finished the last week in October. About a week before potting, a spade was carefully passed round the Arum Lilies, slightly disturbing and loosening the ball. The plants were then lifted, the soil and roots slightly reduced if needful, and potted into 8-inch or 10-inch pots, using good loam with a dash of leaf-mould or sweet, mellow hotbed manure. Firm rather than very solid potting was practised, so as not to bruise the fleshy roots of the plants. The Arum Lilies were placed under glass and flooded home. This mostly sufficed to prevent the plants or flower-buds from wilting or flagging in the least. But if they showed the slightest sign of flagging, the latter was prevented by overhead syringing once or twice a day. Shading, too, was sometimes needed to neutralise a sudden outburst of October sunshine. But as soon as the roots got a grip of the new soil, the more light and air given the plants the better. Of course, the advocates of pot culture all the year round will say that potting up the plants from the open ground or prepared trenches checked them. I freely admit it, and add that the slight check did the Arum Lilies good. It acted as a powerful stimulus to the roots to grip at once the fresh soil and whipped up the early blooms to open sooner than they would have done had the roots not been disturbed, and also ensured a longer, finer succession of flowers

than by growing them in pots all the year round. D. T. F.

Cocos Weddelliana.—This is perhaps the most graceful Palm in existence when in a small state, and as such is extremely popular. Few, however, have any idea of how charming it is in large plants 4 feet or 5 feet high, its graceful leaves hanging in all directions feathering the pot and leaving no bare stem. Such plants for furnishing in large halls may be stood singly, and have a unique effect. They have the additional advantage of remaining in good condition under congenial surroundings much longer than smaller plants of the same species.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S TEMPLE SHOW.

MAY 25, 26, 27.

The general opinion of all who should be able to form a correct opinion was that the quality of the exhibits was fully maintained this year, if not in some instances improved upon. Certainly there has been a marked improvement in the quantity of fruit and vegetable exhibits. It is hardly necessary to state that every inch of space was appropriated in all the marquees. The arrangement of these was as of late years as regards position, but a most marked improvement was effected in No. 4, where upon this occasion the central and old-fashioned staging was completely abolished. The plants therein staged could be viewed with ease, while the effect was all that one could wish.

The Rose has been a prominent feature at the Temple show for years past, and on the present occasion there was no falling off, but rather an improvement in quality. A grand group came from Waltham Cross (Paul's) and from Canterbury (Mount's), with others from Cheshunt and elsewhere. The Clematis was well represented from Woking and Worcester. Begonias and other early summer flowering plants occupied a large space, and hard-wooded greenhouse plants also came from the usual well-known quarter. Cacti from the Royal Exotic Nursery, Chelsea, were simply marvellous, the colour being singularly soft, clear and unique. Orchids in some cases were very fine, but they did not impress one as being better than last year. Caladiums, Crotons, and Ferns were likewise very good from all points.

Orchids.

Messrs. J. Charlesworth and Co., Heaton, Bradford, had one of the most interesting and beautiful groups in the show, prominent amongst which were large batches of *Oncidium ampliatum majus*, finely flowered *O. Marshallianum*, beautifully grown *Vandas* of the *V. tricolor* section, and *Masdevallia Veitchi grandiflora*. Amongst the *Odontoglossums* were some hundreds of plants of *O. crispum*, *O. Pescatorei*, and hybrids of the *O. luteo-purpureum* section. *O. crispum Princess* is a lovely form, the sepals white, slightly tinted with rose in the centre, heavily blotched and spotted with rich brown spots; the petals spotted with brown; the large fine-shaped lip white, spotted with brown in the centre. *O. crispum beardwoodense* is one of the most distinct and pretty forms we have seen, the sepals and petals white, heavily suffused with rose, thickly spotted and blotched with bright brown. Phaius Norman was also prominent. The most prominent among *Cypripediums* was the lovely *C. Schofieldianum* (*C. bellatulum* × *C. hirsutissimum*) with two flowers. Noticeable among the large assortment of *Cattleyas* were beautifully flowered plants of *C. Lawrenceana* and grand varieties of *C. Mendeli*. In addition to the typical forms of *C.*

Mossie were forms of *C. M. Reineckiana* and a lovely *C. M. aurea* with almost a yellow lip. Among the hybrids was *C. Olympus* (*C. Aclandiae* × *C. gigas*), sepals and petals delicate rose tinted, the large lip having the intermediate characteristics of the parents, deep rose-crimson in front, white in the centre, the side lobes white, shading to bright rose at the base. In *L.-C. Golden Gem* (*C. intermedia* × *L. flava*) the sepals and petals are rich golden yellow, the lip purple. *Lælia purpurata* Sunray, a beautifully splashed variety, bore five flowers. Messrs. F. Sander and Co. staged a fine group. In the back row were grand *Oncidium ampliatum majus*, a large plant of *Lælia purpurata*, and a finely flowered *Cælogyne Dayana*. *Cattleyas* of the *C. Mossie* section were represented by numerous highly coloured forms. The paler varieties were prominent. Grand forms of *C. M. Reineckiana* were also included. The *Odontoglossums* were the prominent feature of the group and contained remarkable forms of the typical and spotted forms. The hybrids also were well represented. *Sobralia macrantha alba* with two flowers, finely flowered plants of *Dendrobium Phalenopsis*, *Miltonias*, *Masdevallias*, *Zygopetalums*, and other interesting species were included in this group. Messrs. H. Low and Co., Clapton and Bushhill Park, Enfield, sent an interesting group, consisting principally of finely flowered *Lælia purpurata* in large specimens, grand forms of *Cattleya Mendeli*, and their well-known strain of *C. Mossie*. *Odontoglossums* of the *O. crispum* section and the hybrids were also well represented. The special feature was *C. Mendeli Oakes Ames*, the finest *C. Mendeli* in the show. *Cattleya Mossie Wagneri*, *Lælia-Cattleya Lowii*, the sepals and petals rose tinted, the lip rich crimson-purple, shading to white at the base; *Cypripedium Gertrude Hollington*, a fine variety with two flowers; *Odontoglossum crispum W. E. Gladstone*, and *Dendrobium Dalhousianum salmonium*, a salmon blotched variety, distinct and beautiful, were also noteworthy in this group. Messrs. W. L. Lewis and Co., Southgate, sent a large and interesting group, consisting of finely flowered *Oncidium ampliatum*, *Lælia purpurata* in variety, good varieties of *C. Mossie* and *C. Mendeli*, and well-flowered *Odontoglossum citrosimum* and *O. crispum*. The most prominent among *Cypripediums* were good forms of *C. Gertrude Hollington* and *C. Enever superbum*. Messrs. Linden, Brussels, sent grand forms of *Cypripedium Lawrenceanum* and *Odontoglossums* in great variety. This was one of the leading features of the show, the spikes being well developed and the flowers fine in substance and colour. The most prominent were *O. Rochfordianum var. venustum*, *O. Pescatorei bellatulum*, the sepals and petals white, with rich purple blotches and spots; *O. crispum zebrinum*, creamy white, sepals thickly spotted with rich brown; and *O. crispum decorum*, a grand form, white, with rich purple spotting. Numerous forms of *Cattleya Mossie* and finely flowered *Miltonias* in variety were also exhibited. Messrs. J. Backhouse and Son, York, sent *Lælia purpurata*, *Cattleya lobata*, *Odontoglossums* in variety, and *Miltonia vexillaria Empress Victoria Augusta*, as well as various hardy Orchids. Mr. J. Cypher, Cheltenham, sent a fine group consisting of a large and varied assortment of *Lælia purpurata*, *Cattleya Skinneri*, *C. Mendeli*, and *C. Mossie*. The *Dendrobiums* consisted of finely flowered *D. Dearei*, *D. Apollo*, and *D. Phalenopsis*. *Oncidium Marshallianum*, *O. cucullatum*, and *O. concolor* were also well represented. Among the *Cypripediums* were grand forms of *C. Rothschildianum*, *C. Schröderæ*, *C. ciliolare*, beautifully flowered *Miltonias*, *Odontoglossums*, and *Masdevallias* in variety. Messrs. B. S. Williams and Son sent a large group consisting of finely flowered *Cymbidiums*, beautifully grown *Vandas*, *Lælia purpurata* in variety, *L. Latona*, a dark form; *L.-C. intermedio-flava*, *Odontoglossums* in variety, *Oncidiums*, &c.

Sir T. Lawrence sent a choice and interesting group. The most prominent features were grand

specimen plants of *Cypripedium superbiens* (grandly flowered), *C. barbatum*, the lovely *C. Olenus* (Burford variety), and grand plants of *C. Lawrenceanum*. In the centre was a fine specimen of *Cymbidium Lowi*. *Cattleya Mossie*, *C. Mendeli*, *C. Lawrenceana*, and *Lælia purpurata* were also well represented. *Miltonia vexillaria* in variety, *Odontoglossum crispum*, *O. Halli*, *O. luteo-purpureum*, and *O. citrosimum* were also well represented. The *Masdevallias* were not so prominent as in previous years, but included fine forms of *M. Veitchi*, *M. ignea*, *M. O'Brieniana*, *M. Armini*, and *M. pachyura*. *Agnesia cœrulea*, with two of its lilac-rose-tinted blooms; *Habenaria rhodochila*, with bright scarlet flowers; *Dendrobium Victoria Regina*, with its dark blue flowers; *Cirrhopetalum fimbriatum*, *Epidendrum glumaceum*, with rose-tinted flowers, *E. Endresi*, *E. elegantulum*, *E. Endresio-Wallisi*, *Epiphronitis Veitchi*, with five spikes of its scarlet flowers; *Renanthera Imschottiana*, with a fine spike of its rich scarlet and yellow flowers; a grand specimen plant of *Anæctochilus Petola*, various *Dendrobiums*, and other species made up one of the most interesting groups ever exhibited at the Temple. Sir F. Wigan had a neat and interesting group, consisting of grand plants of *Lælia purpurata* in various forms, fine varieties of *Cattleya Lawrenceana*, beautiful forms of *C. Mendeli* and *C. Mossie*, a grand plant of *C. Skinneri alba* with four spikes of flower, *C. intermedia alba* with four of its pure white flowers, and a fine plant of *Acerides crispum*. Finely flowered plants of *Odontoglossum crispum*, *O. polyxanthum*, and other interesting *Odontoglossums*, *Miltonia vexillaria* in variety, *Cymbidiums* and *Cypripediums* in variety were also shown. The Rt. Hon. Earl Percy, Syon House (gardener, Mr. Wythes), sent a large and tastefully arranged group, consisting principally of *Lælia purpurata*, *Cattleya Mossie*, *C. Mendeli* in variety, a large batch of *Cypripedium barbatum*, *Odontoglossums* in variety, finely flowered *Vanda teres*, *Thunia Marshalli*, *Dendrobiums* in great variety, *Oncidiums*, *Epidendrum vitellinum majus*, a fine dark form of *Odontoglossum Edwardi* and finely flowered *Miltonia vexillaria*. Mr. S. Cook, Templeton Hill, sent a choice collection consisting principally of fine forms of *O. crispum*, *O. Pescatorei*, *O. luteo-purpureum* and other hybrids, finely flowered *Cattleyas* in variety, good plants of *Cymbidium Lowianum*, *Masdevallias*, *Epidendrams*, and *Cypripediums* in variety. Mr. H. S. Leon, Bletchley, sent a pretty group, in the centre of which was a beautifully flowered plant and variety of *Cattleya Skinneri*. *C. Mendeli*, *C. Mossie*, a dark lipped form of *C. Luddemanniana*, some dark forms of *C. Lawrenceana*, several grandly flowered *Dendrobium nobile* in variety, finely flowered *Oncidium concolor*, *Odontoglossums* in variety, *Lælia purpurata*, *Vanda tricolor*, *V. teres*, *Epidendrams*, *Cypripediums* and other interesting species were also included. Mr. Ludwig Monk, The Poplars, St. John's Wood, sent finely flowered *Cymbidiums*, *Odontoglossums*, *Miltonias* and *Cattleyas* in variety. Mr. Thomson showed the finest batch of *Odontoglossums* in the show, the most striking being *O. crispum Thomsoni*, white, with rich purple spottings; *O. c. Dorothy*, creamy white, with light brown blotches; *O. c. Lily*, in the way of *O. c. Sunlight*; a grand *O. Wilkeanum*, several forms of *O. excellens*, a dark spotted form of *O. Rochfordianum*, good forms of *O. tripudians*, and other interesting varieties. Mr. E. Ashworth sent *Cirrhopetalum Colletti* with four spikes of flower. M. Jules Hye Laysen, Ghent, sent *Odontoglossum sceptrum*, with dark chocolate blotches; *O. luteo-purpureum Vuylstekianum*, a unique form, with nearly yellow flowers; a grand form of *O. polyxanthum* and *O. cordato-crispum*, creamy white, with large blotches of brown, said to be a garden hybrid between the species indicated in the name. A fine form of *Miltonia Bleueana gigantea*, *Lælia Latona*, a dark *L. purpurata*, and *Cypripedium Lysinianum* were also included. Mons. A. Madoux sent *Odontoglossum crispum Charlesianum*, a yellow ground, beautifully spotted form; *O. Triane*, a pretty form, petals white,

sepals rose tinted and spotted with brown, and *O. crispum* Harryanum, a hybrid between the species indicated in the name, having the intermediate characteristics of both parents; good *Odontoglossum crispum*, *Cattleya Mossie*, C. Mendeli, and L.-C. Pallas. Mr. T. Statter sent a dark form of *Dendrobium Victoria Regina*.

Stove and Greenhouse Plants and Roses.

Mr. John Forbes had a magnificent display of his new Carnation Yuletide, the flowers wonderfully fresh and bright in colour. A collection of Pansies in this exhibit contained some fine things, but was much too crowded. Mr. Geo. Mount had a grand lot of Roses—Mrs. J. Laing, Caroline Testout, Catherine Mermet, and Niphotos in grand form, also some good blooms of Mme. Suzanne Rodocanachi and some good specimen plants of Crims'n Rambler. Messrs. Koster and Sons had a fine lot of cut flowers of *Azalea mollis sinensis*, which presented a bright bit of colour, but were not so effective as they might have been if less crowded and with some additional greenery. Many of these were unnamed; among the named ones, Alma Tadema, C. Maarschalk, Betsie de Bruin, a new spotted variety, of fine deep orange-scarlet colour; N. Beets, a bright apricot; and G. Reichenbach, very large, were the most striking. A small display of Carnation Duchess Consuelo came from Messrs. Dicksons, Chester, very fine in colour; only a few flowers were open, and these had nearly all burst. A fine display of greenhouse plants came from Messrs. Balchin and Sons, of Hassocks, containing a nice group of *Browallia elata*, *Boronias*, Heaths in quantity and grandly flowered, good specimens of *Hedera* (*Genetyllis*) *tulipifera* and some beautifully flowered small plants of *Leschenaultia biloba major*. Messrs. Carter's miscellaneous group contained some splendid *Calceolarias*, of which there were many crimson as rich as it is possible to imagine them. Hybrid *Streptocarpus* here were not very good. Some pots of the new Sweet Pea, Pink Cupid, were nicely flowered. In Messrs. Carter's display there were also many cut flowers, including *Anemones*, *Tulips*, *Ranunculi*, and a nice lot of Carnations. Messrs. J. Laing and Sons had two baskets of *Dracena Rose Laing*, a beautiful and highly coloured narrow-leaved variety, and *Distinction*, also narrow-leaved, the leaves having green centres and distinctly striped with red and white on the margins; both these are capital decorative forms. Six handsome young plants of a very narrow-leaved *Dracena*, D. Kippsi, with a graceful drooping habit, were exhibited by Messrs. Dicksons, Chester. This is worth growing in small pots. A very bright sport from *Pelargonium F. V. Raspail* was shown by Mr. A. Tullet; this has large semi-double pips and fine trusses of a deep scarlet. A lovely seedling regal *Pelargonium*, *Agnes Alma*, one of the finest we have seen, came from Mr. John Rigg, of Royston. The colour is bright scarlet, the upper petals shaded deep crimson, trusses and flowers very large. Messrs. Paul had a fine display of *Cannas*, all dwarf and well flowered. Among these we especially noted *Iona*, a light crimson self; Mrs. F. Dreer, yellow ground, mottled deep orange; Mme. Chabanne, bright rose with faint gold edge; William Toltts, deep yellow, mottled scarlet; and Mrs. James Bailey, deep crimson. Messrs. Kelway had a nice display of *Amaryllises* in their miscellaneous collection of cut flowers. Some good dark forms were very fine, James Kelway and Ziska, two of the best crimson selfs. The labelling here left something to be desired, as many labels were hidden and others entirely absent.

An excellent group of *Azalea mollis* in variety arranged on a groundwork of Ferns and Palms came from Messrs. R. and G. Cuthbert. There were also some good plants of *A. rustica* fl. pl. in variety—a very charming section. Mr. Frank Cant had a fine display of pot Roses, among which Marie Baumann, Duke of York, Augustine Guinoisseau, Catherine Mermet, and Caroline Tes-

tout were good. *Rosa Polyantha Thalia* was very striking in this exhibit. Messrs. Veitch's *Crotons*, beautifully grown plants in grand colour and variety, formed a large group on a groundwork of Maiden-hair Fern. A most distinct *Croton* is Hawkeri, seldom seen so well coloured as this year. Messrs. W. Fromow and Sons, Chiswick, had *Acers* in variety, with a sprinkling of *Lilium Harrisii*. This was much admired, the fine cut-leaved forms being light and elegant, and the dark-leaved forms in excellent colour. Messrs. R. Smith and Co., Worcester, had a splendid lot of *Clematises* trained to balloon-shaped trellises, the plants finely grown and timed to a day in most cases. All were full of flower-buds. Princess of Wales, Mrs. Geo. Jackson, Mme. Van Houtte, Marie Lefebvre, and Mme. Edouard André, a deep claret or puce-coloured variety, with the double Countess of Lovelace, and the dark-flowered *Purpurea elegans* and *Excelsior* were among the best. Mr. W. Rumsey had a nice group of *Roses*. Some very good *Mar'chal Niels* were seen in this group, and a fine lot of *Niphotos*; also many plants and cut flowers of the new Mrs. W. Rumsey, a fine variety with magnificent foliage, grand for cutting. Messrs. Cuthbert, in the big tent, had a grand group of miscellaneous plants beautifully set up, quite the prettiest arrangement we have seen at these shows. It occupied all one corner of the big tent, and was set up with a beautifully and naturally undulating surface. Carnations, especially *Malmaisons*, of which there must have been several hundreds in three or four varieties, formed the basis of this group, and banks of *mollis* *Azaleas*, *Roses*, *Tree Carnations*, *Palms*, *Bamboos*, *Spireas*, *Liliums*, *Calla Elliottiana*, *Ericas*, *Browallias*, and a fringe of Maiden-hair put the finishing touch to a truly artistic and glorious display. Next to this came another charming group of hybrid *Clematis coccinea*. Best among these were *Grace Darling*, *Sir Trevor Lawrence*, *Countess of Onslow*, *Duchess of York*, *Duchess of Albany*. The *Caladiums* from Messrs. Veitch, like their group of *Crotons*, were magnificent; better grown plants can hardly be imagined. Among the most striking were *Baron Adolphe de Rothschild*, *Geo. Berger*, *Louis A van Houtte*, *Triomphe de Comte*, *Lady Stafford Northcote*, *Mme. E. Pynaert*, *Lady Mosely*, *John Luther*, *Mme. Groult* and *Noaksi*. Mr. William Icton, of Putney, had a beautiful group of miscellaneous plants, *Palms*, *Caladiums*, *Crotons*, *Dracenas*, *Oranges* (in fruit), *Araucarias*, *Lilies*, &c. These were all good, well grown and well set up; indeed, all the groups showed a marked improvement in the arrangement this year. Messrs. W. Paul and Son's *Roses*, both pot plants and cut flowers, were very fine, and the group a large one. Among cut blooms here *Margaret Dickson* was in fine condition; so, too, was *Danmark*. *Medea*, a lovely soft yellow Tea, is fine in the bud state for cutting. *Aurora*, a flower something after *La France*, is of great substance. The trained bushes and standards of *Crimson Rambler* were covered with flower. The *Roses* in this exhibit were so fine that they might all be specified if space permitted. Mr. C. Turner in his group had some beautifully trained and flowered plants of the *Pelargoniums* for which he is so noted, *Magpie* being very striking. The *Carnations* here, too, were good and the *Roses* grand. The group from the Slough nurseries occupied all one end of the tent. A plant of *Junco* and another of *Comtesse de Serenye* reminded one of the great pot *Roses* of former days, but were not so effective as the more naturally grown plants. Messrs. John Waterer and Son had some fine pot *Rhododendrons* full of flower. Messrs. J. Laing and Son's *Caladiums* were fine plants, but suffered by comparison with Messrs. Veitch's grand lot.

Messrs. J. Veitch and Sons, Ltd., showed a very large group of *Phyllocactuses*, many of the hybrids being superior to the named varieties. Of the soft pink tints, *Epirus* and *Norma* were fine, and a brilliant carmine seedling from J. T. Peacock is very rich. Named *Gloxinias* from the same firm are excellent, the popular erect and

spotted strains being freely represented. *Argus* and *Olivia* were especially fine. A bank of plants from Jadoo, Ltd., grown in their fibre was interesting as showing the variety of plants that may be grown in this material. *Pelargonium King of Denmark* came from Messrs. A. W. Young and Co., of Stevenage. It is a strong grower, throwing up trusses of salmon-coloured semi-double flowers with freedom. Good *Gloxinias* came from the same exhibitors. *Mignonette Civic*, from F. Miller and Co., is a vigorous selection from Machet. Mr. F. Perkins, of Leamington, showed a very fine Carnation, *Primrose Queen*, a very free blooming variety and apparently a good grower. Messrs. W. and J. Birkenhead, Sale Nurseries, Manchester, had a fine collection of *Filmy*, greenhouse and hardy Ferns, small plants in pots of the Killarney and others. *Trichomanes*, *Todeas* and *Hymenophyllums* were clean and well grown. *Polystichum divisifolium densum* is very distinct. *Lastrea fragrans* (the Violet-scented Fern) and some finely crested *Athyriums*, *A. plumosum elegans* and *Polystichum divisifolium plumosissimum* we noted as specially fine. Mr. H. B. May, of Edmonton, had also a fine group of Ferns, among which were several fine varieties. *Pteris gracilis alticeps* is prettier than most crested Ferns, and there are many good *Davallias*. A fine example of *D. fijiensis major* is distinct and makes a fine specimen plant. *Phlebodium Mayi* is a very beautiful plant, the wavy glaucous fronds being finely cut. *Pellaea ternifolia*, *Pleopeltis salicifolia*, and many of the finer *Gleichenias*, *Adiantums*, and *Pterises* flanked the group, which was surmounted by fine specimens of *Platynerium grande*, *Lomarias*, and various *Pterises*. Messrs. J. Laing and Sons showed a bank of very fine *Begonias*, *Lady Charles Beresford* (a fine double crimson), *Lady Merrick*, *Duke of Fife*, *Lady Gifford*, and the lovely single yellow *Miss Alice de Rothschild* being among the most striking. Fine *Streptocarpus* and *Gloxinias* were also shown. Mr. G. J. Pritchard had an interesting group of *Cactuses* of sorts. From Messrs. Backhouse, of York, came a miscellaneous group of flowering and fine-foliaged plants, including a fine specimen of *Azalea roseiflora*, *Crotons* and *Dracenas*, interspersed with *Asparagus Sprengeri*, *Cyanophyllum magnificum*, and a few very fine *Orchids*. The front was finished with *Nepeta*, *Sibthorpia*, and other creeping plants. Mr. J. Russell, Richmond, showed a fine group of *Carmine Pillar Rose*, a single *Rose* now well known, of great beauty for the purpose indicated. *Gloxinias* set up with small plants of *Adiantum cuneatum* and *Cocos Weddelliana* came from J. Peed Sons, Norwood. Mr. T. S. Ware set up a really magnificent group of tuberous *Begonias*, the colours extremely rich and varied. The plants are set up with various grasses, which helped the somewhat stiff arrangement. M. le de Smet Duvivier set up a fine lot of *Anthuriums*, principally hybrids from A. Scherzerianum. The colours of all are rich, and some peculiar sports were included. A pretty bank of Ferns came from Messrs. J. Hill and Sons, Edmonton, all finely grown and well arranged. *Begonias* were very fine from Mr. H. J. Jones, of Ryeoort Nursery, Beacon and Mrs. Beckett being very good. From Messrs. J. James and Son came a group of *Calceolarias*, the plants vigorous, dwarf, and almost hidden by the immense bloom-trusses, the colours ranging from pure white to deepest crimson, spotted types being equally good. The tuberous *Begonias* from Mr. J. R. Bax were very fine. Messrs. Cannell and Sons staged a superb group of plants. *Calceolarias* were especially good, all of the finest tints, and thinly arranged, adding much to the general effect. The *Begonias* were few but good. *Tropeolum Phebe* is a striking plant, the flowers bright yellow, flaked with vermilion. *Cannas*, as usual, were excellent. Mr. Leopold de Rothschild, Ascot, put up a fine group of the dark *Malmaison* Carnation. Messrs. Sander and Co. had a very bold group of fine-foliaged and flowering specimen plants, comprising large *Dracena Sanderiana*, a

peculiar Anthurium with a coloured leaf, and *Acalyphas*, including large plants of the new *A. Sanderi*. *Pandanus Sanderi* is a great improvement on *P. Veitchi*, the yellow on the foliage and partial absence of spines being in its favour. A new Carnation *R. H. Measures* is almost a scarlet. Messrs. Paul and Son, the Old Nurseries, Cheshunt, had a really magnificent bank of pot Roses, fine standard specimens of *Alba rosea* and many of the best Teas standing up well above the dwarfier plants. Messrs. Peed's *Caladiums* were very fine, immense plants, beautifully coloured, each one a model. Messrs. Veitch and Sons had a large and very interesting group, comprising *Azalea mollis*, *Cytisus* of sorts, *Eremurus himalaicus*, the pretty *Raphiolepis japonica*, Maples, *Viburnums* and many others.

Hardy Plants.

The hardy plants this year, taken as a whole, show a marked improvement, particularly in the arrangement. In several instances—we refrain from particularising—an attempt at designing was noticeable, and, as compared with an apparent hurried attempt of former years to fill space, is a step in the right direction. Fragments, too, both of plants and blooms were less noticeable. Grouping in greater or less degree, so plainly demonstrated in Nature, should be the one special aim, and then exhibits would not only please, but impress those who behold them. Purely pot-grown plants, we were pleased to note, were more numerous than in some former years. Tufts of plants, always a weakening feature in any display, are losing ground, and the deplorable way such things behave in close tents should alone denounce such things as next to useless. On the whole, therefore, improvement marks the Temple show this year. Hardy plants from Ditton, a really remarkable and representative gathering, also from Tottenham, Winchmore Hill, and Crawley were very beautiful. Especial interest attaches to an exhibit mostly of bulbous plants from Colchester in infinite variety. Peonies from Langport were splendid. Exhibits of rockwork plants were not so numerous, the Messrs. Backhouse having one of these nicely arranged with rare alpine and other beautiful hardy plants.

Messrs. Barr and Sons, Covent Garden, had a remarkable exhibit of choice hardy plants, to which pot-grown Brooms made a very pretty background. Among the most notable plants were *Cyclamen repandum*, lovely in its rosy crimson flowers; *Dodecatheon splendidum* and *D. Jeffreyanum*, *Adonis pyrenaica*, *Gentiana verna*, crowded with brilliant flowers; *Maianthemum bifolium*, a neat little plant with white spikes; *Erigeron Roylei*, *Phlox Nelsoni*, *P. canadensis*, with deep blue flowers on plants 1 foot high; *Corydalis nobilis*, *Primula japonica* in variety, *Orchises* in many British kinds, *Primula farinosa*, *Lychnis dioica rubra plena*, *Cytisus Ledebourii*, an exquisite plant with satiny white flowers; several hardy *Cypripediums*, *Lindlophia longifolia*, intense blue; *Geum Eweni*, *Heuchera sanguinea splendens*, *Erinus alpinus*, many beautiful *Pyrethrums*, both single and double; *Thalictrum aquilegifolium*, *Trollius* in variety, notably *Orange Globe*, a grand thing, fine in size and colour, decidedly the best of its class; *Columbines*, *Irises* in many sections, *Aubrietias*, and a lovely lot of cut *Eemari*. A vase of Fortin's Lily of the Valley attracted attention by its grand flowers. Poppies of all sections, *Anemone sylvestris*, Tufted Pansies, a few *Narcissi*, *Paeonies*, single and double; *Hyacinthus amethystinus*, *Fritillaria Elwesi*, *Gladioli* of the early section, *Tulips*, German *Irises*, as also a splendid assortment of mostly Spanish kinds were also shown. The exhibit of rock plants of this firm was also a feature, being prettily grouped and arranged with evident taste; *Daphne Cneorum*, *Dianthus alpinus*, *Gentiana verna*, *Viola pedata*, *Saxifraga longifolia*, *Adiantum pedatum*, *Saxifraga Rhei*, *Cheiranthus Marshalli*, *Menziesia polifolia*, *Dryas octopetala* being among many lovely things in this most complete and remarkably representative gathering of hardy spring flowers. A group

of Tufted and fancy Pansies from Messrs. I. House and Son, Westbury-on-Trym, near Bristol, contained many fresh and good things. Of the former, Prince of Wales, gold; *Stophill Gem*, mauve and crimson; *Blue Cloud*, *Iona*, *Florizel*, delicate rose-tinted, and *Bronze Prince* were among the best. The bunches were set up in Moss in fan-shaped groups on a black ground, the damp Moss keeping the flowers fresh. A fine pure white called *White Empress* appears promising. A small group of alpine plants from Messrs. Paul and Son, the Old Nurseries, Cheshunt, included *Orchis latifolia*, *Cheiranthus Marshalli*, *Erigeron aurantiacus*, *Dianthus alpinus*, *Delphinium nudicaule*, *Erodium hymenoides*, *Oxalis enneaphylla*, &c. The group of hardy plants from Mr. Pritchard, Christchurch, contained the more showy *Columbines*, several *Flag Irises*, some *Pyrethrums*, *Trolliuses*, *Anemone sylvestris*, *A. alpina sulphurea*, *A. palmata alba*, *Saxifraga granulata plena*, *Campanula Balchiniana*, *Edraianthus serpyllifolius* (smothered with purple erect bells), *Gentiana verna*, *Trillium stylosum* (a delightful pink flower), *Anthericum*, *Delphinium nudicaule*, *Primula japonica*, *Hyacinthus amethystinus albus* (very pure), *Phlox canadensis*, *Eremurus robustus* *Elwesianus*, *Rodgersia podophylla* being among the best in this pretty group that less crowding would have greatly improved. Hardy flowers from Messrs. Kelway and Son were magnificent, the *Paeonies*, mostly of the Tree section, being marvellous, surpassing any other previous attempt by this firm. The pure whites were exquisite in their chasteness and in variety. Some of the gems of these are *Julius Cesar*, crimson-lake; *Henry Irving*, crimson-maroon; *Lady Millais*, white, exquisitely tinted with flesh; *James Kelway*, lively rose-pink; and *Lord Leighton*, pink. Other things in this group are *Delphiniums*, *Pyrethrums* (single and double), *Columbines*, *Flag Irises*, *Genista Andreana*, *Lupins*, and *Eurybia Gunniana*. Mr. T. S. Ware, Tottenham, brought up one of his characteristic displays of hardy things. A giant spike, some 8 feet long, of *Eremurus Elwesianus* towered in the midst of this group, drawing attention from all by its perfect form and massive appearance. Other good plants were *Anemone narcissiflora*, *A. sylvestris*, *Orchis militaris*, *Camassia esculenta*, *Pyrethrums* (double and single), the lovely *Cushion Iris Marie* with rose-mauve flowers, *Cypripedium Calceolus*, *C. pubescens* in large pans, *Heuchera sanguinea*, *Ramondia pyrenaica*, *Iris tectorum* (very fine), *Primula involucrata*, *Fritillaria recurva*, *Flag Irises*, *Lilies* of several kinds, *Tree Paeonies*, *Aubrietias*, *Edelweiss*, *Myosotis lithospermifolia*, *Geum montanum*, *Anemone sulphurea*, *Darlingtonia californica*, *Phlox canadensis*, and others. From Tamworth Mr. Wm. Sydenham brought Tufted Pansies set up in baskets and other designs that at once displayed decorative value of a high order, the shades of colour delicate and beautiful, as in the choicest of *Orchids* and in flowers that may be grown by all who possess a few spare yards of good ground. Flowers set up in bunches on a black ground were also charming, *Florizel*, rose tinted; *Stephen*, gold; *Pembroke*, golden; *Blanche*, white; *Amy Burr*, rose-pace; *Althaea*, and *Lucy Franklin*, white with gold crest, being among the best. The pretty rockwork exhibit from Messrs. Backhouse and Sons, York, was as always replete with interest and full of the choicest plants of alpine climes. Some of the best gems are *Edraianthus serpyllifolius*, lovely spreading tufts of purple cups; *Androsace villosa*, pure white, pink eye; *Eritrichium nanum*, *Campanula Allioni*, a lovely species; *Saponaria splendissima*, *Adonis pyrenaica*, *Polypodium trichomanoides*, *Globularia nana alba*, *Sarracenia purpurea*, *Dianthus alpinus*, *Lewisia rediviva*, *Cypripedium macranthum*, *Anemone palmata alba*, *Pyrola rotundifolia*, *Celmisia verbascifolia*, with pure white composite flowers; *Iberis jucunda*, with rose heads; *Alyssum citrinum*, *Anthyllis atro-rubens*, *Ramondia pyrenaica*, *Meconopsis cambrica* fl.-pl., *Androsace sarmentosa*, very charming rose heads; *Menziesia empetriformis*, *Ranunculus cortuseifolius*, a grand

Buttercup nearly 3 feet high, golden-yellow; *Anemone sylvestris* fl.-pl., *Gentiana acaulis*, *Lindlophia spectabilis*, *Morisia hypogaea*, and *Thalictrum* in variety. A background to this most interesting group was composed of *Heaths*, *Japan Acers*, small *Bamboos*, *Ferns*, and miniature shrubs. Several bowls of the *Marliac hybrid Water Lilies* completed a feast of the most dainty and valuable of hardy flowering plants.

Messrs. R. Wallace and Co., Kilnfield Gardens, Colchester, surpassed themselves on this occasion with the choicest of bulbous plants, *Calochorti*, *Liliums*, *Ixias* and such things predominating. The *Cushion Irises* were also a great feature here, these latter being a most representative gathering. Specially good were *I. atrofusca*, *I. Leichtlini*, a smoky bronze, with azure-blue beard; *I. Korolkowi* and its variety *violacea*, *I. Korolkowi concolor*, a deep mauve-shaded flower; *I. lupina*, *I. susiana*, *I. Lorteti*, *I. iberica*, a lovely thing, the most proportionately-formed flower of all, erect grey-mauve petals, and falls crimson, reticulated with pale yellow. *I. Grant Duffi* is a curious yellow and green-feathered flower. The rare *I. Hartwegi*, white and palest yellow, is very charming and quite dwarf. *Ixias* in great variety, Spanish and English *Irises*, the lovely *I. juincea*, with golden flowers; *Hemerocallis flava*, *Tulipa persica*, *Iris lusitanica sordida*, *Ornithogalum arabicum*, *Delphinium nudicaule*, a large bank of *Lilium Thunbergianum* in variety, *L. longiflorum* and its variety *giganteum*, and *L. candidum* were also very good. Several plants of *Incarvillea Delavayi* in bloom were a great attraction, the *Gloxinia*-like flowers of a rose shade and very large. Near by was *Lilium rubellum*, a grand new Lily, with lovely rose-pink flowers, in the way of *Krameri*, though quite distinct, the fragile stems, about 2 feet high, in some instances bearing three of the lovely flowers. Other lovely things included hosts of *Calochorti* in great variety and representing every strain of these beautiful bulbs. *Heuchera microphylla*, *H. sanguinea alba*, *Gladiolus delicatissimus*, *Geums*, and *Flag Irises* were also good. A grand lot of hardy *Cypripediums* included *C. pubescens*, *C. parviflorum*, *C. candidum*, *C. occidentale*, *C. spectabile*, *C. acaule* and others. This was one of the most comprehensive exhibits of choice hardy bulbs ever shown. From the Hardy Plant Farm, Winchmore Hill, Mr. Amos Perry sent a choice lot of hardy flowers, including *Trolliuses*, *Poppies*, *Iris pumila* in variety, *Saxifraga Wallacei*, *Camassia esculenta*, *Candytufts*, *Erodium macradenium*, *Heuchera sanguinea*, several beautiful *Geums*, *Ixiolirion Ledebourii*, lilac-mauve spikes, *Campanula Portenschlagiana*, *Camassia Leichtlini*, a distinct form, nearly white; *Anemone sylvestris*, *Tulips* in variety, *T. Gesneriana* very striking, and *Aquilegia Stuarti* very beautiful and not more than 8 inches high. *Trillium grandiflorum* roseum was also extremely fine, as also was *Arnenaria grandiflora*, with snow-white flowers. Messrs. A. W. Young and Co., Stevenage, Herts, contributed a mixed bank of *Lilies* in variety, *Columbines*, *Papaver nudicaule* in variety, *Flag Irises*, *Arum Dracunculoides*, *Saxifraga pyramidalis*, *Phlox Vivid*, *Geums*, perennial *Cornflowers*, *Ramondia*, *Sempervivum triste*, *Aubrietia*, &c. Messrs. F. Miller and Co., Fulham Road, S.W., brought a fine bank of *Mimulus* of a good strain, a very beautiful strain of *Petunia* being also staged by the same firm and margined with fancy Pansies and other plants. The group of hardy plants from Mr. Geo. Jackman and Son, Woking, contained many showy things, such as *Paeonies*, single and double *Pyrethrums*, *Cheiranthus alpinus* and *C. Marshalli*, *Thermopsis montana* with pea-shaped, golden yellow flowers; *Lychnis Haageana*, very vivid in colour; *Codonopsis ovata*, a *Campanula*-like plant, with drooping bells; *Columbines*, *Spiraeas*, *Poppies*, *Day Lilies*, *Dodecatheon meadia alba*, *Primula japonica*, alpine *Phloxes*, and others, all in good condition. An assortment of cut Sweet Peas, from Mr. F. G. Foster, Brockhampton, Hants, showed how amenable such things are to greenhouse treatment, the group including many of the leading kinds in

commerce—Lady Mary Currie, rose-pink; Lady Beaconsfield; Aurora, pink and white; Golden Gate, white, mauve striped; Countess of Aberdeen, white and flesh; Lady Nina Balfour, lavender, mauve shade; Cardinal, and Prima Donna being among the best. Messrs. J. Cheal and Sons, Crawley, contributed an exhibit of hardy plants on rockwork of an artificial character, the plants including alpine Phloxes, alpine Poppies, Alyssum, Columbines, Armeria, Geum, Genista Andreana, Anemone sylvestris, Lithospermum prostratum, Auriculas, &c., Flag Irises, Paeonies, Rhododendrons (very fine), Doronicums, Geums, Tufted Pansies flanking right and left of this group. From Reid's Nursery, Beckenham Hill, Kent, came a group of splendidly flowered Rhododendrons, the crimson, mauve, pure white, and rose and pink shades forming an imposing array of these useful shrubs. A double white Auricula, called Snowdrop, was shown by Mr. R. Dean, of Ealing, as a result of twenty years' seeding and selection. A fine group of bedding Lobelia called Blue Queen was staged by Mr. W. Palmer, Junction Road, Andover. The plants grown in small pots are very free, and should prove most useful for window boxes and the like. A small group of alpine Auriculas from Mr. Jas. Douglas, Great Bookham, was of special merit, some of the varieties being those that recently secured certificates of merit; the selfs were mostly good throughout. The only exhibit of Tulips came from Mr. George Edom, Walton-on-Hill, Epsom, Surrey, and included many good kinds. Among selfs, Queen of England, Rose Hill, Mrs. Earlow, Sir J. Paxton and Masterpiece were noted; the flamed kinds including Sulphur, Annie McGregor, Bessie, Duchess of Sutherland, Talisman, Aglaia, Mabel, Mrs. Mellor and others.

Fruit and Vegetables.

Messrs. Rivers and Sons, Sawbridgeworth, sent a magnificent collection of fruit trees in pots, and a box of the Early Rivers Nectarine, immense fruits and beautifully coloured. The trees, of which some forty were staged, included Nectarines, Peaches, Figs, Plums, and Cherries. The front row was largely composed of maiden trees of the Early Rivers Nectarine carrying several fruits, with larger trees in the background having over thirty fruits each. There were very fine trees of Duke of York, Hale's Early, and Crimson Galande Peaches. Plums were represented by Rivers' Early Prolific and Sturt, trees of both varieties laden with ripe fruit. The Figs Monaco Bianco and White Marseilles were very good. The trees of May Duke Cherry, grown as standards in very small pots, were well laden with fruit. Messrs. G. Bunyard and Co., Maidstone, sent seventy dishes of Apples and Pears in excellent condition. Ribston Pippin was specially fine, as were Wadhurst Pippin, Claygate Pearmain, Winter Peach, Bow Hill Pippin, Wagener, and Sturmer. Of cooking varieties there were really fine examples, Bismarck, King of Tompkins Co., Annie Elizabeth, Sandringham, Lane's Prince Albert, Lord Derby, Norfolk Beaufin, Russets in variety, Wellington, Bramley's Seedling, Alfriston, and Beauty of Kent being the best. The collection was backed with Pear and Fig trees in pots.

Mr. Hudson (gardener to Messrs. Rothschild, Gunnersbury House, Acton, W.) filled a very large space—some 400 feet—with fruit trees in pots. The trees were remarkable for their large fruits, and were arranged with pot Vines at the back and boxes of ripe fruits at the front. The Cherries, Strawberries and Cardinal Nectarines were very large. Here was to be seen Louis Gautier Strawberry, a nice fruit, white with a pink tinge of colour. Auguste Nicaise Strawberry was very large, also the gathered fruits of Early Rivers Nectarine. The Vines in pots were each carrying six bunches of fruit, the varieties being Foster's Seedling and Black Hamburg. Cherries in pots were also a feature, no less than eight varieties being staged. Early Rivers, Elton, May Duke, Empress Eugénie, Frogmore Bigarreau, and Bigarreau de Schreken were grand examples. Nectarines were largely composed of Cardinal,

Early Rivers and Lord Napier, the two former very fine. Peaches were equally good, Hale's Early, Amsden June, and Early Grosse Mignonne being staged. Plums were equally good, though not so ripe. Some splendid St. John's Fig and other varieties were also included. Mr. McIndoe (gardener to Sir J. Pease, Bart.) staged a collection of forced fruits, including Melons in variety: Early Summer Frontignan, Foster's Seedling and Black Hamburg Grapes; Early Rivers, Lord Napier, Dryden, and Elruge Nectarines; Early Grosse Mignonne, Condor, and Bellegarde Peaches; Brown Turkey Figs, Apples in variety, several varieties of Lemons, Oranges, Cherries, and several dishes of Tomatoes. Mr. Miller, Ruxley Lodge Gardens, Esher, sent good Royal Sovereign Strawberries, and from Mr. T. Robinson, Elmsfield House Gardens, Hollingbourne, came Melons in variety, mostly small fruits, but well ripened. Mr. E. Beckett, Aldenham House, Elstree, sent Melons and some very good Cucumbers, the variety being Matchless. From Mr. W. L. Bastin, Buscot Park, Faringdon, came Melons, also Tomatoes, Cucumbers, French Beans, Cauliflowers and new Potatoes. Mr. G. Featherley, Gillingham, Kent, sent excellent Black Hamburg Grapes, beautifully coloured, Hale's Early Peach, Dryden Nectarine, Tomatoes, No Plus Ultra Beans and Cucumber Covent Garden Favourite. Mr. G. Mount, Canterbury, sent several boxes of fine Mushrooms, and Mr. G. Addey, Brentford, also sent a fine lot of Mushrooms. Mr. S. Mortimer, Rowledge, Farnham, sent nine boxes of Tomatoes and some half-dozen varieties of Cucumbers. The Tomatoes were well grown and included Abundance, Best of All, Mitchell's Hybrid, Eclipse, Perfection, Conqueror and A 1. Of Cucumbers, Tender and True, Improved Telegraph, A 1, Progress, Rochford's Market and Lockie's Perfection were the best.

Messrs. Sutton and Sons sent a large collection of Early Marrow Peas, pods large and of splendid quality. Here were Early Giant, a grand Pea; Excelsior, Bountiful, Empress of India and A 1, all noted for their size and marrow flavour. The same firm also made a great display of Cucumbers of splendid colour and shape; Matchless, Pride of the Market, Peerless, Improved Telegraph and Sutton's A 1 were the varieties shown. The whole were staged in large baskets and in mounds, making an interesting exhibit. Mr. E. Beckett, gardener to the Rt. Hon. Lord Aldenham, exhibited a collection of well-grown vegetables, covering a space of about 150 square feet. It included Veitch's Extra Early Forcing Broccoli, the heads beautifully compact and good, also Champion, Model and Perfection; very large Holborn Model and Lyon Leeks; Cabbages Flower of Spring, Model, and Ellam's Early; and heads of Asparagus—Mammoth Emperor. Carrots were very fine. Tomatoes, consisting of Perfection, Duke of York, Polegate, and two small dessert varieties, Sutton's A 1 and Golden Nugget, were also good. Potatoes embraced some half a dozen varieties, the tubers being large, with clear skins. There were also Red and White Milan Turnips; a nice dish of Early Morn Peas, the pods well filled and even; French Beans, Vegetable Marrows, Globe Artichokes, Mushrooms, Cucumbers, Cabbage and Cos Lettuce, Spinach, Radishes, Onions, and Mushrooms. The whole of the exhibits were nicely staged, showing to the best advantage. A small collection of vegetables was shown from the Marquis of Northampton's gardens at Castle Ashby (gardener, Mr. Hayes). In this collection were some very fine heads of Asparagus. Veitch's Champion and Late Queen Broccoli, Tomatoes, Onions, Turnips, Potatoes, Cucumbers, French Beans, Lettuces, Leeks were also included in this exhibit. Messrs. Carter and Co., High Holborn, exhibited some of their well-known Tomatoes, both growing in pots and picked. They also exhibited good pods of their Daisy and Danby Stratagem Peas, Climbing French Bean, and some very fine specimens of their Model Cucumber. A good collection of vegetables was also staged by Mr. W. Empson, gardener to Mrs. Wingfield, Amptill House, Beds. The exhibit

covered a very long stage, and comprised about eighty varieties. Mr. Frank Chapman, Colchester, showed Rhubarb in about six varieties, Royal Albert, Linnaeus, and Victoria being the best, also several bundles of Asparagus, one a new variety named Pea Green, and another fine large variety named Colchester.

We will refer to the floral decorations and the plants to which certificates have been awarded in our next issue. In our advertising columns will be found a list of the awards in the way of cups, medals, &c.

PUBLIC GARDENS.

The Royal Palace at Kew.—By order of the First Commissioner of Works, in accordance with the commands of Her Majesty the Queen, the grounds of the Ranger's Lodge at Greenwich and the Royal Palace at Kew will henceforward be open to the public. The grounds of the Queen's Cottage at Kew were on Saturday, May 21, formally added to Kew Gardens.

The early opening of Kew Gardens.—In connection with the opening of Kew Gardens after Wednesday, June 1 next, at 10 a.m. instead of noon, a dinner to commemorate the earlier opening will take place at the Star and Garter Hotel, Richmond, on Monday evening, June 6 next, at which the mayor of the borough, the member of Parliament for the division, and many other public men have promised to attend.

London playing fields.—The City Parochial Charities Board have promised a second sum of £500 towards the £10,000 which the London Playing Fields Committee are trying to raise for the purchase of Prince George's Ground, Raynes Park, as a playing field for Londoners of the poorer classes. The Board have also again voted £200 to the London Playing Fields Committee for their general purposes. The £500 is contingent on the purchase being completed.

Exeter pleasure grounds.—The remodeling of Northernhay pleasure grounds, Exeter, which was entrusted to Messrs. Robert Veitch and Son, of Exeter, has now been completed, and the somewhat difficult task has been accomplished in a most creditable manner. One of the most conspicuous improvements is the alteration which has been effected immediately opposite the bandstand. Here, it will be remembered, were several slopes, and on the top two narrow paths, which did not admit one quarter of the visitors who would have liked to listen to the band from that position. This has now been turned into a wide gravelled plateau, with sufficient room for at least 1000 persons.

The weather in West Herts.—A week of very changeable weather as regards temperature. For instance, on the 19th and 20th the maximum, in shade never exceeded 50°, but on the 23rd rose to 74°. The latter, although in no way a remarkable one for May, is the highest reading in shade as yet recorded here this year. Again, on the night preceding the 19th the thermometer exposed on the lawn fell slightly below the freezing point, whereas during the following night the same instrument did not fall lower than 47°. The ground is now of about average warmth both at 2 feet and 1 foot deep. There occurred but two rainy days during the week; the total measurement for these two days, however, amounted to nearly three-quarters of an inch. The winds were light, and came mostly from some northerly or easterly point of the compass. On the 18th the sun shone brightly for 13½ hours, making this the brightest day as yet of the present spring. On the other hand, throughout the two following days no sunshine at all was recorded.—E. M., *Berkhamsted, May 26.*

Names of plants.—R. Ormsby.—*Saxifraga granulata* fl.-pl.—H. Mitchell.—*Orchis purpurea*.—R. H. K.—*Spirea arguta*.—F. Hand.—*Staphylea colchica*.

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ORCHARD AND FRUIT GARDEN.

GUMMING IN STONE FRUIT TREES.

Most of us who possess, or have the management of gardens know something about this disease, so far at least as its effect upon the trees is concerned. No fruit tree subject to it can have a long or prosperous life. There may be—probably there is—a predisposition to gumming in certain trees. The Moorpark Apricot is a notable sufferer, and, I suppose, speaking generally, there are at least four young trees of the Moorpark sold for one of all the other varieties put together, but the question that has often occurred to my mind is this, Do nursery propagators always exercise sufficient care in choosing the subjects from which they obtain their buds? If buds are taken from an unhealthy tree, we can easily understand that the young trees will be subject to gumming and dying of the branches. In a secondary sense gumming may be said to be due to a parasitic fungus; but even in the case of a tree predisposed to gumming, the fungus can only establish itself in an open wound, and to a certain extent give the cultivator power over it, if he takes proper care in the pruning and training of the trees. Gumming is often caused by some injury to the branches or a too free use of the knife. A careless man perhaps gives a branch a tap with the hammer when he is training the tree, and forthwith the fungus spores which are floating in the atmosphere find a home, and shortly afterwards the gum is seen to be exuding from the wound. A tight shrod, by forcing the branch into contact with a nail, may break the bark and produce a genial home for the fungus. As regards the cure, the same measures must be taken as a doctor would take in dealing with a wound in a similar condition with the human subject. He uses the knife, cuts out what some people call the proud flesh, and uses the proper means for cleansing and healing up the wound. When gum is seen

exuding from a branch or branches, if the tree is to be restored, cut out the infected part, and put on a poultice of cow manure, lime, soot, and clay, filling the wound with it and binding it on with a piece of cloth, and keeping the air from it until the wound has healed and filled up with new bark. But it is necessary to act promptly, as if the remedial treatment be delayed the disease will kill the branch, and then amputation will become necessary. Trees which are predisposed to gumming should be pruned chiefly in summer, and the knife as far as possible kept off them in winter and spring. If the rungs of a ladder placed against the wall come into contact with a thick branch a wound is created, and a home for the fungus made perhaps without anyone suspecting it. There are predisposing causes in cultivation, the most common being planting young trees in land which has been made too rich with manure, or the immoderate use of turfy loam. If the land is naturally suitable for stone fruits, I think a fairly plain diet at the beginning is better than rich food, which is calculated to promote grossness. H.

Plum The Czar.—This Plum should become very popular, for perhaps no other variety will stand such rough treatment and yet give good results. On a wall it ripens in July, while open standards produce ripe fruits by the second week in August. The flavour is not exactly first-rate perhaps, but on more than one occasion I have been glad to send it to table. It is early yet to speak of what the crop is likely to be, but the trees are very heavily laden with fine, promising-looking fruits, though many other Plums, including Victoria, have very few. The culture of Plums on a suitable soil is of the easiest description, but one of the worst and most frequent mistakes is planting in loose garden soil. The Plum, perhaps more than any other fruit grown in open quarters, delights in firm soil; indeed, the best trees I have are on the border of a piece of ground used for standing Chrysanthemums and other plants on, and which, of course, is never dug. When planting, the soil should be very firmly rammed, and never dug within a few

feet of the stem of the tree. Light hoeing will keep it clean and allow the sun and air to enter freely, and this is all that is necessary.—GROWER.

Frame culture of Melons.—In an excellent note on the above, "Grower" at p. 414 deals with the culture of these in cold frames. There is at times a difficulty in finishing the fruits when grown in frames, and I would advise growing the plants nearer the glass than is often done. With manure none too plentiful if in brick pits or frames, I have for years made a trellis of bamboo canes at a distance of 12 inches from the glass. The plants are trained over the trellis and the fruits ripen much better than when lying flat on the soil. The fruits are supported on the framework with slates or pieces of glass, and grown thus are drier, getting more warmth and light. It is a simple matter to fix the trellis. I place a stout piece of wood for the canes to rest upon at the back of the frame, and the other end of the canes rests on the pipes, the canes being placed at a distance of 12 inches to 15 inches all ways. The support is placed in position as soon as the plants are strong enough, that is, high enough to train over. Grown thus there will be better shaped fruits, the plants being freer from insect attacks and more easily got at to syringe and regulate the growths.—S. H. B.

Blackberries.—Where these plants are grown in gardens it is the rule to plant them in lines like Raspberries, but they are just as fruitful and have a far prettier effect trained over an arch or gateway, or up the stems of dead trees. The wild forms are well worth cultivation, especially where the soil is light and porous or can be made so. The Parsley-leaved kind and many others more or less distinct may be included, and a very long succession of the luscious fruits may be had. Though growing naturally, often in some of the poorest soils the fruit is improved in size and quality by culture, and the routine may be not unlike that practised for Raspberries. For making plantations from wild plants clear as many suckers as are likely to be needed in summer, and lift these in September with as many root fibres as possible. Plant at once, and if the soil is dry give a thorough soaking and mulch with short manure. When planting for ornamental effect as well as fruit the shoots may be topped at various

heights and some brought down by bending when young. This will ensure a large quantity of blossom all over the plants, and subsequently fruit. Thinning the growths in autumn is not exactly pleasant work, but it is well repaid by the superior fruit produced.

NOTES AND QUESTIONS.—FRUIT.

Apple Boston Russet.—I have known and grown this variety for thirty years. Grown as a bush or standard it seldom fails to produce a heavy crop. The flesh is yellowish white, juicy and richly flavoured. As a late winter dessert Apple it is not to be surpassed, and is in season from January to the end of May.—RICHARD NISBET, *Longford Cottage, Market Drayton.*

Scalded Grapes.—Could you tell me the cause of Grapes going like the enclosed specimens? The house has not been heated since the second week in May. It is thoroughly ventilated night and day.—S. P. BRIDGFORD.

** The berries you send are suffering from scalding, which is caused through late or bad ventilation on a bright morning when the inside atmosphere as well as the berries are covered with moisture. It always occurs when the berries are about half-grown, as in the case of those sent by you.—ED.

Tomatoes in vineries.—Regarding the growing of these in vineries, I am at one with Mr. Iggulden. It is some seven years since Mr. Iggulden saw them growing in vineries here, that being the second year I had grown them in this way. I have continued to do so every year since with the very best results. Under glass I grow a Tomato wherever there is room for the foliage without interfering with the space the Vines want, and where Mr. Iggulden saw them, namely, at the back of a lean-to vinery, on a shelf in boxes, and trained up under a small, narrow light, I now (May 20) have some grand plants full of fruit. I am not particular as to the position, provided I can get plenty of light. The plants do well either in boxes or pots. In some late vineries I have Tomatoes growing in boxes from 8 inches to 10 inches wide and as much deep. These are standing on shelves close to the glass, where I grow Geraniums, Primulas, &c., in winter.—J. CROOK, *Forde Abbey.*

Seedling Apricots.—On visiting a friend's garden the other day I was surprised to see a couple of healthy bush Apricots in pots in the greenhouse that had been raised, as I was told, "by fraulein to amuse the children." The plants were as free and elegant in habit as young Birch trees, and bid fair to develop into very healthy and handsome trees. At Burghley years ago I remember the late Mr. Rd. Gilbert telling me he had reared a batch of seedling Apricots for the walls there as he expected that they would prove more healthy than grafted trees on the Plum stock so generally employed for this tree. The celebrated little Musch-Musch Apricots of Upper Egypt are constantly raised from seeds, as also are those of Cashmere and Thibet, where the old or unfertile trees are cut down for fuel, and those who have failed to grow grafted Apricots might try seedling trees from the best varieties with advantage. In any case, as Knight long ago pointed out, if Apricots are grafted or hudded, let it be on seedling Apricot stocks and never on the Plum or Peach stocks, on which they are unhealthy and short-lived.—F. W. BURBRIDGE.

Vines on open walls.—The note on p. 437 is very interesting, and should be kept in mind by those having unproductive Vines in the open. There is a very fine old Vine on a hot brick wall within a mile of this place that yearly bears a fine crop of Grapes, small, but sweet and pleasant to the taste. Some three years ago I was asked why the fruit never ripened, and, though dubious at first, I advised the owner to thin the growths more, leave less wood about the old spurs, and thin the fruit. This was done, and each season the fruit has ripened. It is true the last three

summers have been rather more sunny than the average, but, as a general rule, Grapes will ripen if the Vines are well cared for and pruned early. A frequent cause of failure in cottage and other small gardens is either cropping right up to the stems of the Vines, or else planting in gravel or stone walks where no moisture can reach the roots. It is true that Vine roots run a long way in search of food, but if they can be kept a little in check, the growth is more fruitful and feeding at special times is more easily accomplished. On the thatched mud walls about Hampshire and some parts of Wiltshire one often sees Grapes ripen out of doors, showing that protection from above is helpful.—H. R., *Bury St. Edmunds.*

NOTES OF THE WEEK.

Azaleas from Weybridge.—I send a few blooms of *Azalea indica*, cut in our wood at Weybridge. The plants were put out in September last year and have had no protection of any sort. Though the winter was a mild one, the hard frosts in April would, I thought, have tried them.—GEORGE F. WILSON.

Iris florentina.—This old-fashioned garden plant is blooming freely this spring, the flowers, moreover, being very good and decidedly attractive. The delicate suffusion of colour that pervades the whole flower is charming, and when the plants are grouped in the front of dark green Hollis the effect is still further enhanced.

Iris tectorum.—This species is flowering somewhat freely this season, and is very pleasing when in good condition. The pale lilac flowers, lined and veined with a lighter shade of white, are quite distinct even in a large genus such as this, and the fact of its blooming just in advance of the majority of Flag Irises is also favourable to its extension.

Trollius Orange Globe.—It would be difficult to conceive a bolder or more imposing border flower than this, so freely shown at the Temple last week. That it is well to the front among good things is very certain, and a plant that attracts the majority must have unmistakable features of its own. In the border in moist loam it is a fine plant when established.

The giant Forget-me-not in the north.—I am sending you a flower of the Chatham Island Forget-me-not which was planted in the open in April. My father obtained the plant two years ago, and though he had given it every attention, it has not flowered until this year.—L. C. LOWTHER, *Brooklands, Penrith.*

** A good specimen of the plant; flowers large and beautiful.—ED.

The weather in the north.—A considerable fall of snow took place on Tuesday afternoon on the Pennine Hills in Westmoreland. Stormy weather for the end of May was experienced in various parts of Scotland on Tuesday. The morning was bright and summer-like, but in the afternoon snow and hail fell. The Perthshire mountains and Fifeshire hills had a white covering, while in Edinburgh there was a heavy fall. About one o'clock at Dunblane the thermometer was below freezing point. The weather generally is cold, and crops are in a backward condition.

Edraianthus serpyllifolius.—This is perhaps one of the most beautiful of this tribe, and producing a perfect carpet of purple-violet cups. It is in every respect an ideal rock plant, of easy culture, and spreading into welcome patches of colour. Just now, too, there is not much competition in this shade of colour, and for this reason the plant is more valuable. Deep fissures of gritty loam and a rather sunny aspect, so that its creeping branches may spread over the rocks, suit it well. At the same time the soil should be good if the permanent health of the plant is to be maintained.

Iris Balceng Miss C. M. Owen.—Hybrid Irises promise to become plentiful, but some who are not acquainted with the dwarfed hybrids may be pleased to hear of this one, which is not only easily procured, but is pretty and inexpensive.

It is one of a small series of hybrids between *I. balkana* and *I. Ciengalti*. It is now in bloom here (May 28) and has been flowering for about a week. The flowers are well raised above the plant, and here are 8 inches or 9 inches above the level of the soil. They are a pearly white, with purple veins. It is a delicately coloured Iris and of considerable beauty.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Anemone palmata alba.—Still among rare plants may be said to be both the typical species as well as the variety here noted, yet under certain warm conditions they are quite vigorous. It is a plant that delights in certain positions near the sea, though even this may be limited to warm districts, as, for instance, the south coast. But even should such a limit be placed upon it, the value of the plant will remain. In gardens more inland, and those near London particularly, the plant is not much of a success, yet on the south coast it will grow and flower freely. Usually a rather moist peaty sand suits it well, and a group of it in flower is very attractive.

Erigeron nanum.—There is nothing more beautiful or more difficult to maintain in good health than this. It is so rare indeed that a small tuft of it in one of the groups at the Temple show last week appeared among the most conspicuous of hardy plants. The woolly tufts studded with the brilliant blossoms, so closely nestling thereon as to obscure the meagre foot-stalk, render it unique among mountain plants. It is a lovely plant, albeit too frail or delicate for lowland cultivation unless in few instances, and then so placed that damp cannot lodge in the short, dense tufts that its leaves form. Soils of every description have been recommended for this rare plant, but, unless these are accompanied by an almost perpendicular position, little good will follow.

Plants lost at the Temple show.—We are asked to state that at the Temple show M. Jules Hye, of Ghent, lost the very valuable Orchids he exhibited, and no trace can be ascertained of their whereabouts. They were seen by him in the tent soon after 9 p.m. on the Friday (the day on which the show closed), but they had disappeared by 10 o'clock, and he is naturally in great distress.

** The above, we believe, is not the only instance where plants have been lost, as we have heard of other exhibitors when clearing away at the end of the show having missed some of their plants. The public should in all cases be excluded from the tents and only exhibitors and assistants admitted, thus preventing anything in the way of fruit or plants being taken away unless by the owners.—ED.

Lilium rubellum.—This lovely new species attracted the attention of all lovers of hardy flowers at the Temple show last week, mainly, perhaps, because it is an entirely new species to cultivation. The chief attraction, however, is not that it is a novelty merely, but that it is a novelty calculated to take front rank among its fellows, and give a lovely tone of colour to our gardens. In its habit of growth the species partakes of a slender-growing auratum, and in truth exhibits, as do many Japanese Lilies, some variation in leafage alone. It is also a somewhat variable species in point of colour and slightly in form. But in the dozen or so plants shown by Messrs. R. Wallace and Co. last week there was ample evidence of great freedom of flowering even in the smallest bulbs, while quite frail stems bore three and four of the lovely pale rose or rose-pink blossoms. In some flowers the deeper shade of colour is very fine, and the more delicate equally beautiful. Some flowers, too, are quite campanulate, singularly so also in their drooping habit, and with the rather obtuse buds following give it a unique appearance. The plants shown by the Messrs. Wallace had, of course, been grown in some warmth; we may therefore expect to see flowers of much richer hue when these appear from the stronger bulbs and in a more natural season.

WILTON HOUSE.

WILTON HOUSE was built by the first Earl of Pembroke about A.D. 1550 from designs by Hans Holbein, and the gardens were laid out by Isaac de Caus. Since then they have been remodelled and enlarged, and owe a great deal of their present beauty to the second wife of the eleventh earl, Countess Woreanzow, who at the beginning of the present century laid out the present gardens, assisted by Sir Richard Westmacott. The garden immediately round the house is laid out in the Italian style. On the west side one comes on a charming specimen of floral embroidery, of which Art has supplied the pattern, and Nature the rich and various colours of which it is composed. This harmonious combination and arrangement produce a singularly agreeable effect, which is heightened by the masses of surrounding foliage. Leading from this garden is a delightful alley, edged with fine old Yews and

fear of this beautiful group disappearing to judge by the vigorous growth of the new trees planted since 1860. Near by are fine specimens of *Chamaerops Fortunei*, of a Copper Beech, and an evergreen Oak of unusual size. The river Nadder, which runs by here, divides the grounds from the deer park, and is crossed by the beautiful Palladian bridge designed by Inigo Jones. What strikes one most at Wilton is the splendid stretches of lawn, which extend from the house to the river. Between 70 acres and 80 acres are kept as lawn, and it would be difficult to find even in a much smaller space such splendid turf. A broad gravel walk about 300 yards long leading from the house is terminated by a stone seat hedged round with Yews. On each side of this walk are beautiful groups of evergreen trees and shrubs edged with Savin, with Rose gardens between. The Oak planted by the Emperor Nicholas of Russia promises to be a fine specimen. There

great age (over 100 years), still yield crops which for quality and quantity are hard to equal. To protect the wall fruit against the inclemency of our English climate, a curtain of garden netting, suspended from a glass shelter, reaches to the ground. The lower half of this netting has a much larger mesh for ventilation. Royal Sovereign and Auguste Nicaise are the varieties of Strawberries used for forcing. Two of the many houses are devoted to growing Orchids for cutting. In one of the houses a very large plant of the night blooming *Cereus*, which is now very rarely met with, was noted.

CAROLINE ROCHE.

STOVE AND GREENHOUSE.

AZALEAS.

It is not in every place that these useful plants are as well grown as they may be, and possibly the low price of small Continental-grown plants



Wilton House. From a photograph by Mr. Stuart, Cromwell Road, Southampton.

Horse Chestnuts, and terminated by the porch known as "Holbein Porch," which once formed part of the old house. These Yews and a few old Limes are almost all that remain of the elaborate gardens laid out by Isaac de Caus.

Turning to the left, we come on what will be one of the most charming features of the garden—a large island planted with Bamboos and Willows. It is intended that the *Bambusa* and *Salix* families should be fully represented here, and when the *Iris Kämpferi* is planted down to the water's edge the effect will be quite unique. It is from here that we have the finest view of the celebrated Cedars of Lebanon—probably the finest in England. This was one of the first groups of Cedars planted in England in 1631. The original plan has never been lost sight of, and succeeding planters have always endeavoured to replace what the storms—which at times have caused great damage—have destroyed. There will be no

are also some very fine Acers and Ailantuses, while the Horse Chestnuts at the entrance to the courtyard are over 400 years old. Near the river are a column and a statue of Venus and an old sundial, which marks the division of the two parishes. Here two lovely borders of Irises, both English and Spanish, at the time of my visit were in full beauty.

The principal walk to the kitchen garden was formerly the old turnpike road from Salisbury to Wilton, which was diverted in order to give greater privacy to the grounds. The river Wylde divides the kitchen garden from the pleasure grounds, and is crossed by a stone bridge designed by Lord Brownlow. To the right and left of the bridge are charming grass walks and herbaceous borders. Among the many glories of Wilton are the fruit gardens, where every kind of fruit, both under glass and in the open, is grown to a high state of perfection. The grand old Apple trees grafted on the Quince and trained in vase fashion, in spite of their

has something to do with this. In some gardens Azaleas are taken very little account of when once they have flowered, but to grow them one season and afterwards neglect them is too extravagant.

The best plants and those that continue longest in health are those that are only very lightly forced, for though many instances may be given of large old specimens of Fielder's White and one or two other old-fashioned varieties keeping in fair health over a great number of years though forced, there is not the same substance or lasting properties in the flowers as on plants brought along almost without heat. Florists who have to keep up a succession of bloom have, of course, to force their plants, and, owing to the quantity of wood cut with the blossoms, have to give them warm, moist quarters afterwards, or they would not be sufficiently advanced to form flower-buds. But this is not the best way by any means to grow the plants. From the time the plants reach the grower until they are in bloom the temperature should never be higher than that of an ordinary greenhouse, and after flowering, if the syringe is freely used about them, they will make a stronger, healthier growth in the greenhouse than anywhere. In modern houses with large panes of glass and not much woodwork these plants need a light shade while grow-

ing, this being lessened by degrees as the foliage hardens, removing the plants to an open, though not necessarily a sunny, position to thoroughly ripen the wood. When severe frosts threaten, they may be removed to the shelter of a cool Peach house, conservatory, or greenhouse, keeping the atmosphere a little moist, and if possible gently syringing the plants for a few days. If anything is needed in the way of stimulants, there is nothing better than frequent light doses of clear soot water, this giving tone to the foliage and substance to the flowers. By using this, large old pot-bound specimens that it would be dangerous to shift may be kept in health for years. For forming pyramid and other fanciful-shaped plants a good deal of tying in is necessary, but this may be entirely dispensed with and yet plants of good regular outline be formed. The fashion of cutting the flowers alluded to above shows what Azaleas can put up with in the way of pruning, and badly-shaped, neglected plants may be cut in with the shears rather freely without in any way injuring the plants or the prospect of flowers. They should be taken in hand at once when the flowers are past, and then there is plenty of time for young shoots to push and develop flower-buds. Top any that appear to be gaining an undue advantage over the rest in the earlier stages.

REPOTTING

should not take place the same season that the plants are cut in, as the check given to the roots may cause the plants to start weakly. Ordinary cutting in, such as should be practised annually, would not matter of course, but when severely cut one season they may with advantage be allowed a year to pick up. The best time to repot is just as growth is starting, using a compost of good rough peat and loam with plenty of silver sand. If in good condition the sides of the old ball should be bristling with the tiny growing root points, and these must not be disturbed on any account. Have the plants nicely moist, but not wet at the root before potting, and the compost should also be in that condition. A thin potting stick must be used, as large shifts are not advisable, but it is necessary that the new soil be made very firm about the roots. The old ball should only be just covered, and the upper surface must not be rammed, but settled a day or so after potting by giving a thorough soaking of water from a fine rose. A suitable top-dressing for old plants of Azalea is made by mixing soot, silver sand and fine peat such as is beaten out when preparing compost for Orchids, two parts of peat to one each of the other material. This fills up all interstices in the compost, such as shrinkage from the pots, and the little manurial property in the soot is helpful. Many of our principal growers for sale buy the plants in a small state, but some are in the habit of growing their own from cuttings, and a short time since I noticed a fine lot of plants so grown at Bush Hill. The cuttings should be inserted very firmly and never allowed to flag, potting them on and growing as quickly as possible without anything in the way of forcing. Should thrips put in an appearance at any time during the growth of the plants, fumigate at once, or the foliage will soon suffer. H.

Itea virginica.—Within the last few years a great many more hardy shrubs are brought on under glass and employed for the decoration of the greenhouse at an earlier period than they flower naturally out of doors, and among others in No. 4 greenhouse at Kew this *Itea* is just now particularly noticeable, being very distinct from most of its associates. It is a native of North America, and flowers naturally in the open ground towards the end of July. It forms a freely-branched compact bush that reaches a height of a yard or so, but it will flower plentifully when not more than a couple of feet high. The white flowers are small, but borne in closely-packed racemes from 4 inches to 5 inches long. It needs a fairly moist soil with a certain amount of vegetable matter therein; indeed, the treatment given to what is

generally known as American plants will suit it well. Its value as an outdoor shrub is increased by the fact that it does not bloom till many others are over.—II. P.

Ixias and Sparaxis.—Few classes of plants show so great a diversity in the hue of their blossoms as the different *Ixias* and *Sparaxis*, some of the varieties showing most marked contrasts of colour. They are very useful for greenhouse decoration at this time of the year, and they are so employed with advantage in No. 4 greenhouse at Kew. The bulbs can be purchased at a very cheap rate, and they may be depended upon to flower well if given just ordinary greenhouse treatment, while their long wiry stems eminently fit them for use in a cut state, under which conditions they last a considerable time if gathered just as the earliest blossoms are expanded. The bulbs are small, and in order to be effective need to be grouped in some way or other. A very convenient arrangement is to put from six to eight bulbs in a 5-inch pot, as when in flower they can then be grouped in any way that fancy directs. Any ordinary potting compost, such as loam lightened by some well-decayed leaf-mould and sand, will suit them well, and care should be taken that they are not allowed to run up thin and weak during their growing period. The bulbs go to rest comparatively early, and being small they suffer more than larger bulbs if kept out of the ground too long, hence if needed they should be obtained in the autumn and potted without any unnecessary delay.—H. P.

Begonia Sutherlandi.—Compared with the huge blossoms of the numerous tuberous-rooted varieties, the flowers of this South African species of *Begonia* are insignificant, yet it really is a pretty and graceful plant, that is just now flowering freely. It forms a stout, tuberous root-stock from which are pushed up annual stems, more slender and more numerous than in the ordinary tuberous varieties. The stems as well as the petioles of the leaves are bright red. The blade of the leaf, which is about 4 inches or 5 inches long, is of a somewhat pointed shape, the edges being lobed and serrated. The colour is a distinct shade of soft green, with reddish veins and margin. The flowers, which are freely borne towards the points of the shoots, are of a peculiar coppery tint. This *Begonia* was introduced from Natal in 1867 by Messrs. Backhouse, of York. Apart from its own individual merit it is also noteworthy as being one of the parents (the white-flowered *B. Dregei* was the other) of *B. weltoniensi*, raised by the late Colonel Trevor Clarke about thirty years ago, at which time he was a prominent figure in the gardening world. *B. weltoniensi*, which at one time was far more grown than it is now, forms a freely-branched bushy specimen, whose leaves, though not large, are very pretty and supported by red leaf-stalks, the stems being also of the same colour. The flowers, which are freely borne, are pink, and a good specimen is decidedly attractive. It flowers throughout the greater part of the year, and is very pretty bedded out during the summer.—T.

Herbaceous Calceolarias.—We have seen these greenhouse plants, that seem to be so incorrectly named herbaceous, in great numbers and in almost gorgeous beauty at the Temple show. They are wonderfully attractive, and, though so long in cultivation, seem to be popular as ever. No doubt this is largely due to the ease with which, like the *Cineraria* and the Chinese Primrose, they can be raised from seed, their particular appreciation for cool treatment, and, not least, their quaintly-formed though almost gorgeously coloured flowers. None others give us the curious bag-like form the flowers of the *Calceolaria* have, and few others can rival them in rich colour. The chief difficulty to surmount in culture is the natural tendency the plants have to become infested with aphids, but that tendency is invariably the less the cooler the plants are kept. The most able growers find that cool culture with plenty of light and air produces the stoutest and most compact habited plants, with

the finest flowers and most brilliant colours. It is but a matter of patience, not pushing on the plants in heat, as that unduly excites and invariably generates aphids. Then it is wise not to allow the plants to become infested before subjecting them to fumigation. Whether tobacco paper or more modern vaporisers be used, the earlier applied oftentimes the more good is accomplished. Then sowing of seed should not take place until July, as the plants will then not be unduly large to winter. They should also be kept rather on the dry than the moist side, the soil not being rich, good turfy loam predominating. Of course if very large plants be needed, sowings should be made a month earlier, but for ordinary greenhouse decoration large plants are undesirable. Really capital plants carrying fine heads of bloom can be had in 7-inch pots. So far as practicable it is well to keep the plants separate from any others until they come into bloom, when they may be put into the greenhouse.—A. D.

CROTONS.

No plants show the effects of good culture better than do Crotons. It is not surprising that they have been somewhat neglected, for as seen in many places they are far from being attractive. The rich and varied hues are hardly excelled even in the brightest flowers, from pale to deep golden-yellow, changing to various shades of pink, on to deep crimson. One great drawback to their culture for our London markets is that it is difficult to have them in good condition early in the season. After the end of June there is practically no demand for choice plants, and it is not until July or August that Crotons are usually well finished. There are, however, some varieties which colour well earlier in the season.

Those exhibited at a recent meeting of the Royal Horticultural Society gave a good idea of what may be done with Crotons at this season of the year. Although the broad-leaved varieties are not so popular as those with the long, narrow, drooping leaves, there are some which are of the greatest value for decorations. Thomsoni almost invariably colours well; the bright golden-yellow is well shown in quite young leaves. Mortefontaine is another worth mentioning, as it always colours well, and when well matured the leaves have a bright red hue. Gordoni is a very highly-coloured variety, but not quite so free-growing as some. Reedi is remarkably distinct, having very large leaves pale yellow when young, and changing to a peculiar shade of almost purple. Sunbeam, Flamingo, and Musaicus are others worthy of mention.

To have plants ready for use early in the year the first thing is to look to the stock. Good strong tops taken off at any time during the winter will root without much trouble and will retain the highly coloured leaves, making a good base to the plants. A strong bottom-heat is necessary, and the case must be kept close and moist until the cuttings begin to make roots. Of course, it is necessary to open the case for a short time in the morning to sweeten the atmosphere, but it should not be left open long enough for the cuttings to wither. After the cuttings are established they should be kept up close to the glass and exposed to all the sun possible. Later on, during the hottest part of the day a slight shading may be necessary, but the less shading the better. While they are making their growth a high temperature and a moist atmosphere should be maintained. After they have made sufficient growth they may be gradually hardened off. Though plants with young tender leaves are very unsatisfactory to use for decoration, if carefully hardened off there are few plants that are more effective and last better than Crotons. A.

NOTES AND QUESTIONS.—STOVE.

Thunbergia alata.—Trained up a trellis or stakes, this pretty plant loses a good deal of its beauty, but if left to hang loosely about a pot or

basket, it has a really elegant appearance. As a pedestal plant it is very fine; indeed there are few ways in which it cannot be used with good effect. It is of the easiest possible culture. Sow the seeds in March in good sandy soil over a little warmth, pot singly into small pots as soon as ready, and repot or basket them as required. A single plant will cover a couple of yards of space if well grown, but if a quicker result is needed plant more closely.

Canna Antoine Barton.—Now that the large-flowering Cannas have attained the position that their beauty entitles them to, they are not so frequently noted as was at one time the case, and though new varieties are being continually brought forward, they do not show any marked divergence from the forms already in cultivation. When grown under glass and employed for the embellishment of the greenhouse, the flowers with yellow grounds spotted with crimson are, I think, generally admired more than any other, but out of doors they are scarcely so effective as those with more brilliant tints. Of the spotted flowers, one of the very best is Antoine Barton, which is of medium height, with ample bright green foliage, while the spotting is clear and distinct. It is of good constitution too, and in this respect surpasses several others of much the same tint.—H. P.

Boronia serrulata.—A few years ago I tried in vain to obtain half a dozen good plants of *Boronia serrulata*, and at that time it appeared likely to drop out of cultivation altogether. Of late, however, Messrs. Balchin, of Hassocks, have taken it in hand and done for this *Boronia* what they some time previously did for the beautiful blue-flowered *Leschenaultia biloba* major, and that is, grown and flowered it in such a manner that when exhibited it gained many admirers. At a recent meeting of the Royal Horticultural Society it was very attractive, and in their group at the Temple show last year *Boronia serrulata* was much admired. This species is very different in appearance from those which are more generally grown, such as *B. megastigma*, *B. heterophylla*, and *B. elatior*, as through all these three there runs a strong family likeness, the leaves and leaflets in the case of the pinnate kinds being narrow, while in *B. serrulata* the leaves are of a peculiar trapeziform shape. This last is more exacting in its cultural requirements than the three previously named, and the watering at all seasons—but more particularly during the winter months—must be very carefully done. Good fibrous peat, with a liberal admixture of rough silver sand, will suit this *Boronia*, and, of course, thorough drainage is essential. All the *Boronias* are natives of Australia, and *B. serrulata* is one of the oldest species, having been introduced from Port Jackson in 1816.—H. P.

GAS-LIME.

THAT I am fully in accord with what "R. S. C." (p. 430) advances as to the need of caution in the use of gas-lime should have been clear to anyone who read my first notes on it, in which I was careful to point out that the gas-lime used here was a home product and not over-charged with impurities. There are scores and probably hundreds of places throughout the country that have private gas-works, where the refuse lime would probably be in precisely the same condition as that I use, and my notes were intended to advocate its use in such places where there is a deficiency of lime in the soil, and to prevent the wasting of a valuable commodity. Surely all gas-lime from big works is not so highly charged with the various impurities as "R. S. C.'s" notes would lead us to suppose. I am acquainted with some fairly big gas-works, and I can see little difference in the lime they turn out and that which we get here, except that they turn it out in a mixed state; indeed, I know of one case in particular where gas-lime has this year been bought in from a public gas-works for use in a private garden, and it appears to be

a very nice sample indeed, and one which I should have no hesitation in using on any soil deficient in lime after giving it the necessary exposure to air to remove most of the disagreeable odour. I think that far too much is made of its poisonous nature, and that any injury which has accrued from its use is due to using it in a crude state or on soil already fully charged with lime. Voelcker tells us distinctly enough that exposure to the air transforms the injurious sulphur compounds into fertilising materials, and this being so, the only injurious substance left behind is the lime itself, and this can be injurious only where a sufficiency of lime already exists. We do not fear the use of concentrated manures when intelligently applied, though we know that these used too freely will kill or weaken the crops they are used for. Why not then apply the same amount of intelligence to the use of gas-lime? Gas-water is frequently used to kill weeds on walks, and is very effective for the purpose; but who is there, having so used it on walks bordered by grass, that will doubt its great manurial value on the grass after the first effects have worn off? Such grass grows doubly fast and is of a magnificent colour for months afterwards. Gas-lime gives precisely similar results; it will while crude kill vegetation and should only be used in that state for killing. Later on and after due exposure its value as a manure cannot be doubted.

J. C. TALLACK.

Iris atrofusca.—This, among the latest introductions to the lovely group of Cushion Irises, is one of the most handsome. It is this both in point of size as also in remarkable colouring. The first spike opened to-day (May 24), having been grown throughout without the least protection. The falls are extremely handsome, larger than usually seen in these forms, and expand fully and to a large size. The finest flower nearly equals that of *I. Susiana* in size, the falls rich crimson-maroon, with just a shadow of brown, then near the throat a large deep black blotch very rich, and an intensely black beard, slightly tinged with grey here and there. The erect segments are also large, beautifully undulated at the margin, and almost wholly composed of a greyish purple hue, with darker purple base and veins, and beautifully freckled with white in the upper portions. As it started rather early to flower, some of the leaves have suffered from the cold winds.

Dianthus alpinus.—This is, I think, one of the best of the dwarf alpine forms, and one which is not especially difficult to cultivate by quite ordinary methods. What to me is a special attraction in this species, quite apart from the handsome blossoms, is the deep green and glossy nature of the rather ample tuft of leaves, the same feature not being so good in some other kinds. Two other species, *e.g.*, *D. neglectus* and *D. glacialis*, do not usually thrive as does this kind, and the slugs appear even more fond of its leaves, clearing away all the upper surface at times, and thereby ruining its prospects of success. With the above plant, now beautifully in flower, the best way is to secure seeds and sow them at once. As soon as possible when well up, prick off the seedlings into fairly rich soil, so that a quick growth may be kept up. In six weeks from the time the seedlings are up they should be planted out in good soil and attention given to watering and the like. Many alpine forms are seen too frequently in a weakly state owing to a prevailing notion that in a 3-inch pot quite one half should be broken stones, independently of the usual drainage. This is a common error, and if more soil of a richer character were employed, better results would ensue. Indeed, not only with such as this *Dianthus*, but with such as *Saxifraga Burseriana* and others, I employ very old manure, finely sifted, with the soil, which, coupled with greater moisture and more root-room, is decidedly beneficial. In just the same way this alpine Pink, given quick, free

growth, would form tufts that before they were a year old would carry six to ten handsome flowers.—E. J.

BOOKS.

A TEXT-BOOK OF BOTANY.*

NEW text-books of botany are as plentiful as Blackberries, but the one under notice is far more complete and thorough-going than is usually the case, both text and illustrations being far above the average. One might naturally expect this much from such a quartette of authors and such painstaking publishers, who were fortunate, moreover, in obtaining the aid of Mr. A. C. Seward, of St. John's, Cambridge, and University lecturer in botany, in the final revision of the proofs of the translation as it passed through the press. This able work is, in fact, a masterly exposition of the form, external and internal, of plants. Under the head of "Morphology" we are shown clearly what plants and their organs really are, while under the head of "Physiology," the work plants have to do for themselves, and indirectly for ourselves, and how they do it, is clearly illustrated and described. The second section of the book, devoted to physiology, is especially valuable from the gardener's or cultivator's point of view, as it contains the latest and most reliable information as to how the living plant works under the influence of sunlight, heat, and moisture, and so produces for us (and other animals) practically all our food, clothing, medicine, &c.

A second section of the work treats specially of cryptogams and phanerogams—that is, of flowerless and flowering plants respectively, so that a clear bird's-eye view is thus given of the vegetable kingdom, beginning with the most simple or primitive types and gradually working up to those of more complex and modern development. There are good lists of useful or official and of poisonous plants given, and the general index also forms to some extent a glossary of the terms used in the book. In the case of a second edition being produced, a complete glossary of the terms used should be given, as on this mainly depends its educational value to students generally.

It has been often said that cultivators need not know how plants are made or by what means they grow and work for us in field or garden, but that it is sufficient if gardeners grow the plants well, and so make them work well whilst under their care. To a certain extent only is this true, and half a truth is a dangerous thing. Even in the case of inanimate machinery it is conceded that men can use it better if they are conversant with its mechanism and manufacture. A man may drive an engine without knowing how it is built, but not so surely or so well as if such knowledge is familiar to him. Other things being equal, that gardener will succeed best who knows best how to apply the best and most exact knowledge and does apply it at the right time and in the right place. In all our great plant nurseries in or near London, and in Germany and in Belgium more especially, do we see the best results attained by the prompt application of exact scientific knowledge, and it behoves young gardeners who would hold their own in the ever-changing struggle of competition in garden and field alike to prime themselves with all that is really known and worth knowing as to the structure and life of the plants they grow for use or for sale.

This book ought to be in every good garden library, and it should also find a place in the reading rooms of all County Council centres. It affords another of the many examples we have had of late years as to the thorough way in which German scientists attack a subject, and simplify it so that their knowledge is easily assimilated and utilised by any cultivator of

* "A Text-Book of Botany." By Dr. E. Strasburger, Dr. Fritz Noll, Dr. H. Schenck, and Dr. A. F. W. Schimper. Translated from the German into English by H. C. Porter, Ph.D. With 594 illustrations (partly coloured), pp. 632, with index. London and New York: Macmillan and Co., Ltd. 1898.

average intelligence. It is of no use repining and lamenting that farming and gardening are not what they used to be. Nothing is or ever can be as it was, and the only thing that is constant in the world's evolution is change. Hence the careful study of books of this calibre and character will enable the cultivator to meet changes of all kinds, while the stolidly practical or "rule-of-thumb" men fail. "It is not what you know, but what you do," said Cobbett years ago to cultivators of the soil, but surely we must know and know exactly before we can be sure that we are right in doing anything at all.

In recommending Strasburger's "Text-Book of Botany," I regret that its price of 18s. will prove too much for many, good investment though it be, and I also regret that we have no system of village libraries that would lead to works of this class reaching the rural districts and the hands of cultivators who could best utilise them to the advantage of themselves and the country at large.

F. W. BURBIDGE.

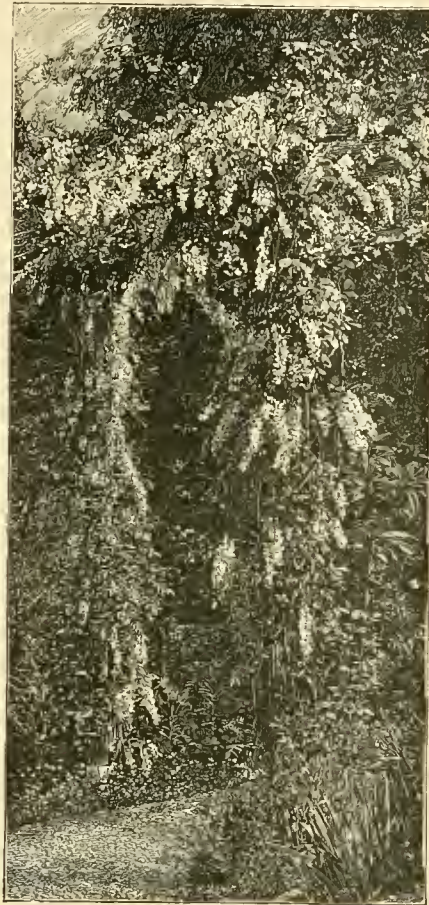
TREES AND SHRUBS.

WISTARIAS.

Of the many beautiful trees and shrubs that have come to us from China and Japan there is none that fills so unique a place in our gardens or whose disappearance would leave so great a void as the common Wistaria. With the exception of the Traveller's Joy (*Clematis Vitalba*), our native flora possesses no climbing woody plant which in habit and luxuriance of growth recalls the giant climbers (the lianes) of the equatorial forests whose rope-like stems, clinging to the trunks or hanging from the boughs of large trees, give to tropical vegetation one of its most characteristic features. Including even the foreign plants, the number of strong-growing climbers of the type of our native *Clematis* and hardy in this country is not large. Some of the North American and North Asiatic Vines may be counted among them, and one or two other species of *Clematis*, but all these possess but little beauty of flower. Their merits are in their luxuriance of growth, their foliage, and sometimes their autumnal colouring or fruits. Now the Wistaria, whilst being the equal in vigour and in size of any of these, is above all a flowering plant. It produces in May a crop of bloom to which, if any objection at all could be made, it would be that there is sometimes too much of it, and this is usually followed in August and September by a second crop plentiful enough in itself to entitle the Wistaria to be considered a fine flowering climber. It appears to have been introduced from China about the year 1816, and yet such is its rapidity of growth that Loudon, writing only twenty-five years after in the "Encyclopedia of Trees and Shrubs," mentions a plant on a wall in the Horticultural Society's garden whose branches extended more than 100 feet on each side of the main stem, and another at Coughton Hall covering 905 square feet of wall. Besides providing a beautiful covering for dwelling-houses or other buildings, the common Wistaria is of great value used in other ways. One of these is shown in the charming engraving of an old Wistaria on this page. This plant has apparently been trained on loosely looped chains, and it shows not only a graceful way of growing this climber, but also the marvellous profusion of its blossom. It can be grown also on arbours, on arbores, and even on trees. In Mr. Waterer's nursery at Knap Hill it has been trained up Laburnum trees. Eventually, no doubt, the Laburnums will get the worst of it, but meanwhile the two flower together, and the pale blue-purple racemes of the Wistaria and the golden ones of

the Laburnum make a fine contrast. I should imagine that an old Oak that has seen its best days would be a suitable support for it. In getting this or any other climber to grow on living trees, the difficulty is at the start, chiefly because of the living roots of the tree on which it is to grow. This is why a tree no longer in the height of its vigour is most suitable. Even then the Wistaria should be planted well away from the trunk where sun and rain can reach it. A good plan is to sink a large tub with the bottom knocked out, and fill this with good rich loam and vegetable humus. By the time the Wistaria has filled this with roots it will be able to hold its own.

There are now several varieties of the common Wistaria in commerce, and there are also two or three other distinct species with their varieties,



White Wistaria over a pergola at Tresserve.
Engraved for THE GARDEN from a photograph by Miss Willmott.

but so far as I have seen, not one of them is equal to the common one either in vigour of growth or beauty of flower. But whilst they need not take the place of the old type, they are well worth growing, for every Wistaria is beautiful, and they afford also some variety in colour, in habit, and in time of flowering. To those who are interested in hardy climbers, the following list, as a complete one of the Wistarias in cultivation in this country, may be of interest:—

- Chinensis.—China and Japan.
- „ var. alba.
- „ var. alba plena.
- „ var. flore-pleno.
- „ var. macrobotrys.
- „ var. variegata.

- Brachybotrys.—China and Japan.
- „ var. alba.
- Multijuga.—China, Corea and perhaps Japan.
- „ var. alba.
- „ var. (unnamed, with short racemes).
- Japonica (properly *Millettia japonica*).
- Frutescens.—United States.
- „ var. alba.
- „ var. magnifica.

W. CHINENSIS VAR. ALBA has, of course, white flowers; in var. alba plena they are white and double, but, although beautiful, neither of these varieties flowers with anything like the freedom of the true chinensis.

W. C. VAR. FLORE-PLENO has double flowers of the same colour as the type. The finest plant I know of is in the Knap Hill Nursery. The flowers have gained nothing in beauty by the doubling of the petals, but if the weather is dry and sunny during the flowering season they perhaps last longer than the single ones. In wet, stormy weather these double varieties are more liable to damage.

W. C. VAR. MACROBOTRYS.—In this the flowers are of a paler shade of blue-purple. The racemes are longer than those of the type, but the flowers are farther apart.

W. C. VAR. VARIEGATA.—If there is any Wistaria to which objection can be taken it is to this one. If variegated plants are desired there are better to be had, and compared with the type, either as regards its growth or its blossoms, it is poor.

W. BRACHYBOTRYS.—Although it is nearly seventy years since a Wistaria under this name was brought to Europe from Japan by Siebold, but little can be said of it with any confidence even now. It is cultivated at Kew, but the plants are small and not likely to flower for a few years yet. I have never seen a living plant in flower. Judging by published figures, it appears to be no more than a dwarf variety of *W. chinensis*, with racemes of the same blue-purple flowers, only shorter, as the specific name suggests. Even if it is no more than this, a dwarf form of the common Wistaria which could by a little pruning be kept as a bush would be very desirable. Var. alba has been spoken highly of in the United States, but I have never seen it.

W. MULTIJUGA.—This species is very easily distinguished from *W. chinensis* by two characters: first, by the length of its racemes, which are often between 2 feet and 3 feet long; second, by flowering a fortnight or so later. It is worth growing because of these differences, although it does not equal the other in the luxuriance of its growth or in its beauty at flowering time—at all events, it has not done so yet in this country. The blossoms are much less closely packed on the spikes than they are in *W. chinensis*, so that, although the spikes are twice or thrice the length, the aggregate of flowers is no greater. The colour is not invariably the same in different plants, but it is always a variation of delicate lilac and white. The variety alba has flowers wholly white. In the arboretum at Kew there is a distinct variety of this Wistaria, hitherto unnamed so far as I can ascertain; it is distinguished by much shorter racemes than the ordinary multijuga, and has the flowers more closely arranged. The foliage of all these forms of multijuga differs from that of the common Wistaria in the leaflets being more numerous, smaller, and less hairy. Although I have said that this species does not equal *W. chinensis* either in the robustness of its growth or in its flowers, this can only be safely said of it as a cultivated plant in Britain. In Japan, where it is very commonly planted in the tea-gardens, it is evidently a wonderfully beautiful plant. There is a famous specimen at Kameido which has been many times photographed. (A picture of it appears in the *Gardeners' Chronicle* for February 25, 1893, as *W. chinensis*.) Writing of this Wistaria in his book, "Japs at Home," Mr. Douglas Sladen says: "At Kameido one has to cross over the famous horse-shoe bridge, the arch of which is so steep that it has steps like a treadmill up its back, to a tea-house formed by a natural arbour of Wistaria

—such Wistaria! I doubt if the world has its equal. The arbour stands on the water's edge, and in May, when the 'Fugi'—as the Japanese have named the Wistaria—is in full bloom, the water is swept by vast feathery racemes of delicate lilac coloured blossoms 3 feet to 4 feet long, odorous of honey and buzzing with bees."

W. JAPONICA.—The plant sometimes met with under this name belongs really to the closely allied genus *Millettia*. It is a rare climber, but is at Kew, and I think I have seen it in Messrs. Veitch's nursery at Coombe Wood. The flowers appear in small racemose clusters in June and July, and are white.

W. FRUTESCENS.—This is the only species found wild in the New World, being a native of the Southern United States. It is a climber, but is not so strong a grower as either *chinensis* or *multi-juga*. The flowers are of a pale blue-purple, and are arranged rather densely on racemes 3 inches to 8 inches long. It flowers during the latter part of June. Besides the type there are two varieties in cultivation. The better one of these is called *magnifica*, and has racemes over 1 foot in length, and is altogether superior to the type. The second variety is *alba*; it has racemes of the same size as the ordinary *frutescens*, but the flowers are white.—W. J. BEAN.

— With the return of spring, *Wistaria sinensis* again asserts itself as one of the grandest bardy climbers that we possess, and many are the inquiries made regarding its propagation and

all at once and grew away quickly. This year they are all growing freely, there being not an atom of difference between the retarded plants of last year and those that grew at the normal season.—T.

Acer palmatum sanguineum.—Although the different varieties of *Acer palmatum*, or polymorphum, as it is often called, are quite hardy, the foliage of many of them is so delicate that they are more fitted for the embellishment of a cool house than for planting in the open ground. On the other hand, there are some varieties sufficiently vigorous in constitution to resist the rapid changes of temperature experienced at this season, and to this class belongs that above noted—*sanguineum*—which at Kew, near the flagstaff, forms a brilliant piece of colour—so brilliant, indeed, that at a distance it appears like a mass of blossom. It is of good free growth, with deeply-lobed leaves, which retain their colour throughout the season, and the autumn tints are particularly vivid. Associated with green-leaved subjects it stands out in a marked manner, while a direct contrast is furnished by its North American relative, the variegated-leaved *Negundo*. These Japanese Maples are not particular as to soil, but they prefer a well-drained medium of a loamy nature. Not only are they propagated in large quantities by some of our nurserymen, but great numbers are now sent to this country from Japan during the winter months. They are great

and many of them are of a poor, weak colour. In the pleasure grounds here there is a vigorous specimen from 70 feet to 80 feet in diameter and nearly as much in height. Great credit is due to those who planted it. On one side of it is a fine specimen of *Pinus insignis*, on another *Cedrus atlantica*, while close by are fine specimens of *Laburnum* and *White Thorn*.—DORSET.

Pinus Laricio.—I enclose some leaves of *Pinus Laricio* which have been attacked by a fungus. Can you tell me its name? I have some young plants in a nursery here and all are more or less affected. Is there any cure for it or would it be best to root them up and burn them? Will this particular fungus attack any other species of tree? I have no others of the genus *Pinus* in the nursery, although I have other conifers, but none of them seemed to have been attacked.—J. S. S.

* * * The leaves of your *Pinus Laricio* are attacked by a fungus belonging to the genus *Peridermium*. If the young trees are badly infested, I should pull them up and burn them; if they are not very bad, you might pick off the shoots that are diseased and burn them. I doubt if it would be of any use to apply any fungicide, but you might try syringing the trees with Bordeaux mixture when all trace of the fungus has been removed. I do not imagine this fungus would attack any trees except those perhaps of the genus *Pinus*.—G. S. S.

KITCHEN GARDEN.

SPRING CABBAGE.

THERE is a wide difference in the supply of these during the present season when compared with that of 1897. Last year poor samples in this district were fetching 1s. 6d. per dozen, while during the present month they have been sold at two a penny. One would think by this that the winter of 1896-97 was a severe one; this, however, was not so, as there is nothing very special as regards frost to record. But if we turn to the register we shall find that the wet September and October of the previous year had much to do with retarding the growth, as it was quite late in the season before it was possible to plant, and when this was done the ground was so cold that growth remained almost at a stand for a long time. The late autumn, however, was so fine and warm, that many Cabbages had commenced to turn in before Christmas, and had the winter been a severe one most of them that were planted early would have been killed by the frost. The winter being mild, growth was at no time arrested to any serious extent until March. Of the varieties grown here the following were sown on July 9: Flower of Spring, Ellam's Early, Earliest of All, and a variety having no name which I received from Mr. Beesley, The Denbies, who informed me that he had grown the same for a great number of years. It is quite a distinct kind with light green foliage, and is true, there not being the least difference in the whole stock. This would doubtless be a good market variety, as the whole plot was ready for use at the same time. I always make two sowings, one the second week in July and the other at the end of that month. Last year the second sowing was made on July 30, and these were planted out on September 22, when in addition to those named above the following varieties were sown: Miniature, April, Little Gem, Tender and True, Main-crop, Enfield Market, Favourite, and Carter's Early.

Anyone looking over the plot at the present time would say that the fine old variety Enfield Market was not in the running, as it is both coarse and late compared with some of the others. Main-crop is a picture, all the plants of an even size, with well-formed solid hearts, not



An old Wistaria at Efford Manor, Lymington. Engraved for THE GARDEN from a photograph sent by Miss Helen Gilliatt, Abbots Ripton Hall, Huntingdon.

general treatment. It may be mentioned that cuttings root only with difficulty, and in nurseries it is often increased by grafting a small shoot on to a portion of a root, but as this cannot be done without the necessary appliances, the only thing remaining is to layer a few branches, which are most conveniently situated for the purpose. The *Wistaria* as a rule produces a few stout, deep-descending roots with little or no fibres, and on this account it does not transplant readily. Owing to this the plants are in nurseries often kept in pots, and though when plunged they frequently push out roots away from the pot, yet even then they can be lifted with less check than if unconfined altogether. Where plants are simply lifted from the open ground and replanted, they will sometimes stand till quite late in the season before there are any signs of growth; then they will break out freely and grow away as if to make up for lost time. Last year I had under my observation a dozen plants which had been obtained from a nursery where the soil was a good deep loam. They were about 6 feet in height, and the stout liquorice-like roots ran down for a couple of feet. These *Wistarias* were planted carefully and kept well watered, with the result that seven of them commenced to grow at the proper season and even produced a few flowers. The remaining five, on the other hand, showed not the least indication of growth, though the shoots remained fresh till the end of June, when they broke out

favorites with the Japanese, particularly the more fantastic kinds, and they are grafted in various curious ways. In the catalogue of a Japanese nursery firm now before me no less than thirty-seven varieties are mentioned therein.—H. P.

NOTES & QUESTIONS.—TREES & SHRUBS.

Kerria.—Your correspondents "B." and "T." in their notes on *Kerrias* have omitted the best of all, viz., *alba*, a sprig of which I enclose. It seems quite hardy.—K.

* * * The plant, specimens of which you send, is very like a *Kerria*, but is now known as *Rhodotypos kerrioides*.—E.P.

Olearia Gunnii.—This is a charming shrub. In this garden it is not hardy enough to stand in the open border, and should have the protection of a wall, where it makes a fine display. Its fine narrow leafage, with bunches of white and yellow flowers, makes it very useful. It is useful to cut from, and I saw it used with good effect in a wreath from a leading florist in May. It was worked in as a groundwork with large bold flowers, such as *Lilium Harrisii*, &c.—J. CROOK, Forde Abbey.

The Copper Beech.—What a glorious sight is a big tree of this when seen early in the season, more so where it is associated with other trees and shrubs that harmonise with it. Many of our coloured trees are spoilt by being badly placed,

a plant having bolted. Those who are desirous of having a good main crop variety cannot do better than grow this. Flower of Spring is also first-class. It comes in earlier than the preceding, and is of fine form and delicate flavour. Ellam's, too well known to need any description, was very early this season, as good hearts were formed in February. The same might be said of April. Cabbage sown about the same dates in 1896 made but poor progress in their early stages, for the weather during that time was unfavourable to their growth, and had it not been for the fine November of that year many of the autumn-sown seeds would have failed entirely. Spring Cabbage in many gardens is so important a crop, that special pains are taken to have them as early as possible. It is, however, a mistake to sow the seed too soon, as in favourable seasons the plants get so forward as not to be able to resist the cold should the winter be severe. Those from the sowing made on July 30 have done far better than from plants raised earlier, but late sowings cannot always be depended on; for this reason it is advisable to make two. On light, warm soils that are well drained the frost does not take such a serious effect, and where, as a rule, growth is not so sappy in the autumn, Cabbage will withstand the severity of the winter much better, but on heavy land that becomes soddened many of them are sure to succumb should there be a long spell of bad weather, or if this does not happen when the genial sunshine of spring comes many of them will run to seed. Owing to the late winter being so dry and mild, Brassicas of all kinds have done well, not the least amongst them being the Cabbage, for though at one time Broccoli could scarcely be given away, spring Cabbage at the present time are quite as plentiful, and have become a glut on the market by the time they are usually procurable at high prices. H. C. P.

Runner Beans not staked. Runner Beans are more grown for late summer supplies than the dwarf kinds. Many find a difficulty in procuring stakes, but there is no need to stake if topping is attended to. There is a great gain in growing the running varieties, as these do not get old or tough so quickly as the dwarf French kinds. It is useless to sow runners and leave them to chance, as the tops would touch the soil and the pods would be useless. Sown in rows 3 feet apart and the plants 15 inches apart in the rows they do well. Close stopping is necessary with runners at the start, but as they form pods they are less inclined to run. It is well to stop when 12 inches high and follow this up, not allowing the new growths to make much progress. I found the new running French Bean of the Tender and True type very good treated thus last year, and grown as advised the crop is far superior to that of the dwarf kinds. The plants if grown in good land with plenty of food give enormous crops from June to October.—S. H.

The first Potato.—In the Musée Plantain at Antwerp the other day I found in one of the cases an original water-colour sketch of the Potato, showing a branch in flower and setting its fruit, and having two small tubers represented on the same sheet. The flowers were purple, the tubers also red or purple with very deep-set eyes. The largest is shown as being only 2½ inches by 1½ inches in size. The printed legend attached to the sheet is, "Représentation de la pomme de terre nouvellement introduit en Europe. Exécuté par Philippe de Sivry pour Clusius, 1589." On the sheet itself is written, "Tarolois à Philippe de Sivry acceptum Vienne 26 Jan., 1588. Papis Peruvianum, Petri ciece." So far as I know, this drawing is the very earliest original known of the Potato, and as such possesses an interest all its own. It is evidently

a faithful transcript from an actual example in flower and fruit, and seems to show that the original plant produced small red tubers. It also seems very probable that the rude woodcut and other representations of the Potato in the herbals of the 16th century, including that of our own John Gerard, were derived from this original as made for Clusius by Phillipe de Sivry. It is not too well known that it is a flowering spray of the Potato (*Solanum tuberosum*) that Gerard is represented as holding in his hand in his portrait or effigy on title page of his great Herbal of 1597, or only nine years after Sivry's sketch was made.—F. W. BURBIDGE.

TOMATO CULTIVATION.*

It is only in comparatively recent years that the public have begun to appreciate Tomatoes. In former years it was only in large gardens that they were grown, and they were then used for soups and sauces. At the present time the taste for them has undergone a complete change, and, instead of their consumption being restricted to the wealthy, they are eaten by nearly everyone. To meet the increasing demand for good fruit some of the large growers for market have covered acres of land with glass erections, and each year these are being added to; yet with all these, and the surplus from private gardens, the supply of home-grown fruit is insufficient to meet the growing demand. Large quantities are imported from the Channel Islands in summer, and from the Canary Islands during the winter months. If a sufficient quantity of home-grown fruit could be obtained, there is no doubt whatever it would be eaten in preference to that which is imported, because it is incomparably better. Tomatoes are amongst the most easily grown and accommodating plants in cultivation; but in order to obtain the maximum amount of fruit that they are capable of producing, their requirements must be thoroughly understood and carefully attended to. The grower who can devote a house exclusively to them is in a much better position for obtaining the best possible results than one who has to grow them in houses in which there is a mixed collection of plants. During the summer months a supply may be obtained from plants grown in the greenhouse or plant-house after the majority of the legitimate occupants are placed outside. A fair measure of success may be obtained by growing them in ordinary garden frames. The frames should have a sharp pitch towards the south, in order to obtain as much sunshine as possible. A narrow ridge of soil, 8 inches deep and the same in width, should be placed along the front of the frame. The plants should be put in 1 foot apart, and confined to a single stem; these should be supported on laths or wires stretched from end to end of the frame at about 8 inches below the glass and the same distance apart. For a period of from three to four months—commencing at the end of May—Tomatoes will grow most luxuriantly outside, and many of the smaller fruited varieties will set their fruit very freely in this part of Cheshire, but comparatively few fruits attain maturity. Unless the green fruit can be used for home consumption, it is comparatively worthless, as at present it is not a marketable commodity.

METHOD OF CULTIVATION.

To provide an early summer supply, the seed should be sown towards the end of November. Use well-drained pots or boxes, filled to within 1 inch of the top with a compost of loam, leaf-soil, and sand in equal proportions. The com-

post should be broken up finely, so as to prevent injury as much as possible to the young and tender roots when transferring them to small pots. The seeds should be sown about half an inch apart and thinly covered with soil. If the soil is inclined to dryness, it would be better to water it before sowing rather than afterwards. A sheet of glass placed on top of the seed pot or box will prevent the depredations of vermin, and keep the soil in a uniformly moist condition. A temperature of from 60° to 65° Fahr. will be suitable for the germination of the seeds. When the seedlings are well above the soil, they should be placed close to the glass to prevent them becoming drawn up and weakly. When they have made three or four rough leaves, they should be carefully removed from the seed pots and placed singly in small pots. It is advisable to cover the stem right up to the cotyledons, or seed leaves, to induce the formation of roots that will afterwards contribute to form a healthy, vigorous plant. From pots 2½ inches in diameter they may be transferred to others 5 inches across, and subsequently to 10-inch pots, which are quite large enough to support a good crop of fruit, or they may be planted out in a prepared border of soil. Under no circumstances is it advisable to allow the plants to become root-bound before they are placed in their fruiting quarters.

All of my plants, both in 1896 and 1897, were grown singly in pots 10 inches in diameter. The soil used in the fruiting pots was of a heavy and adhesive description. It was taken from a pasture field, and was stacked for a few months previous to using, in order to destroy the vitality of the grasses and other indigenous plants growing upon it. Nothing was added to the soil at the final potting with the exception of a small quantity of lime rubble for supplying food to the plants, and to prevent the soil from becoming too adhesive. The pots were well drained. When the plants are well established in the fruiting pots and have a large expanse of foliage, they require a copious supply of water; therefore it is necessary that provision should be made to allow surplus water to escape, otherwise it would cause the soil to become sour and inert; a condition that would be detrimental to the health of the plants. Growers should be very careful to note whether the soil is dry before applying water. In spring and early summer the young and tender shoots and leaves flag or droop under the influence of strong sunshine, especially after a period of dull weather, although the soil in which they are growing may be sufficiently wet. It is under such conditions that the inexperienced seriously injure their plants by watering them, under the mistaken impression that the drooping is brought about by dryness at the root, whereas it is caused by the transpiration of water from the leaves being greater than the roots can supply.

The plants were restricted to one main stem; all the laterals or side shoots were removed when they were quite small. A heavier and more regular crop of fruit can be obtained by this system than by any other. The main leaves were not cut or mutilated in any way so long as they remained in a healthy condition. The far too common practice of almost defoliating the plants cannot be too strongly condemned, as it has an injurious effect upon the yield and quality of the fruit. The plants were grown in houses recently planted with Vines and Peaches. Many of them were trained to the back wall at a considerable distance from the glass. Had they been grown in houses specially constructed, and devoted entirely to them, there is every reason to suppose that a

* Paper read by Mr W. Neild before the Royal Horticultural Society.

heavier crop would have been obtained. In 1896 an attack of Potato disease (*Phytophthora infestans*) made its appearance early in May on the Hackwood Park variety. The plants were sprayed with a solution of half a pound of sulphate of copper and half a pound of quicklime mixed in 10 gallons of water, which removed all traces of disease in the later fruits.

YIELD, VALUE, AND VARIETIES.

The plants grown in 1896 were raised from seed sown in the previous December, and the first ripe fruits were gathered on the following May 4. The average yield was over 8½ lbs. per plant, the total yield of fruit from 130 plants was 1127 lbs. The price varied from 6d. to 1s. per lb. The total amount realised, after payment of carriage and commission, was £35 6s. 6d., thus averaging 7½d. per lb. The varieties grown were Hackwood Park and Neild's Seedling. The former is a prolific variety, but its fruit is too large to suit the requirements of consumers. The latter variety is a seedling of my own raising. It was tried at Chiswick in 1896, and was given an award of merit by the Royal Horticultural Society, who state that it is of "compact growth, great cropper, clusters overlapping each other, averaging 6 fruits each; moderate size, round, smooth, dark red, solid, and good flavour." Smooth fruits of medium size are more highly appreciated in the market than large ones. In nearly every instance the smaller fruits realised from 1d. to 2d. per lb. more than the larger ones.

EXPERIMENTS IN MANURING DURING THE YEAR 1896.

No manure was applied until the roots had taken full possession of the soil, at which time a number of plants growing in different houses, and under varying conditions as to light and sunshine, were selected for the purpose of experimenting with the following manures, which were applied fortnightly at the rate of one-eighth of an ounce to each plant. In each case where more than one kind of manure was used they were mixed in equal proportions, and the exact quantity given. The plants were carefully attended to, and their condition and results noted at the time.

- No. 1. Nitrate of soda and muriate of potash.
- „ 2. Superphosphate of lime, muriate of potash, and sulphate of iron.
- „ 3. Sulphate of ammonia and muriate of potash.
- „ 4. Muriate of potash, sulphate of iron, and nitrate of soda.
- „ 5. Sulphate of iron and muriate of potash.
- „ 6. Muriate of potash.
- „ 7. Sulphate of iron.
- „ 8. Nitrate of soda.
- „ 9. Sulphate of ammonia.
- „ 10. Superphosphate of lime.

Nos. 2, 5, 6, 7, and 10 were quite a failure; the fruit was below the average size, and the foliage had a yellow sickly appearance, indicating a deficiency of nitrogen in the soil. The plants appeared so unhealthy that several persons who were not experienced in plant growing noticed their poor condition. Nos. 3 and 4 produced a moderate crop, and appeared to be fairly healthy. Nos. 1, 8, and 9 were good, strong, healthy plants, and produced a full crop of fruit. These plants were very similar in condition to others that were supplied with diluted liquid manure from the stables and cow-sheds, but in the end the latter produced the most satisfactory results. It may be observed that sulphate of ammonia alone produced better results than when combined with muriate

of potash. Potassic manures have long been considered the best for Tomatoes, and yet when muriate of potash was applied by itself it proved to be a failure. The plants grown in 1896 were raised from seed sown in the previous December, and the first ripe fruits gathered on the following May 4. It was thought that by sowing earlier, and having large and strong plants, the ripe fruit could be produced earlier in the season. Consequently seed was sown at the end of August, and the young plants were established in pots 5 inches in diameter before winter set in. The result was not quite satisfactory. Ripe fruit was gathered a fortnight earlier, but the yield per plant was considerably less from these early-sown plants than from others of the same variety sown at a later period of the year. The fruit set quite freely, but failed to attain a useful size. This I attribute to a deficiency of pollen during the winter season, as the fruit produced from flowers opening in the spring was of the normal size. The small fruits contained very few seeds, and when they reached maturity were quite agreeable to the taste, differing but little in flavour from normal fruits, except that they appeared to contain more sugar.

EXPERIMENTS IN MANURING DURING THE YEAR 1897.

It should be mentioned that no natural or farmyard manure was mixed with the soil, as I believe it has a tendency to produce gross shoots that are more subject to the attacks of disease. Artificial manures were not applied until the plants exhibited signs of having used up all the available food in the soil. With a view to ascertaining the most beneficial manure three sets of plants were selected, the plants in each set growing under exactly similar conditions. In each case the manure was crushed fine, and when more than one kind was given, they were thoroughly mixed together. Each kind or mixture was applied, at the rate of one-eighth of an ounce to each plant, on the surface, and watered in. A fortnight elapsed between the first two applications, but afterwards an application was given every week, until towards the end of the season, with evident advantage to the plants.

- No. 1. Kainit.
- „ 2. Nitrate of potash.
- „ 3. Kainit and nitrate of soda, equal parts.
- „ 4. Nitrate of potash and nitrate of soda, equal parts.
- „ 5. Kainit, nitrate of soda, and sulphate of iron, equal parts.
- „ 6. Nitrate of potash, nitrate of soda, and sulphate of iron, equal parts.
- „ 7. Nitrate of potash, nitrate of soda, sulphate of iron, and superphosphate of lime, equal parts.
- „ 8. Kainit, nitrate of soda, sulphate of iron, superphosphate of lime, equal parts.
- „ 9. Two parts kainit to one part nitrate of soda.
- „ 10. Two parts nitrate of potash to one part nitrate of soda.
- „ 11. Two parts nitrate of soda to one part kainit.
- „ 12. Two parts nitrate of soda to one part nitrate of potash.
- „ 13. One part nitrate of potash, one superphosphate of lime, one nitrate of soda.
- „ 14. One part kainit, one part superphosphate of lime, one nitrate of soda.
- „ 15. One part nitrate of potash to one part sulphate of ammonia.
- „ 16. Muriate of potash.
- „ 17. No manure of any kind.

Nos. 1, 2, and 16 in each case were quite a failure, which leads me to believe that potassic manure is of very little or no use for Tomatoes.

When the available food in the soil was used up the leaves turned yellow, and the flowers failed to set. A light dressing of nitrate of soda was then applied, and in the course of three or four days there was a marked improvement in their condition. No. 17 was very poor, but it did not appear to be in a worse condition than Nos. 1, 2, and 16. Nos. 3, 4, 5, 6, 7, 8, 9, and 10 produced very fair results. Nos. 11, 14, and 15 were good. Decidedly the best results were obtained from Nos. 12 and 13, and these were so equally balanced that it was impossible to say which was the better of the two. The remainder of the plants was frequently supplied with diluted liquid manure from the stables, which acted most beneficially on them, and confirmed my previous opinion that good liquid manure is still one of the best fertilisers.

PACKING AND PREPARING THE FRUIT FOR MARKET.

Large quantities of fruit are destroyed by bad packing. In many instances the fruit is placed loosely several layers deep in baskets or boxes, with the result that in most cases it arrives at its destination in a bruised and damaged condition. The best system of packing is to place the fruit in a single layer in shallow boxes. The boxes should be strong and light, holding from 10 to 15 lbs. each; and when a larger quantity is to be sent away a number of boxes should be placed on the top of each other and fastened together with strong cord. A little soft hay, dry Sphagnum Moss, or wood wool should be placed in the bottom of the box, and on this a covering of soft white paper. The fruit should be packed closely together, stalk end downwards. When the box is full or the requisite quantity put in, the fruit should be covered with paper, and all vacant spaces filled with the packing material before the top is put on. Too much emphasis cannot be laid upon the absolute necessity of packing the fruit firmly, to prevent it moving about, as it would thereby become damaged. Neither grass nor any damp material should be used for packing Tomatoes, for if they remain in the boxes for several hours, heating or fermentation takes place, which materially injures the quality of the fruit. When Tomatoes are sent to market, or have to undergo a railway journey, it is advisable to gather them before they are fully ripe, as in that state they would reach their destination in better condition. It should, however, be remembered that probably there is no fruit that deteriorates more quickly than the Tomato after it is removed from the plant. It is owing to this fact that home-grown Tomatoes are so incomparably better than those imported. When Tomatoes have attained their full size, and are cut off in a green state, they will subsequently assume an appearance of ripening, but there can be no comparison between such fruit and that which is ripened on the plant.

EXPERIMENTS IN GRAFTING IN 1896.

An interesting experiment was made by grafting the Tomato on the stem of the Potato, and *vice versa*. The Tomato grafted on the Potato produced a good crop of fruit, although not equal in quantity, nor were the individual fruits so large as those produced by plants growing on their own roots. The Potato stock did not produce the least perceptible change in the flavour of the fruit. A curious circumstance in connection with this union was that the Potato tubers emitted roots quite freely, where, under normal conditions, buds are produced. The Potato stems grafted on

Tomato plants did not grow so freely as the Tomato on the Potato. Small tubers were produced in the axils of the leaves. The tubers were quite green, and in course of growth produced a number of small buds.

Peas and mildew.—In certain soils mildew in late summer and the early autumn Peas is the worst enemy the cultivator has to contend with. The robust growers should be selected for the season named. By this term I do not mean the tallest, as these are often more subject to mildew than the dwarfer kinds. For years I grew a variety called Sturdy, excellent in its way for late supplies, this being a dwarf *Ne Plus Ultra*. Sturdy is now superseded by better kinds and equally good in quality. Continuity is a grand autumn Pea. As it only grows 4 feet high it is just the height for a private garden, the pods being large and well filled and the haulm free of mildew. Windsor Castle, a 3-foot Pea, is an excellent autumn variety, as is the Michaelmas Pea, a new introduction of great merit. This stands drought remarkably well, and is of a dwarf, bushy habit. This variety may be had good well into October, and so far I have never had it affected with mildew. It is well worth room in all gardens where late Peas are desired.—G. WYTHES.

Vegetable Marrows and manures.—As this is the season of planting, I would advise growing Marrows not on huge beds of manure, as the plants, though bearing enormous leaves and immense runners, are not at all fruitful. It is an excellent plan to grow Marrows in the open fully exposed. I am aware in the open there is more danger of frost in the early stages, but with small quantities one can protect. It is surprising what a quantity of fruit one plant will produce in a season if the plants are sturdy and not given excess of manure. I find a spadeful of manure to each plant at the start ample, as better results are obtained by liquid manure later on, or, failing liquid, a dressing of fish manure or guano in showery weather. The plants grown thus are less inclined to run and are more fruitful. The fruits also set freely, which is not the case with gross plants, as though the fruits set, they invariably turn yellow and drop. Another point is never to allow the fruits to attain a large size, as this checks the growth.—S. M.

Thinning Onions and Carrots.—Probably thinning of the above is looked upon as one of the simplest matters possible connected with the kitchen garden, but it is often left till the plants attain size, with the result they are much loosened. In the case of Onions it is much best to leave a row or two if small roots are wanted than to leave all the plants with the chance of much crowding, as it frequently happens the seedlings are left too long before the final thinning. There is a great gain by thinning in a small state, as it gives but little check. Last year it was impossible to thin after May was well advanced, owing to drought, but this season, with genial rains, the work may be done readily if done early. In a wet season I have seen Onions mildew badly if at all thick, so that there is no gain in delay. Carrots if left at all thick suffer badly, as they cannot well be disturbed in hot, dry weather. This does not apply to small early kinds, but to main-crop varieties needed for storing or winter supplies.—S. M.

Forced vegetables.—Solely by the aid of deep leaf beds and frames, early vegetables, such as Star of Reading Potato, Parisian Forcing Carrot, with plenty of Golden Queen Lettuce, are now available, and, given plenty of leaves, even where frames do not exist they can be supplied with the aid of rough boards and the use of old lights. Leaves suitable for the purpose can be drawn where they are likely to be required as they are removed from the pleasure ground, and built up into a square, or rather an oblong stack, about the middle of January, a special point, if no manure is available, being to have a good body of them quite 4 feet in depth, and also to see they

are firm and even, to avoid any sinking into holes. As soon as the frames are on, leaves can be banked up all round, level with the top, and with this and some protection on the lights if the nights are cold, there is little danger of frost getting inside. The amount of soil required can also go into the frames, and the different things be planted (Potatoes having been started in a bit of leaf-mould) or sown as soon as the warmth is apparent at the bottom of the soil. The Lettuce is better sown and thinned out to the required distance; better, that is, than raising it in boxes and transplanting. I find Golden Queen a great favourite for early work; the colour is in its favour, and grown quickly in this way it is exceptionally crisp and tender.—E. B. C.

NOTES AND QUESTIONS.—KITCHEN.

French Bean Veitch's Superb Early Forcing.—Having grown several batches of this Bean during the past winter, I can safely say that it is one of the most prolific varieties that has ever come under my notice. It is also dwarf in habit, the pods grow to a fair size, and the flavour of the latter when cooked is first-rate. It is without doubt a splendid Bean for forcing, and others who, like myself, have to keep up a supply during the winter months, would do well to give it a trial if they have not done so, and they will, I venture to think, find it a great acquisition.—A. W.

Cabbage sprouts.—I quite agree with what "A. D." and Mr. Tallack have said as to the value of cutting over such useful Cabbages as Ellam's Early and Allan's Incomparable for a second or several more crops of small sweet heads. Small Cabbages are best, and those who study weight combined with flavour in their greens should grow the finer strains of green-curbed Savoys for their winter supplies. There has been a general opinion among growers for several years that Ellam's Early, besides being one of the best early Cabbages, also yields the finest crops of sprouts in succession throughout the year. Allan's Incomparable, however, runs it a close second in order of time, and a dead heat in regard to quality and capacity for sprouting. I have known the latter Cabbage thirty or more years. It was raised by Mr. Wm. Allan, for many years the able gardener to Lord Rendlesham, of Rendlesham Hall, Suffolk, Mr. Wm. Allan, gardener to Lord Suffield, of Gunton Park, being one of his sons.—D. T. F.

Onions.—These are still a very fair-paying crop where they do well and the maggot is not troublesome. I heard the other day from an acquaintance that from a piece of land barely the tenth of an acre he had realised the sum of £6, besides the fair quantity of bulbs reserved for home consumption. Good-keeping sorts, like Giant Zittau and Brown Globe, seem the most profitable. These, with a good selection of White Spanish, can hardly be beaten for a general crop, that is, if good serviceable varieties that can be relied on to produce plenty of average-sized bulbs are the main consideration and exceptional size is not required. The Onion is one of the vegetables where quality is not sacrificed with the acquisition of size—at least not to any great extent—but the big bulbs will not keep like medium-sized ones. From this standpoint this variety is about the best; it fulfils all requirements, good, sound bulbs being still available (May 12) and likely to last until the autumn-sown Roccas are ready to pull.—E. B. C.

French Beans.—It is a pity that more care is not taken in fixing a new variety of dwarf Bean before it is sent out. I am aware that some new forms are good (whether they are better than a good selection of *Ne Plus Ultra* is a question), but others are simply worthless. Individual Beans are often good, of large size, good in colour, and very fleshy, but the plant alike in habit and cropping qualities is neither a dwarf Bean nor even an average cropper. I have not grown Carter's Stringless under glass. It was a great favourite last year when I had it out of doors, and the Beans as well as being stringless lasted remarkably well, crisp, tender characteristics being long

retained. Where accommodation for growing indoors is small and early outdoor sowing is practised to get the crop in as quickly as possible it is advisable to sow on a narrow south border, and with the first appearance of the Beans provision must be made for protection in case of late frosts. A dressed canvas covering or thick tiffany run along on some benders will answer the purpose.—E. B. C.

GARDEN FLORA.

PLATE 1173.

CROSSING HELLEBORES.

(WITH A COLOURED PLATE.*)

IN writing on this subject I am thinking of what are popularly called Lenten Roses, of which *orientalis* has been chosen as the representative of one section, and *viridis* of the other. The old Christmas Rose (*H. niger*), familiar to everyone, and certain other members of the same family, such as *H. n. maximus*, *angustifolius*, &c., which within the last twenty or thirty years have come to light in various localities, are capable of being crossed within the limits of their own group, but I have never succeeded in obtaining a cross between any *niger* with *orientalis* on the one hand, or *viridis* on the other. The *nigers* in the wild state in some kinds have green in their constitution, in others red; the latter colour has been slightly increased under cultivation, but that is all, and cold draughts and exposure produce redness, to the detriment of the pure white blooms. The aim in trying to cross any *niger* with *colchicus* or *abchasicus* or any dark species was, of course, to produce a really dark *niger*; but perhaps it is better we should have failed. I have also failed in the attempt to cross the Corsican Hellebore (*H. trifolius*) with any other species, and it remains still the nearest approach to yellow (green-yellow) that I know.

The opportunity amongst Lenten Roses is, however, sufficiently great to satisfy any experimentalist. The progress made of late years is very remarkable, and the gorgeous and varied show, at a season otherwise greatly wanting in brightness, is the admiration of everyone who sees them, whether in the border or as cut flowers; yet, strange to say, not one person in fifty is conscious of their existence; they are a novelty and a surprise. I remember about fifty years ago finding a very few, not more than three or four kinds, in old out-of-the-way gardens, but these were white or green. Even twenty years later it was not easy to procure as many as five or six, but amongst them were coloured species, and hence the chance to cross. My first crosses were spontaneous (the pollen conveyed by the wind or by insects), but some wonderfully pretty. I give my own experience only; that of others may differ from mine. The next obvious step was to cross by hand, taking pollen from the best of the seedlings, and from species the most

* DRAWN FOR THE GARDEN by H. G. MOON from flowers sent by Mr. T. H. ARCHER-HIND. LITHOGRAPHED AND PRINTED BY J. L. GOFFART.



LEWIS ROSES IN WINTER

widely differing in shape, size and colour. Again the result was very satisfactory, though slow, the plants requiring three years for development. After repeated trials it appeared to me that between any two plants the colour was best introduced by the male pollen, and the shape by the female. Have others found it so? Time went on and varieties increased; perhaps out of 100 half-a-dozen were worth keeping, and two or three specially so. Upon the best of these all attention was now given. Not only was the pollen taken from the best plants, but from the best flower upon those plants; by this means natural defects were got rid of, and form, size, and colour improved. All Hellebore growers know that in a wild state, amongst the sepals, two opposite ones are comparatively green and coarse. By the process above given these faults may be almost, if not quite, conquered.

I have plants with white ground and pink ground covered profusely with red spots and blotches, in the best blooms of which there is not the slightest green or coarseness in one sepal more than another; all are alike perfect, and so in other varieties. It has been interesting also, by proper selection of subjects, to obtain spotted varieties both cupped and star-shaped. In choice seedlings green is not necessarily a drawback, quite the contrary, but it must not be in coarse blotches, but harmonising with pink and white in due proportion throughout. But I am running on at too great length.

The objects to be aimed at are size, shape, colour, whether plain or spotted. I have endeavoured to show how these ends are to be attained; special results will probably attend special treatment. I think it best to transplant from seed-bed at two years old; but I have omitted to say, sow the seed as soon as ripe in fine soil on a damp border, with or without a sheet of glass over the seeds till they begin to show, which will be from December to February. Good rich soil is, of course, desirable, trenched 2 feet or 3 feet. It is difficult to say whether they prefer an open or shaded border. They do equally well in either if not too dry; if dry, great care must be taken to water at the proper season, and soot water I have found most beneficial. In large gardens a wide border 100 yards long would not be too much; the display will richly repay the sacrifice of space. And, lastly, it is scarcely necessary now to say that, if used as cut flowers, each stem must be slit up at least half way up to the flower before placing in vase or bowl, and they will remain fresh for many days.

Perhaps I ought to add a caution against our enemies. I have spoken of drought and exposure, but the worst of all, here at least, are mice and voles, which appear to prefer young Hellebore flower-buds to every other kind of food. I do not exaggerate when I say that I have lost 100 buds in one night. This season they have been very destructive. On one very large plant, usually a mass of bloom, I have only two flower-stems left, and yet I trap constantly, baiting with oatmeal for mice and for one species of vole, and setting steel traps in the runs of another vole which refuses that bait, secured, however, from the risk of catching robins instead. I find that plants standing by themselves, often self-sown, suffer much less from these vermin than when grown in dense masses. The inference, therefore, is that in planting in a border they ought to stand at least 2 feet



Lenten Roses in Rev. C. Wolley-Dod's garden.

apart to minimise the harbourage for our enemies. T. H. ARCHER-HIND.

Coombejishacre, South Devon.

Aubrietia Souvenir de W. Ingram.—There are several good types of Aubrietia that possess considerable merit, even though of similar shade of colour. From all these the above is a decided break, and will, if I mistake not, eventually prove one of the very best and most attractive of its class. Individually the flower is large and well formed, but to see it in its best condition the plants must be grown with full exposure in the open. A plant of this quite recently, I believe, was presented before the Royal Horticultural Society for certificate, which it did not secure, and in its then form did not deserve. Unfortunately for so distinct a plant, the example

in question had been grown under glass and probably given some heat, with the result that washy flowers, too sparsely produced for an Aubrietia, were really presented. The peduncles, too, were elongated to an unnatural degree, and it is such items, though small in themselves, that tell heavily against any so-called hardy plant. The variety possesses distinctly variegated blooms, red and pink prevailing, with a suspicion of white in some flowers, and under full exposure has the merit of distinctness, and as such will prove a great attraction. When naturally grown and covering a block of stone with its warm-looking flowers the habit of the plant is good.—E. J.

THE WEEK'S WORK.

KITCHEN GARDEN.

TOMATOES UNDER GLASS.—Many grow this crop for the principal supply during the summer under glass. Grown thus the cultivator is less dependent on the weather, as the setting of the fruit is surer and the fruits attain size in a shorter time. I usually have three or four lots of plants for the year's supply, and even then I am not sure of having fruit all the year round, as though there are so-called winter varieties, the fruits fail to set from November to February. A few solitary fruits may set, but one cannot call it a crop. The plants raised in August last year are now bearing freely, and there will be a good supply of fruit from these till well into the summer. Plants in full bearing one may feed freely, and I find a mulch of spent Mushroom manure over the surface soil of plants in borders a great gain, as it keeps the roots cool and moist and does not promote gross growth like richer food. I take a new growth from the base of the plant as soon as the first fruits have set. These will now be fruiting freely, and, having exhausted all the food at the roots, will need liberal supplies of manure. So far I have found none better than liquid manure to which has been added some soot. The soot promotes a sturdy, healthy growth. Plants just coming into bearing will not need much food at all. I recently saw some young plants that had shoots as thick as one's thumb, but they cast all their flowers, having been given manure from the start. It is not wise to feed plants till a good set is secured; at the same time I am in favour of liberal treatment. Air may be freely given now on all favourable occasions, and in the case of plants in flower it is well to leave air on the back ventilators at night and give air freely during bright sunshine. As regards stopping, so far I have found the best results follow the cordon mode of training. Many good growers severely cut the foliage. I do not advise such severe measures as are often practised, as I believe this cutting of the foliage tends to disease. The leaves may be shortened a little, but not close to the stem, and the main shoots may be stopped when the plants are 4 feet to 6 feet long, but, as noted previously, much depends upon the space the plants are required to fill.

TOMATOES IN THE OPEN.—Doubtless many will ere this have planted out in the open in favourable localities, but in exposed positions and in the northern parts of the country it is rather too early. I prefer to thoroughly harden the plants before setting them out in the open air. Many shifts may be made to forward a few plants in the open by planting against walls. I have had ripe Tomatoes the first week in July by having a good plant at the start; indeed, I only plunge the large plants grown to a single stem between rows of Peaches or Nectarines, and these being set with fruit, if given a good mulch, soon take to their new quarters. Of course, plants grown thus need more regular supplies of moisture than those planted out, but there is a great saving of time as regards ripening, and the cultivator is not troubled with gross growth. Plants in 7-inch or 8-inch pots will fruit grandly, the root-restriction being favourable to setting and cropping. Plants

that are set out in the ordinary way should not get manure. The soil that will grow Peaches is quite good enough, and any food needed may be given later in the form of a good mulch or a fertiliser. Plants in rich soil are so gross, that they crop sparingly. If the soil is at all heavy, I have found a liberal quantity of old mortar rubble passed through a coarse sieve one of the best aids to promote a fruitful growth, and in poor soils, where food may be needed, bone-meal is a safe manure. Plants in the open trained to stakes also need to be strong at the start, as the season of growth is short. If the plant is weak, half the season is lost before fruiting size is reached, with the result that the first frost injures the plants, and the crop does not pay for the ground occupied. I have referred to the necessity of securing an early set with plants against walls, and it is equally important to get the fruits set in the open. The weather will in a great measure determine the quantity of crop and when to plant. Up to this date the cold nights have been most unfavourable for plants in the open. Much may be done at the start to give a little shelter in rough weather. Too much moisture at the start is quite as injurious as cold. This must be guarded against, and staking must also be attended to.

TOMATOES IN AUTUMN.—The cultivator who has a large demand for Tomatoes, say from September to November, will do well at this date to prepare plants for that supply. I am aware many think the summer fruiters will yield sufficient, but plants that have borne a heavy crop cannot be expected to continue bearing when partially exhausted. Young plants are grown with so little trouble, that they are much the best. I now sow a pan or box of seed in a cold frame very thinly, and when large enough the seedlings are potted on into 3-inch pots and grown in the frames, and again potted into 6-inch pots. The sashes are left off the plants at night, this inducing a short, sturdy growth. When the earliest varieties in July and August are over, then June-sown plants take their place and give the crop at the season named. Very little warmth is needed; indeed, none till the autumn, unless the weather is wet or sunless. Ample air is given always through the summer. I usually plant out in a narrow border. If in pots a shift will be necessary at the time of housing, and 10-inch or 12-inch pots will give a good return. In large houses I have obtained excellent results by planting in rows and staking, though I prefer the single row system in a small house, keeping the plants close to the glass.

TURNIPS.—The main crop of Turnips should now be sown, as if left too late the fly may become troublesome. At the time of writing, the soil is in splendid condition for sowing. At this date I would advise one of the strap-leaved section or the Red Globe, one of the best dry weather Turnips I have grown, the roots being very solid and sweet. Last season I grew Criterion for the first time and it was excellent. This is a longer root than Red Globe, but, like it, it has a red top and is remarkably mild in flavour. The yellow-fleshed varieties are also excellent for autumn use. These are noted for their hardness and flavour, and will thrive in any soil. Model, Perfection and Golden Ball are among the best. For use during the late summer months I frequently make a small sowing between rows of Apple trees. The plants get a little shade if the trees are not too close, and benefit by this in hot, dry soils. These roots are for drawing in a young state, not for storing.

AUTUMN BROCCOLI.—Few vegetables are more useful than the early autumn Broccoli, as it may be had in quantity from October to Christmas if planted at two different dates—the larger plants now, and the smaller ones in a month's time. Where the seedlings are at all thick I would advise transplanting out of the seed bed into rows, say 1 foot apart, 6 inches between the plants. Grown thus for a few weeks the plants will have more roots, and plant well into their permanent quarters later on when ground can be spared. I am planting the first crop on land just cleared of

winter Spinach, and a succession crop will follow early Potatoes as these are lifted. The land being fairly rich, manure is not given. The best winter Broccolis are doubtless Autumn Protecting and Mammoth. The latter is a later variety and specially good for lifting to eke out the mid-winter supply. I have had it in a shed good well into February from plants lifted at the approach of severe weather. Much the same remarks apply to the earlier varieties of Broccoli if these were sown at all early, as to leave the plants in the seed beds too long is not conducive to hardiness. They should be as dwarf and sturdy as possible at the time of planting.

SPROUTING BROCCOLI.—Few vegetables are more valuable from February to April than the sprouting Broccoli, and to get a supply at the earlier date it is well to plant this month on an open piece of ground. When grown too thickly at the start, the plants never assume the compact habit so necessary to stand our variable winters. Planted early in June in rows at least 2 feet apart and 18 inches between the plants, there will be a wealth of cutting material at the season named. I am not much in favour of the White Sprouting, as with me it is less hardy than the purple and not so prolific, and it runs to seed earlier. For later supplies I plant two breadths of the Late Purple Sprouting, which is distinct from the earlier kind, being larger and hardier. If only one kind can be grown, I would certainly advise this one. This, if grown on a north border, will give a supply well into April. I do not advise planting the later lot till the end of the month or early in July. S. M.

FRUIT HOUSES.

VINES.—**WATERING OUTSIDE BORDERS.**—Even if due account be taken of the recent rainfall during May, it is still possible that in some cases outside borders will be dry. It will to a great extent depend upon the position and the soil. For instance, upon limestone or chalky soils it is quite safe to water twice as much as upon a heavy top or clay subsoil. Water in the former case is the essential requirement, whilst in the latter it is advisable to encourage the roots to the surface by judicious top-dressings. As regards the position, it will greatly depend on whether the border be sloping or if the surroundings have the same tendency. When the watering has to be attended to, let it be done in a thorough manner, so as to penetrate quite to the lowest roots. If the surface be somewhat close or trodden down, let it first be lightly forked over, so that the water when applied to the border penetrates it in an equal manner. Now is a good time to apply a dressing of artificial manure at about the advised strength of any given kind. It will yet be time enough to influence the crop by so doing at the period of stoning or during the second swelling, according to the state of the Vines as regards growth. A manure of quick action will be useful now and onwards. Should the border be mulched, the material so employed had better be drawn off or aside, so that the stimulating agent may penetrate the soil. So far, however, this season I have not mulched against the drought. If dry weather again sets in, a surface dressing of farmyard manure will greatly assist Vines that are bearing heavy crops or that are growing in light or well-drained soils; others, *i.e.*, those on retentive soils will often-times be better if never mulched at all. These latter are rarely ever too warm, but rather the reverse. To water these will tend to foster shanking. Grapes now colouring may possibly be in need of water also, but with these more caution is necessary, otherwise if the border be at all chilled the danger of shanking has again to be considered. The suggestions as regards later crops will still hold good with these in other respects. Some borders may probably be partially elevated above the surrounding soil. Where this is the case and the drainage is known to be all right at the base and below the ordinary level, water may be given liberally.

WATERING INSIDE BORDERS.—In dealing with these the one danger is that of allowing them to become too dry. Twice and even three times as much water may safely be applied to inside borders, it being assumed as a matter of course that artificial or natural drainage prevails. More Vines by far are weakened by want of water than by the reverse when confined to inside borders, and this will bring the attendant evils of red spider, &c. Greater care, too, is required to see that the water is distributed in an equal manner. If there be any doubt as to the state of a border in any given part of it and it is on examination found to be dry, that portion should have a ridge of soil drawn up on the surface so as to keep the water from penetrating elsewhere. Inside borders, if not well attended to, will oftentimes be deceiving, looking fair on the surface, but underneath caked and hard through previous neglect; hence the water never penetrates there at all if special measures be not adopted. It is also a good plan to provide means of reaching the roots by drain-pipes laid a foot or so beneath the surface and as level as possible, the water flowing into these through similar pipes placed at intervals in an upright manner. Inside borders again which have had plants in pots upon them may deceive by the surface appearing quite moist enough, whereas underneath it may be quite the reverse. Any vinery from which through extra early forcing the crop has been cut, whether the border be inside, outside, or both, should be well soaked with water. These early houses are frequently not watered during the swelling of the crop so much as they might be, hence now may probably be much too dry. It will do these Vines a deal of good to thoroughly water them, and at the same time give them a good dressing of either an artificial or liquid manure to make up for any deficiencies in the soil. All such vineries should also be kept freely syringed for a time both to destroy any red spider and to prevent it from gaining a foothold. Pay close attention to the watering of young Vines, both those newly planted and others bearing their first crop of fruit. In the case of these again there is the possibility of greater injury being done through drought than through excessive watering. I have noted this particularly and the after effects when more liberally treated.

THINNING.—The work of thinning will in most cases no doubt be now well advanced even in the latest of houses and localities. In dealing with late-keeping Grapes, however, there is the possibility of too many berries being left, especially inside the bunches, where, if one should decay later on, it is a difficult matter to reach it or even to detect it until much harm has been done; hence it is not advisable or even safe to leave these berries at all. In late Grapes every berry should be within view, more or less, for the reasons given. An additional inspection of the bunches will well repay for this specific purpose alone. As compared with mid-season crops, they may look well enough, but the crucial test is in the keeping during the late autumn months. A deal more allowance has to be made for such Grapes as Gros Colman and Gros Maroc, also for Lady Hutt, as these all swell up so much as even to sometimes deceive good hands at thinning. It will be far better to devote a little time as soon as possible to this work of special thinning than to leave it until the berries become tightened, when it cannot possibly be done in a satisfactory manner, besides which, by delay, the energies of the Vine are being spent to no purpose in the case of the berries to be cut out. A slight amount of tying up of the shoulders will help to make a bunch larger without being too much tightened, but to adopt this practice to an excessive degree is not recommended, nor is it adopted by me. In a little time after the last thinning it is a better plan to go over the bunches and examine them as regards their progress, carefully lifting the shoulders before they become entwined in each other. If this be done with care, no marking will show, and it is far better than any tying up or "slinging," as it is termed. Berries that incline

inwards can be moved upwards to a good purpose and the shoulders be made to look much better.

VENTILATION AND WARMING.—Those Grapes now approaching maturity should be ventilated freely, due regard being had for the conditions of the weather. With a little warmth still in the pipes, so as to keep a night temperature of 65° for such as Hamburgs and 68° or so for Muscats, it will be possible to keep the ventilators open slightly both back and front for such as the former, and top only for the latter. When quite ripe, cool down somewhat, but do not be in too great a hurry to dispense with heat in the pipes. Later Grapes just commencing to colour should be kept at nearly the same temperatures save with Muscats, which will be better at 70° or 72° when banking up the fires. Guard against closing too early after colouring has commenced, otherwise a process of sweating (so-called) will take place, occasioned by the atmosphere being warmer than the berries to a marked degree, hence the atmospheric moisture is deposited upon the berries which are cooler. This sweating is decidedly prejudicial to obtaining a good colour and finish, oftentimes imparting to the berries a lustrous appearance. Sweating is also caused by neglecting to put on a little air early in the morning, which can now be safely done slightly in advance of any rise of temperature. Be very careful with the ventilation of houses where the crop is now swelling freely after thinning. This is the period when there is more liability to an attack of mildew than at any other (as afore alluded to). See that late Hamburgs even are not exposed to chilly currents of air during a cool day or two with the wind in the east. If this occurs, and the heat in the pipes is very little, it must not cause any surprise if mildew is soon prevalent. It will be all the better if the latest Grapes still have a fair warmth (say 65° to 68° at night and 80° to 85° by day) accorded them, for it is better and cheaper, too, in the end to fire now than at the end of the summer to complete the ripening, which of itself may engender shrivelling.

HORTUS.

ORCHIDS.

HOUSES FOR ORCHIDS.

So many houses primarily erected for other plants and fruits have been successfully used for Orchids that it is hardly necessary to say that no special class of structure is required for them. But, on the other hand, the plants will be much more easily managed and continue longer in health if a little thought is devoted to the class of Orchids most suitable for a specified house. Perhaps the most popular class of Orchids at the present day is the section that thrives in a cool temperature, this including the majority of Odontoglossums, many Oncidiums, Lycastes, Maxillarias, Masdevallias, Disas, and many others. The majority of these Orchids are of dwarf habit and like plenty of light, coming, as they do, from considerable altitudes in countries near the equator. In our dull, sunless winters these plants pine for light, and for this reason the Odontoglossum house, as it is termed, ought not to be in a dark corner shaded by trees or buildings. In summer, of course, such houses are more easily kept cool and moist than span-roofed structures in a more open position, but this advantage is slight compared with the harm done in winter by the want of light. Sunk houses, or those that have the soil excavated, are useful, as they are not so much exposed to drying winds, but a point often lost sight of in such structures is the necessity for ventilation below the level of the stages. Unless this is kept in mind and catered for, the sunken house has no advantage over one built on the surface as regards keeping the temperature down.

There is no advantage in having these houses high or wide. Head room above the paths must be studied, of course, but, beyond this, the lower the ridge or spans, or the head timbering on lean-to houses, the better. A central stage may or may not be needed, according to the width; the pitch should be flat rather than steep, as this brings the plants at a more regular distance from the light, while the length will, of course, be in accordance with the number of plants.

A very similar house, but, of course, kept at a higher temperature, will be found to suit many of the dwarf, heat-loving species. Small-growing Dendrobiums, dwarf Cattleyas and Lælias, a good many of the West Indian Oncidiums, Coelogynes, Dendrochilums, Huntleyas, Warscewiczellas, Ionopsis—indeed, any of this class, will thrive well in such an one. They may do as well in a larger house, for careful and skilful attention has much more to do with success than the size or shape of a house, however big or little; but this is the class of house wherein the wants of this section of Orchids is most easily catered for. An ordinary span-roofed structure with central and side stages is best for the general run of the labiate Cattleyas and Brazilian Lælias, the large-growing section, such as *Cattleya crispa* or *Lælia purpurata*, being arranged in the centre, the medium growers around the sides. Large houses are best for the grosser-growing distichous-leaved section, embracing *Aerides*, *Renanthera* and *Vanda*. A large house may, of course, mean anything, but if it is to be entirely devoted to Orchids of any class a width of 20 feet is ample. But where large Palms and Tree Ferns form the principal occupants, their very presence makes a congenial atmosphere if their wants are studied, and in such a house I have seen remarkably well-grown Orchids of this class. Where the mischief comes in in many large houses is the large amount of space between the glass and the head of the plants that is quite unoccupied, the air contained in which is lighter and warmer than that lower in the house. The light from the sun filters through this and is more likely to scald a plant than is, say, a couple of yards away than when all are nearer the roof. The same thing occurs in fruit houses and structures devoted to plants or Ferns. A large body of unoccupied air directly above the plants is wrong, and I have known Peach trees scald on a back wall when yards away from the glass, while others with a similar aspect and close to it were unharmed. Most Orchids do well in vineries after they are started, the canopy of foliage overhead making a natural and beneficial shade; and, though the plants are a long way from the roof, they thrive well.

Pits and frames are often useful, for summer culture of cool species especially, while plants of such kinds as like rather more heat than the coolest house affords, including *Odontoglossum* of the grande, *Inseayi*, and *Schieperianum* types, and even *O. citrosimum*, do well in intermediate ferneries. *Thunias*, some of the *Dendrobiums*, and *Catasetums* I have grown well in Melon houses, light unshaded ends suiting them admirably, while I never had such a successful batch of *Moulmein Dendrobies* as a lot that was imported and tied to rough blocks of Apple wood, these being suspended from the roof of a small pit devoted to Pines.

H.

Cattleya Mendeli bella.—A fine form of this pretty variety is open, the blossoms larger than usual, each measuring 8 inches across. The segments are of good form and substance, a delicate lilac-rose in colour, streaked with white, this occurring freely about the open part of the

lip. *C. Mendeli* is a very beautiful *Cattleya*, now getting past its best, and the plants have now to make their growth for another season. Should any require attention to the compost, this is a good time for surfacing or repotting, using a rough, open description of material, and if the plants have grown over the sides of their pots, they may be set back with the leads as near the centre of the pot as possible.

Masdevallia Schlimi.—Though not of quite so showy a character as those of the *M. Harryana* section, the flowers of this species are extremely pretty. The ground tint is yellow, but so closely covered with minute hair-like processes as to appear to have a purple tint on the two lower sepals. The tails are yellow, and so is the lower part of the dorsal sepal. The flowers occur about five or six on a spike, which latter is thrown well above the tall handsome foliage. It is a free and vigorous plant, and may have more pot-room than the smaller growing kinds. It does best in the cool house, the compost consisting principally of Sphagnum Moss kept thin over good drainage. It is a native of New Grenada, and, though previously known, was not in cultivation until 1883.

Calanthe veratrifolia.—This fine old plant is not thought much of by present-day growers, but the pure white flowers and handsome Lily-like foliage are not unattractive even on small plants, while on large specimens such as were formerly very popular as show Orchids it is quite as beautiful as any even now. The plants may be grown with the greatest ease in a moist, shady stove temperature, the best compost consisting of loam, peat or leaf soil, and chopped Sphagnum Moss in about equal proportions. For the strongest plants a little dried cow manure may be mixed with this or the plants may be watered with manure water in frequent light doses while they are making their growth. Drain the pots well, as the roots must always be kept moist winter and summer, and occasional syringing in hot weather helps to keep insects in check. It is a very widely distributed plant naturally in the Eastern tropics, and was introduced in 1828.

Ansellia africana.—A fine example of rapid Orchid culture is to be seen just now at Lake House, Byleet, the residence of Mr. Marter. Five years ago Mr. Bradley, the gardener there, received a small bit of *Ansellia africana*, and from this small beginning has resulted a specimen about 7 feet through and bearing about 1500 expanded blossoms. The individual growths are 4 feet long, and are clothed to the base with abundant foliage, having that rich tint which indicates perfect health, and those who like sweet-scented flowers should grow it. I also noticed a nice specimen of a fine variety of *Lælia purpurata* bearing about a score of blooms. It is worthy of note that these Orchids, in addition to some other kinds, such as *Cypripediums*, have not been grown in a structure especially devoted to this class of plant. The accommodation consists of a small warm house, one side of which is occupied with Cucumbers, a vinery, and a conservatory. Here we have good proof that Orchids may be grown to perfection among other things.

—J. C. B.

Oncidium tetrapetalum.—I have noted some nice plants of this somewhat difficult species grown rather differently from the usual plan. They are planted flat on the top of square blocks of teak, with nothing but a little Sphagnum Moss about the roots. The growth of this species is peculiar, consisting of three-sided leaves in tufts, but no pseudo-bulbs, and consequently considerable care is necessary with it, especially in winter. An atmosphere free from sudden changes of heat and moisture, or anything else likely to cause a check to growth, is desirable. The roots, again, must always be kept in a moist or medium state, for the plant will not stand a long dry season. Regarding temperature, the warmest part of the intermediate house suits it well, and it likes a good deal more sunlight than many Orchids. The flower-spikes on imported plants are large and branched, frequently a couple of feet high,

but such spikes are rarely, if ever, produced for any length of time under cultivation. The blossoms are very beautiful, though the tints on the lip are difficult to describe. They are each about an inch across, the sepals and petals brownish red and yellow, the lip white on the blade, the crest and column of various tints of rose and yellow.—H.

CŒLOGYNE MASSANGEANA.

THOUGH the colours in this Orchid are not particularly bright, it has a fine effect when really well flowered, the long pendent racemes so freely produced around old specimens being quite distinct from everything else in the genus. Visitors to the principal shows and large nurserymen's collections are familiar enough with the plant, but it is not so largely grown by amateurs and beginners in Orchids as it should be, for it is without doubt a fine species, and while requiring care in management, is one that anyone having a little experience with other Orchids may grow well. Imported plants are occasionally offered, and if at all leafy or in good condition may be purchased with a prospect of succeeding with them, but when imported in poor condition the plants are best left alone and good established specimens must be procured. Newly-imported plants when once they commence to grow after plumping up may with advantage be allowed rather more moisture than most Orchids at this stage, and should as soon as possible be placed in their baskets. After a few weeks they root and become for all cultural purposes the same as established plants, though they may have, if anything, a little more warmth allowed than usual. When well established *C. Massangeana* is a very thirsty subject, and the baskets must be frequently taken down and their contents thoroughly soaked in a pail or tank of tepid water. For this reason when preparing the compost—especially for large plants—it is well to have a good supply of large, rough lumps of burnt clay, placing these among the compost. This makes the baskets lighter and ensures a sweet root-run. The best compost I have tried consists of rough peat fibre, Sphagnum Moss, and either loam or leaf-mould in about equal proportions. The best time to rebasket is in early spring, but the plants will not require very frequent disturbance provided the material is good in the first place. The plants usually rest during the winter, and a greatly diminished water supply is then required. They thrive well in a shady part of the *Cattleya* house, where they flower frequently and abundantly. Strong plants produce a large number of flower-spikes, which are individually about a couple of feet in length and many-flowered, the blooms each about 3 inches across, of a light ochre-yellow on the sepals and petals. The lip is white on the outside of the side lobes; in front it is a bright reddish brown with lines of yellow. Each flower is furnished with a deep brown bract that adds to the appearance of the spikes. It was introduced in 1879, its native country being doubtfully given as Assam.

NOTES AND QUESTIONS.—ORCHIDS.

Cochlioda sanguinea.—Very bright and effective are the flowers of this Orchid, and they occur upon spreading or semi-erect scapes. The colour is a bright shining rose, and they are so freely produced even on small plants as to make quite a nice display. Care is necessary not to overflow the plant, especially if not well established. It does well in the coolest house treated similarly to *Odontoglossum crispum*.

Cœlogyne ocellata.—Flowers of this little species come from "D. S." Lincoln. They are of a good variety, the reddish and yellow markings on the labellum being well displayed. Though one of the smaller *Cœlogyne*s, it is very distinct and pretty and decidedly worth growing. It may be planted in baskets or pans in a compost of peat fibre, Sphagnum Moss, and a

little leaf-mould, with plenty of crocks and charcoal, well watered while growing, and rested by keeping cool and a little drier at the roots.

Lælia purpurata.—A peculiar sport from the typical form is now open, the petals having a blotch of deep colour on the base of each, something like the variety *Ashworthiana*. It is worthy of note that the plant has flowered before, but has never shown this peculiarity—a proof that Orchids do occasionally alter from year to year, though it is far from common. The sport is not, in my opinion, half so pretty as the type, and is only worth noting on account of its peculiarity.—H. R.

Lælio-Cattleya Canhamiana.—This is a beautiful hybrid in any of its forms, as may be imagined from its parentage—*Lælia purpurata* crossed with *Cattleya Mossia*. In the sepals and petals and the colour of the lip it most resembles the *Lælia*, but it is easy to trace *Cattleya Mossia* in the roundish petals and the throat veinings. The plant has been raised in several collections by crossing different varieties of these species, but first appeared with Messrs. Veitch, of Chelsea.

Sobralia Lucasiana.—Such lovely flowers as are produced by this species should go far to

differ materially from that usually practised with cool *Odontoglots*.—H. R.

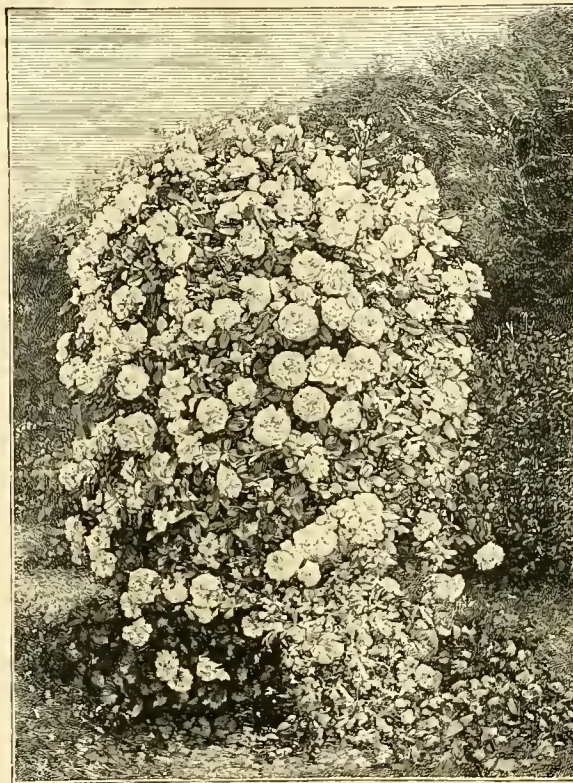
Oncidium pumilum.—This is a curious species, producing pretty little yellow flowers dotted with reddish brown. They are much crowded upon the spikes which appear at the base of the leaves, and are not much larger than the latter. The plant has no pseudo-bulbs, and should be grown in small baskets with very little compost in the *Cattleya* house. It is a South American species, introduced very early in the present century, but now seldom seen.

ROSE GARDEN.

ROSE BLAIRI No. 2.

THIS grand old Rose might be mistaken for a Tea-scented variety by the novice, so delicate and beautiful are its rosy blush-coloured blossoms. It, however, is classed with the Hybrid Chinese, a family supposed to owe its origin to the French or Gallica Roses, crossed with the Chinese. In the case of the variety under notice the Chinese character appears to predominate in all points save the continuous flowering propensity of this group. The Hybrid Chinese are summer-flowering only, but no class excels them in the glorious profusion of blossom they yield for the short period they remain in flower. A fine pillar of the above Rose, as depicted in the illustration, is indeed a gorgeous sight when its very large blossoms are fully expanded. One point should be borne in mind as regards the treatment of these Hybrid Chinese Roses when grown as pillars or climbers, and that is they require to be very sparsely pruned if the desire be to have a fine specimen. Noble bushes may quickly be had if strong plants budded on the *Manetti* are planted in sunny positions, giving them plenty of space and shelter from north and east, for *Blairi* No. 2 is not so hardy as the majority of its class. A strong stake should be supplied at first, but the plant will in the course of a year or two require two, and perhaps three, stakes to support its immense shoots.

This Rose is very impatient of being bunched up after the baneful manner usually adopted with pillar Rescs. I have known it to make shoots in one season from 8 feet to 10 feet in length, so that a grand specimen is quickly obtained. Sometimes one will find the old growths injured by brown blotches



Rose Blairi No. 2.

popularise these somewhat neglected Orchids. The flowers occur similarly to those of *S. macrantha*, but differ in colour, this being white on the sepals and petals, the latter sometimes very lightly tinged with rose; the lip is broad, open, and prettily frilled, pale rosy purple, with a dense yellow blotch in the centre. They are beautiful in the extreme, and their only fault is that they last but a short time.

Odontoglossum cirrhosum.—There are few more beautiful *Odontoglots* than this in its best form, the fine white flowers with chocolate-purple markings being at once elegant and rich in colouring. The habit of throwing up barren spikes of flower seems to be more characteristic of certain plants than of the species as a whole, and I have had plants that were so addicted to it that I have thrown them away. Its culture does not

that appear to run right through the wood and pith. This may be caused by severe frosts, but I am inclined to think that they result from insect punctures. Be this as it may, when observed, the growths should be cut clean out, for they only dwindle and give the plant a bad appearance. Other growths will soon break up from the base to replace those removed. Not the least charm belonging to *Blairi* No. 2 is found in its beautiful foliage. This just prior to the flowering season is of a beautiful ruby colour, developing later to glossy green. The wood and thorns are dull grey. As a standard it is a great success. In this form, if on a fairly tall stem, the long pendulous shoots are very elegant when wreathed with the lovely buds and blossoms, and if a

south or west wall requires to be covered quickly, this Rose is just the one to employ provided no objection is raised to its fleeting season of flowering. P.

Rosa gigantea.—With reference to the note signed "S. W. F." which appeared in last week's issue on *Rosa gigantea*, I flowered that Rose very successfully (at Cannes) in the beginning of April, and will be pleased to answer any questions or furnish any information thereon.—BROUGHAM.

Rosa berberifolia Hardi and Rosa bracteata.—On p. 435 the names *Rosa berberifolia* Hardi and *Rosa bracteata* are associated as though the two were synonymous. Surely this must be an error. I have always understood that *Rosa bracteata* was the Macartney Rose, one of the most distinct and most beautiful of our single white Roses, and by no means a difficult plant to succeed with, while, on the other hand, the plant I have known as *R. berberifolia* Hardi has flowers tallying with the description given on p. 435, and has always been, with me at least, a very difficult plant to get to flower at all.—W. S. TILLET.

— I regret an error occurred in my short note upon the above Rose. Although somewhat resembling the Macartney Rose, it is perfectly distinct from this pretty tribe. It belongs to *Rosa berberifolia*, a native of Persia. The variety Hardi was the result of a cross between *Rosa involucrata* and *R. berberifolia*, obtained by M. Hardy, formerly of the Jardin du Luxembourg.—P.

THE MARKET GARDEN.

GARDENIAS FOR MARKET.

AMONG market flowers these stand pre-eminent, and the reason is not far to seek when we remember the pure white waxy petals of which the flowers are composed, as well as their chaste form and unsurpassed fragrance. Other pure white flowers, such as the *Stephanotis* and *Eucharis*, are undoubtedly popular, but compared with the *Gardenia* their uses are limited. Indeed, in their season few flowers, if we except Roses, perhaps, can claim to be more freely or more generally used. In the spring months, more particularly during the latter end of March and throughout April and May, many thousands of their blossoms find their way into the streets of London, where a very large portion is sold to passers-by. A dozen years ago *Gardenias* realised fairly good prices even in the early summer months, while during the winter season and up to and including March, prices were generally too high to permit any but the wealthy buying them. Even at Easter I have known 30s. per dozen to be obtained for good blooms, and I have known instances where the exceptional price of 5s. each was paid daily for a single flower mounted and ready for wear. In the great profusion of their flowering, these stove shrubs occupy a position quite unique; especially true is this of the radicans section of these plants. Quick and free in growth, these plants present but few difficulties to the cultivator, provided a sufficiency of heat and moisture be given them. These, however, at the proper moment must be applied without stint, provided the best results are expected. The system of

CULTURE

as usually applied to these plants in market nurseries is a very simple one, and is briefly as follows: We will suppose it is intended to plant a new house or replant an old one. For either purpose a start is made with cuttings of half firm wood of clean growth. These are prepared in the usual way, inserted in 5-inch pots in

sandy soil, plunging them in a brisk bottom-heat. Here, if well supplied with moisture below and with frequent sprinklings overhead, these root readily in the course of two or three weeks. With the market grower where large bushes exist an abundance of cuttings may be secured at almost any time. It is, however, the rule in most instances to insert cuttings during the early summer months, with a view to flowering them in pots and getting some blooms in from ten to twelve months from the cuttings. As soon as the latter are rooted they are potted into 3-inch pots, and when about 8 inches high the tip of the shoot is pinched out. With signs of breaking away into growth, or when the breaks are well away, the young plants are at once shifted into 6-inch pots, *i.e.*, large 32's. So quickly does this frequently result, that the plants when placed in the latter size are often not more than eight or ten weeks from the cuttings. During the summer the growth is so rapid and the amount of roots so considerable, that the plants would quickly become stunted if not potted on at the right moment. Once in the 6-inch pot the plants grow without further stopping during the first year, unless they have been rooted early in March, and in this case they are stopped a second time only. With the market grower, however, March cuttings are not the rule, because at that time all the young growth is usually full of flower-buds, which are made the most of whenever they come. The young plants are then grown briskly on till flowering time is past in the ensuing season, when the plants are shortened back a little and presently potted into 8-inch or 9-inch pots. In these they are usually flowered again, which makes them two years old and bushes 2½ feet high and through. When this flowering is over they are planted out either in a new house or to replace old plants elsewhere. In the preparatory stages these young plants play a rather important part in providing the earliest blooms, and with their roots confined and the plants portable also, they often find themselves in a snug, well-heated house, standing on an open woodwork stage, coming into bloom considerably in advance of the main crop. To this end a batch of pot plants is generally grown to the size and age stated. In the culture of pot plants, however, carrying all their flowers without thinning of any kind, size of bloom is only obtained by the most careful treatment as well as by frequent doses of liquid manure. It is also a good plan when growing these as permanent pot plants to employ a larger-sized pot than usual, and to only three parts fill with soil in the first instance, the remainder following as top-dressings at intervals. One of the disfigurements most frequent in these plants when grown in pots is the pale yellow, sickly look of the extreme points of the shoots, displaying at once a weakness where only the fullest concentrated energies of the plants should appear. This may arise from a variety of causes, though primarily from exhausted soils, a too abundant application of water at too low a temperature, or a temperature altogether too low in itself. Either of these may easily bring about this pale exhausted appearance, or the whole of these causes combined, so much to render a valuable crop of bloom all but worthless.

SOIL.

The soil usually employed consists chiefly of good turfy loam, with but little well rotted manure added, together with a slight addition of some well approved artificial manure. In the market nursery, peat, which is by many regarded as indispensable, is seldom if ever

used. Indeed, in one of the most successful instances of *Gardenia* culture that have ever come under my notice, and where the plants attained to about 9 feet high, more like *Camellias*, only much more dense than these, the plants were put out in the ordinary nursery soil after this had been well dug and a little manure added. Two-year-old bushes were employed as usual, the planting being done when flowering was past. In putting the plants into position, a saucer-shaped hollow is made in the bed and in such a way that a mound of earth of about 2 feet diameter is raised about the base. This is considered a most important item in the planting, as the plants in question are great surface-rooters, and hereafter a regular system of top-dressing has to be kept going. The plants are thus put out at 2½ feet apart or little more, depending on size, the bed being so arranged that the alternate plants may be torn out two years hence, thus leaving the remaining plants with abundant room for future development. Throughout the growing season a slight top-dressing will be requisite once a month, just covering the mass of fresh roots each time. In those nurseries where *Tree Carnations* are largely grown, the old soil from these with a little addition of bone-meal or the like answers admirably, and is often kept in reserve for the purpose. The depth of the bed of soil is from 1 foot to 2 feet, and where a good loamy soil exists naturally, this will usually answer well. Beyond this depth even the oldest roots rarely go, as may be seen when taking out the old plants of perhaps eight or ten years. Bottom heat is never employed and is unnecessary. Top heat is given abundantly. Four-inch pipes are always used, these being distributed at the outer walls and beside the pathways throughout the house. Large inside water tanks are the rule and contain abundant supplies, always exposed to the temperature of the house itself. In the growing season the plants are watered freely and the atmosphere kept constantly moist. The plants are also syringed freely; generally in the summer in large structures the hose-pipe is used for this purpose, as also for damping down. During the winter season, owing to the large amount of soil in the beds, very little damping down is required, though at all times anything approaching a dry, arid condition is carefully avoided.

TEMPERATURES.

This is one of the greatest essentials in the successful culture of these free-flowering stove evergreens, and where large houses are specially devoted to the plants plenty of piping should always be employed. All the pipes at the outer walls should be kept fairly high above ground, so that the full warming influences be secured. The remaining pipes should be distributed as freely as circumstances permit. For example, a house 18 feet to 20 feet wide is the most convenient, as it admits belts on each side with a wider central one. For the latter width the side beds may be 4 feet each and a central one 7 feet, dividing the remainder into paths on each side the centre bed, with allowance for pipes when these are placed by the side walls. The side walls to the wall plate should be 4 feet high, the one-half of this being devoted to glass sides if possible. Many *Gardenia* houses I know have side walls not more than 3 feet high, all brickwork, the result being that quantities of flowers are ruined each year by contact with the glass. A good growing temperature for *Gardenias* may be put down at 60° as a minimum for night temperature in winter, and where mid-winter flowers are produced in quantity it is not allowed below 65° if possible

in the most severe weather. This of course all depends on efficient heating at the beginning, as once the requisite pipes and apparatus exist, the remainder is merely a question of attention and fuel. It is not that these plants will not endure a much lower temperature than that given, for, as a matter of fact, I have safely wintered them with the thermometer often falling to 40° and 45°. But merely keeping the bushes alive is one thing, and to make them pay their way and a surplus to the good is another. Of course, to keep up high temperatures in the coldest weather is a most expensive item indeed, and needs serious thought. But when it is remembered that only the earliest blooms in these times of low averages fetch anything like a price, the matter is worth consideration. The grower that has his crop of blooms a fortnight, or even half that time, in advance of the majority has made a good stroke of business, that quickly repays a few extra loads of fuel. With these exceedingly high temperatures, however, great care is needed, and I need scarcely remark that no good grower of these flowers living within what may be called the limits of London fog will attempt these high forcing temperatures during the existence of bad fogs. As previously observed, a batch of pot plants is invariably the safest and surest way of securing these flowers from January onwards.

PRUNING.

When the main crop of flowers is over, which is about the end of May or thereabouts, the plants are usually shortened back a little. This depends, however, on the age of the plants, since two and three-year-old plants will often when set out make growths 2 feet long, while others say eight or nine years old will not make more than a fourth this length. The latter require practically no pruning, since this in their case would be denuding them of nearly half their crop for the sake of a less number of shoots of greater vigour. The younger plants are shortened back nearly or quite half their length, a system which is diminished each year with the age of the plants. Usually in the year of planting, and especially in the case of two-year-old pot plants, growth is vigorous, and on this account chemical manures should not be employed. Strong chemical manures are often dangerous and leave a bad mark behind. This is greatly due no doubt to the large mass of surface roots these plants produce. Where manures are used, it should be in the soil and as a top-dressing about twice each year. Soot, bone-meal, and the like are much the safest and best, while liquid diluted sewage may be given prior to and through the flowering season. Insect pests are kept well in check, and in many instances with the best growers are altogether absent. In some soils and localities clubbing is troublesome, and I have known a large span house, over 100 feet long and 24 feet wide, rendered all but useless in consequence. Happily, however, such wholesale loss from this cause is not common.

PACKING

the flowers is a heavy item, and in busy times requires the assistance of several hands. The flowers are picked singly without sacrificing foliage or buds, unless under special order for the latter, and sorted into two sizes, are placed in single layers in shallow boxes, each box containing 1½ dozen best or 2 dozen seconds. The blooms are simply placed in order in paper lined boxes, sprinkled overhead from a fine rose can, and covered with a thin sheet of wadding well damped. In this way many thousands of blooms are packed daily by a single grower

during the busy season. The quantity of good blooms marketed is enormous; the inferior ones hardly pay for packing. Indeed, it is no uncommon occurrence to see a bushel or more of the rejected ones beneath the bench, a fact which speaks volumes for the almost endless supply of Gardenia flowers during April and May in each year. E. J.

FLOWER GARDEN.

DAFFODIL NOTES.

IN some interesting notes on the Narcissus family generally at page 405 Mr. Tallack expresses a desire to know if the experience is general that the variety *Empress* increases at a much greater rate than *Horsfieldi*. With Mr. Tallack "*Empress* has more than doubled the increase made by *Horsfieldi*," which is exactly the reverse of "general experience"—at least in so far as trade collections are concerned. In several instances *Horsfieldi*, so far as productiveness of root and flowers goes, certainly takes the lead, and this unmistakably, notwithstanding that *Empress* has a constitution of no mean order. In my own case *Horsfieldi* is decidedly the freest kind in bulb and number of flowers. Mr. Tallack evidently has an experience quite the reverse and as decided as the above opposite view. There are many who cannot detect the difference between these two fine bicolor kinds, yet they are quite distinct in flower. *Horsfieldi* possesses whiter perianth segments than *Empress*, the segments also being somewhat more flimsy and oblong-lanceolate in form, less imbricated, too, than in the other kind. In *Empress* the perianth segments are much stouter, rather inclined to obovate, and imbricated to nearly half their length, while as a whole they occupy a fixed position, rather erect, and do not flap about as in *Horsfieldi*. One very distinctive characteristic in *Empress* is the yellowish band on the reverse of the perianth segments that extends almost to the tip. This colour is not seen at all in *Horsfieldi*, the latter being decidedly whiter. Of course, in stature the two are widely distinct, and in this way *Empress* quite outstrips any other bicolor Daffodil, *Weardale Perfection* excepted. Two years planted, I have had *Empress* attain upwards of 2 feet high, the leaves by actual measurement being 1½ inches wide, the well-known *Emperor* by its side being even stronger than this. Stature, however, is considerably affected by seasons, and the spring of 1898 has not favoured the Daffodils in this respect. I incline also to the opinion that in very dry districts the smallness of the rainfall during the past six months will materially affect the size of the bulbs the coming autumn. Many flowers I have seen this year have not their usual characteristic development, doubtless due in some degree to the dry autumn of 1897, when the roots (*i.e.*, fibres) found insufficient moisture for the bulbs of a somewhat moisture-loving race. And where the roots are minus the usual winter's watering, the effect can be seen both in the smallness of the foliage and the size of the flowers in the spring ensuing. This has been so this year, and on the drier soils was very apparent in leafage alone, to say nothing of the flower-stems, which were shorter than usual and blossoms similarly affected. Warm spring rains are very helpful in this direction, and, if succeeded by good weather in May and early June, good flowering roots may be generally relied upon.

Mr. Tallack speaks of some kinds that are not a success with him; kinds which, however,

require some sort of special care in most gardens to make them a success. Two of these, *Ard-Righ* and *Tenby*, are not generally a success in most gardens, and are only to be kept in good health even where they succeed at all by a rigid system of annual lifting and long season of rest. In some localities both kinds absolutely refuse to grow; this is usually the case in cold and clayey soils, though one instance I know of—a very hot and sandy soil where the *Tenby* kind would never grow at all. Where they thrive by annual lifting, both are valuable for their early-flowering, particularly under glass. Mr. Tallack, however, is wrong in supposing the *Tenby* will not succeed in inland districts, as I have grown it in this part of Middlesex by hundreds of thousands, the quarters containing the bulbs a picture indeed, foliage 20 inches to 22 inches long and tough as leather strings almost. The *Tenby* Daffodil loves deep planting and cool pasture soil, and I believe much of my success with this kind was in rather deep planting and the free use of cow manure placed 6 inches below the bulbs that gave the roots a cool medium in hot weather. This, coupled with the fact that the ground was old pasture only recently broken up, assisted materially in securing the grandest lot of bulbs I ever saw. I have grown it now a dozen years in succession in this district, and up to the tenth year all was well; since then sickness and deterioration have appeared. Last autumn I planted on a fresh piece, but whether I can resuscitate them as yet I cannot say. Three years ago I showed a batch of some thousands to a representative of a large Dutch house, and lifted a forkful that he might see the roots and fibres. He was amazed, and remarked, "That is the first time I have seen the *Tenby* Daffodil quite healthy." It is singular that this kind succeeds in the Scilly Isles and fails at Guernsey, the Dutch growers being also unable to secure healthy stock on their own soil. Of collected bulbs alone, apart from cultivated, I have during the past dozen years or so had some hundreds of thousands of this through my hands, and in these—lifted as they were in full leaf—it was no uncommon thing to pass numbers that had been fully 18 inches deep in the soil, the growth out of the earth extending to even more than this. If Mr. Tallack still has bulbs, I can only suggest a cool place in grass for this prim little trumpet kind. The usual remedy for *maximus* where this is a total or partial failure by the ordinary methods is to plant it fully 8 inches or 9 inches deep in a rather heavy holding soil, and not disturb it for three or four years at least. This handsome kind is apparently injured by periodic disturbance, and at best is a rather shy bloomer; yet as a unique kind, particularly in colour, it is worth some care and trouble to establish. Instances are frequent where this beautiful form has grown and blossomed with every satisfaction in quite uncared-for positions, but refuses to grow in the same garden when for its beauty and worth it was desired to increase the stock. One instance in particular I know where the whole stock was returned to its original place where for years it had been a success after varied positions in other parts of the garden had been tried for it and failed. The successful spot was a shrubbery, rather clayey and partly shaded, and the bulbs, by planting and mulching combined, had become nearly 12 inches deep. A dozen representative flowers of *maximus* in a vase eclipse all other Daffodils for richness of colouring; the flower, too, is so well proportioned and generally good as to make it worth while to secure a few. I find this kind distinctly objects to annual lifting, and also objects

to sandy soils. I quite agree with Mr. Tallack's note concerning the Nelsoni kinds, and of Nelsoni major in particular. The pearly delicacy of the perianth in this is very elaste, and with elipped crown and slightly drooping form is an exquisite flower for the table in small glasses. Mr. Tallack likewise rightly sets an especial value on *N. bicolor* Grandee, which with *N. bicolor* (Haworth)—the latter the later of the two—are most valuable by reason of their lateness, quite apart from their fine form. The latter is not unlike the former, and though rather smaller, a very beautiful flower. Grandee also possesses the most vigorous habit and constitution in these respects, being on a par with Empress, though minus the full stature of the last named. Grandee will readily produce three flowers to a bulb when well established, and then a bed of it is one of the best appreciated things in the whole of the bicolor Daffodils. A late form of this possessing the grand stature of Empress would indeed be an acquisition.
E. JENKINS.

Saxifraga lantoscana superba.—Each year this handsome form has produced its lovely racemes of white flowers usually in May, and hitherto these have assumed a somewhat arching aspect. This season, however, the racemes have assumed a totally distinct character, and are flowering on straightened stems at an angle of 40° or rather more, each spike, moreover, taking a different direction. It is a good plant and one in which the hitherto arching character of the flowering raceme has produced a very pretty effect, while its altered character at the moment is certainly no improvement.

Anemone trifoliata.—Though there is not much difference in the flowers of the common Wood Anemone and those of this kind, the distinctly marked foliage renders it a very striking plant compared with the commoner forms. It is, perhaps, doubtful whether it is an improvement or the reverse, but so far as my experience goes it possesses more vigour than the white Anemone of our woods, and lacks the exceeding grace of the latter, particularly in its leafage. Our common Wood Windflower is too little employed in our spring gardens for effect, while the one character of the above plant is its distinctness from all else, and, though not frequently seen, increases readily at the root.—J.

Armeria Lauchiana.—None of the dwarf forms of the Sea Pink or Thrift is so effective as this—a variety of the common *A. maritima* of our seacoasts. It is neither a new nor a rare plant, but is good enough for even more extended cultivation by those who like low-growing plants. With deep pink flowers freely produced on grassy tufts, *A. Lauchiana* is very pleasing. I have been surprised to see how well a little plant has grown with scarcely half an inch of earth between it and the stones below, and with no opportunity of sending a tap-root into deeper soil. This suggests its usefulness for wall or roof gardening.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Aubrietia Leichtlini from seed.—My experience has been that this fine Aubrietia is not to be depended upon to come true from seed, and that the proportion of seedlings with bright rose-coloured flowers is very small. The case cited by "S. W. F." on page 430 quite represents the general experience with seedlings. I have had the various colours and shades he speaks of from one packet of seed of *A. Leichtlini*. This result is not surprising, as there is usually a good deal of variety among Aubrietia seedlings. Few of the species or varieties can be depended upon to come uniformly true in shade, size of flower, or habit, although this variation is, as may be expected, more marked in the case of the newer varieties. There is a great tendency to revert to inferior forms, and I find this very marked here, where a number of plants are grown and where

self-sown plants are very numerous. Although we have a good supply of white flowers at the time it comes into bloom, an Aubrietia with good white blooms would be serviceable in some places. Some years ago, one named, if I remember aright, *A. antilibani* was offered, but it was a poor plant in every way, and those who grew it appear to have discarded it. There is one named *libanotica* in the "Index Kewensis," but I cannot say if this is the same.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Primula capitata.—I write to correct a mistake made by "E. J." in a note on p. 429. Under the heading of *Isopyrum*, that writer says on my authority that in Edge garden *P. capitata* not merely grows and flowers freely, but seeds and springs up in all directions. If "E. J." can refer to page and column in which any such statement appears in my name I will make a full apology for having misled the gardening public. I might with truth have said this of *P. denticulata*, but certainly not of *P. capitata*, which requires as much careful attention as any plant I grow, and I have rarely seen a self-sown seedling of it. It is true that hundreds of plants may generally be seen in flower every autumn in masses in different parts of my garden. Seed is sown as soon as ripe—say in August—and it is as easy to get a seedling crop of a thousand as of a hundred. The seedlings come up in a week or two and have to be carefully kept from frost in a frame, growing on through winter. About March they are large enough to be pricked off into shallow boxes, and at the end of May these trays are turned out entire where they are to flower. The flowering begins about the end of July and lasts till hard frost kills the plants. No plant of *P. capitata* has ever lived out of doors in Edge garden through the winter, or has behaved otherwise than as an evergreen biennial. It never shows any disposition to form a winter bud, like *P. denticulata*, *P. rosea*, *P. sikkimensis*, and most of the other Himalayan Primroses I have grown.—C. WOLLEY-DOD, *Edge Hall, Malpas.*

NOTES ON HARDY PLANTS.

Arabis Sturi, or possibly *Stelleri*, is a remarkably neat and dwarf plant, well suited for the rock garden by reason of its close tufts and early and effective snow-white flowers, which, opening as early as the first week in April, last for weeks. It is an evergreen form, and the small and glabrous leaves, almost resembling those of the Milkwords, are its most distinctive feature. The growth is slow and compact.

Petrocallis pyrenaica.—It is seldom one sees this in strong and faultless dense tufts; more often in patchy pieces. For the past month it has been in flower, and as I have had the advantage of importations from several places, I am pleased to say all have flourished equally and given additional pleasure by the varied shade of colour, viz., from a milk-white to heliotrope-purple. I am fully convinced that to get this alpine to do well it must have a liberal addition of lime or chalk to the soil; the results are striking compared with culture without lime. Without it I always had faulty plants; with it the plants are satisfactory and the culture otherwise of the simplest.

Bellidiastrum Micheli.—To state that the flowers are like those of the common field Daisy, but merely a little larger, may not convey a very tempting idea of this dwarf plant; still, we have the fact that it is a great favourite, and after all you could not take it for the common Daisy. Its foliage in form resembles that of the rosetted Plantain of our lawns, and when out of its neat tufts you see springing up numbers of big Daisies from April to November, you learn to admire it as one of the most useful of alpinists. It is better for a moist place, and, given that, any aspect not shaded will do.

Andromeda fastigiata.—It may be that this is more difficult to manage than the nearly allied *A. tetragona*, though I cannot say I find it so. What is far more certain is that it is a better

bloomer. Just now its twigs are thickly hung with the pretty waxy white bells. I have imagined that the winter fogs, especially if charged with local impurities, did harm to the minute leaves, and with that view I have used a little winter shelter, which, combined with heavy mulchings, seems to answer admirably.

Rubus deliciosus.—A good specimen here in a south aspect and growing out of a retaining wall for the past fifteen years is a perennial treat; both young and old wood is thickly beset with flowers all its length—and such flowers! practically white single Roses 2 inches across. When fully in bloom the bush, which is about 6 feet across, resembles a hillock of snow. Young plants, too, flower freely, but the best effect is when you get a good sized-bush; to this end you may contribute by almost totally disbudding for the first two years. The shrub is not common by any means, and few catalogues offer it. As a matter of fact it is but slowly propagated. It is worked on other stocks with difficulty, owing, I suppose, to its peculiar and filmy bark, and, besides, its habit of producing sucker growths would be lessened by that method. I never yet found good seed. Cuttings of the new half-ripe wood can be rooted easily enough, but of the hundreds I have tried for many years in succession all have died off. Something may be said for such cuttings when kept in a leafy state in a greenhouse all the winter, as then a small percentage seems to hold on and form a root bud; that stage attained, the young plants seem safe. Layering is the most certain way, as all, in time, make strong plants, but it has always to the present taken three years to get a well-rooted offset or layer. There is yet another way, but it implies that one must have a strong specimen to spare. If dug up carefully in February, taking care of all the strong parts of the roots, they may be cleanly cut into lengths of 8 inches or 10 inches, the near ends to be marked so that they may be at once set in sandy loam with the right ends up. If this is properly carried out, these will in early summer show up a quantity of young growths, and soon you get shapely plants. Of course these root cuttings should be set with their tops 2 inches or 3 inches below the surface. The plant thus deprived of its strong roots will be better if rent asunder, provided each division carries a share of the collar and shortened roots. These divisions will beyond a doubt grow freely with ordinary planting.

Trillium grandiflorum.—A deal of misconception exists as to the requirements of this beautiful plant. Here, I may claim, it is naturalised. It comes up in many parts where it was never intended, but always where the soil is the more retentive. To make my meaning clear it may be needful to explain that the entire garden is of made or imported soils, hence no wonder certain species disposed to reproduce themselves by seed do best when they accidentally or otherwise find their way into the better class of soil. For this Trillium, what I call my heaviest loam always seems to answer best, and no matter whether in shade or fully exposed. Another point on which I am rather positive is that you may have the finest plants and flowers in heavy soil, if deep and not given to cracking, in the fullest exposure to sunshine. This may seem wrong for a wood Lily, but we must not forget that it is an American wood Lily, and perhaps our cloudy climate may be just enough of shade for this plant, all other conditions being suitable.

Pentstemon Newberryi.—Blooming in early May in full exposure; flower tubes 1½ inches long, carmine-crimson, habit of plant evergreen and procumbent. Such is a brief description of a new kind of Pentstemon which startled me the other day as I came across my open ground specimen. There is a suggestion of some affinity to the Menziesi group, but it is quite distinct for all that, especially in the highly-coloured flowers, and scarcely less so in the thick, oval and crenate leaves. It is, however, the habit of the plant which to my mind is the more pleasing and use-

ful feature; it is not so much a creeping as procumbent plant, and this habit combined with good colour is just the material for the style of rock gardening becoming more and more general.

Polygonum sphærostachyum.—This is another highly-coloured spring flower, and, for that matter, a summer and autumn bloomer in succession. Once you get this in the right place and well grown, the spikes of the unusual carmine-scarlet flowers are seldom absent from spring to November. It is as yet one of our rarest and seldom seen hardy flowers, but when seen it never fails to attract. The nearest colour to which I can compare it in a well-known flower is that of *Primula rosea* at its best, or, say, to the higher colour of its buds. I find the plant likes plenty of moisture. J. WOOD.

Woodville, Kirkstall.

IRIS ORCHIOIDES.

IRIS ORCHIOIDES, of which I send you a photograph, is here a valuable hardy garden plant, very distinct in habit and attractive in flower and foliage. As it flowers in March and April, the first blooms are sometimes spoiled by wet; but cold seems to affect it very little, and as it flowers rather profusely, it, at the worst, loses its brightness only for a few days. It increases rather rapidly from offsets and each year matures a fair amount of seed. I do not know that it requires any special culture beyond that given early flowering bulbs, but it is here planted and thrives in fairly stiff soil in a position dry in summer and protected from northerly winds. J. N. GERRARD.

Elizabeth, New Jersey.

THE WINTER ACONITE.

"S. W. F." (p. 430) draws attention to the difficulty at times experienced in the endeavour to establish this showy winter flower, but which, so far as my experience goes, is not general. I believe, moreover, that those who have had difficulty with the plant may overcome it by materially lightening the soil, for I have not heard of its failure in any case where light soils exist. It is not that a light soil is at all essential, for I have naturalised it most freely in heavy, clay soil, which was also somewhat sandy. It is a good plan when any given spot in the woodland or other similar place is being planted to use a large digging fork and lift a full sod of earth here and there when inserting the patches of tubers. By this simple means a very considerable amount of soil is loosened in the immediate vicinity of the starting roots, which at once permits the latter securing firmer grip of the position. If also a portion of the raised soil be discarded and the remainder only lightly returned to its place, the chances of the soil becoming solid will be less. A little old potting soil, road sweepings, or the like will likewise be helpful where very close or tenacious soils obtain. Digging holes with the fork may take more time than doing the same work with a crowbar, as sometimes suggested, but the value of all such work cannot be measured by the minutes it takes so much as the relative amount of success attending the operation. This plant is so effective in the grass in winter, that it amply repays for making it a success. And this has been accomplished by planting in the above way. Not only do the plants flower abundantly and well by this method and put on exceptional vigour, but they seed most abundantly also. Where rough shrubby borders exist these seeds may be sown after slightly loosening the surface with a fork. In a couple of years or so the effect will be surprising. At Kew the Winter Aconite is largely used on the grass among many other things mostly bulbous in character. Many beds are also surfaced with it, and a few weeks since it was possible to have gathered thousands of seeds from the blooming plants of this year, so great had been the freedom

of flowering. In these latter positions the soil is more or less prepared and rich, and its effect is duly seen in the great vigour the plants attain. At the same time there is a charm about the Winter Aconite when seen luxuriating in rather moist, grassy spots, that endeavour should be made to establish it. The failure noted by "S. W. F." appears "on a lawn," and I would suggest that the very solid character of the soil may have been more or less responsible for the failure. On steep unrolled banks where a looser soil prevails than is usual on the lawn, I have secured capital patches of the lovely glistening golden yellow cups. E. J.

SELF-COLOURED LATE TULIPS.

SELF-COLOURED is, perhaps, a misnomer for these late Tulips, and we might perhaps better name them "late garden Tulips." For the flower garden they are vastly more attractive than what are known as the florists' Tulips, many of which are dull in colour and formal in outline. The so-called Darwin Tulips are also largely dull-coloured flowers, especially when they begin to get past their best. I have lately mentioned a few garden

T. elegans lutea is bright yellow with flushings of orange-red, and of large size. Under the name of *Billietiana* a pretty variety of that variable species was sent, and with its pale yellow flowers strongly marked with carmine was very effective. One of the most effective was *T. fulgens lutea*, which has long, rather narrow segments of the most brilliant yellow. Such flowers as these are of striking beauty in groups in the flower garden. Ireland seems to suit these Tulips well, and those from Cork and some from Newry, where Mr. T. Smith grows a large number, show how well they do. S. ARNOTT.

The double white Narcissus.—Last year there was a long discussion as to the blooming of this beautiful kind, and, if my memory serves me right, opinions differed considerably as to the cause of the blooms not opening in some places. I should like to know how this *Narcissus* is behaving this year, now that we are having plenty of rain. In this garden I have experienced considerable difficulty in getting it to bloom well. When I took charge here, some nine years ago, I found a goodly number of bulbs growing under



Iris orchioides. From a photograph sent by Mr. J. N. Gerrard, Elizabeth, New Jersey.

Tulips in "Notes of the Week" in the columns of THE GARDEN. Some not mentioned have just come from Mr. W. B. Hartland, of Cork, and they are so beautiful that I cannot resist penning a few notes upon them, although several are old acquaintances. Among those sent are two forms of *T. Gesneriana*. One burdened with the name of *T. Gesneriana major rosea corulea* is deep rose-red, with blue spots at the base. I have had it in my garden for some years, and find it very satisfactory. A flower of distinct beauty is *T. Gesneriana aurantia maculata*, presenting a combination of tints of rose, orange, and yellow impossible to describe. The Moor is a deep red, with a shade of brown, and Bridesmaid is dark crimson, broadly feathered white. The others have yellow ground colour of various shades, and differ considerably in form. Very delicate and beautiful in colour is *T. flava*, which may best be described as pale straw, whiter towards the base. This is a Tulip which should please those who like soft colours. Leghorn Bonnet has flowers with a shade more of yellow. *T. ixioides* is pale yellow also, with black anthers and black spots at the base.

shrubs, at the foot of big trees, and positions of this kind, and it was rarely they ever produced a bloom that opened, although a considerable number of flower-stems came up. Not being satisfied, some three or four years ago I had a portion taken up and replanted, some amongst the grass, others in good soil in damp spots amongst shrubs close to the turf. Last year, when forming some large masses of *Tritoma Uvaria*, some were planted in the good soil amongst them. Now they are a great success in all positions, showing they want good soil.—DORSET.

Propagating Pinks.—I think that too much pains are often taken in the propagation of this useful family of hardy flowers. Some increase them by cuttings, others prefer layers, but there is another rough and ready way which will give very good results and does not involve the expenditure of much time and labour. This consists in taking up the plants when they have done blooming and replanting, so that the woody stems are buried, leaving the green tops only above the soil. By the close of the autumn roots will be

made freely from the buried portion, and the plants can then be lifted, divided, and put where they are to bloom. This can also be done in early spring or in autumn—in fact at any convenient time when the plants are at rest. For trade purposes where the most has to be made of a limited stock, propagation from cuttings or layers may be advisable, but the amateur who requires plants to make a good display at once will find the above-mentioned way of increase the most satisfactory. In some soils Pinks cannot be relied on to remain in good condition more than a couple of seasons; they go off much in the way that Carnations do, the bark of the old woody stems becoming ruptured by the action of damp and frost. By replanting every third year and burying the old stems the plants get a fresh lease of life, and all danger of their dying off is obviated. On plants treated in this way the blooms come very fine the following season.—J. C. B.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S TEMPLE SHOW.

Floral Decorations.

THE floral decorations were a pleasing feature of the show, and contributed in no small degree to the interest of the visitors. First appearances led one to imagine there were not so many exhibits as last year, but upon close observation it was noticed that they were more crowded than usual. This was a pity, as the beauty and grace of a large number of individual arrangements and designs were thereby lost. Messrs. B. S. Williams and Son put up a handsome lot of designs, &c. A large hand-basket, in which were artistically arranged long racemes of blossoms of *Odontoglossums*, *Cattleyas*, and *Asparagus*, was very fine; a striking looking bouquet, in which a combination of *Anthuriums* and double red zonal *Pelargoniums* was used, was effective. A mirror, in which the double form of *Narcissus poeticus* was used as a framework and a base of Orchids to set it off, was a somewhat formal design, as was a hand-basket filled with the heavy blooms of different coloured *Malmaison Carnations*. A pretty bouquet, composed of *Odontoglossums*, *Lily of the Valley*, and white *Roses*, and a nice assortment of foliage, was worthy of notice. A fine exhibit came from Messrs. Jones and Sons, Shrewsbury, who had four bouquets, half a dozen hand baskets, besides tubes, &c., filled with different kinds of flowers. These were not so good as last year. To Mr. L. Calcut, Fairbolt Road, Stoke Newington, special praise is due for the grand arrangement of a large table. This contained many of his excellent patent stands, each lightly filled with yellow, white, and blue flowers, set off in an artistic manner with *Croton* leaves, *Ferns*, *Asparagus*, and other foliage. A very large and bold vase was placed in the centre of this exhibit, and deserves special recognition. This was handsomely arranged with *Lilium longiflorum*, *Lælia*, *Vandas*, *Odontoglossums* and other choice flowers, and was beautifully finished with leaves of *Cocos Weddelliana*, *Fern*, and Japanese *Honeysuckle*. A base, rather heavy in design, arranged with similar flowers completed a really handsome vase. The silvered rustic stands from Mr. J. Prewett, 11, Lancaster Street, Bayswater, in which there is a pleasing effect in the pretty devices peculiar to this style of stand, were admired. A pink fancy *Pelargonium*, relieved with a few blossoms of *Rhodanthie* and *Gypsophila* and a few pieces of greenery, completed this effective display. From Messrs. Perkins and Sons, Coventry, came some very lovely decorations. Their bouquets were rather heavier than usual, the bride's bouquet being the best of the three handsome arrangements. The flowers in the centre bouquet included long growths of *Odontoglossum crispum* and *O. Alexandræ*, *Lily of the Valley*, *Stephanotis*, &c., with *Asparagus*, and was exceedingly delicate

and chaste. A very fine hand-basket arranged with pink and mauve Orchids and a pleasing blending of rich foliage was greatly admired. A large portion of the table was taken up with an exhibit from Mr. M. V. Seale, Vine Nurseries, Sevenoaks, in which foliage, &c., of a hardy kind was chiefly in evidence. As contrasted with the other exhibits this looked somewhat dull and heavy, although there was considerable merit in each individual piece. Crosses, anchors, wreaths, lyres and harps were each represented; Pansies, Irises and Carnations, together with *Lilium longiflorum*, being among the principal flowers utilised. Moyses Stevens, 146, Victoria Street, Belgravia, S.W., staged a pretty bouquet of white *Lilac*, *Orange blossoms*, and *Stephanotis*, a wreath, and a heavily arranged hand-basket. This was filled with *Narcissus poeticus fl.-pl.*, *Liliums*, *Gladiolus The Bride*, &c., and from the same source came a lyre of the *Poet's Narcissus* in double form and neatly finished. The Women's London Gardening Association, 62, Lower Sloane Street, S.W., showed a pretty table decoration and a bouquet of pink Carnations. A pretty table decoration, and one of very simple description, came from Miss Edith Langton, The Rowans, Hextable, Swanley, Kent, she using the blooms of *Saxifrage* and blue Spanish Iris, with silvered grass and *Smilax* as an embellishment. A bouquet of pink *Roses* was also very pleasing. A patent design for assisting the arrangement of cut flowers was illustrated, and was by no means convincing as an improved method of fixing the flowers in position. Certainly the most suitable flowers were not utilised, and placed the exhibitor at a disadvantage. This was exhibited by Mr. G. Parkins, 20, Oakdale Road, Sheffield. Miss Dalton, 28, Pilgrim Street, Ludgate Hill, placed upon the table a wreath composed of *Liliums* and *Gladiolus The Bride*, as well as some bouquets. A neat little table decoration was exhibited by Miss T. West-Bradley, Sunnyside, 64, Gipsy Hill, S.E., of white flowers, such as *Lilac* and *Gladioli* with *Ferns*. Quite a new idea in illustrating the decorative value of the *Tufted Pansy* in a cut state was shown by Mr. William Sydenham, Tamworth, Staffs, several pretty designs being filled with a variety of these flowers in pleasing and chaste colours. Three designs in the form of a *Prince of Wales* feather were conspicuous, one of yellow and pale lavender being very pretty. The stands are fixed in such a way that small tubes to contain water keep the flowers fresh for a long time.

Orchid Committee.

First-class certificates were awarded to the following:—

CATTELEYA FERNAND DEVIS (C. *Aclandiae* × C. *Warszewiczii*).—In this the sepals and petals, nearly white and flushed with rose, are of fine form and substance. The lip is deep crimson-purple in front, white in the centre, the side lobes white, shading to rose-purple at the base. It has the intermediate characters of both parents both in the shape of the flower and habit of growth. From Messrs. Charlesworth and Co., Heaton, Bradford.

LÆLIO-CATTELEYA ADMIRAL DEWEY (C. *Warneri* × L. *elegans*).—This plant has the intermediate characters of the parents both in growth and flower. The sepals and petals are bright rose, of fine form and substance. The front of the lip is rich crimson-purple, margined with rose, the side lobes rose, shading to white and rich purple at the base. From Messrs. Charlesworth and Co.

CATTELEYA MENDELI VAR. OAKES AMES.—A grand form, the sepals delicate rose; the petals bright rose, splashed with purple at the apex, the lip rich crimson-purple, finely fringed at the margin, yellow, striped with purple in the throat. This is one of the finest forms we have seen. From Messrs. H. Low and Co.

DENDROBIUM DALHOUSIANUM VAR. SALMONEUM.—The sepals and petals in ground colour are as in the type, the principal distinction being the salmon blotches at the base, taking the place of

the usual maroon as seen in the typical form. From Messrs. H. Low and Co.

ODONTOGLOSSUM ARLADNE (*Rochfordianum* var. *venustum*).—This is a beautiful form, the ground colour of the flower pure white, thickly covered with rich purple-brown spottings, the small lip white, spotted with brown, and crisped at the margin. It is a natural hybrid between *Odontoglossum Hunnewellianum* and *O. crispum*. A grand plant with a raceme of fifteen flowers came from Messrs. Linden and Co., Brussels.

O. CRISPUM - HARRYANUM.—A continental hybrid raised from the species indicated in the name. The sepals are creamy white, blotched with brown; the petals similar in colour, the spots at the base of a violet shade, as in *O. Harryanum*. The lip is creamy white, thickly spotted with purple, and with numerous bright yellow hairs forming the crest at the base. From M. Charles Vuylsteke, Loochristi, Belgium.

Awards of merit were adjudged to the following:—

LÆLIO-CATTELEYA INTERMEDIUM-FLAVA GOLDEN GEM.—This is a distinct and desirable hybrid raised from the species indicated in the name. The sepals and petals are bright yellow, the front lobe of the lip bright purple, mottled with yellow, the side lobes creamy yellow, shading to purple at the base. From Messrs. Charlesworth and Co.

CATTELEYA MENDELI VAR. MRS. G. V. LOW.—This is a beautiful form, the sepals and petals nearly white, only a slight tint of rose being noticeable. The beautifully fringed lip is bright purple, mottled with white in front, the side lobes white, shading to orange, with some purple at the base. The plant bore a two-flowered raceme. From Messrs. H. Low and Co.

MILTONIA VEXILLARIA VAR. EMPRESS VICTORIA AUGUSTA.—A lovely form of the *rubella* section with deep rose-purple sepals and petals, the lip dark rose-purple with some white in front of the yellow disc, where there are some radiating purple lines. From Messrs. J. Backhouse and Son, York.

CATTELEYA MENDELI AMELIA.—The sepals and petals, nearly white, have a faint shade of rose at the base. The lip is beautifully fringed, white, with a rose blotch in the centre; the side lobes white, with a shade of yellow in front and purple at the base. The plant exhibited carried two spikes of flower with two blooms each. From Mr. W. P. Birkenshaw, Hessele, Leeds.

MILTONIA BLEUEANA ROSEA GIGANTEA.—A gigantic variety of this well-known hybrid. The sepals are white, flushed with rose at the base; the petals white, suffused with bright rose at the base; the lip white, with a shade of rose-yellow at the disc, with prominent radiating purple lines. From M. Jules Hye, Ghent.

ODONTOGLOSSUM PESCATOREI VAR. BELLATULUM.—A beautiful form with white, slightly suffused rose sepals, blotched with deep purple; the petals white, spotted with purple; the lip white, with purple spottings in front of the yellow disc. From Messrs. Linden and Co., Brussels.

ODONTOGLOSSUM CRISPUM VAR. ZEBRINUM.—The ground colour of the sepals and petals is creamy white, the sepals blotched with purple, the petals much crisped at the margin and thickly spotted with bright purple; the lip white, with purple blotches and a yellow disc. From Messrs. Linden.

ODONTOGLOSSUM CRISPUM DECORUM.—One of the most beautiful forms we have seen. The sepals are white, with rich brown blotches in the centre; the petals white, with one large bright brown blotch in the centre; the lip white, with numerous small brown spots. The plant bore a raceme of fourteen flowers and several buds. From Messrs. Linden.

ODONTOGLOSSUM CHARLESIANUM.—A beautiful form with rather small flowers. The sepals are creamy yellow, suffused with purple and blotched with brown; the petals creamy yellow, covered thickly with small brown spots; the lip creamy yellow, with a bright yellow disc and large bright purple spots. From M. A. Madoux, Anderghen.

Floral Committee.

First-class certificates were given to the following:—

LICUALA JEANENCEYA.—An exceedingly graceful and distinct Palm, the foliage divided into abrupt leaflets, each nearly a foot in length and deeply notched. The plant shown was about 2 feet high, with slightly spreading head, the petioles horned, as in some species of *Chamarops*. The above handsome plant is a native of the Solomon Islands, and was shown by Messrs. Sander and Co., St. Albans.

ACALYPHA SANDERL.—Perhaps the most remarkable introduction for many years past, the plant having a tree-like stem and growths that with the leaves resemble more or less the *Poinsettia*. The feature of the plant, however, is the crimson-red of the numerous tail-like appendages that depend from the axils in the upper portions of the leaves. A standard plant of this 2 feet high, with freely branched head, bore about fifty of these coloured appendages, some of them nearly 2 feet long. These are produced with great profusion as growth extends. Native of New Guinea. From Messrs. Sander and Co., St. Albans.

PHLEBODIUM GLAUCUM MAYI.—A truly remarkable and beautiful form of a well-known plant, but in this variety the glaucous tint is developed to a most remarkable extent, even in the youngest fronds. The plant exhibited, though very young, is beautifully furnished with fronds, and possesses a grace and charm that will render it quite unique among its kind. The young stems are green, but ultimately become quite dark, the leaves arching in a most graceful fashion, being freely divided and undulated along the margin in a most remarkable manner. It is an undoubted acquisition to the *Fern* family, and, partaking of the character of the type in general hardness, will prove of great service. From Mr. H. B. May, Edmonton.

LILIUM RUBELLUM.—A unique and lovely species that promises both by its freedom and lovely shade of colour to surpass any other of its shade. Roughly in its growth it may be cited as approaching *L. Krameri*, though scarcely of the same form as this latter kind. The flowers in outline are broadly campanulate, about 4 inches across in the plants shown, and varying from the most delicate of pink and rose tints to rosy peach in the deepest flower we saw. The growth is that of a slender or graceful *L. auratum*, but even before flowering there is evidence of the variability of the species. One remarkable feature is the wonderful freedom of flowering, quite small plants producing three large blooms, so that when established it should prove one of the most charming of all its family. It is a native of Japan, and was shown by Messrs. R. Wallace and Co., Kilnfield Gardens, Colchester.

The following obtained an award of merit:—

AURICULA SNOWDROP.—A perfectly double flower of a rather greenish-white colour, said to be the result of years of seeding and selection. The plant is of strong, vigorous habit. From Mr. R. Dean, Ealing.

PEONIA (TREE) JULIUS CÆSAR.—This has flowers of a rich crimson-lake, relieved with a scarlet stripe in the centre of each petal and enhanced by the tuft of golden anthers. It is a semi-double flower about 8 inches across.—From Messrs. Kelway and Sons, Langport.

PEONIA (TREE) HENRY IRVING.—A handsome kind with monster blooms of a maroon-crimson, very deep and intense as well as novel in the particular shade of colour. From Messrs. Kelway.

PEONIA JEAN DE RESZKE.—Also of the Tree section and remarkable for the exquisite purity and chasteness of the huge blossom. The petals, as indeed the whole flower, are of great size, the latter exactly 10 inches across. From Messrs. Kelway and Sons.

BEGONIA MR. DUNBAR WOOD.—A tuberous-rooted kind with large well-formed flowers, each about 4 inches across, and in colour a deep clear apricot-orange, the double blooms produced in the greatest profusion on quite small plants. From Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

EREMURUS ROBUSTUS ELWESIANUS.—A spike some 8 feet or more high of this was shown. The spike, perfect to the very tip, was handsome by reason of its delicately tinted flowers. From Mr. T. S. Ware, Tottenham.

ANTHURIUM SENATEUR MONTEFIORE LEVIS.—A very distinct and striking novelty in this rapidly advancing race of flowering plants. The spathe, which is 3 inches long by 2½ inches broad, is freely spotted with clear scarlet on a creamy white ground; the reverse of the spathe almost wholly scarlet, with a few white markings. From M. de Smet Duvivier, Ghent.

CALADIUM GUARATINGUETOR.—A handsome form of a blood-crimson hue, bordered with green and blotched slightly with a similar shade to about 3 inches internally, the centre being of quite a self colour. From Messrs. Laing and Sons, Forest Hill.

ARECA ISLEMANNI.—A distinct and graceful species, the leaflets on each side of the midrib being arranged in threes, and individually very long and tapering. The young fronds are of a copper-orange hue and very striking. The species appears also to break freely from the base, as in *A. lutescens*, &c. From Messrs. Sander and Co., St. Albans.

ILEX GOLDEN KING.—Not only a striking novelty, but a most remarkable plant. It is a golden sport from the well-known Hodgins' Holly, and possesses all the vigour and leathery texture of that fine form. The variegation is good, and though abundant, is not unduly so, and therefore may be regarded as permanent. This unique plant came from Messrs. Little and Ballantyne, nurserymen, of Carlisle.

PHYLLOCACTUS EPIRUS.—A handsome hybrid, with flowers of a clear satiny rose-pink, exceedingly delicate and beautiful. From Messrs. James Veitch and Sons, Chelsea.

PHYLLOCACTUS AGATHA.—Another lovely form, and, if of smaller size, exceedingly delicate in the salmon-pink hue of its flowers. This colour, with a deeper rose tint that pervades the flower internally, renders it most effective. From Messrs. Jas. Veitch and Sons, Chelsea.

CALADIUM AMI SCHWARTZ.—The most distinct member of this handsome group of fine-foliaged plants, the leaves almost sagittate in form and of a rich deep crimson, with scarlet-crimson veins, heavily margined with deep olive-green. It is the result of a cross between *C. albanense* and *C. Mme. J. Box*. From Messrs. Sander and Co., St. Albans.

ROSE AURORE.—A lovely Hybrid Perpetual that will find favour with most growers of the flower. It has a handsome, vigorous habit of growth, short sturdy stems, and abundant leafage. The blooms, each nearly 5 inches across and shading from soft to deep pink, are very large and full and sweet scented. From Messrs. Paul and Son, Waltham Cross.

Hardy Shrubs.

Not the least interesting of the many features of the Temple show was the hardy shrubs grouped together on the grass near the entrance to one of the tents. There were several excellent groups, notably that from Messrs. Fisher, Son, and Sibray, Handsworth, Sheffield, who set up in a most tasteful manner many kinds of Japanese *Acers* with a margin of *Hedera Helix spectabilis* aurea, the former comprising many beautiful kinds. Another large bed was devoted to a greater variety of subjects, and here we noted *Andromeda japonica albo-marginata*, *Betula purpurea* (very effective), *Quercus pannonica*, *Q. macrophylla*, *Sambucus racemosa plumosa aurea*, *Prunus Pissardi*, *Cornus sibirica elegantissima*, *C. Spathi*, and several variegated *Ivies*. Messrs. J. Cheal and Sons, Crawley, likewise contributed a group of hardy trees and kindred subjects. In this exhibit *Azalea amœna splendens* was conspicuous with its bright masses of rather small blossoms loading every twig, *Azalea mollis*, *Kalmia glauca*, *Sambucus serratifolia*, *Andromeda formosa*, the foliage of a bronzy hue and very striking, *Eurybia Gunni*, and *Rhododendrons*.

A beautiful lot of the best *Acers*, some *Cupressus*, and other beautiful and attractive plants were also noted here. Messrs. Paul and Son, The Old Nurseries, Cheshunt, brought a handsome lot of *Rhododendrons* in bloom, fine, compact, well-flowered bushes, together with a variety of *Bamboos*. From Tunbridge Wells, Messrs. T. Cripps and Son brought a nice selection of Japanese *Acers* in the best kinds. Mr. J. Russell, Richmond, Surrey, also had a display in which *Acers* in variety, *Ivies*, both Tree and the best variegated sorts, were the leading things. In this group, however, *Euonymus latifolius albus* was also conspicuous.

The collection of *Bamboos* from Mr. V. N. Gauntlett, Green Lane Nursery, Redruth, was remarkable for the number of kinds it contained. At the same time it was obvious such things cannot be grown to perfection in pots, as shown. Many of the species in this collection require great space for development, together with a rich and in some a quite moist soil, and in comparatively small pots the moisture could scarcely be adequate for the thirsty nature of some kinds. The *Bambusas* consisted of *B. nobilis*, *B. Boryana*, *B. marmorata*, *B. aristata*, *B. vittata argenteo-variegata*, &c., *Phyllostachys aurea*, *P. flexuosa*, *P. heterocycla*, *P. nigra* and its variety *punctata*, &c., together with several species of *Arundinaria*, the collection including some fifty species and varieties. Messrs. Little and Ballantyne, of Carlisle, exhibited a small basket of their new Holly, *Golden King*, which is likely to prove an acquisition in the future. It is a golden sport from the well-known and vigorous kind *Hodgins*, and by reason of its leathery texture is sure to command attention. When young, the leaves possess a golden tint, while the more mature leaves are creamy yellow from the margin inwards, rendering it a most conspicuous plant.

Fruit Committee.

An award of merit was given to—

APPLE ONTARIO, a ribbed fruit, above medium size, and flushed with crimson on a yellow ground, flesh firm, sweet, and excellent for so late in the season. From Messrs. Geo. Bunyard and Co., Maidstone.

The same exhibitors also put up two others for special awards, these being *King of Tompkins Co.* and *Calville Malingre*, the latter an excellent variety as regards flavour, but the committee were not agreed as to its cropping qualities, and *King of Tompkins Co.* lacked flavour. Mr. McIndoe, gardener to Sir J. Pease, Bart., put up a new Melon named the *Model*, a very nice looking fruit, but not at its best as regards flavour. Mr. Mortimer, Swiss Nurseries, Rowledge, Farnham, sent new seedling Cucumbers, one—*The Keeper*—being thickly covered with spines and of a deep green colour; the other, called *Sensation*, is a smooth, pretty fruit, and, we should think, an excellent winter variety. These the committee wished to see in greater quantities, as only two fruits were sent. Mr. Nicholls, Swan's Farm, Lower Toobing, sent a new dwarf forcing *Celery* named *Forcing White*, which blanches naturally without moulding up. Mr. J. Ryder, Hawswick, St. Albans, sent two dishes of *Grosse Mignonne* Peach, well-coloured nice fruits.

We omitted to note in our report on the collections last week a very good exhibit from the Horticultural College, Swanley. There was a goodly number of vegetables, including excellent *Tomatoes*, *Potatoes*, *Peas*, *French Beans* in pots, *Cucumbers* trained over a trellis, several varieties of *Broccoli*, *Little Pixie* Cabbage, and others of good table quality.

BATH AND WEST OF ENGLAND.

A SMALL, but always tastefully-arranged flower exhibition is one of the features of the annual show of the Bath and West and Southern Counties Society. At Cardiff, last week, the usual plan was followed, and the general result was most satisfactory. A fine group of plants was arranged in the centre, and around these

were collections of greenhouse and hardy plant put together by nurserymen from the neighbourhood and from various other parts of the county. Messrs. Barr and Sons had a good collection of hardy flowers in the centre, included in it being Ranunculuses, Globe Flowers, and Peonies, while in close proximity were some well-grown Calceolarias sent by the Marquis of Bute. Sarracenias, Azaleas, Leschenaultias, and Cacti were included in the exhibits of Messrs. R. Veitch & Son, while Paul and Son, of Cheshunt, made special features of Rhododendrons and Roses. Gloxinias, Begonias, Dracaenas, and various fine-foliaged plants occupied a prominent position in Messrs. J. Laing and Sons' collection, and Mr. W. J. Godfrey, of Exmouth, showed some well-grown Pelargoniums and Cannas. A most pleasing display was made opposite the entrance by Messrs. Cutbush and Sons, of Highgate. Plants of Rose Crimson Rambler, Malmaison Carnations, Heaths, and Azaleas were prominent, but these were only a few of the many kinds employed. Messrs. Geo. Cooling and Son, of Bath, showed a striking plant of Genista Andreana, and this, with Aubrietias, Magnolias, Cornus mas, and various other hardy plants, came in for much attention. Mr. F. Hooper, of Bath, exhibited Pansies, most of them fine blooms, though too many were shown set off in paper collars. Among the other exhibitors were Mr. Wm. Treseder, of Cardiff; Mr. Ralph Crossling, Penarth; Messrs. Case Brothers, Cardiff (who showed some fine Lilies); and Mr. A. E. Price, Cardiff.

Although there is rarely any attraction in the shape of new plants at these gatherings, the flower show at the Bath and West is one that can be visited with pleasure even by those who are a trifle weary of flower exhibitions. It is not too large, it is very pretty, and in the earlier part of the week, at all events, there is room to examine the plants at one's ease.

TAMWORTH PANSY EXHIBITION.

The boisterous and unseasonable weather which prevailed for fully a week before the 21st May last was responsible for considerable disappointment to those who organised the interesting and meritorious display of the fancy Pansy as well as the different forms of the Tufted Pansy in the grounds of Mr. William Sydenham at Tamworth. As the prizes and chief expenses of the exhibition were met by the private purse of the host, it was hoped that the sum total of the sale of tickets and money taken at the gates would be a very respectable amount, as on this particular occasion the proceeds were to be handed over to the Tamworth Nursing Fund. Rain fell more or less for the greater part of the day, and notwithstanding this fact it is pleasing to record that quite a goodly number of visitors and enthusiasts were present, and keen was the interest evinced in the exhibits put up for competition. These embraced quite a long list of classes, each in itself an object lesson. No less than forty classes were provided, the majority of which were confined to amateur growers. It is very remarkable that the flowers from Scottish growers were more often to the fore than those of the midland and southern cultivators. This seems to confirm a report recently disseminated that in the north better growing weather had been experienced than in the south. The flowers certainly were fresh and clean, and the quality so early in the season was good. A feature of the show was the charming effect made by the decorative exhibits, these occupying by far the larger proportion of the tent, and proving the adaptability of the Tufted Pansy for decoration. As an additional attraction to the visitors, Mr. Sydenham's extensive grounds were thrown open, and here the novice and others could see for themselves the magnificent display the Tufted Pansy could make, the missing together of the different sorts in beds of a colour lighting up the landscape in a most telling manner. One could see at a glance the most effective colours.

DECORATIVE EXHIBITS.

The first four classes were confined to the illustration of the decorative value of the Pansy in any types and colours. For a table decoration there were four competitors, the exhibits being arranged on a long table running down the centre of the tent. The award for the premier position was closely contested, the chief honour ultimately falling to Mrs. Lovatt, Newport, Somersetshire, who had a very elegantly arranged exhibit. The blooms of the Tufted Pansy were yellow with a sharp contrast of deep blue. Silvered rustic ware such as is often seen at exhibitions was employed, and pretty trailing fronds of Fern gave the whole a neat finish. Second prize was won by Mr. D. B. Crane, 4, Woodview Terrace, Highgate, N., with an arrangement very little behind the leading exhibit. Rayless yellow Tufted Pansies in different tones, with a few cream flowers, together with pale green fronds of Davallia and Maiden hair Fern made a charming display. A small hand-basket in the centre and numerous plain glass tubes and bowls set out in a neat and pleasing manner were effective. The class for a wreath brought out a strong competition, leading honours falling to Miss Johnston, Hints. This was very lovely, white and pink Tufted Pansies predominating, a few flowers of a mauve-blue assisting to give a chaste finish. Second prize was won by Mr. J. M. Johnston, Hints, with deep purple-crimson Tufted Pansies, with Caladium argyrites and Maiden-hair Fern lightly mixed. Mr. Johnston was also placed first for a lyre, with yellow Tufted Pansies for strings, fancy Pansies for the framework, and finished off with Ferns. This was not so pretty as most of the other exhibits. A class in which any design not specially catered for was provided brought out some very beautiful and artistic designs. That which easily secured for Miss E. Sydenham the chief honour was a huge heart, arranged with exquisite taste and skill. The Tufted Pansy flowers used for the base were of a pleasing shade of lavender-blue, and standing out prettily from this were cream-white flowers, lending a most charming finish in conjunction with Fern fronds in variety. A hand-basket filled with Tufted Pansies secured second prize for Mr. Johnston, but, in our opinion, there were other exhibits far more interesting and meritorious which were shut out.

TUFTED PANSIES (CUT FLOWERS).

Only one competitor was forthcoming in the class for twelve rayless sorts, Mr. W. Maxwell, Glasgow, securing first prize for his exhibit. Specially good in his stand were Dorothy, a lovely pale lavender-blue self; Sweet Lavender, A. J. Rowberry, Pembroke, the best of the rayless yellows; Sylvia, cream-white; Blue Gown, mauve-blue; and Charm, a very pale lilac-lavender. For six sprays rayless sorts, distinct, each spray to contain six blooms and to be arranged with Pansy foliage, Mrs. Lovatt staged a good exhibit, her best sprays being Lucy Franklin, creamy white upper petals and yellow lower petals; Border Witch, thus early in the season almost a self of a pleasing shade of light blue; Dorothy, Pembroke and Sweet Lavender, a very good lavender self. Mr. J. Maxwell secured second position with a nice fresh lot of flowers, his best being A. J. Rowberry and Dorothy. Mr. J. Maxwell and his brother, Mr. W. Maxwell, of Glasgow, secured first and second prizes respectively in the class for three sprays rayless sorts, distinct. Three classes then followed for self rayed varieties; the first for twelve distinct sorts in sprays of six blooms each found Mr. W. Maxwell well to the fore with Lemon Queen, primrose; Lizzie Paul, rich yellow; Jeannie, beautiful canary-yellow; Archie Grant, indigo-blue; Lord Salisbury, very pale primrose, rather coarse rays; Duke of York, white; Ardwell Gem, sulphur-yellow; Niphetos, white; Colleen Bawn and others. For six sprays rayed selfs, Mrs. Lovatt was first with a nice exhibit, Bullion, Niphetos and Duchess of Sutherland being good. Mr. J. Maxwell was placed second. The brothers Maxwell secured first and second prizes in the

class for three sprays with capital stands of flowers of those already enumerated. Twelve classes next followed for those of any varieties or colours, and these made a nice display. Mr. J. Maxwell secured the first position with an admirable lot of flowers, which were nicely balanced as regards the disposition of colour. Blue Cloud, Duchess of Fife, Goldfinch, each pretty margined sorts; Duke of York, Lizzie Paul and Lizzie Barron, a large and somewhat coarse crimson-purple flower, were his best. A much prettier lot came from Mr. Leonard Brown, The Cottage, Seven Arches, Brentwood, Essex, placing him in the second position. His flowers were large and fresh, but gave evidence of the wet weather and trying winds just previously felt in the south. His best flowers were Stephen, a grand rich yellow self and rayed; Lucy Franklin, White Empress, a pure white rayless self; Mrs. C. F. Gordon, a flower much resembling the old Countess of Kintore, but of better form; A. J. Rowberry, Pembroke, Britannia, a fine imperial blue self; Christiana, one of the best tufted creamy white sorts, and a pretty seedling of a pale rose tint on a white ground. A splendid lot of flowers staged by Mr. Johnston in this class was awarded an extra prize, he being disqualified for arranging his sprays with Fern. Mr. W. Maxwell won first prize for six sprays, Duchess of Fife, Goldfinch and Acushla, each margined sorts standing out conspicuously in his stand. Mr. Johnston was second, his sprays of Florizel, blush-lilac; The Mearns, one of the best fancy sorts, crimson-purple and white; White Duchess, Pembroke and Lizzie Paul being particularly good. For three sprays, Mr. W. Penson, Newport, Somersetshire, was placed first with Lemon Queen, A. J. Rowberry, and a poor flower of the Peter Barr type. The brothers Maxwell were irresistible in the classes in which three blooms of a given colour were asked for. The best rayless white was Blanche; rayless yellows, A. J. Rowberry and Pembroke (first and second respectively); rayed blue, Archie Grant; rayless blue, Dorothy (first), Britannia (second); rayed yellow, Stephen (first), Lizzie Paul (second), and of the fancy type, Mrs. C. F. Gordon.

FANCY PANSIES.

The fancy Pansies made a good show, and in most classes were well staged. In some of the larger classes some of the blooms were rather rough, but taken as a whole, and also remembering the early date of the display, this section of the show reflected the greatest credit upon the exhibitors. The two Scotch exhibitors (Messrs. J. and W. Maxwell) carried almost everything before them, the local and midland growers, however, closely following them in several instances. Handsome though the fancy Pansy blooms were, the colourings and markings in many cases being extremely rich and varied, and the margins so neatly and beautifully defined, they could not be compared with the smaller and simple flowers of the tufted sorts for effect in the display they made. The task set the judges was no easy one. It is a matter for regret that the fancy Pansy blooms were not labelled, a matter of no mean importance to the visitors, and equally important to the judges however well they may know their subject.

Local classes as well as those for cottagers were also provided, and each assisted to make up a pretty show. Mr. William Sydenham staged twenty-four grand sprays of Tufted Pansies, those worthy of special mention being Councillor W. Walters, a magnificent purple; Mary Stuart, cream self rayless; Stephen, Pembroke, Blanche, cream white self rayless; Sweet Lavender, Lucy Franklin, The Mearns, Mrs. H. Bellamy, still one of the prettiest fancy flowers; Lizzie Paul and Lemon Queen. A pretty spray of Tom Thumb secured a first-class certificate. Numerous designs filled with Tufted Pansies, in some cases with a pleasing assortment of colours, were interesting, and did much to convince the visitors how these flowers could be used for decoration. Mr. Robert Sydenham, Birmingham, had a long table filled with his patent rustic designs for cut

flowers. These represent in silvered metal were small gates, arches, epergnes, &c., and are easily filled with flowers. In this case Carnations with appropriate foliage earned the commendation of the judges.

PARIS FLOWER SHOW.

OPENED on the 18th May; the three first days were so cold and rainy, that several stove plants, such as Anthuriums, Crotons, &c., were severely injured. This was due chiefly to the canvas, which was not sufficiently waterproof. The main hall was beautifully laid out, the alleys spacious, but the annexes were long, narrow structures, so dark that on cloudy days the plants and flowers could hardly be seen. The pathways, too, were so narrow, that moving was almost impossible. The leading novelty was *Acalypha Sanderi*, with long, axillary, nodding, tail-like racemes of a bright purplish colour, much like those of *Amarantus caudatus*. *Carex gallica* is a beautiful plant, 3 inches to 4 inches high, with very narrow, grassy, creamy white foliage, narrowly bordered with green. From its elegance and compact habit it will, I think, be valuable for decoration, both indoors and outdoors. *Pelargonium Petit Henry* is a miniature variety, with white variegated leaves and pale rose flowers. In *Gladiolus communis* var. (?), probably a garden hybrid, with the graceful habit of *G. Colvillei*, the flowers are pure white, each petal having a purple blotch in the centre. It grows and forces as easily as *G. Colvillei*. *Begonia multiflora* President Savoye is a dwarf, compact tuberous variety, foliage dark green, flowers double, sulphur-yellow, of moderate size, well shown above the leaves. Amongst novelties were a new *Bertolonia*, *Zygopetalum Perrenoudi*, *Cattleya speciosa nivea*, *Lelio-Cattleya purpurata*, *Cattleya Parthenia aurea*, *Phajus Cooksoni*, and a new *Amaryllis* President Faure, with a stem 2½ feet high and two large green flowers, heavily bordered and washed with purple-carmine.

Orchids were plentiful and well grown. A plant of *Phalenopsis grandiflora* had twenty-two flowers on a raceme. *Odontoglossum Vanneri*, *Oncidium Forbesi grandiflorum*, *Epidendrum macrochilum* atro purpureum, *Cattleya Reineckiana alba*, *C. Mossiae variabilis*, and *Miltonopsis Bleu* were also noteworthy.

Roses were very poor, as usual, French Rose growers exhibiting hundreds of shabby-looking plants potted a few months before, mixed and crowded like a field of ungrafted Sweet Briars. A group of a dozen or half a dozen fine specimens as seen every year at the Royal Horticultural Society's meetings would be a grand success here. Greenhouse plants were well represented. Palms were shown in well-grown specimens, and the Crotons brightly coloured. *Dracena Sanderiana*, elegantly variegated; *Medinilla magnifica*, with its huge drooping rose flowers; *Anthurium President Vigier*, with its large white spathe densely and heavily spotted with bright red and its golden spadix; *A. Abel Chatenay*, in the same way; *Globba variegata*, *Vitis conglolodes*, *Vitis Vormeriana*, with fleshy peltate leaves; *Begonia foliosa*, with elegant Fern-like foliage; *Astrapea Wallichiana*, and *Nicotiana affinis variegata* were also good. *Caladiums* were dull in colour, owing to the bad practice of Parisian growers keeping them constantly shaded. *Gloxinias* were excellent, and bulbous plants were plentiful. *Crinum americanum* was in full bloom. *Begonia Albert Crousse* has large perfectly double flowers 6 inches across of a bright rosy salmon colour. The ugly green-flowered Tulip seems to be a favourite. *Pelargonium Paul Crampel* is a compact, free-flowering variety with large trusses of dazzling fiery red flowers, a most beautiful plant. *Carnation Colosse* bears gigantic double globose rose flowers borne on stems 3 feet long. Tree *Paeonies* made a grand display, *Gloria Belgarum*, salmon-red; *Mme. Felicie Simons*, rose-chamois; and *Elizabeth*, enormous, reddish flesh colour, being the most noticeable. *Nydrangea paniculata*, strong plants 3 feet to 4 feet high,

covered with their large panicles of white flowers, were much admired. *Primula japonica* in almost every colour and the rare and beautiful *Caltha palustris variegata* were well shown. Perennials are coming into favour in France; numerous collections were well shown. *Rhododendrons* as usual were marvellous. Deciduous and evergreen shrubs and trees were well represented, especially a most remarkable collection of Japanese Maples.

At the end of the main hall an alpine garden was constructed in a very artistic way. On this, *Edelweiss*, *Cytisus purpureus*, *Ranunculus Thora*, *Androsace lactea*, *Cypripedium macranthum*, *Incarvillea Delavayi*, *Anemone sulphurea*, *Smilacina ramosa*, *Corydalis ophiocarpus*, *Valenona triptera*, *Meconopsis cambrica*, *Othonna crassifolium*, *Erysimum ochroleucum*, and *Pæderota ageria* were conspicuous. Extra fine Peaches and Grapes were the only representatives of forced fruits.

Vegetables were in superb condition, the Peas, salads, Onions, Cauliflowers, Radishes, and Cabbages being excellent. *Argenteuil Asparagus* was exhibited in bundles of thirty-six heads weighing twenty pounds. D. GUIHENEUF.

Temple Show awards.—In the list we omitted to state that Messrs. R. Wallace and Co., Colchester, received a silver-gilt Banksian medal for their collection of hardy flowers.

Gardeners' Royal Benevolent Institution.—The fifty-ninth anniversary festival dinner of this institution will be held on Wednesday next, June 8, at the Hôtel Métropole, when we hope the supporters of this deserving charity will muster in strong force. The Dean of Rochester has intimated his intention to attend, and those of our readers who desire to be present on this occasion should communicate with the secretary at 50, Parliament St., London, S.W., without delay.

Royal Gardeners' Orphan Fund.—A meeting of the committee was held on Thursday, May 26, when the following special receipts were reported, viz.: His Grace the Duke of Rutland, per Mr. W. H. Divers, £5; Sir R. Hargreaves Rogers, £5 5s.; Mr. Witty, Nunhead Cemetery, box in show house, £1 15s. 6d.; the Hugh Low Cricket Club, £3 7s.; Francis Robinson, £1; proceeds from sale of gold ring received from an "Anonymous Lover of Flowers," £1 6s.

Lathyrus pubescens.—This perennial Pea, of which I spoke last year, is now again in flower on a trellis on the gable of an outhouse in the garden, facing south-west. The clusters of blue or lilac-blue flowers are very pretty and quite distinct from those of any other perennial outdoor Pea we have. All the protection it had last winter was a few stems of *Michaelmas Daisies* spread loosely over the growths in severe weather.—S. ARNOTT, *Carsethorn, by Dumfries, N.B.*

Aubrietias and Candytufts at Hawthornden Railway Station.—Passing this the other day, I was much impressed by the size and beauty of some enormous patches of these plants on rockwork in front of the station. Wallflowers and other spring flowers were beginning to fade, but the purple and white of the *Aubrietias* and *Iberis*—apparently *sempervirens*—made a mass of colour. As a rule, these simple and common plants are seldom allowed to run into tufts a yard or more across, and until we see them in such broad groups we can hardly gauge the true value of huge masses of delicate purple and pure white in restful harmony.—D. T. F.

The rating of glasshouses.—A meeting of the glasshouse owners in the Dartford Union was held at the Bull Hotel, Dartford, a few days ago, Mr. Emerson, of Hextable, in the chair. The chairman said they would have been glad to have left the assessments as they were, but the Dartford Assessment Committee seemed to have formed a conclusion, he did not know upon what grounds, that the horticultural industry was a 'gold mine.' If they had accepted the increased

assessments that the Dartford Assessment Committee wanted to impose on the glasshouses and nurseries, it would have meant almost the annihilation of the industry. Considering the competition that now existed, and was likely to increase, with such conditions as were imposed they could not have made things meet. Therefore they were compelled to take the action they did. He traced the history of the appeal, the result of which was that the assessments were reduced 63 per cent., or 8s. 6d. in the £. This successful result had not been brought about without a great deal of expense. Mr. Ayres, Swanley Bottom, gave some particulars showing what benefit they had gained by the appeal. In the first place it was established that all glasshouses should be rated by the amount of land they covered, and the structure not taken into value. A glasshouse 100 feet by 12 feet had thus been reduced in net rateable value from 75s. to 42s. 6d., so that a grower having twelve houses of these dimensions would save £25 16s. in rateable value, and if the rate for the year in his parish averaged 5s. in the £ he would save £6 7s. 6d. per year. Mr. Ayres said that thus one year's saving by the appeal would cover the cost of the litigation. The chairman suggested the formation of a Glasshouse Owners' and Occupiers' Association, and said he hoped those present would give it their consideration.—*South-Eastern Gazette.*

The weather in West Herts.—The past week proved cold throughout, the temperature in shade at no time rising higher than 61°. During the night preceding the 1st inst. the exposed thermometer fell to within 3° of the freezing point, the lowest reading for nearly a fortnight. At 2 feet deep the soil is at the present time only about 1° colder than is seasonable, whereas at 1 foot deep it is about 4° colder. Rain fell on four days during the week, but the amounts deposited were small. May was an unseasonably cold month. There have been, however, during the past twelve years three Mays in which the mean temperature was decidedly lower. Indeed, May last year proved very little warmer. The usual cold period—9th to 14th—was not nearly so marked as in 1897, but there occurred during its course the coldest night but one of the month. Although a cold May, the exposed thermometer at no time registered more than 4° of frost—by no means a low reading for the month. Rain fell on twenty days to the aggregate depth of 2¼ inches, which is slightly in excess of the May average. In the last forty-two years there have been, however, only four other Mays with such a large number of rainy days. The sun shone on an average for 4¼ hours a day, which is 1½ hours below the mean for the month in the previous twelve years. Only one of these Mays proved as sunless, and that was in 1887. The first Rose of the year to flower in my garden was *Rosa pimpinellifolia*, better known as the Burnet Rose. The first blossom was out on May 27, or nine days later than last year.—E. M., *Berkhamsted.*

PUBLIC GARDENS.

A new park for Margate.—The Lord Mayor of London on Thursday opened the new park presented to the town by Mr. J. Woodward, of Croydon, a native of Margate.

A public park for Portslade.—The new urban council have agreed to purchase for £2350 a plot of land for a recreation ground and as a site for public offices.

Names of plants.—*C. L.*—*Monochaetum ensiforme.*—*H. D.*—1, one of the dark forms of *l. germanica*, of which there are several; 2, *Aerides crassifolium*.

"The English Flower Garden."—*The Fifth Edition of this book is now out of print, and a new edition, revised throughout and containing six new chapters, will be ready in a few days.*

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ORCHIDS.

HIGHLY-COLOURED ORCHIDS.

MANY of the most beautiful Orchids in existence are now the cheapest, and doubtless their future is more as useful and beautiful garden plants than as subjects for connoisseurs or collectors. These there will always be, and presumably the value of rare and unique forms will increase with the number of wealthy amateurs who take up their culture. But the cheaper species and hybrids will doubtless be more and more drawn on for decoration. For this purpose they are unrivalled, and their one shortcoming has been the small number of very highly-coloured species and varieties, such as *Lælia cinnabarina*, *Sophrontis grandiflora*, and other scarlet or crimson-flowered kinds. These give life to the mauves, purples and yellows so frequently seen in the order, and the propagation of all such seems desirable. One of the finest species belonging to this section is *Lælia harpophylla*, a Brazilian plant that has within the last few years become very popular. The spikes of flower appear at the apex of slender stem-like pseudo-bulbs, while those of *L. cinnabarina* are stouter, a little swollen at the base, the plant stronger in every way. They both do well in the *Cattleya* house, liking a moist atmosphere better than a lot of water to the roots. In early spring few plants have a brighter and prettier effect in the mass than *Ada aurantiaca*, though the individual blossoms are small. The scapes are erect at first, gradually as the flowers open becoming more arching; the colour a pretty orange-scarlet. This plant is very free-flowering if strongly and well grown; it thrives best in the cool house under similar conditions to those advised for *Odontoglossum*. *Cochlidia Noezliana* is another really showy and beautiful plant, the pretty arching racemes very freely produced upon plants grown in small pots or baskets in the cool house. With the brilliant and glowing *Sophrontis* everyone is familiar, and, where sufficient plants are grown, it may

be had in flower for eight months out of the twelve. This, to do it really well, may be given a house slightly warmer than the *Odontoglossum* house, a good light, and a position where plenty of air is always moving about the foliage. Among the *Masdevallias* many of bright and effective tints may be mentioned, but the beautiful *M. Veitchi*, which has been so frequently and well exhibited of late, is perhaps the best of any. But all the varieties of *M. Harryana*, *M. ignea*, and *M. amabilis* may be included, for they are all showy and beautifully tinted Orchids. A common mistake in staging these pretty plants is placing a lot of different tints of crimson, purple, and intermediate colours close together. A mass of one colour in association with a few spikes of *Odontoglossum* or some similar Orchid is far more effective. Another very fine cool-house species is *Epidendrum vitellinum*, easily grown, very free, and one of the most lasting. The simplest cultural routine suits this plant well, and it may be freely propagated by division, so that no difficulty will be found in keeping up a stock. Turning to the warm house, there is the beautiful *Renanthera Imschottiana*, which if only plentiful enough would rapidly become one of the most popular Orchids, the lovely scarlet and orange tints being second to none. Unlike some other members of the same genus it blooms profusely in a small state, and this of course adds to its value. This by no means exhausts the list of brightly-tinted Orchids, but they are certainly in the minority, and one cannot go wrong in growing as many of them as possible. Most of them are graceful in shape and contour, and are on this account very useful for cutting as well as for decoration on the plant.

Lælia purpurata.—This fine species is now in fine form at Mr. W. Bull's nursery, some of the varieties, with clear-cut pure white outer segments and deeply coloured lip, being very beautiful. The beautiful *Lælia purpurata versicolor* was also good recently, and is one of the

richest-coloured varieties. The petals are flushed with the deepest crimson-purple, which merges at the tips into a warm rosy tint; the lip is also very deep in colour, and all the segments are broad and handsome—a superb variety.

Cypripedium Mastersianum.—This cannot be called a first-rate species, and there are many forms of it that are barely worth growing, considering the large number of really fine things now in the genus. One of the prettiest and brightest I have seen was lately exhibited by Messrs. Sander and Co. This was a large specimen plant, or, if a made-up one, all the flowers were alike, and there were over two dozen upon it. It is said to be one of the finest of flowers under artificial light.—H.

Lælio-Cattleya intermedio-flava.—The flowers of this charming little hybrid were to the fore in Messrs. B. S. Williams and Son's group at the Temple, and in that of Messrs. Charlesworth and Co. under the name of *Golden Gem*. It is one of the prettiest of the smaller kinds, having sepals and petals of a pale chrome-yellow; the lip has paler side lobes enfolding the column, and the front lobe somewhat triangular and fringed in front, is of a bright rosy purple. It is a continental raised hybrid, the parentage being implied by the name, and first flowered in October, 1896.

Miltonia vexillaria Crimson King.—Really good forms of this fine Orchid were not particularly plentiful at the Temple show, but we noticed a fine form in Messrs. Sander and Co.'s group under the above name. But while admiring the plant immensely, *Crimson King* is not in the first place a descriptive name, as the colour was certainly not crimson, while again, in all probability, other plants very similar to this have been given names. It is fortunate in one way that these plants cannot be very freely propagated, or the confusion in nomenclature would lead to trouble.

Sobralia macrantha alba.—This is a lovely albino form of the type, and undoubtedly as chaste an Orchid as any in cultivation. There is not the slightest shade of colour of any kind on the sepals and petals, these and the open portion of the lip being absolutely pure white. The only colour is the yellow mark in the throat, which

serves to show the purity of the rest of the flower. It is a matter for regret that these lovely flowers last so short a time—a few days at most—but several are produced in quick succession from the apex of the stems. A small plant of it was included in Messrs. Sander and Co.'s fine group at the Temple.

Oncidium tetracopis.—There are a great many plants in the way of *O. serratum* more or less distinct, but this is one of the prettiest of them. The segments show up very clearly the marginal streak of yellow common to most of these, and the ground tint is also deeper than usual; the lip is bright yellow and brown. The species is free-flowering, and does well in the coolest house in a compost of peat fibre and Moss in equal parts. The drainage must be free, the compost open, and plenty of water is required at the root all the year round. It was exhibited at the Temple by Messrs. Hugh Low and Co., and a very similar form is now flowering with Mr. Bull. It is a native of New Grenada, and was introduced about 1873.

Oncidium ampliatum.—This species is usually well shown at the Temple, and this year was no exception, Messrs. Sander and Co. especially having very fine specimens. At the back of their group was a very well-grown plant bearing eighteen superb spikes. It is one of the brightest of *Oncidiums*, requiring plenty of warmth and moisture in the atmosphere, though the plants are none the worse for an occasional drying in the middle of a bright, hot day. This they certainly get in their native habitat, and the broad, leathery foliage is well able to stand it. Large, heavy specimens must perforce be grown in pots on the stage, but smaller plants make a fine growth suspended near the roof in baskets. It is a native of Costa Rica, and was introduced in 1835.

Aganisia cœrulea.—This is a rare and singular Orchid, and one that few cultivators grow well for any length of time. The habit is peculiar, consisting of a creeping rhizome and somewhat fusiform pseudo-bulbs, each bearing a single leaf, and from the side of which the spikes issue. These bear large and handsome flowers of a pale bluish-white that is very attractive. The lip is of rather peculiar structure, the blade of a pointed heart shape with a wavy margin, brownish with a pale yellow border. Plenty of heat and moisture is necessary for its culture, and the plants should be fastened to large flat blocks of wood or pieces of Tree Fern stem, this allowing the rhizome to extend freely. Not much compost is needed, just a little Moss about the rhizomes and roots. A plant nicely flowered but in rather poor health was exhibited at the Temple show.

Phaius Wallichii.—This is a noble old species, and it should be much more grown. It is handsome when out of flower, bears immense spikes of showy blossoms, and is, moreover, easy to grow. There is just now a plant in bloom at Mr. Bull's nursery with spikes a couple of yards high and many flowers, each about 5 inches across. The sepals and petals are white externally, the reverse yellowish orange, flushed with crimson-purple, the pointed wavy lip being yellow with a brownish purple throat. The plants thrive well in any warm moist house, and during the growing season should be frequently syringed to keep insects in check, and well watered at the roots. Grow it in large pots in a compost of equal parts of peat fibre, loam, and chopped Sphagnum Moss over good drainage. Occasional waterings with weak liquid manure are helpful during the growing season.

Brassia bracteata.—Forms of this Orchid are often exhibited that are but poor when compared with the true species. In this latter, large stout spikes, bearing seven or eight flowers of great size and substance, are produced, and in this condition it is one of the finest of intermediate Orchids, and certainly the best of all the *Brassias*. To get the best results this species must be planted in fairly large pots of peat fibre and

Moss, and kept in an intermediate or Cattleya temperature the whole year round. Roots are very freely produced when the plants are healthy, and consequently water may be freely applied while growing. No drying off is necessary, but a lessened moisture supply suffices during the winter, as not much growth is going on. It, however, differs in its seasons of resting and growth, some plants being more constant than others, and this must be allowed for in all cultural operations. *B. bracteata* is a native of Guatemala, and was introduced by the Royal Horticultural Society about 1843.

ONCIDIUM HASTATUM.

ALTHOUGH this plant has been in cultivation over sixty years, it is even now seldom seen. This is the more remarkable when its distinctness from all others is taken into consideration, and it is, moreover, said to be abundant in its native habitat on the Mexican coast. The plant is of rather tufted habit, the pseudo-bulbs seldom above 3 inches high, but it produces fine branching panicles of flowers, each about $1\frac{1}{2}$ inches across. The sepals and petals are pointed, the ground colour a pale brown, with overlying blotches of greenish yellow and a margin of the same colour. The lip varies a good deal in colour and is often a creamy white on the side lobes, the front one being difficult to describe; it is brownish at the base, becoming brighter, and on the margin passing to green, a very peculiar combination of colour not seen in any other *Oncidium*. The whole spike has a very light and elegant appearance, and in a group of Orchids is sure to command attention. The plants do best in a warm, moist house, only lightly shaded, and in a position where they get the full advantage of all the air currents. In a close and badly-ventilated house the flowers are not so freely produced. It may be grown in pots, and these should be clean and well drained, the compost consisting of three parts of Sphagnum Moss to one of peat fibre, a great thickness being undesirable. The plants require no dry rest, only a diminution of the water supply in winter, according to the weather and the state of growth. While growing freely, few Orchids of similar habit require more water, and it is imperative that when carrying their spikes—which are very large and many-flowered compared with the size of the pseudo-bulbs—they are not allowed to get dry, otherwise the plants receive a check from which they recover slowly, if at all. It is a true *Oncidium*, but so distinct from others of the panicle-flowered form that it is also known as *Odontoglossum*, having been figured both as *O. phyllochilum* and *O. hastatum*. It was first introduced by Messrs. Loddiges in 1837, and in greater quantity at various times since.

NOTES AND QUESTIONS.—ORCHIDS.

Læli-Cattleya radiata (*L. purpurata* × *C. dolosa*).—In this the sepals and petals are pale rose, the lip rose, suffused with deep purple and veined with a darker shade. A plant carrying a raceme of three flowers was exhibited at the Temple show by Messrs. Charlesworth and Co.

Disa Veitchii.—This lovely hybrid improves on acquaintance and seems to be more amenable to cultivation than the species. Its bright rose-purple and delicate lilac flowers are always attractive. Sir F. Wigan staged in his group at the Temple show several finely-grown plants, which stood out prominently and were much admired.

Dendrobium nobile (Bletchley Park variety).—This is a pretty variety with white sepals and petals, and the eye-like blotch on the centre of the lip a distinct rosy tint. It was sent from Bletchley Park to the Temple, and in the same group was a small, but finely-grown plant of *D. nobile nobilium*, about a dozen flowers being produced on the upper part of the leading stem.

Cypripedium Gowerianum.—This is a fine hybrid, as may be expected by its parentage, *C. Law-*

renceanum and *C. Curtisii*, and some fine forms of it have been raised by using better varieties of the latter than were used in the original cross reputed to have been made by Messrs. Sauder. The flowers take the form of those of the first-named parent, the dorsal sepal being very fine.

Lycaste lacusta.—This is more interesting as a botanical species than a garden Orchid, as it does not appear very free flowering. Yet it is not without beauty; the whole flower, with the exception of the whitish fringe to the lip, is a bright emerald green; the individual blooms large and produced on tall erect spikes. A plant was included in Messrs. Sander and Co.'s group at the Temple.

Oncidium concolor.—This pretty and popular *Oncidium* has been shown well on several occasions lately, and in the groups at the Temple I saw some very fine varieties. But the finest I have seen was from Mr. H. S. Leon, of Bletchley Park. This plant had much larger pseudo-bulbs than usual, and the long vigorous scapes were closely flowered, the blossoms really immense for this species.—H.

Habenaria rhodochila.—This was shown among the small group of botanical and rare species by Sir Trevor Lawrence at the Temple show, and though only a very small bit, one might easily imagine what it would be if strong and vigorous. It has flowers of the brightest red, almost vermilion, with a deeply divided lip, and only lacks vigour to make it one of the brightest Orchids known.

Oncidium spilopterum.—This is a bright and pretty *Oncidium*, distinct in its paniced spikes of bright yellow flowers, which are not large individually. It is an Orchid of many names, and on the strongest plants the spikes are upward of a yard in height; the lip roundish, chrome-yellow, the sepals and petals blotched with brown. It was shown at the Temple by Messrs. Lewis and Co., of Southgate.

Cypripedium callosum Sanderæ.—This lovely albino was again exhibited at the Temple both by Messrs. Sander and Co. and Sir F. Wigan. The dorsal sepal is white, heavily veined and suffused at the base with pale green; the petals white, suffused with green and veined with a darker shade of green; the lip is pale green with dark green veining. It is of a free habit and worthy of every consideration.

Cattleya Lord Masham is the result of crossing *C. intermedia* with *C. superba*. It has the intermediate characters of both parents, the sepals and petals being of a bright rose-lilac, the lip crimson-purple in front, white in the centre, the side lobes rosy on the exterior, white inside, with some yellow at the base. A plant with two flowers was exhibited at the Temple show by Messrs. Charlesworth and Co.

Cypripedium villosum Chamberlainianum is a distinct and curious hybrid. The dorsal sepal is bright green at the top, suffused and lined with brown at the base. The petals, green suffused with brown, are barred and veined with a darker shade of brown, the lip having a distinct purple shade on a yellow ground. It has the intermediate characters of both parents both in habit of growth and shape of the flowers.

Mormodes pardinum unicolor.—The singularly-formed self yellow flowers of this variety are very attractive, though their habit of incurving tells rather against them. It does well in baskets suspended from the roof in a warm moist house, should be potted in equal parts of peat fibre and Moss over good drainage, and well watered while making its growth. Ripen this by exposure to sun in autumn, and keep well on the dry side while at rest.

Odontoglossum Reichenheimii.—Though not in the front rank of *Odontoglossums*, this is worth growing on account of its distinctness, and when well grown is very showy. Mr. G. Wythes, of Syon House, had a fine plant in his group at the Temple, the pseudo-bulbs very fine indeed, and bearing a large branched spike with about thirty-five flowers. It is of easy culture in a cool moist house, thriving best in rather larger pots than most *Odontoglossums*.

Epi-Lælia Charlesworthii (*L. cinnabarina* × *Epidendrum radicans*).—This is a fine addition to the bi-generic hybrids, the sepals and petals bright scarlet on a yellow ground, the three-lobed lip rich scarlet in front and around the margin, in the centre yellow with bright purple spots. The flowers are produced in dense clusters at the apex of the spike, about 16 inches in length. The growth, as in most other *Epidendrum* bi-generic crosses, favours the *Epidendrum* parent to a very great extent. It was raised by Messrs. Charlesworth and Co., Heaton, Bradford.

STOVE AND GREENHOUSE.

FLOWERING CACTI.

ANY attempt to particularise the most popular group at the recent Temple show would arouse a certain amount of controversy, but no doubt can be entertained as to the collection of Phyllocacti contributed by Messrs. Veitch occupying a prominent position, and to the bulk of visitors they attracted, perhaps, more attention than anything else. The genus Phyllocactus is nearly related to that of *Cereus*, which is characterised by many-angled spiny stems, while in Phyllocactus they are more or less flattened. So many hybrids have now been obtained between the two, that no line of demarcation can be drawn, some individuals showing a leaning towards one genus and some to another. This, however, is but a trifling matter, the principal consideration being the beauty of their blossoms and their great value for greenhouse decoration at this season of the year. For the last few years Messrs. Veitch have so identified themselves with this class of flowering Cacti, that their group at the Temple show has always been looked forward to with interest.

A prominent characteristic of some of the varieties is the metallic violet lustre which over-spreads the petals to a greater or less degree, and which, viewed from different standpoints, presents a number of ever-varying and subtle shades. The different varieties of this section owe a good deal of their colouring to the influence of *Cereus speciosissimus*, which was introduced from Mexico in 1816. In making a selection of a few distinct varieties, a good plan is to note them when in flower, and the following were particularly noticeable in the Temple group: Brilliant, vivid scarlet; Homer, red and violet; Ovis, bright rose; Ensign, orange-scarlet; Dante, pink; Cooperi, creamy white; Grand Monarch, crimson-scarlet, shaded violet; La Reine, soft pink; Plato, brilliant scarlet; Venus, crimson and violet; Delicatus, silvery pink; Vesta, white; and two varieties that received awards of merit, viz., Agatha, pale satiny pink, with a deeper throat, and Epirus, rose-pink. To these may be added the large, brilliantly coloured J. T. Peacock, well worthy of cultivation not only from its own intrinsic merit, but also as commemorating the name of the late Mr. Peacock, who was in his day one of the most enthusiastic cultivators of succulent plants. At the dispersion of his collection in the spring of 1889 a considerable number of this variety was distributed, for though raised some time previously, it had not been before put into commerce. The cream-coloured *P. crenatus* is also very beautiful. The old *Cereus speciosissimus* is of taller growth than these others, and though it may be grown into bushy specimens, it is well suited for training to a rafter, trellis, or in some such a situation. That *Cereus speciosissimus* was valued and cultivated with success by our forefathers is shown in a copy of the *Gardener's Magazine* for 1839 which lies before me. A specimen is therein described in the garden of Mr. Thomas Holman at Folkestone that covered a space of 200 square feet, and during the flowering season it often had from thirty to fifty of its showy blossoms expanded at one time.

The above-mentioned forms of Phyllocactus by no means include the only Cacti remarkable for the beauty of their blossoms; indeed, most members of that extensive order are very beautiful when in flower, though some are not very prolific in this respect. Next to the above in the matter of popularity come the different

varieties of *Epiphyllum truncatum*, whose showy blossoms are borne during the dull days of winter. They are all of a weak, semi-pendulous style of growth, and are usually grown in suspended baskets or grafted standard high on the rambling growing *Pereskia*. A particularly showy form of *Epiphyllum* that flowers during the spring and early summer months is *E. Makoyanum*, whose peculiarly pointed orange-scarlet blossoms are borne in the greatest profusion.

The cultural requirements of the different Phyllocacti are of the simplest, and savour somewhat of neglect, as if they are treated at all liberally, though the plants may grow freely, flowers will be but few, if not altogether wanting. A suitable potting compost consists of good loam lightened by an admixture of well-decayed cow manure, brick rubble, and coarse sand. The pots, too, must be thoroughly well drained. A sunny shelf in a warm greenhouse is just the place for them, and while a fair amount of water should be given during the growing season, they must be kept dry when at rest. Bits of the branches if broken off strike



Cereus J. T. Peacock.

root readily, so that their propagation is a very simple matter. H. P.

Salvia rutilans.—This large-leaved winter-blooming Sage is much grown at Dropmore. It has the merit, besides having panicles of rich scarlet flowers, of possessing one of the richest perfumes found in the whole family, as the leafage gives off a strong scent of Pine-apple. In this respect it has few equals amongst sweet-scented plants. If a few plants be stood close to the entrance to a corridor, hall, or conservatory, so that ladies' dresses in passing touch the plants, the perfume is strongly emitted and is of a very pleasing character. Cuttings are inserted in pots filled with sandy soil in August. These when rooted grown on in gentle warmth during the winter, pinched in the spring to induce branching, and finally got into 7-inch pots, make capital plants to bloom profusely during the autumn and winter.—A. D.

Herbaceous Calceolarias at Cheltenham.—The Calceolaria is at home in the above locality, as I have never attended an early show without noting the compact habit and large flowers seen there. Calceolarias may be grown in most localities where they get good cultivation, but in certain districts they are done much better than in others. At Cheltenham Calceolarias are a

speciality and always attract attention. In addition to the classes for competition there was a splendid group of plants in 8 inch pots, some of them being of large size and a mass of bloom. These were staged by a local exhibitor, and certainly were worthy of the special award given them, the colours of the flowers being so varied and the blooms so fine. Many people give Calceolarias too much heat and get a thin growth, and green-fly is a terrible pest. The plants in question had ample leaves of a dark green colour, quite hiding the pots. They had doubtless been grown cool from the start.—G. WYTHES.

GREENHOUSE RHODODENDRONS.

THERE seems to be an idea prevalent in many places that these plants are injured by cutting down; that a plant cut hard back is as good as killed; and presumably this accounts for their general lanky and untidy appearance in gardens. It is the greatest mistake, and so is the idea that they are difficult to grow. It is true that plants huddled up among a score of others equally ill-used soon present an untidy appearance, but if only a tithe of the labour and care that is expended upon the ubiquitous Primulas, Cinerarias, and other popular plants were bestowed on these splendid Rhododendrons they would well repay it.

I was recently asked what was best to do with a lanky, untidy-looking, and thrips-infested lot of plants, and when I suggested cutting them down and getting fresh clean growths from the bottom, my suggestion was received with only too apparent incredulity. To any that have such plants then that they wish to improve I can recommend this treatment, and if the plants are given a little warmth afterwards they will soon break into fresh growth. They must be cut as soon as the majority of the flowers are past, and of course the time will vary, but the earlier in the year it is done the better. I have usually found that the hybrid forms with crinkled foliage like that of *R. Edgeworthi* take more kindly to it than the smooth-leaved kinds, but with none need there be any fear. Even the large-leaved *R. Falconeri* may be so treated, though this having so much to do would not be likely to flower the first season. And speaking of the latter, why do so many growers coddle it into growth year after year and never see a flower, when by treating it almost as a hardy tree it flowers annually? These plants do best in a cool greenhouse temperature, the pots should be rather on the small side, and the compost should have a large proportion of peat in it. The rougher parts of the peat refuse from the Orchid potting bench may be mixed with it, but it is not well to use the whole of the finer particles unless some good peat is mixed with it. Loams differ so that the quantity to be used cannot be exactly stated. That containing much lime is unsuitable, but a light fibrous loam and leaf soil with plenty of rough sand are excellent additions. Watering requires a good deal of care, as the fine roots cannot stand excesses of drought or moisture. Soft water is best in all cases; if hard must perforce be used, some arrangement should be made for it to stand exposed to the sun for a time before using. H.

Trichinium Manglesi.—The large white cotton-like heads with the bright pink blossoms protruding therefrom are so pretty and so distinct from anything else now in flower, that it is somewhat surprising we do not meet with this *Trichinium* more often in gardens. It needs care-

ful treatment at all seasons, yet it cannot be considered a difficult subject to cultivate. A good friable loam with a little well-decayed cow manure and sand will suit it well, and a light, airy shelf is just the place for it. The best time for repotting is after the flowering season is over, when the roots should be shaken nearly clear of the old soil. Then in a cool greenhouse the plants must be sparingly watered till the spring, and then when growth recommences the water supply must be increased, but at no time should it be overdone. It can be readily propagated by cuttings of the stouter roots. This *Trichinum* is a native of Australia, from whence it was introduced in 1838. There are several other species, very few of which, if any, are in cultivation in this country.—H. P.

Anthuriums.—There has been a very decided improvement in these plants lately, fewer of the undecided washy tints being exhibited. At the Temple show there were some remarkably fine forms, perhaps the best of all being the gorgeous and beautiful *A. trismegestrum*, exhibited by Messrs. Sander and Co. The spathes are immense, of a glowing blood-crimson. *A. album novum* was good, and, should the leaf colouring develop and become constant, the form with one scarlet leaf shown has a great future. But this, of course, is only a sport, and in all probability will never become fixed. The varieties of *A. Scherzerianum* have apparently reached their limit for size; as a matter of fact they are quite large enough now, and, unlike the forms of *A. Andream*, are not improved by the process. For beauty the old-fashioned form of *Scherzerianum* cannot be beaten, but many of the newer varieties of *A. Andream* are noble plants. There is a very decided improvement in colour none the less, and the double-spathed kinds—of which, I think, *A. Heathi* was the first—are developing into a pretty class. Some very dark forms come from the Continent, the spathes being small, but rich in colour. They are all beautiful plants and easily grown, lasting a long time in perfect condition, and therefore very suitable for decoration.

KITCHEN GARDEN.

NOTES ON ONIONS.

A LARGE demand exists here for Onions, and, compared with other crops, I have to grow more. The soil is not of the best to work at all early in the season, while sparrows are so plentiful that none of the young plants would be left from outdoor sowings without netting or some other protection. This makes it necessary to sow under glass. I have always sown a certain amount in this way, but last year and this no seed has been sown in the open. There are so many advantages to be claimed for this method that I think it will eventually be almost universally adopted. The present season has been very favourable for seed-sowing, as the land in most cases has worked well, while germination has been rapid and sure; but it is not always so, and many gardeners will be found—especially those who have a heavy soil to deal with—who feel greatly relieved when the Onion crop has been sown in good order. Where seed-sowing under glass is practised, there need be no fear as to results, and it is surprising what a number of plants may be raised in a few large boxes. Thick sowing is a disadvantage, but Onions may be sown much thicker than most plants, as they take up little room at first and are soon transplanted. The ground that has grown late Celery will come in useful for the plants, and the boxes or frames they have been raised in will be at liberty for sowing various flower seeds for spring blooming. It has been urged against seed-sowing under glass that it is more trouble, but taken all round I

think there is little in this, so much less work being needed afterwards at a time when one is busy in all directions. The Onion maggot seldom has a chance with transplanted Onions, but often finds a soft place for its operations on plants that have been growing close together in the drills and have to be thinned. The plants are set out in April, or as soon as they are large enough to handle, and if very strongly rooted the roots are slightly cut back, though this is seldom necessary with the White Spanish and similar types. Ailsa Craig is a deep-rooting variety at first, and often needs this attention to facilitate the work of dibbling in the plants. As soon as possible—if the plants are small at first it is difficult to see the lines—the ground is lightly hoed between the plants, and it is surprising how they answer to this, plots that are not hoed apparently keeping stationary. This hoeing is repeated as often as possible, whether weeds appear or not, during the season. When growth is getting really well away, a little of a good fertiliser may be strewn along the rows and hoed in. In showery weather during June and July, if I have any old soot to spare I have a little thrown about the plants, as I have an idea it prevents mildew to a great extent. The distance the plants are set apart depends upon the variety, but good bulbs of any can be grown at 8 inches between the rows and 6 inches, or even less, in the rows. The plants may be set a good deal thicker than this for ordinary kitchen and flavouring uses, but here they are served in a variety of ways as a vegetable, so larger bulbs are desirable.

Harvesting the bulbs is carried out in fine weather, of course, but it is a mistake to hurry them in before they are really dry, and a shower of rain does them no harm. They should be pulled when the tops are turning and the necks of the bulbs fully developed, and laid in lines about a couple of feet wide. The soil between these lines will get thoroughly dry, when they may be turned over on this, repeating the turning at intervals till all are thoroughly dry. For storing, they may either be roped and hung up from the roof of a cool, dry shed, or laid thinly on open shelves. They should never be heaped, as the least moisture in the heap will cause them to grow. A few degrees of frost will do no harm, but warmth or moisture is fatal to their keeping. H. R.

Coldham Hall, Suffolk.

Early Cauliflowers.—The presentation in his excellent collection of vegetables at the Temple show by Mr. E. Beckett of handsome, solid, pure white Cauliflower heads, with various late Broccoli heads, was a tribute to the all-the-year-round character of the white-headed section of the Brassice. The outside public find it difficult to distinguish between Broccoli and Cauliflowers; indeed, all white-heads are Cauliflowers to them. The gardener knows better, and he also knows the exceeding value to him of each section, but of the Cauliflower especially, because that gives him heads over such a long season. We have not often seen good solid white heads of these presented in May, but now that the merits of the very early dwarf variety, once so well-known as the Snowball, and now by a dozen diverse names, are understood, we may expect to see very early Cauliflowers more common. So amenable are these compact forms to glass culture that they can be pushed along in gentle heat in pots or planted out thickly on house floors, or in frames, or still may be had very early if planted out in April under a south wall and covered with hand-lights. Sowings made in January and the two succeeding months will in this way give heads in May and June, and some larger variety sown in March will furnish a succession, and other sowings of that and the Autumn Giant will keep up a con-

stant supply till the end of the year. No wonder if during such a winter as we have passed through, with Broccoli abundant, we find that there has been scarcely any cessation for nearly a whole year of good, firm, solid Cauliflower heads. No wonder also that this spring, whilst we have such superb Cabbages, yet are they very much at a discount because of the abundance of Broccoli. Very soon will there be Cauliflowers in abundance from the market gardens, and as quickly also will there be doubtless a wonderful crop of Peas, for breadths of these everywhere promise to be exceedingly productive.—A. D.

Late Broccoli.—Very fine solid heads of this valuable late vegetable continue to pour into the market, even from near metropolitan areas. It is surprising to find, after we have had so open a winter, that Broccoli should be so late. There is every prospect that heads will be plentiful up to the end of May. That is unusual for this part of the kingdom. Ordinarily market growers have fought shy of planting white Broccoli, not only because so susceptible to injury from hard frosts, which often destroy large breadths wholesale, but also because, if unharmed, they stand so long on the ground, that other crops cannot readily follow. After a breadth has stood for ten months and is finally cleared off at the end of May, it is too late to follow with any summer crop of importance, and a second one of white Broccoli, or any description of Brassice would hardly be good practice. In private gardens this is of less consequence, for there so many more diverse crops are grown. But it is remarkable that in a season when first-rate Cabbages are so early and abundant we should see Broccoli so plentiful also. I learn that the demand for Cabbages, usually so considerable at this time of the year, is seriously influenced by the abundance of the Broccoli. Very fine solid heads can be purchased from the growers at about 1s per dozen, and one as food is equal to a couple of ordinary Cabbages. Rarely have Cabbages been seen in better form than now. Bolters are very few indeed, stocks are remarkably true, hearts coming in white and very early. Stocks on every hand seem alike, and no doubt, besides deriving benefit from a comparatively generous winter, we are all the better for the exceeding care shown in selecting stocks, while Cauliflowers of the Snowball type have already been cut outdoors, and these heads will soon be plentiful. Peas and Broad Beans will soon be in. For that reason, unless the stock be an unusually hardy one, there seems to be little room or necessity for other late Broccoli.—A. D.

Shallots.—There is not to be found in any average garden allotment or cottager's garden just now a more marked feature than is seen in beds of Shallots. Growing these year after year seems to have enabled the cottager to become a capable cultivator, and very many gardeners will admit that rarely are the samples of these bulbs to be excelled which are found at rural cottage garden shows. I have often asked these small growers as to the uses to which they put their bulbs, and almost invariably they reply that they can always sell them. If that be so, it is evident that Shallots are in great demand, and are largely used. But whilst the roots are thus sought for and so admirably produced, few persons seem to use the tops cut from the bulbs as they grow for mixing with salads. It is late for that to be done now, not only because the tops are becoming too stout and old, but also because young tender Onions from spring sowings are plentiful. That the pleasant nutty flavour of the true Shallot is much more acceptable generally than is that of the Onion there can be no doubt, a flavour that has less of that hot astringency which usually accompanies the Onion in most of its stages of development. The true Shallot is yet, happily, more frequently found than is the false or large red Jersey variety, which is hardly a Shallot at all, but is most closely allied to the Potato or underground Onion. The bulbs of this variety, whilst large and coarse, have little of the true Shallot flavour, and do not

keep well. Really they should not be recognised as Shallots on show tables, and then the true variety would be more commonly grown. I have met with a very pretty pallid—indeed, almost white—form of the true Shallot, but still very seldom. It is apparently a sport from the original variety, the bulbs being exactly alike in size and form, but not in colour. The true Shallot skin is of a pale reddish brown hue, and when well grown is very glossy. February seems to be the favourite month for planting the bulbs.—A. D.

NEW FRENCH BEANS.

Of late years an entirely new class of French Bean has become popular, and, as far as cropping is concerned, it has no equal, as the plants bear enormously and for a long period. The climbing French Beans are much earlier than the ordinary runners. This is a gain, as few vegetables are in greater request during the summer months. Another point is the space these occupy, as two rows may be grown in the space where only one row of runners could grow, and, needing shorter stakes, is a great boon in many gardens. The quality of the French Climbing Bean compared with that of the runner is a matter of opinion. Some prefer one, some the other. Personally I like the newer type if the pods are gathered regularly, as, if old, they lose flavour like the ordinary dwarf variety, and being less fleshy than the large type of runners, they get old sooner. On the other hand, they mature more quickly, so that it is a mere matter of culture and gathering before the seed hardens. The original variety, Tender and True, is still one of the best for general cultivation and one of the heaviest cropping Beans I have grown. I plant very few runners indeed, and find the newer types great favourites, as space in most gardens is none too plentiful, and earliness is a great gain. I am aware some of the new types require stakes almost as long as are necessary for the runners, but they do not get them. I top at 6 feet and find it easier to gather. At the same time, the haulm when topped produces pods nearly down to the soil. Tender and True has a handsome pod and is of excellent quality.

A variety well worth trial is Earliest of All. This is equal in quality to the best runner, and will become a great favourite when better known. Last year it bore enormous crops and was the earliest of the running section. This resembles the dwarf Beans as regards shape of pod, and has white seed. I find that white-seeded varieties, runner or otherwise, are generally earlier. Excelsior, a new Bean of 1897, is a splendid type. This is taller than Tender and True and bears a very handsome long pod. It is a splendid variety for exhibition. This is important, as the runner types are none too early in cold or late localities. Excelsior is very prolific and the quality excellent. This variety with me appears to be hardier than the ordinary runner, as frost did not injure it so quickly. It will bear very late in the season, and what is better the pods are produced freely at the lower part of the haulm. My other selection is Epieure another of the climbing section, and one that may be relied upon for heavy and continuous crops. The pods are mostly borne in clusters and are of fine size. These newer kinds will in time, doubtless, in a great measure supersede the old runner varieties on account of crop and space occupied. I use Pea stakes for this type of Bean.

G. WYTHES.

Broccoli Model.—This excellent variety is greatly appreciated at Hatfield, where it is annually grown for the latest crop. I saw a fine breadth of about 1000 plants of it there so recently as the 17th ult. just turning in. Mr. Norman sows Broccoli Model about the middle of May; indeed the usual sowing when I was at Hatfield had just been made. The plants are put out in succession to some early lifted crop, and always on firm soil to induce hard, moderate growth.

The breadth in question was remarkably true, not a plant being out of character. There can be no doubt that Model is one of the best late Broccoli in cultivation.—1).

Failures with French Beans.—Few vegetables feel cold and biting winds more than French Beans. I have found plants raised in pots in a cold frame and freely exposed in mild weather suffer less when planted out than those sown in the open. Three plants in a 4½-inch pot are ample. I do not disturb the ball at planting, which is done in deep drills, the tops of the plants being a few inches lower than the soil at the sides. It is an easy matter to cover them. I place a few Pea sticks up the rows, covering these with long litter or mats if the latter can be spared. For very early supplies I always sow in frames, as then there are no losses by faulty germination. In heavy clay soil it is impossible to sow early.—G. W.

Early Cabbages and late Broccoli.—It is many years since the markets were so glutted with both early spring Cabbages and late white Broccoli; in fact, many large growers have left off sending to market and are feeding the crops off on the land with sheep, or giving them to cows and pigs, as the price obtainable does not pay for the expense of marketing. The extent of land planted with these crops last year was very large, and the mild favourable winter kept them growing right up to the time of cutting, so that by the end of April good firm heads of Cabbages were being cut in quantity from the open fields, and the heavy rains of May brought them on so rapidly that one may now see acres of beautiful heads burst open and useless. Late Broccoli, represented by Late Queen, Methven's June, Cattell's Eclipse and others of equal merit, I have never seen so fine or abundant, but the growers are losing heavily by over-abundance.—J. GROOM, Gosport.

THE ONION FLY.

On the 22nd ult. I noticed what I always watch for on the first fine day after the middle of May, viz., a big batch of the Onion fly. For minimising the ravages of the grub produced by this insect I have tried in turn almost all the nostrums that I have seen advised both for digging into the ground and for dressing the plants after it has appeared, but have never found any method of dealing with it one half so effective as the one I have now for some years practised, and which I have advocated in the pages of THE GARDEN more than once. It is that of catching and killing the female flies before they have had time to do much mischief, and, to this end, I look over the Onion beds and various other seed-beds (as they do not confine their attention to the Onion beds alone—at least, as far as finding a resting-place is concerned) every morning before 10 a.m., when the orange-bodied female flies are particularly inactive and may be caught almost as fast as one can reach them, though later on in the day they become more active and difficult to catch. In this way egg-laying is reduced to a minimum, and three or four visits on successive mornings are sufficient, if the weather remains bright and warm, to prevent all but the slightest loss to the crop and to clear the beds for the season. The secret of success is to watch for the hatch and give the insects no quarter, for if neglected for a few days the mischief is done and after operations are ineffective. Should the weather be dull, the hatching takes place in a more desultory way and operations have to be continued longer. I claim for this method that it takes less time than preparing and distributing deterrents of any kind and that it is infinitely more successful, as it removes the actual source of injury. A sharp-eyed and intelligent boy may soon be taught to recognise the fly, and will catch hundreds in the course of a few minutes. My observations of the habits of the Onion fly are that, though it is supplied with the means of rapid locomotion, it rarely uses them to travel any great distance if a host can be found in the immediate

neighbourhood of the spot where the insects are first hatched, so that in a fairly isolated garden there is no need to dread the visits of insects from a distance. These observations only apply to the first batch, the one to be most feared by those who sow their Onions early, and the second brood may and, I should say, does travel further, for however free the crop may remain, there is always a great number of the insects about each spring. I think, too, the flies must find some other host in addition to the Onion, or they never could remain so numerous. If they do, it must be some plant or plants of no economic value or less susceptible to the extreme injury they do to the Onion. J. C. TALLACK.

NOTES AND QUESTIONS.—KITCHEN.

Varieties of Broccoli.—Broccoli, like many other vegetables, is often given too many names. It will often show such diverse markings that it may be considered distinct, but much of this is owing to the soil and culture, as in another season with different soil what is considered a distinct break will not be found very different from the original stock. I recently saw some half-dozen varieties with distinct names, but the shape of the flowers and the growth and colour were so much alike that it was difficult to detect any difference.—E. L.

Carter's Universal Protecting Broccoli.—Late Broccoli being an important crop here, I give most of the reputed late varieties a thorough trial. Hitherto, Veitch's Model, Diekson's Late May, and Sutton's Late Queen have proved amongst the latest up to the advent of the above, and after two years' experience of it I find it later than either, coming in when the others are getting old. It is of splendid quality and of good appearance, for the ample leafage envelops and protects the curd from the sun, so that in consequence it turns out beautifully white. It is a valuable acquisition.—J. R.

Radishes not eatable.—Of late years I have noticed a tendency to exhibit huge Radishes. There can be no excuse whatever for coarse Radishes this season, as the rainfall will have enabled the cultivator to sow as often as necessary to obtain shapely roots of the best quality. Small Radishes may not make much show, but large roots should on no account be recognised, more especially when owing to their age they are uneatable. There is such a wealth of really good Radishes to select from nowadays, that there is no need to exhibit old roots past their best. In my opinion the smaller Radishes are far superior to the long large kinds in such a season as this. Most people will agree with me that large and coarse Radishes are not palatable.—L. E.

Pea Gradus at the Cheltenham show.—This Pea, which was shown largely, was excellent in every way and carried all before it, the smaller varieties looking poor by the side of it. I was pleased to note the success of this variety, as from the first time I grew a small packet of seed I was much pleased with its size, quality, and what is so important, its earliness. It is a great gain to growers who need early produce. At Cheltenham it is favoured by market growers, its shape and colour going a long way to make it popular. I consider this one of the very best Peas. Mr. Laxton raised it, and though the newer seedling, Thos. Laxton, I have on trial is stated to be, if anything, superior, it will have to be good to beat Gradus. At Cheltenham they grow the true variety, and excellent it is for early or late work.—G. WYTHES.

Large Leeks.—Several exhibitors of vegetables at the Temple show set up very large, and many of them flaccid and discoloured Leeks. It is impossible to find any merit in such samples, especially at this time of the year, for the outer layers of cuticle of which the stems are composed were already tough and stringy, and, in fact, quite inedible. I never can see wherein lies the table value of these huge stems at any time how-

ever admirably blanched. That they are triumphs of cultivation there can be no doubt, but for the table, stems one-half the size and equally well blanched are far more pleasing and acceptable. I cannot see that it is in any way to the interest of seedsmen to have such examples shown or to gardeners to produce them. Would that some exhibitor would have the courage to set up Leeks as they are just fit for table, and somewhat proportioned to the dimensions of other vegetables. We ought to pay more attention on the show table to what are after all the primary purposes for which vegetables are grown.—A. D.

BOOKS.

GREENHOUSE MANAGEMENT.*

IN his preface the author asserts that books to which those needing information concerning improved methods of growing various popular flowers may refer with advantage are few in number, adding that some of those available are really out of date. "Greenhouse Management" is intended to meet this acknowledged want in America, and would be found a handy book of reference in this country. The title, however, is not well chosen, as it conveys but a poor impression of the great diversity and value of the contents. "Gardening Under Glass" would have been more appropriate. With us, greenhouse is the term usually applied to glazed structures principally or wholly devoted to the cultivation of a class of plants requiring little or no artificial heat beyond what is necessary to save them from damp and frost; whereas "Greenhouse Management" conveys concise information upon the treatment of heat-loving as well as ordinary greenhouse plants, and also treats upon the forcing of Grapes, Melons, Cucumbers, Tomatoes, Strawberries, Mushrooms, Asparagus, and other vegetables. Much of the information given was derived from commercial florists, who seem to completely eclipse private gardeners, as we hear little or nothing of the doings of the latter, but that does not in the least detract from the value of the book.

Forcing of Roses, in which our American friends excel, is first treated upon, the more important details, including propagation, being described plainly and concisely, followed by selections of the best varieties for the purpose, with instructive comments on the same. The Teas most recommended for forcing either in pots, boxes or beds are The Bride, Perle des Jardins, Catherine Mermet and American Beauty, adding to these Mme. Caroline Testout, Kaiserin Augusta Victoria, Bridesmaid, Mrs. W. C. Whitney, President Carnot, Niphetos and Meteor. Of Hybrid Perpetuals, the best sorts for early blooming are General Jacqueminot, La France, Anna de Diesbach, Mrs. John Laing and Magna Charta, adding Gloire de Margottin, Ulrich Brunner and Baroness de Rothschild. Carnations are also held in the greatest estimation in America, and are cultivated under glass on a large scale accordingly. We may not be able to point to equally large establishments devoted principally to the production of this flower, but Carnations are fully appreciated in this country, and the supply is usually equal to the demand. Sound information upon all points is given in the work under notice, but I failed to find anything not already known about Carnations on this side, and doubt if the varieties grown in America would find favour with us. Chrysanthemums also come in for a full share of attention, and I do not believe in the selections, as they are scarcely up to date. The Violet vies with the Rose and Carnation in America, and those who are favoured with the trade papers must have observed that these three kinds of flowers, with Chrysanthemums a good way behind, are more freely advertised and recommended than all other plants in the aggregate. Large span-

roofed houses are wholly devoted to Violets during the winter, and as a consequence the supplies are regular and not fitful, as with us. Probably if hard winters were the rule, we, too, would cultivate Violets during the winter in houses rather than in frames and the open ground. Neither in this country nor in America do white Violets find favour. Growers will be glad to hear that Lady Hume Campbell is considered superior to and is fast superseding the old favourite Marie Louise, and if The Farquhar is anything like so good as represented by those who have plants of it to sell, that, too, should be given a trial in England. California, Princess of Wales, and Admiral Avellan, all fine varieties of The Czar type, are already largely planted, and should prove good for pot culture; but Luxonne, which is said to be superior to California, is not yet, to my knowledge, available in this country. Violet diseases are illustrated and described, but I have hunted in vain for a remedy other than what may "possibly" prove effective. It is roundly asserted that most failures from disease are due to faulty treatment of the plants, more especially at the roots, but this is easier to assert than to prove. Spraying with carbonate of copper mixture or Bordeaux mixture is suggested as a possible remedy for diseases of a fungoid nature attacking Violets.

Hyacinths and other bulbous-rooted plants usually associated with them, various Lilies, Gloxinias, Cannas, Caladiums, and tuberous Begonias have a chapter devoted to their culture, and this is followed by a few pages about Orchids. Then comes a mixture of hard-wooded stove and greenhouse plants, with hints upon forcing some of the harder kinds, the next chapter being devoted to a brief account of the best methods of cultivating Cinerarias, Primulas, and Mignonette. Ferns are all too briefly dismissed, and not much is said about Smilax. This popular "green," it appears, is still extensively grown in America, but is being superseded by Asparagus plumosus and other South African species, to the cultivation of which large houses are solely devoted. In all probability the author is misinformed as to the best method of propagating these Asparaguses. It is possible to raise some of them from cuttings of young stems and division of old plants is often resorted to, but the most popular of all, A. plumosus nanus, is principally raised from seed, and I never met with a propagator who had succeeded in striking cuttings of it. A variety of other stove and greenhouse plants is treated upon, and selections, where desirable, are given in each case.

Lettuce forcing comes next, and this would appear to be a branch of commercial gardening that has attained to a very important industry. The author states that one or more persons are engaged in Lettuce forcing near every large city, while in the vicinity of Arlington (Mass.) and Grand Rapids (Mich.) hundreds have commenced, so that at the present time these alone have "several hundred thousand square feet of glass used in the erection of houses for forcing Lettuces." The varieties most preferred are the White Tennis Ball, Hot House, Belmont or Big Boston, and Grand Rapids, a selection from Simpson, the last-named promising to supersede all the others. Lean-to and three-quarter span houses are preferred for Lettuce forcing, and the plants are put out on both beds of soil on raised benches and upon the solid ground, a few cultivators growing them in pots. Good drainage is essential in all cases, as abundance of water has to be given to the plants when growing strongly. A steady temperature of 45° by night, rising to 50° by day, with careful ventilation, is recommended, and green-fly has to be kept down by nicotine fumes. Cucumbers, Melons, and Tomatoes are principally grown in America as winter crops, and there is not much to be learnt from our transatlantic rivals in that direction, but many of our market growers might imitate their methods of growing Mushrooms on and under benches in various houses with advantage. Hints upon forcing Asparagus, Rhubarb, Cauli-

flower, and other vegetables are brief and instructive, and there is a long chapter on Grape growing under glass. The latter as an industry does not prove profitable in America owing to the low price at which Californian Grapes are put upon the market, but most probably the time will come when late crops of Gros Colman will pay well. At present this fine Grape would appear to be almost a stranger to the majority of consumers, as it is not included in a list of varieties given by the author. We could spare them more of our crops than they receive from us if only they did not protect so heavily. Strawberry forcing seems to be rather laborious, and cannot be very profitable at any rate if "Greenhouse Management" gives the methods of preparing the plants generally in vogue. First the plantlets are layered in "2½-inch or 3-inch pots," and when these are well filled with roots they are repotted into 4-inch pots and placed in a cold frame, where they are wintered. "Here they should be kept during the fall, requiring careful attention in watering, and being repotted to 5-inch and again to 6-inch pots, which should be the fruiting size." This smacks strongly of the experimental station and is a waste of labour. Beder Wood, Sharpless, and Parker Earle are the varieties recommended for forcing, but, unless I am greatly mistaken, Royal Sovereign would easily surpass either of the sorts named.

When we reach the chapter devoted to fruit trees under glass, it becomes evident that the author either does not know much about that portion of his subject or else has attempted far too much in a work of the kind under notice. No mention whatever is made of the treatment of the young growths during the growing season, and there are other cultural details that ought not to have been omitted. From fruit culture we are again led to the management of house plants, with various hints upon the formation of aquariums, filling of hanging baskets, window-boxes, Wardian cases and the like, succulents also coming in for attention. Methods of propagation and grafting are also given at some length, diseases and insect pests receiving their share of attention as a matter of course, all crowded into about 380 pages. The work is copiously illustrated, but, on the whole, somewhat amateurish.

W. I.

Netting as an investment.—"A. D." (p. 446) notes the value of fish netting for many purposes in gardens, and probably there is hardly anything else to be bought so cheaply and which can be turned to such useful account. As a protector of fruit trees, fruit bushes, and small fruits generally its uses are well known, and to these I can add another. Old nets, when they are too rotten to be used for any other purpose, may be torn into strips and twisted round the stems of orchard trees, or any others liable to be barked by rabbits or hares during winter, a purpose for which they serve admirably. I did this in despair one hard winter some years back, when the snowdrifts rendered the garden fences useless to keep out rabbits, and it turned out a complete success. Where the tree stems are clean and afford no means of support to the strips, a tie with matting at top and bottom will serve. In other cases the end may be passed up into the branches and hung to a spur.—J. C. T.

Soft soap for mildew and insects.—It is pretty generally known that soft soap forms the basis of many proprietary insecticides, but its value when used alone with water is not so well recognised. Good soft soap, used at the rate of 1 oz. to the gallon, I find to be an excellent specific both for mildew and for aphides on Roses. The former it kills at once, but the aphides may require a second application. It may be used a little stronger than I advise, but for general application the above strength is sufficient and harmless even to the tenderest growth if applied in the form of a fine spray in the afternoon when the sun has lost power or during dull weather. Those of your readers who are troubled with

* "Greenhouse Management." By L. R. Taft, Michigan Agricultural College. London: Kegan Paul, Trench, Trübner and Co., Limited.

mildew on their Roses will do well to give the soft soap a trial, and will be pleased with the result. It is so cheap and so easily applied as to be within the reach of all growers. To preserve the foliage in good condition, it is necessary to use the remedy directly an attack is seen and to repeat as required. Soft rain-water only should be used.—J. C. T.

FLOWER GARDEN.

CREPIS SIBIRICA.

ABOUT a dozen years ago I bought at a venture from Froebel, of Zurich, a plant of *Crepis sibirica*, having seen the name, which was before unknown to me, in his hardy plant catalogue. The original plant is still growing, healthy and vigorous, at the corner of a raised stone bed, where I first planted it, so it surpasses in duration of life the average for hardy plants, which



Crepis sibirica (the Siberian Hawk's-beard). From a photograph sent by Miss Wolley-Dod, Edge Hall, Malpas, Cheshire.

I estimate for gardens, or at least for my garden, at five years. The plant grows from 2 feet to 3 feet high, and is at least as much through when in flower. It disappears entirely in winter, and the large fleshy root at this advanced age does not present a crown more than 3 inches or 4 inches across. The leaves are like those of a Sow Thistle, but larger, and the flowers like those of a common Dandelion, but much smaller. This does not sound attractive; still, when the plant is in bloom in July, the breadth of surface covered with flowers makes a handsome appearance and meets with approval from most of those who see it. It has a second season of display, when the heads are all decked with white seed plumes, which last for some time without being blown away. Besides being wild in Siberia, that fertile source of first-class hardy plants, it is found in the Tyrol and other parts of Southern and Central Europe. Cultivation it does not seem to require, and it is perhaps fortunate that it makes fertile seeds sparingly, or it might

perhaps become a troublesome weed. The few seedlings which occasionally appear round it seem quite contented with any soil and situation I give them when transplanted. I have distributed some to friends, but have not heard how the plant behaves in other gardens.—C. WOLLEY-DOD, *Edge Hall*.

Very few species indeed of this large genus of composites are worthy of cultivation in our gardens, and these appear almost equally divided between the annual and perennial portion of them. The better-known *C. aurea* is perhaps the most frequently cultivated of the latter section, and with its orange—sometimes red-tinged—flower-heads is showy enough among the more free-growing border plants. Indeed, the plant will repay good rich soil because of its showy character and the fact that it comes early into flower—quite early in June as a rule, and sometimes even before this in southern counties. Of its culture nothing need be said, as it grows freely in the ordinary border where

the usual attention is given to such things. At its best it will grow to a foot high, and freely flowered is very attractive. Of quite a different pattern, however, is the species named above; a plant, too, as yet rarely seen in gardens. In its general habit it is quite removed from any other species, being bolder and much more vigorous than all else. The plant at its flowering attains about 3 feet high when established, producing several stems that terminate with a flattish corymb of reddish blue flower-heads. The whole plant is somewhat rough to the touch, the stems of a reddish purple hue, erect, and covered with short rough hairs. The leaves appear alternately or nearly so on the stem, and are supported on stout petioles 6 inches or so in length, the oblong-ovate acuminate leaves, nearly 12 inches long, being deeply notched at the margin, and, viewed in comparison with other species, both striking and distinct, and the foliage rather ornamental in character. It is a native of Asia Minor and the Himalayas. A good specimen bearing

several strong-flowering stems may be seen in the Kew herbaceous ground, where it will bloom towards the end of the present month. Other good perennial kinds are *C. grandiflora*, with yellow heads and low-spreading tuft as in *C. aurea*; *C. blattarioides*, also yellow, though very distinct in the young growth that somewhat resembles the larger growing forms of *Veronica*, particularly those of the long-leaved section. A still more recent addition to this group is *C. Jacquiana*, which, I believe, has not as yet flowered in this country. The annual kinds represented by *C. rubra* and its varieties are those most usually grown, and are too well known to need further description.—E. J.

LATE TULIPS.

AMONGST these there are some most charming species that are well adapted for cutting, and as they do not bloom until the majority of the Narcissi are over, they are most useful. Most of them produce long flower-stalks, which enable the blooms to be used in tall vases, which is a great advantage. No one could help admiring a mass of *Tulipa retroflexa*, the flower-stems of which rise to the height of about 18 inches. The beautiful clear yellow of the flowers, with their long, pointed petals elegantly turned back, cannot but attract the most unobserving eye. The rich carmine flowers of *T. elegans* form a fine contrast to those of *retroflexa*, while *e. alba*, growing about the same height, makes a fine companion to the two former. *Billietiana* is a very attractive species; the petals are yellow with a margin of red, and the flowers, being of good substance, stand well in water. This species has stouter flower-stalks than those previously named, in consequence of which the blooms stand erect. *T. Greigi* is a grand species. The foliage, being broad and beautifully spotted, renders the plants attractive before they are in bloom. With me the flower-stems do not rise more than a foot high, but they are of good substance and carry extra large, rich orange-scarlet flowers. This is one of the earliest of the species to bloom, and should be afforded a slight protection in rough weather to prevent the flowers being spoiled. *Fulgens* is a tall-growing species with rich crimson flowers, having a yellow blotch at the base of the petals, which makes them very attractive. When well grown, the flower-stems of these will often reach the height of 3 feet, and the stems, being somewhat slender, require support to prevent them from being broken off by high winds. This species makes a fine feature when planted in a bold mass carpeted with *Forget-me-nots* or other dwarf plants of a like character. *Macrospila* is one of the latest to bloom. At the present time, though we have had such rough weather, the flowers are quite fresh. The stems are of unusual thickness, and carry their large crimson flowers in an upright position. *Vitellina* makes a good companion to the former, the flowers being of a pale lemon colour.

There are many more of interest in this class, but the forenamed are amongst the best that I have grown. Amongst the late varieties that make a grand display in the flower garden during the month of May, special mention should be made of the following. *Picotee* has long, elegant-shaped, clear white petals, edged with a faint blush of rose. The flower-stems are somewhat slender, and rise to the height of about 15 inches, which gives them a graceful appearance. *Bouton d'Or* has more of an upright habit, carrying its golden yellow blooms about 18 inches above the soil. *Gesneriana* is a tall-growing species, often rising to the height of 3 feet. The flowers are large, of a brilliant scarlet-crimson colour, with a black blotch at the base of the petals. *Golden Eagle* is also a showy variety, but the flowers are rather stiff. I am somewhat disappointed with the *Parrot Tulips* this year, as they have not bloomed so freely as one would wish, but their peculiarly shaped, brilliantly-coloured flowers are so attrac-

tive, that it would be impossible not to admire them. My soil seems too cold to suit them well, otherwise I should be disposed to grow them more largely.

H. C. P.

FLOWER GARDEN NOTES.

THE DOUBLE MAY-FLOWERING DAFFODIL.—I have on several occasions drawn attention to the value of the above at this season, and once again refer to it because from a space some 20 feet by 10 feet I have to-day (May 24) cut over two hundred fully expanded flowers for dinner-table decoration. There may be times when with plenty of colour available a table may look brighter, but, given a nice natural arrangement, I know of nothing more pleasing than a "Daffodil table," and the double poeticus furnishes the last of the season. The best arrangement is obtained by means of a series of bowls, varying both in size and height, that are partially filled with *Isolepis*, the Daffodils, around which a bit of foliage is placed, being dotted between them at varying heights so as to present when completed a thoroughly natural appearance. On a light soil I find a heavy surface mulching very beneficial, this and deep planting being apparently essential to secure an annual display from the piece of ground above-named. I suppose I shall obtain this year some fifteen hundred flowers.

ANNUALS.—As so-called bedding plants are gradually weeded out, perennials and the best of the annuals take their place, and the end of the present week (May 28) will find the majority of the latter consigned to their summer quarters. In an early number of this year's GARDEN I noted that, so far as sowing is concerned, these annuals might be divided into three classes, with the time for performing the work and the different species available. It is not necessary to repeat this; it may suffice to add that, whether sown early in February, late in March, or outside about the middle of April, they are either ready for transplanting or, if in the open, are making good headway. Of these last, as *Gypsophila elegans*, *Calliopsis*, *Godetias*, *Gaillardias*, the best of the annual *Chrysanthemums*, *Centaurea Margaritæ* and others of similar character, they may, where practicable, be sown in the beds or portions of borders where they are required, preferably in rows at 12 inches apart, and the first thinning should leave the plants at 6 inches. This is advisable, because, either through a partial failure of bedding plants or that some of the spring-flowering stuff being at its best cannot be lifted, something is required for late planting, and if this is so in the case of annuals mentioned above that have been left at 6 inches apart, every other one may be lifted to meet the requirements, and, with the exception of the *Gypsophila*, all can be guaranteed to go well through the season if they are planted in fairly good soil and attention is given to the removal of decaying flowers, and, failing this, the first appearance of seed-pods. Attention should be specially given to this point, and those growing *Antirrhinums* and *Pentstemons* as seedlings for the first time should sacrifice the first spike before the flowers are over if by so doing an impetus is given to the cluster of smaller spikes that are following hard in its wake. Where space is limited and it is found necessary to grow certain bulbous plants at the front of borders to furnish flowers for cutting, as, for instance, Daffodils and Spanish Iris in variety, a certain number of dwarf annuals may be held over to dot in among them, and so brighten up spaces that otherwise would be bare for the remainder of the season. If the bulbs are planted deeply and a heavy mulching is put on in autumn, the shallow-rooting annuals do very well in such positions. Where cut flowers are required in quantity, it is advisable to give preference to annuals that will furnish the same, studying respectively their brilliancy and staying power. For a long border, for instance, at present gay with alternate blocks of Wallflower Ruby Gem and Silene I have on hand batches of *Gloriosa* and *La Belle Godetias*, *Gaillardias*, and Iceland

and *Picotee Poppies*, and as the said border is a bit heavy, we may hope to secure a good and long-sustained display. Another border of similar character that I was able to clear earlier in the season is devoted to East Lothian Stocks in four different shades. These are planted in fairly large blocks to show off each colour to the best advantage, and I am looking forward here to a very useful lot of plants. The first flowers are just expanded. These Stocks, being sown in August, hardly come under the annuals, although from a planting, flowering, and removal standpoint they might appear under this heading.

SCENTED FLOWERS AND FOLIAGE.—If there happens to be a nook in the garden that is backed by a wall planted with Roses, Honeysuckles, and other sweet flowers, it is rather nice to furnish the same with other scented plants, and coming on a corner like this in the early morning or after a heavy shower, the air is filled with the many different perfumes. To the wall plants may be added if space permit *Choisya ternata* and *Aloysia*, the border being at first sparingly planted with something that will attain a fair height, and then be filled in with dwarf subjects. For the taller plants there is nothing much better than *Eucalyptus citriodora*. It will attain a considerable height by the end of the season if seed is sown in heat early in the year. The lemon scent is almost more pronounced than in the *Aloysias*, and the plant of slender, graceful habit. Scented *Pelargoniums* in variety, giving preference to those with finely-cut foliage, plenty of *Heliotrope*, clumps of Stocks, and occasional sowings of *Mignonette* will make up a corner pleasing alike to the sense of sight and smell.

SPECIMEN PELARGONIUMS.—Although the much-aligned *Pelargonium* may be going out of favour so far as the planting of beds is concerned, it yet holds its own where large pot plants are concerned, especially if the situation where these are required happens to be bleak. Good sturdy plants shifted early in the season into 10-inch pots, grown along quickly for a time and gradually hardened off, are now very gay, and with proper attention last well through the season. They require a few stakes to prevent the growth from breaking down, especially in the case of very strong growers, but these should be used sparingly and formality avoided as much as possible. Where fully exposed to the sun they must receive plentiful supplies of water and weak liquid cow manure two or three times a week. It is not necessary to grow many varieties; distinct shades in scarlet, pink, salmon, and white, as represented by *Volcanic*, *Lady Coe*, *Mme. Bruant*, and *Niagara*; *Mrs. Hayes* and *Aurore Boreale* in the giganteum section; *Raspail*, *Lady Candahar*, and *Tendresse* in the doubles. Others are doubtless equally good. I merely cite the above-named as types of the different shades. Among other things that may be grown along to associate with *Pelargoniums* in groups of outdoor pot plants may be mentioned *Cannas*, *Marguerites* (both white and yellow), the white and blue varieties of *Campanula pyramidalis*, and *Francoa ramosa*.

E. BURRELL.

Claremont.

Lilies in flower.—By the end of May the Lily season may be said to have thoroughly begun, and quite a long list of species and varieties was at that date flowering in the nursery of Messrs. R. Wallace and Co., of Colchester. Prominent among those in flower, some of which had, however, been brought on under glass, were the *Madonna Lily* (*Lilium candidum*), which is such a universal favourite; *L. Dalhansoni*, that striking hybrid between *L. Hansoni* and *L. dalmaticum*; *L. excelsum* or *testaceum*, whose nankeen-tinted flowers are totally distinct from those of any other Lily; *L. Hansoni*, the earliest of all the *Martagon* section to flower, and whose golden-yellow blossoms are as massive as if carved out of wax; and *L. longiflorum giganteum*, that grand form of the long-flowered Lily that Messrs. Wallace have so often exhibited. The Japanese *L. elegans* or Thun-

bergianum was represented by many forms, prominent among them being *brevifolium*, whose reddish-apricot coloured flowers are among the earliest to open; *atro-sanguineum*, deep red; *Alice Wilson*, clear yellow, sometimes slightly flushed red, a rare and beautiful form; *Horsmani*, rich blackish-crimson, a really startling flower, also known as *hæmatochromum*, *marmoratum aureum* or *robustum*, a tall variety with woolly stems and orange-yellow flowers, thickly dotted with crimson; *ornatum*, orange-yellow, spotted black; *Prince of Orange*, pale yellow, only a few inches high; and *Van Houttei*, by far the best of all the bright crimson forms. A new variety of elegance is the orange-red tinted *Beautiful Star*, which bids fair to be more grown than it is at present. Several varieties of *L. umbellatum* were also in flower. A comparatively new form is *Cloth of Gold*, light golden-yellow, and very pretty. The Siberian *L. tenuifolium* with its brilliant flowers was also very conspicuous, and the new *L. rubellum* showed well what a handsome Lily it is. In conclusion may be mentioned the *Colchic Lily* (*L. Szovitzianum*), whose bulbs must be allowed to remain undisturbed for a year or two before they are seen at their best.—H. P.

SINGLE WALLFLOWERS.

As this is the time to sow seeds of Wallflowers, it is a fitting opportunity to call attention to some of the pretty and distinct new varieties which have been introduced to gardens of late. For years crimson and yellow were the only varieties we had had in cultivation, but now there are quite new tints, some of them of a very pleasing character. Of the dark or crimson variety selection could make several. There is *Harbinger*, which, originally selected because blooming so early, and still carefully selected, has improved even in earliness, colour, and habit. There are differing strains of this variety, but a really good one answers to the qualities just given. The *Blood-red*, a fine Covent Garden strain, is, when of the best colour and habit, an excellent type for the flower garden in spring, forming dense bushes which assume almost a globular shape. Some of the Scotch strains of Wallflowers produce large and striking blossoms, but they are frequently of a taller and less compact growth. Messrs. Sutton and Sons have been fortunate in making a few special selections, such as a rich brown dwarf-growing type, which can be used as an edging to taller plants. Another selection having dark brown flowers is remarkable for blooming much longer than usual.

Of yellows we have several. There is that known as the *Bedfont Giant Yellow*, in which the stems, flower-stems and calyces are dark, the flowers of a pure deep yellow. Then there is *Cloth of Gold*, taller and less compact than the preceding, but with pale stems and calyces. *Sutton's dwarf yellow Bedder* is to all appearance a dwarf and early-flowering selection from the *Belvoir Castle* or *Tom Thumb* type, and does well as an edging. Their *Eastern Queen* is a very distinct type; the flowers open of a pleasing apicot colour, changing with age to a paler tint. One of the most useful and pleasing is *Faerie Queene*, of a tint of lemon or citron. A short time ago I saw a spring garden of Wallflowers, a series of beds being filled with patches of mixed dark varieties alternated here and there with one of *Faerie Queene*. In order to have a perfect arrangement of this kind the seeds should be sown in separate beds, and then the varieties planted in patches to secure the desired effect. *Faerie Queene* affords a very pleasing contrast to the dark varieties, and there is so much of pale cream about it that it contrasts well with the yellow types also; the deeper the yellow the better.

Some dashes of purple in the arrangement above referred to were quite in their place. The purple single Wallflower is an old variety, but it is only in recent years it has become improved in such a definite manner. It can also be depended upon to come true from seed. Wallflower seeds

should be sown at the end of May at the latest. Then the plants are of good size, and ready to be planted out during showery weather, which is generally experienced in July. Then the plants get a good start. They branch and become model lushy plants, and flower abundantly and early. Early development is favourable to early blooming—a fact which should be kept in view. As soon as the flowering season is over, the plants should be pulled up and placed on the rubbish heap, but as they take a good deal out of the soil, some manure should be added previously to planting something to ensure a floral display through the summer and autumn. R. D.

NOTES ON HARDY PLANTS.

Primula Reedi.—Already in mid-May this usually late-flowering species is pushing up its spikes; it may be reasonable to suppose that the mild winter may have made the difference of several weeks compared with other seasons. It is barely a month since the least signs of life could be seen, and now the blooms on some plants are all but open. There is not the least sign of variation in the flowers, as is the case with most Indian species in seedlings. It is with this as most other Indian species, the buds develop with the early leaves, and often the flowers are past before the leaves attain their full size. So many references have been made to this gem of the Primrose family that nothing need be said now, only that it is widely distinct from all other forms of a big genus, and that its loveliness and perfume are as remarkable. It has been said to be fickle and hard of culture. I am sure it is not so here. I have kept it without any coddling for the past seven years or more, and my stock is all from one plant. I give it light rich soil, keep it moist, and free from garden pests, especially slugs and the weevil grub, and this has to be done generally for open-ground or hardy-grown species.

Gentiana angustifolia (Vill.).—This belongs to the acaulis group, and the leaves can only be described as relatively narrow, whereas *angustifolia* of Michaux has slender, dark stems and very narrow grass-like leaves. The present flower differs from that of acaulis in having a less bulky tube, which is also funnel-shaped, and still the flange or limb is quite as wide or wider, and displays the lighter and more lively blue. It is a truly beautiful flower, but the plant is not so vigorous as its commoner type. I feel sure that all this group, including acaulis, flowers better with a good quantity of chalk in the soil.

Sobolewska clavata.—In the midst of sweet-smelling spring flowers to which one gets used, I this morning came across a quite different and peculiar perfume, and could not make it out for some time. I did not for a while suspect this white and rather plain-looking flower, but remembering that for the first time for many days the softer south-west wind had set in, I tried it, and there distinctly enough was that delightful odour which, mingling with that of *Daphne Cneorum* and Wallflower, made up the most pleasant perfume I ever experienced. Otherwise the white flowers are of a very ordinary type, but they appear in striking masses and last a very long time, always bearing in mind that only strong and established specimens can give a good garden effect. The name *clavata* has reference to the seed-pods.

Primula magellanica, P. farinosa, P. scotica and *P. frondosa*.—Speaking of these as a group, the quality common to each is that of being thickly covered with the meal-like exudation; they besides have all a similar form of scape and umbel of small lilac or purple flowers with a distinct eye. *P. frondosa* has long ceased to flower, but the pretty shuttlecock-shaped arrangement of leaves showing the white under surfaces is most interesting. The other three kinds are all in flower now. Seen separately they may not strike everyone as being very different, if different at all. But grown side by side the distinctions

are clear, and this is precisely one of the main reasons why such things should be grown in groups. So placed they afford more interest and some means of self-information. There is a very common saying among gardeners that certain plants are wanting in effect, and for that reason they do not plant such kinds. In my opinion to group such species or varieties is more interesting and gives more pleasure than if the same kinds were grown in scattered examples.

Trientalis americana.—Compared with our native Starflower, *T. europea*, the whole plant is less in all its parts—the foliage narrower, stems more slender, the flower, if less, fuller and more imbricated. The general effect would indicate a decidedly distinct species. I can imagine no more charming flower if it could be seen in a group. Partial shade will no doubt be the proper place, though I have it now in full sunshine.

Anthyllis montana rubra.—This, compared with the type, is a great improvement in the way of bright and rich flower colour. The crushed-strawberry colour of the bunch of flowers of the type is detracted from by the very grey and hairy character of the whole plant, though there is much to admire, especially in the neat habit and copious bloom. This variety, however, has rich, deep plum-red, almost crimson flowers, and plenty of them; grown side by side with the type, its superiority asserts itself in a moment. I find it likes a bit of chalk in the soil. There is no doubt at all about its hardness.

Woodrille, Kirkstall.

J. Wood.

BROMPTON STOCKS.

THE introduction of the early-flowering section of Ten-week Stocks has tended towards a decreased cultivation of the Brompton varieties, which in past years were such favourites. With glass accommodation it is an easy matter to raise the Ten-week Stocks for early summer use, planting them in the spring months as early as the state of the weather will allow. These would compete to a great extent with the Bromptons, and probably, after the experience of a sharp winter, a display from these spring Stocks would be infinitely more uniform than a patchy bed of Bromptons. The Brompton Stocks, however, should be more largely grown, because they can be sown and forwarded without the aid of glass at all, and with a favourable winter a good display for the borders or for cutting could be obtained with a minimum of labour, cost, or trouble. I have been unfortunate in obtaining a strain which does not call for much favourable comment, the majority of the plants producing single flowers. Less than ten per cent. of double flowers occur among the white variety, and not a solitary plant gave double flower-spikes in the coloured sort grown. One would naturally expect a portion of the plants to give single flowers, and for cutting they are desirable, but disappointment must assert itself when there are so few typical plants occurring in a large bed. There must have been some fault in seed-saving, or what explanation can be given for such poor results. I shall not be discouraged, however, by the experience complained of, for they give useful material for the flower basket at a time when open-air flowers are none too plentiful. There is yet time for obtaining seeds for next year's use, the month of June being a suitable time for sowing. They would appear to be in much favour among cottage gardeners, judging from the frequency with which they may be seen in the small borders, and though an old-fashioned plant, I consider the Brompton Stock deserves a place in the villa and much larger gardens either as a border plant or for cutting. W. S.

Planting tuberous Begonias.—Much difference of opinion prevails as to how far it is advisable to grow the tubers on before they are finally planted out into their summer quarters. Those who have not got convenience in the

shape of cold frames for hardening off will do well to adopt the plan I lately saw put into practice by an amateur who had neither pits nor frames, but still had very good beds of Begonias. On inquiry I found that he treated them just as he would treat Potato sets, viz., as soon as the tubers made the slightest appearance of growth in April the beds were deeply cultivated and manured and the bulbs planted at once, finishing up with a good covering of cocoa fibre. Certainly when I saw them at the end of May they looked as if the treatment suited them well, for they had pushed up remarkably strong growth, and looked as if they would be quite as forward as those brought on with all the care that could be bestowed on them under glass.—JAMES GROOM, Gosport.

NOTES AND QUESTIONS.—FLOWER.

Tulip Golden Crown.—There is to be seen growing in a cottage garden in the suburbs of Market Drayton fine clumps of this grand old Tulip. The bulbs always remain in the ground, and receive a top-dressing of horse droppings and grit every spring.—R. NISBET, Longford Cottage, Market Drayton.

Tufted Pansy Celeste.—Although this is a flower of only medium size, it is neat and pretty, and when at its best, blooms most profusely. The flowers are rather oval in shape, and the colour is a pretty shade of lavender-blue. It is also of compact and dwarf habit, the blossoms sweet-scented and rayless.—C.

Tufted Pansy Ophelia.—A splendid batch of this handsome new sort is now flowering freely at Tamworth, where its large circular blooms show it to be a distinct advance upon any other sort of a somewhat similar shade of colour. This may be best described as a pleasing shade of lavender-blue, which is slightly deeper on the upper petals. The blossoms are rayless, the habit dwarf, and the growth vigorous, showing the good constitution the plant possesses.—D. B. C.

Tufted Pansy Devonshire Cream.—This is a capital sort for the flower garden, as it possesses a splendid habit. It is one of the freest Tufted Pansies in cultivation and flowers continuously from early spring until the autumn. At the time of writing the plants are a mass of cream-coloured blossoms, which are rayless with a rich yellow eye. The plant has a grand constitution, another good point in its favour. Planted alongside some of the rich rayless yellow sorts the contrast is very fine.—H. N.

Tufted Pansy Blue Gown.—In all gardens where a blue Tufted Pansy of compact habit is desired, no better than the above variety could very well be grown. It is described by some as a mauve-blue, but this hardly represents the colour. A pale shade of blue predominates, there being some tones of mauve apparent under certain conditions of the atmosphere. It is an ideal plant with a compact habit and is extremely free flowering. Its constitution is much better than that of two or three other sorts very much like it in their blossoms, but in other respects certainly inferior.—B.

Tufted Pansies.—As a slight addition to Mr. Crane's interesting notes on the above (p. 456), I may mention that the sorts grown (autumn planted) came through the winter well, and, as a matter of course, have benefited wonderfully from the copious rainfall experienced during the last fortnight. I am sending for your inspection a few blooms of the sport from White Swan grown here for the last five years. I do not know a larger flower in this particular shade.—E. BURRELL.

** The flowers sent are very large, pale blue with a dark purple blotch on the lower petal. The flower-stalks, too, are very long.—E.

Iris Grant Duffi.—This is a very singular bulbous species in the way of *I. caucasica* so far as its growth is concerned. The flowers are interesting rather than showy, and the pale greenish yellow blossoms, distinctly feathered as they are at the outer margin, give it a singular appearance among its fellows. A strong feature is the great length of foliage in this kind, a group of which has been flowering with Messrs. Wallace, of Colchester, quite recently.

Primula Sieboldi Queen of the Whites.—Among the numerous varieties of this Japan Primrose now in cultivation, Queen of the Whites

is one of the best. The flowers are large, well formed, very pure, quite as good, in fact, as those of the Chinese Primulas. In growth this variety is remarkably vigorous, small bits quickly growing into large patches when suitably placed. When well established this is one of the most effective hardy flowers we have.—J. C. B.

A blaze of colour with May Tulips.—When seen at their best and during a good season such as this the varieties Bouton d'Or, Golden Crown, Golden Eagle, Columbus, Didieri alba (white), fulgens, fulgens lutea, Leghorn Bonnet (pale straw colour), lutea and its pale form, both sweet-scented, elegans lutea; the four forms of Gesneriana in rose, with deep blue base, ditto white and blue, striata and oculata (white based and sweet-scented); and last, not least, macrospeila and its darker form are a rare sight. For park beds there is nothing to equal them or none to stand the glare of sun well into long days.—SOUTHERN GROWER.

Tufted Pansy Sydney.—To those who know the good qualities of Pembroke as a rich yellow rayless variety, and also appreciate that plant because of its free-flowering qualities, its fragrance, and its good constitution, the news that a bright lemon-yellow seedling from that variety is to be distributed at the end of the present season under the above name should be welcome. A bed in Mr. Sydenham's garden at Tamworth planted with this new sort and in close proximity to the parent plant, which is propagated in immense quantities, was admirable proof of the distinctness of the new sort. The orange eye further assists to make the flower attractive.—W. V. T.

Tufted Pansy *Rosea pallida*.—During the past two or three weeks this has been much admired. Like many others, this variety is seen in far better condition the second year. With me the plants do not make so much growth during the first season as one would wish. I therefore cut back the old plants last autumn, and they very soon broke out into new growth. These plants were placed in their flowering quarters quite early in the spring, and, notwithstanding the cold and boisterous weather of late, these two-year-old plants are literally covered with very pale blush rayless blossoms. Such plants make a most effective display in masses, and form a pleasing contrast to other richer and deeper colours.—D.

***Scilla campanulata* and its variety *alba*.**—*Scillas* of all kinds grow well in this part of Dorset. All the kinds are beautiful, but the forms of *campanulata* claim the first place from an ornamental point of view. I have the type growing in various ways, and in every position it makes a fine display. In one place the plants are growing at the foot of a Yew hedge, on a bank in large patches rising up out of a bed of the wild Wake Robin. When both are in bloom the effect is good. In another instance they are growing in the turf. Recently when at Cricket St. Thomas I saw a large mass of the white variety several yards across full of bloom. For cutting, the flowers are valuable, lasting a long time in water, and when arranged with some light hardy foliage they are most graceful.—DORSET.

***Anemone palmata alba*.**—Referring to a note about this plant on p. 466, I may say that though Cheshire is not a warm or sunny county, I succeed very well with it, and that it is exceptionally good this year, owing, I believe, to the bright sun of last summer. I recollect being told by the late Mr. Harpur-Crewe that he had seen the plant growing plentifully in its Spanish home, and that it always flowered best against rocks facing the south and exposed to a blazing sun, which would be thought likely to burn it to death. Following this hint, I always plant it so as to catch all the sun the atmosphere of Cheshire can give, backed by upright stones on a rocky facing south. In this way the white variety flowers beautifully and freely, but, strange to say, the yellow type rarely flowers at all, but gradually dies. Roots are now offered so cheap in bulb catalogues, that those who admire it may be induced to try what the hottest corner the sun

can make in their garden can do for it.—C. WOLLEY-DOD, *Edge Hall*.

Aubrietias.—The ease with which these may be raised from seeds and the continuous and bright display furnished during the spring months ought to bring them into greater prominence for flower garden work. "R. D." and "S. W. F." (p. 430) are not at one in their experience as to the variation produced in seedling plants. My observations are similar to "R. D.'s. I do not find a wide difference, although plants do vary in the lighter and darker shades. For the flower garden or the rock garden, however, there is little need for complaint on the score of uniformity. I do not agree with "R. D." where he says that on rockwork they suffer from drought, and do not flower so finely as when they are in cooler and moister positions. With me they flower with great freedom on rockwork, even in the bright sun and where no shade reaches them. This is a strong point in their favour, and should be the means of increasing their numbers and popularity. That they will revel in moisture may be quite true, but "S. W. F." cites a strong case where the opposite extreme does not come amiss to them. Such a floral picture as that under notice must be very fine indeed, and the little variation such as seedling plants afford would be agreeable rather than objectionable in so broad an expanse.—W. S.

Tufted Pansy A. J. Rowberry.—The remarks of your correspondent in THE GARDEN of May 14, together with the editorial note, interested me, as I have grown this variety since it was first distributed in the spring of 1896. By those who are closely following the development of the Tufted Pansies, the value of this handsome rayless flower was immediately acknowledged. The first season's trial was not nearly so satisfactory as one hoped it might be, the habit of growth not being of that tufted character which should be identified with these plants. That its constitution was considerably weakened and impaired by over-propagation, as no doubt the stock plants were very hard-worked, there is every reason for believing, and there is good reason now to suppose that the stock is in better condition than formerly. Last year's plants certainly were in better condition, being both healthier and fairly robust. Two-year-old plants were still better, and the present season has already given evidence that plants flowered the second season justified the first impression of the constitution in the early period being weakened. Although this much can be said in its favour, there is much yet to be desired in the plant, and I can fully support your remarks that the variety under notice will serve a useful purpose for crossing with some of the true Tufted Pansies. To obtain the same deep, rich yellow rayless blossoms on a plant possessing a habit and constitution such as Blue Gown, surely we should be as near perfection as possible. We may confidently look forward to this, I think, soon. From some 120 seedlings raised from A. J. Rowberry, and which were flowered last season, I selected some eight plants as partaking of some pleasing variation from the parent variety. These are now flowering freely, some distinctly more free than the original. One or two possess some marked improvement in habit, and there is reason to hope that the constitution is also improved.—D. B. CRANE.

IMPRESSIONS OF THE TEMPLE SHOW.

THE enormous number and variety of Orchids together with fine-foliaged and flowering plants were a revelation. They formed a grand mass of colour, but the general arrangement did not strike me as being ideal or to be copied, for they appeared too crowded and formal. Probably the former was caused through space being limited, and in a less degree the latter also. The same applies in part to many other arrangements, including separate classes of plants and miscellaneous exhibits, as well as to the floral decorations, most presenting a cramped, formal appearance. Messrs. Cutbush and Sons' miscellaneous

group was a striking exception—an artistic arrangement throughout. Roses were a prominent feature, great in variety, profuse of bloom, in the rudest health, and pleasingly arranged—a show in themselves. It was impossible to pass without staying to admire such a collection of unique plants and lovely blooms as produced by Messrs. Veitch's hybrid Phyllocacti, while Begonias, Cannas, Gloxinias, Peonies, Carnations, &c., were bewildering in variety and splendidly grown. The various groups of hardy plants were most interesting, one especially being notable for its variety and beautiful arrangement, Azaleas forming bits of exquisite colouring and perfume in conjunction with Hydrangeas, Brooms, Mock Oranges, grasses, and coloured foliaged plants in variety, with spikes of *Eremurus himalaicus* rising irregularly throughout the mass, altogether forming a most attractive group. Another group consisting entirely of the several sections of the hardy Azaleas was a great attraction, Azalea Anthony Koster being conspicuous among the lot. Out of doors on the grass the comparatively small groups were tastefully arranged and contained many kinds of choice trees and shrubs, but the collection of Bamboos (extensive as it was in variety) was not calculated to inspire one with enthusiasm in their cultivation or expatiate on their beauties, for they looked decidedly unhappy amidst the surroundings. I deeply regret this, for I am a great lover of these plants, and consider them, when well grown, valuable additions to our pleasure-grounds and glens, possessing grace and beauty all their own.

The fruit did not make a deep impression, for it was not up to the standard I had expected to find at such a show, even so early in the year. The fruit trees in pots, however, both from Mr. Hudson and the Messrs. Rivers were object lessons of great value, and the fine collection of Apples from Messrs. Bunyard were remarkably well preserved. Vegetables were far in advance of anything seen in the provinces at this season.

A WELSH VISITOR.

GARDEN FLORA.

PLATE 1174.

KNIPHOFIA LONGICOLLIS.

(WITH A COLOURED PLATE,*)

KNIPHOFIA LONGICOLLIS was first described in 1893 by Mr. Baker from a specimen forwarded to Kew by Herr Max Leichtlin, of Baden-Baden. It had leaves 2 feet long, spikes 18 inches high, and lemon-yellow flowers. In 1894 the same gentleman sent to Kew a *Kniphofia*, which he described as a new species from Natal, that flowered in winter and had leaves 4 feet long and spikes a yard high. This plant was planted at Kew in a sheltered position outside and lifted in November, but it did not flower properly until last January, after having been grown for two years in pots. It was then considered to be new, and Mr. Baker named it *K. primulina* (see "Flora Capensis," vi., 533). Subsequently, however, Mr. Baker was satisfied that this and the plant described in 1893 were one and the same species, for which the older name, *K. longicollis*, must stand. The Kew plants last January fully realised all that has been said of the species, the leaves being 5 feet long, the spikes 4 feet high, and bearing dense racemes of elegant tubular flowers, coloured clear primrose-yellow. The flowers lasted well notwithstanding the heavy fogs experienced whilst the plants were in bloom. Grown in pots to flower in the greenhouse in winter, *K. longicollis* is a useful decorative

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by J. L. Goffart.



PLURICOLOR. ENGELMANN

plant. Probably other species of *Kuipholia* would prove serviceable in the same way if grown in pots and prevented from flowering until, say, November. W. W.

THE WEEK'S WORK.

KITCHEN GARDEN.

ASPARAGUS.—This will now be bearing freely, the heavy rainfall in May having been of great assistance to the plants, which were later than usual this year in starting into growth, though the winter was exceptionally mild. Now is a good time to feed Asparagus plants. With only a limited time for cropping the food given should be such that the roots can quickly benefit. Liquid manure is the best, but I am aware this is not obtainable in all places, and other food has to be given. In showery weather I would advise small quantities frequently in preference to one large dose. Fish manure, guano, salt and soot mixed are all excellent. When giving the above foods in dry weather, I would advise raking them well into the surface soil. Of course, in doing so, care must be used, but it is an easy matter if a small rake is employed. Fish manure near dwellings is not at all pleasant. If applied in showery weather there is less smell and the plants at once receive the benefit. Beds that have been some time in bearing, and which received protection to secure an earlier crop, will now benefit by a rest, as should cutting continue it will greatly impoverish the plants for another season. I am aware the plants will continue to yield freely for some weeks, but the growths will be weak next year. Many cut their Asparagus too severely and neglect to feed, failing later on to secure fine grass. In crowded beds it is impossible to get thick, strong growths, so that where new beds have been recently made thinning out at this season is an important matter. In the case of seedlings there is often far too much crowding at the start, and if neglected the plants get so matted that the roots do not develop properly. So far the newly-planted beds have not needed mulching, owing to the genial rainfall, but it will be well to give a mulch at this date to feed and encourage the surface roots. I use spent Mushroom manure for this purpose. It is not unsightly and is of great assistance to the plants, as it keeps the roots cool and prevents drying. To new beds it will be advisable to give more moisture should the weather be dry, and an early mulch will save labour if the soil is light or at all poor.

POTATOES.—Though we have had little frost during the latter part of May to damage the tops of the plants, I have rarely seen the earlier crops so backward. Doubtless the cold nights are answerable for the poor growths made. In my case the rows are very patchy, though every care was taken in preparing the soil and at the planting. Ringleader is the earliest, this being far in advance of the Ashleaf. Sharpe's Victor is not nearly so strong as one could wish, and the second earlies promise well, though the season is not sufficiently advanced to note their merits. The later Potatoes will need constant attention. Late varieties will benefit by deep hoeing between the lines previous to moulding up, and in hard land I have found it necessary to fork between if the soil was dug in the autumn or cropped between the rows at the time of planting. By thoroughly loosening the soil at this season, weed growth will be kept down. This is readily done with later crops, and the earlier ones may be kept clean by lightly hoeing between, as it is important to have a clean surface soil before the tops meet.

THINNING CROPS.—With an ample rainfall there will have been no delay in thinning the earlier crops, but Salsafy and Scorzonera should never be grown thickly. I find 12 inches to 15 inches between the plants in the row none too much space, whereas only half that space is allowed, with the result the plants run to seed badly. I

am aware too early sowing has the same tendency, but crowding greatly assists the roots to run. Some time ago I noted the importance of thinning Onions at an early date, and this work should not be longer delayed; and frequently if main-crop Carrots are thinned as soon as large enough to handle, the crop will not suffer from drought later on. The same remarks are also applicable to Turnips, as these thinned early will often escape fly. From this date it will be well to sow much thinner. The best summer Lettuces are those not transplanted. In the case of small seed, should the weather prove hot and dry, thickly-sown plants have so little root-space that they cannot thrive, and, as top growth increases, they run badly. I have noted more failures from thick sowing and omitting to thin than from poor land.

COLEWORTS.—Few vegetables are more useful than the Coleworts, and yet in many gardens they are but little grown. Now is a good time to sow for an early supply, and where large quantities of green vegetables are needed it is well to sow twice or even oftener. I sow in the middle of June, a month later, and again in the middle of August, this last sowing being the Hardy Green variety. Though this is not equal in quality to the Rosette, its hardness makes it valuable. For present sowing the Rosette is suitable, and there are some excellent types of this variety, some large growers having excellent stocks. One called the Market Rosette Colewort is noted for its quick hearting and delicate flavour. The July sowing will form a succession to the earlier one, and there will be nice cutting material from September to March if three sowings are made. It is well to sow thinly, as it is essential to get sturdy plants. As a quick growth is a necessity, the seed should be sown in well-manured land, and, if at all light, it is best trodden over previous to sowing. The advantage of growing the Colewort is the small space the plants need, as at planting they may be placed in rows from 15 inches to 18 inches apart, with 12 inches between the plants.

LATE PEAS.—From this date to the first week in July the grower who desires late Peas will require to sow. At the later date more care will be needed in the selection of variety. In the north I found less difficulty in getting a fair crop of late Peas than in the south; doubtless the heat and drought are the chief enemies, and mildew is so difficult to combat. Since the introduction of the dwarf section there are fewer failures and good crops may be obtained well into October. For the latest supply it will be well to sow early varieties and those that, while giving a good-sized pod, are at the same time of vigorous growth. These early dwarf varieties are more free from mildew than the taller growers. An open, sunny position is best, as, though the plants at the time of sowing may not need the position advised, they will when maturing the crop, as with shorter days every ray of sunshine will be beneficial. Another point worthy of note with late Peas is ample space between the rows, to allow of the haulm drying freely in the dull autumn days. After sowing, should the weather be dry, I have found it necessary to water freely, to assist germination.

CELERY.—This is one of the most important crops at this season. If the trenches have been prepared as advised previously, the work will be got out of hand much sooner. In many gardens ground is none too plentiful, and one has to get rid of one crop to make room for the next. In my case Celery follows the spring Cabbage. The weather is just now suitable for planting. I note the seedlings are making more progress than usual in the beds, and delay in planting means long drawn plants. This should be avoided, as Celery once it receives a check rarely recovers. There is no loss by making the trenches in advance of planting, as I find the ridges most useful for salads or other quick-growing plants that are cleared before the Celery requires moulding up. In cold, wet soils trenches are not a necessity by any means. Some of the finest Celery I

ever saw was grown in the north with 6 feet between each row of plants. It was grown in shallow drills in trenched land. Late-sown Celery should be thinned where at all thick in the seed-beds, and the thinnings if pricked out in rows 1 foot apart will be found useful for flavouring.

PARSLEY AND HERBS.—I have always found it advisable to sow a good breadth of Parsley at this season, as the demand is great during the autumn and winter. Parsley sown now does not run to seed so early as when sown in March or April. I would strongly advise thin sowing to avoid much thinning later on, as in hot, dry weather severe thinning is not safe, and the plants not being disturbed in any way are more reliable. Parsley likes a well-tilled soil, and in gardens where there have been failures previously I would advise specially preparing the soil, using soot and wood ashes freely. Even with these aids it is at times difficult to avoid failure. I have used lime to advantage. If gas-lime is used, it is well to give a thin dressing, exposing the lime on the surface for a few days before digging the land. Other herbs raised from seed in pans or boxes should be planted out without delay in dull weather. It is always advisable to give a fresh quarter, as the land sickens if given up to herbs for years. Now is a good time to sow Sweet and Bush Basil for the winter supply for drying, sowing in fine soil on an open border. Mint may still be propagated from cuttings if kept moist after planting. S. M.

INDOOR FRUIT.

GATHERING FRUIT.—Timely warning may in a few cases be necessary with respect to this. With some it may not be considered of any moment whether the fruit be gathered in the morning, at midday, or in the evening. It does, however, matter, and it may be proved by anyone who will give it a trial. In the early morning, say from 5 to 8 o'clock, it is much firmer to handle, this being all-important when treating with such fruits as the Peach, the Nectarine and the Fig now from under glass, and the Strawberry soon from outside. Peaches, which may be left upon the tree to fully mature, will be getting sufficiently soft to show any indentations of their surface, and the work of gathering if it be done during the heat of the day will frequently result in bruising, more or less, the flesh then being rendered softer or more susceptible to injury. Even as regards flavour it is much better to gather any fruit in the cooler hours of the day. Almost everyone must have noticed this in the case of the Strawberry from outside alone. As regards hints on the gathering of Nectarines and Peaches in particular, reference should be made to a recent back issue of THE GARDEN. Note also in particular that if it be necessary to retard fruit such as will keep for a week or ten days in good condition, it is better to gather it in advance and whilst quite firm; then at the finish the flavour may be improved by a little more warmth. In order to keep fruit well a cool place is most essential; an underground room or cellar where the temperature does not materially vary will suit well. The ordinary fruit room with wooden shelves and other surroundings, in themselves too warm and too dry, thus being rendered more absorbent than is good for ripe or ripening fruit, is not a good place. In my own case a shaded and cool dairy now not in use is a first-rate place during warm weather.

RETARDING FRUIT ON THE TREES.—It will frequently happen that some particular variety of fruit, the Peach or the Nectarine being cited as cases in point, will ripen a little too early for some particular purpose or occasion. In order to retard these a little more ventilation is, as a matter of course, a first resort, but in hot weather this assists but little during the daytime; during the night it may. The better way is to shade heavily if need be for a few days, and thus keep the temperature down without any very active work being performed by the tree in its regular functions. I make it a practice at such times to

shade with the dark canvas sheets that are used for covering during the winter; these will be far more effectual. Temporary shading by whitening the glass will also answer well. Do not in any case shade for many days continuously. It is useless to think of retarding any fruit by keeping the tree drier at the roots whilst in growing quarters; this will often act to the contrary. Keeping down the fire-heat is a decided gain, not taken off completely in every case, but slightly modified. Now that there is a promise of warmer weather this will be quite safe in the case of Peaches and Nectarines. Late Strawberries and Cherries still remaining under glass do not, of course, need any such warmth now. Even in dealing with the Peach and Nectarine no fire-heat should be needed after another ten days. Neither Melons, Figs, nor Grapes should be cooled down in order to keep them until they are practically ripe. Melons, for instance, would be decidedly deficient in flavour if so treated. Pine-apples, in order to retard them, should be cut slightly in advance, and whilst the upper pips are still partially green or the plants themselves can be removed to cooler quarters. If the latter plan be adopted, see that they are quite dry at the roots, otherwise it will materially affect the flavour. In retarding any kind of fruit never carry the plan to any excess, or it is afterwards practically useless for any purpose.

HASTENING THE RIPENING OF FRUIT.—This at any time is not a satisfactory method—at least not so much so as to be adopted frequently. Melons if partially severed some few inches from the fruits will gain a few days, the incision being increased gradually. Pine-apples may be treated in a similar way, and in this instance a week may be gained if taken in time. It is practically useless to attempt to hurry Grapes; do not, therefore, attempt it. All that can be done is to expose white Grapes to more sunshine, so as to gain colour for appearance sake only. By taking off some of the forwardest fruits of Peaches and Nectarines and wrapping them in cotton wool, and then placing in a dry, warm place, say on the hot-water pipes, a few days may be gained. In any case more can be accomplished, say a month in advance of ripening than immediately preceding it, by maintaining a slightly warmer temperature, not so much at night, but during the day, when dull particularly, by means of more fire-heat, with more air on to assist at the same time.

FIRES AND STOKING.—Until within the past few days it has been necessary to maintain a steady course of almost continuous firing. We have not had very many bright, warm days to allow of any material cessation in this department, as the cool and often chilly nights, with early morning frosts even at the end of May and on the first day of June, have necessitated careful management to avoid extremes of temperature. An almost constant watch has been essential, so as to assist in the daily readings of the thermometer without running any risk of increased temperatures during a few bright sunny hours. Now matters are greatly improving, and fire-heat, we hope, will now perceptibly decrease week by week. My special method being to work on the duplex system of heating, *i.e.*, by having two boilers of good average capacity for each set of houses rather than one large one, renders it very easy to modify the heating power. All that has to be done is to draw out one fire, when one can be kept steadily on the move; whereas a large boiler must of necessity have a relatively larger fire and a greater consumption of fuel as a matter of course, hence an actual waste. No fires should now be started in the early morning without first taking special note of the weather, whilst more actual stoking will be needed for a few weeks longer towards evening and nightfall should we still have any continuation of the cooler nights. In every case, however, it is better to guard against any excessive heat in the pipes, bearing in mind that if somewhat cooler at night (the extreme being avoided), it acts beneficially and assists in recuperating the vital forces of plant life after very hot

and trying days, with winds as well at this season at times. It may be taken as practically true that the birthplace of the red spider during the earlier months of the year is—if not actually, at any rate virtually—the stoke-hole. Where only one boiler, and that a powerful one, is employed, the better plan by far will be to re-kindle the fire every afternoon than to be troubled with too much warmth in the pipes during the day.

SHADING AGAINST SCALDING.—Note previous remarks anent this. Thus far it has not been so much needed, but it does not follow that it will so continue. Muscats, Lady Hutt, and Lady Downe's all catch harm easily in some localities.

HORTUS.

PARK AND WOODLAND.

THE NEW FOREST.

The ancient name of this forest was "Ytene," a Saxon word signifying the "furry waste," and this was probably a good description then, as now, of the forest. There is some evidence of its having been used as a royal forest in the days of Canute, A.D. 1017; and after the Conquest in 1066, William selected this wild tract as a suitable hunting ground for himself, within easy reach of his capital city of Winchester, and enforced the forest law within its boundaries, thereby reserving the exclusive right of sporting for himself. Further than this it is not probable that he went, and men retained possession of their lands, their woods, mills, or other property, just as before, save only for the stringent regulations of the forest law. Of actual forestry there is not much trace at this remote date, except in so far as the rigid laws of the forest with regard to "vert and venison" served to protect all manner of trees or shrubs under the head of "vert," since, "to preserve well the venison of the forest, it is first to begin with the vert."* Vert was of two kinds: "Over vert," or Haut Bois, and "Neather vert," or Sous Bois; the first comprised every description of timber tree, or "great wood" as it was termed; the latter, every kind of shrub or bush, such as underwood, Gorse, Thorns, or anything that afforded covert for the beasts of the forest—even Fern and Heath were by some accounted vert. Under the prevailing law it was not lawful for a man to cut so much as a stick in his own woods within the regard of the forest, except "by view and allowance of the foresters." These restrictions would no doubt have the effect of strictly preserving the existing trees and shrubs, but it would do nothing towards replenishing them, when, in the natural course of events, they decayed and perished. Moreover, in so barren and bleak a tract, the greater part of which is altogether unsuitable for the growth of timber, it is probable that the amount of wood was small compared with that of the present day. The present forest comprises in all a tract of 92,395 acres. Of this, 27,658 acres are private property, enclosed and cultivated, and are not a part of the public estate. Of the

CROWN FREEHOLDS,

about one half are cultivated land, and the other half—say 1000 acres—is under Oak plantation of about sixty years' growth. The remainder, of say 63,000 acres, may be termed the forest proper—the property of the nation in right of the Crown, subject, as to certain parts, to the rights of private individuals, termed "rights of common." Of this 63,000 acres, about 30,000 acres were described in 1849 as being "unfit for either agriculture, growth of timber, or pasturage." If this description were applicable at that date, it is infinitely more so now, when prices for all kinds of farm and forest produce are at their lowest ebb. Of the remainder, 4500 acres are occupied by old woods planted prior to the year 1700, 17,670 acres are under plantations of dates varying from 190

* See Manwood's "Treatise of the Lawes of the Forrest."

to twenty-five years of age, and the balance of 11,000 acres or so is devoted to rough pasture. As has been stated before, the forest laws did something for the preservation of the crop of timber actually on the ground, but did nothing towards reproducing it when by natural decay it perished. That encoppicements, and even plantations, were made seems probable, because the preamble to the first statute passed upon the subject—that of the 22 Edward IV., in A.D. 1483—refers to the restrictions placed upon planting by the forest laws, which regarded the preservation of game as the foremost consideration. But by subsequent statutes—those of the 35 Henry VIII. and 13 Elizabeth—the practices of encoppicing were made imperative in the royal forests, and many orders and proclamations were made in accordance with them. The

RECORDS OF THE COURT OF EXCHEQUER

abound with memoranda of the cost of erecting fences for the exclusion of the cattle and deer from the various copses or woods in different parts of the forest, commencing with the reign of Henry VIII. In the seventh year of Elizabeth we have a return of "all Her Majesty's woods in parks, forests, and chases," in which is given a most complete list of the ancient woods of the New Forest, some of which can be traced at the present day, though in most cases the sites, being land well suited to the growth of timber, have been replanted with younger wood at some intermediate period. But there is hardly an acre of land which would grow timber naturally that is not referred to in this return. The practice of cultivation seems to have been that of "natural regeneration," such as is advocated by the most distinguished foresters of the modern school. In old days it went by the name of "encoppicing," and the process seems to have been simply to enclose the area by a fence against cattle and deer, and to rely on the natural reproduction of the seed from the existing crop of trees to replenish the wood. After the coppice was fairly established, it seems to have been the practice to farm it out on lease for a term of years, but under certain restrictions as to the preservation of the timber. Thus in A.D. 1571 we find a presentment of the regarders of the forest to the effect that "a coppice called Ridley Coppice hath been spoiled by cattle by one John Marlowe." To this careful attention, it may be, we owe it that we are now able to enjoy the beauties of Ridley Wood—without exception the most beautiful of all the woods of the New Forest as it now exists. Such presentments, however, abound in the records of this reign, and it is clear that great pains were taken to keep the numerous young coppices free from all manner of cattle. These coppices are the old woods, which are the glory of the forest at the present day.

The leasing to which I have referred seems to have extended only to underwood, for in the presentments against those who were the tenants are indictments "for felling five dotards containing ten loads of timber, value 6s.;" for "shrouding (or lopping) 200 trees in the said coppice and selling the same;" again, "for divers and many young Oaks felled for stakes for the hedge" (this also in the same Ridley Wood, which seems most fortunately to have been a special object of care). Last, and perhaps worst offence of all, "the regarders and preservers of the Bailiwick of Fritham make oath and say in English words—that in the coppice called Hocknold there is felled by the ground four Oaks." These records, trivial as they may seem, when taken with the story that the old woods tell for themselves, throw a flood of light on the origin of the most ancient of the woods we now behold. That they were first enclosed is certain from the heavy bills we find being presented to the Exchequer of the day for the charges of doing the work; that they were farmed out is shown by the leases and grants to the various tenants; how they were farmed we have to glean from the complaints as to breaches of contract; that the underwood was regularly cut, either by the tenant or by the Crown, is

shown by the receipts for sales of this kind. All timber seems to have been taken for the navy. But the presentment as to the "shrouding" of trees, and as to cutting of certain (four) Oaks "by the ground," shows, if the woods themselves did not tell the tale, that pollarding the timber trees was a common practice. Thus in Mark Ash, perhaps one of the oldest of the Beech woods, we find every other tree a pollard, which alone shows that the wood has from its earliest days been under cultivation. The same thing will be found in all of the grandest old woods; and in the case of Ridley Wood we have the actual facts of its cultivation, and of the abuse of that cultivation, put upon record. It does not seem certain whether in the Elizabethan days the foresters relied wholly on

NATURAL REPRODUCTION

for their crop, or whether they also did some planting or sowing of seed. As the coppices were brought regularly under cultivation, it seems probable that they did plant or sow, especially in those cases where the woods were farmed out and the tenant had to make as good a profit as he could in a fixed term. It is hardly probable that so dense a wood as is found in Mark Ash or Ridley would be achieved by the self-sown timber over so large an area and be all of the same age; such timber would vary somewhat in age, and these woods do not. In the catalogue of the woods made in the year 1565, the expression, in the description of each wood, frequently occurs of "set" with Oak or Beech, as the case may be; and this seems to indicate that the crop was not wholly natural. However, as the woods were mostly enclosed, cultivated, cut, and farmed in rotation, there is nothing very extraordinary in their being, to some extent, planted as well, although it would seem that the self-sown crop was mainly relied upon.

From what I have said, it will be clear that those who point to the New Forest as a specimen of "primeval forest, untouched by the hand of man," are sadly out of their reckoning. It is always a pity to destroy a charming and poetical vision, but alas, the rude logic of facts is too much for this pretty theory. It is clear that the cultivation of the trees and woods of the forest was undertaken some time prior to the reign of Edward IV., say 450 years ago. Now I suppose I shall not be very far wrong if I put the life of a Beech at 300 years; and though Oaks, no doubt, live far longer, yet in the poor soil of the New Forest their lives do not attain to the average, except in a few favoured spots. It is our Beeches that are the glory of the oldest woods, and it is very unlikely that any of those we now see are of older date than the records of the Exchequer in the time of Elizabeth, which I have quoted, at which period the forest was as much under a system of enclosing for planting as ever it has been since. In fact there is not a single one of the beautiful old woods of the forest that was not just as much a "Crown enclosure" as the most recent of the plantations made under the most recent Act.

To those who are more familiar with the woods of the forest than it is possible for visitors who have but a short time at their disposal to become, another fact points strongly to the presence of careful cultivation in the earlier days of the coppices. While the greater portion of these woods are of Beech, with a sprinkling of Oak, precisely such an intermixture as we see springing up now wherever there is a bare portion of good land among the parent trees, by some means protected from cattle, yet there are several woods that are almost exclusively Oak—one is absolutely so, and it is among the finest of the woods of that date. It is not difficult to account for the absence of Oaks among the Beeches, by the fact that these woods have been so often searched over by purveyors to the navy, who have stripped them of the fine Oaks suitable for shipbuilding. But this will not account for the total absence of Beech from among the Oaks of some of the woods, and as we know from daily observation that that

is not the mode in which self-sown woods will spring up in this district if left to themselves, it is impossible to resist the conviction that in certain cases great care was taken either to plant or to sow (probably the latter) Oak alone, or else to eradicate the Beech that spontaneously sprang up with it. In either case the hand of man is clear, and the theory of the "primeval forest" becomes untenable. Like most of his countrymen, James the First of England, the Sixth of Scotland, was a careful forester. Much attention was paid to the New Forest in his reign. In addition to a survey of all trees fit for timber which he caused to be made, to which allusion will be made later, strict regulations were made both for the management of the coppices and plantations, which, with an eye to the main chance, the king was careful to farm out to the best advantage, and also for the preservation of the young timber trees springing up among them. Among the orders, we find the first definite mention of "ploughing of the land for raising of new woods," and this is naturally followed by an account of the cost of gathering acorns, and of that of planting them "by men's hands," which would seem to indicate some method of dibbling. Great stress is laid upon the necessity of keeping the coppices well fenced from cattle and deer, and it would seem that in these ancient days more care was taken to exclude all cattle from the enclosures than is admitted to be necessary now—by the owners of the cattle at least! A proclamation issued in the sixth year of James I., after setting forth that

great spoils and devastations are committed within our forests, parks, and chases. . . . we therefore have endeavoured to take course to stop the said abuses, and to work the means not only of the better preservation of our said woods in time to come, but of a present multiplication and increase of wood to all ages, and to the end that our care may appear to the preservation and increase of timber as well to others as to ourselves. . . . we do straightly command and charge all our loving subjects in general that in their own woods they presume not hereafter to defraud the true meaning of our statutes by cutting and felling the young stores when they usually fell their underwoods.

However arbitrary these regulations may have been, they show a keen desire to preserve timber at all costs. In the year 1614 we find a list of regulations drawn up which were to be inserted in all leases for the letting of future woods in New Forest, among which it was provided that "all timber trees are to be excepted, and all saplings of Oak that are likely to make timber, and that twelve standels be left in every acre." Similar surveys took place during the reign of Charles the First, but more with a view to raising as much money as possible from the various woods than with that of expending money on their renewal. Troubled times arose, and the king had matters to attend to more engrossing than the cultivation of his woods. Under the Commonwealth we do not find much care bestowed on the forest, and it may be concluded that great waste went on. Nor did this waste terminate with the accession of Charles the Second, for one of the most curious of the State papers relating to this forest is that in which Charles is

informed that two coppices—one called King's Copse . . . the other called New Copse. . . . and that the underwoods of the said coppices are valued at £1292 . . . besides the trees and saplings growing thereon, to be preserved for our own use. We are graciously pleased, upon the humble petition of Winifred Wells, one of the maids of honour to our dearest consort and queen, to give unto her the benefit of the said underwoods. . . . &c.

The king five years after, in 1669, did, however, decree that 300 acres of ground should be taken for a nursery and supply of wood and timber, in three separate lots of 100 acres each, the situations of which are named in the order. It is this same order that provides for the "impaling and fencing of the park called New Park" . . . "for the preservation of His Majesty's red deer coming out of France."

A commission of inquiry was again issued in the later days of Charles the Second to inquire into "wastes, spoils, and abuses;" but the forests suffered much on the whole during the times of the Commonwealth and later Stuart kings. This is proved by actual surveys. In 1608 the survey of James I., referred to above, showed that there were in the New Forest 123,927 trees fit for the use of the navy, containing 197,405 loads of timber. In 1707, after 100 years of neglect and waste, the return gives a total of but 12,476 trees, containing 19,873 loads, fit for navy purposes. This sad state of affairs had already roused attention, and the Act 9 and 10 William III. was passed, for, to quote the report of the commissioners of 1789 (one of the best histories of the New Forest ever compiled), "the greatest part of the trees had been felled, the fences of the ancient coppices destroyed, and the deer and cattle everywhere admitted, so that it was found impossible to restore the forest to its ancient condition without the aid of an Act of Parliament."

THE ACTS AND 9 WILLIAM III.

Under this Act it was provided that 2000 acres should forthwith be enclosed and planted with timber for the use of the navy only, underwood and all other produce being excluded; that 200 acres should be enclosed annually for twenty years following; and that as soon as any of the land thus enclosed was safe from damage by cattle it should be thrown open, and the like area enclosed in its stead. A provision was thus made for the planting of 12,000 acres at the least, and it was also held that a "rolling power existed by which, when these 12,000 acres were thrown out, a second 12,000 might be started upon." This power has been called in question, and it has been contended that the power extended in all to 12,000 acres only; the point was never finally decided, and in fact never arose, so that it is not worth discussing now. Each enclosure, when made, was to be properly "huted and bounded" by a surveyor, and the quantities thereof returned into His Majesty's Court of Exchequer. There was accordingly an exact record of each plantation that cannot be contravened, and perhaps it is on that account that some have sought to make out that this comparatively modern Act was the first effort made by the Crown to form woods in the forest. It was, on the contrary, an abridgment and modification of the power exercised by the Crown without let or hindrance from time immemorial. In this Act the powers are defined and limited for the first time, and the "rights of common" are also referred to and defined to some extent. In fact, we have in it the first indication of that struggle between the Crown and the commoners which has always been the great impediment to all forms of arboriculture in the New Forest since the days of the Commonwealth. It will perhaps interest my readers to hear what was the precise

FORM OF CULTIVATION

employed. It is as follows: "Pits or beds of three spits of ground each were dug a yard apart, and three acorns planted triangularly in each bed. Half a bushel of acorns was allotted for each person to plant in one day; two regarders attended every day during the time of planting to see that it was properly done; and after the ground was fully planted with acorns it was sown with Haws, Hollyberries, Sloes, and Hazelnuts, and drains cut where necessary, and traps were set to catch mice, and persons attended daily to re-set the traps and keep off crows and other vermin." Whether from subsequent neglect or not, the plantations thus formed were never thinned at all, but allowed to grow up like a nursery quarter. Although contrary to every theory of plantation management, it cannot be denied that they were in this bad soil successful in growing a heavy crop of Oak timber on moderate land. In fact, when some years ago the French professors of the School of Forestry at Nancy, with their pupils, visited this forest, they expressed the opinion that nowhere had they seen a greater number of cubic feet of pure Oak on the acre. We may thus

learn a lesson from the mistakes, as they appear to be, of our ancestors, and note that where a heavy crop of timber, rather than handsome specimen trees, is the object, thinning may be easily carried to excess, especially on bad land. By this Act of William III. the pollarding of trees received its death-blow; it was made a punishable offence for any keeper to top or lop any timber trees for the purpose of browsing the deer, and as the custom of farming the coppices had fallen into disuse, no one had any interest in thus dealing with the trees. This revival of forestry did not succeed so well as it deserved. About 1022 acres were enclosed, planted, and well cared for up to the age of some fifteen years, but for fifty years after that time nothing more was done. The interest of the keepers to whom the forest was entrusted was, owing to the defective system employed, all against the growth of timber. A *divisum imperium* existed by which the keepers were under the authority of the Lord Warden, who had control of all things connected with the deer, &c., while the actual management of the timber was in the hands of another department altogether; naturally the two authorities were always at loggerheads. Moreover, the keepers and other officers were still paid by the bad old system of perquisites (of which the rabbits formed one)! Thus they obtained a vested interest in the forest property, instead of being as now the paid servants of the public, and did not hesitate to petition against, when they did not openly resist, measures that they conceived to be injurious to their own interests. All this was against tree planting. Furthermore, to quote again the report of the commissioners of 1789, "the neighbouring inhabitants have been naturally led to partake in the spoil, and hardly to think it a crime to take what no one seemed anxious to protect." That this is no idle word is shown by an item in a return of certain receipts from the forest, which appears in the most matter-of-course way, viz., "the like of casual Oak trees found by the surveyor cut down, and by him seized and saved from being stolen. . . . Loads, 869. Value, £1526." However, we find that after all, between the years 1761 and 1787, the forest was capable of yielding timber valued at no less a sum than £87,952, of which £54,449 worth went for the use of the navy; and these figures illustrate the value in all respects to the nation of this magnificent property. In 1750 a further enclosure of some 230 acres was made, and in 1776, 2044 acres more were enclosed, and this is, strictly speaking, all that was done under the Act of William III., which had for its aim the covering by degrees of the whole of the forest with wood. The plantations of 1776 are remarkable in one respect, as commencing an era which has gone far to alter the whole aspect of the New Forest, and even the whole of the county of Hants adjoining. I allude to

THE INTRODUCTION OF THE SCOTCH FIR,

previously to that time unknown in the New Forest as a timber tree, but which has now fully established itself as the natural tree of this part of England, where vast areas of land will really grow nothing else. The clump that was planted as an experiment, to ascertain if this tree would thrive in the worst soil and exposure in the forest, is well known to every visitor as Ocknell clump. Ocknell enclosure—a very old encoppicement—was replanted in 1776, and it is probable that this clump, and those standing in Boldwood, were planted about this period. The tree itself appears in several of the plantations of that date, chiefly in the form of belts for protection of the plantation from the wind. In some cases these trees have attained good dimensions. Since that time it has been freely used as a nurse in all the younger plantations, and it reproduces itself with such great freedom, that tracts of the most barren open forest are gradually becoming wooded, sparsely at first, with this tree, in spite of cattle, fires, and every other obstacle. The use of Scotch Fir does not seem to have become universal till we come to the plantations made under the commissions of 1807 and 1809. These received an

impetus by the Act 48 George III., which confirmed and enforced that of William III., and rectified certain irregularities in its execution. Under this power more plantations were made, until by degrees the whole 6000 acres authorised by the original Act of William III. were enclosed; but so slow was the progress, that this was not accomplished until 1846. The purpose for which they were made still continued to be that of producing Oak for the use of the navy, and in many cases this tree had to be planted on land where its success was, to say the least of it, uncertain. The Scotch Fir was used as a nurse to some extent, and in many cases it has remained as the permanent crop, owing to the failure of the Oak. In some cases Spanish Chestnut replaced Oak plants that failed early, and some fine specimens are the result, but this tree is very apt to grow shaly timber in the soil of the forest. During the seventy years in which these plantations slowly grew up but little attention seems to have been paid to the New Forest, with the exception of some two or three Acts of Parliament passed to check and restrain the rights of common, which appear to have been exercised without much regard to law or order.

LORD DUNCAN'S COMMITTEE.

A very different order of things was about to spring up. The first indication of this was the appointment of a committee, with Lord Duncan as the chairman, to institute a general inquiry into the management of the land revenues of the Crown. This committee sat in 1848 and 1849, but, owing to the intervention of a general election, never made its report to Parliament. It was followed by a commission in 1850, the report and sub-report of which form a most valuable account and history of the forest and of its state at that time. Innumerable abuses seem to have crept in, both as to the management by the Crown officers and as to the exercise of rights of all kinds by commoners and those who purported to be such. As the commissioners expressed it, "the condition of the New Forest may truly be termed mere anarchy!" These inquiries culminated in an Act known as "The Deer Removal Act," by which the whole constitution of the forest was changed. The tendency of the previous inquiries and the disposition of Parliament was to do away with such large areas of waste land, and to bring them into cultivation of some kind. About that date very many commons had been, and were being, enclosed all over the kingdom, and were brought into cultivation, in some cases to the great advantage of the class of small freeholder that was called into existence by the allotment of common; in other cases with less success. The whole spirit of the time was eminently utilitarian, and the legislation on the New Forest followed in the same line. The first step was

TO ABOLISH THE DEER,

which from time immemorial had been the chief *raison d'être* of the forest, but which, however picturesque and charming, were very costly to maintain, and no doubt had a deleterious effect on the morals of the population of the locality. In return for this right to maintain an unlimited quantity of deer, and thus to exhaust the feed to the last blade of grass, the Crown proposed to take the right to enclose 14,000 acres of land for the purpose of planting, and when this was free from damage by cattle, to throw it open and re-enclose 14,000 acres more. This arrangement was opposed by the commoners, whose rights had been year by year coming more into evidence, and the area to be enclosed was cut down to 10,000 acres, thus with the old 12,000 acres giving, without going into the question of the rolling power, an area of 32,000 acres to be enclosed for timber. At the same time an inquiry was held, at the request of the commoners themselves, into the extent and nature of their rights, which lasted some two years; and ultimately, at the expense of the Crown, a register was compiled and issued, which has ever since been decisive as to all claims,

and the extent to which they may lawfully be exercised.

WHO ARE THE "COMMONERS?"

As this paper is written for those who live at a "far cry" from the New Forest, and are probably not conversant with the customs of that locality, it may be well to explain who and what are the "commoners," who have exercised of late years so restrictive a power upon tree cultivation. They are simply the landowners of the district—the proprietors of that 27,000 acres of private land that was mentioned as existing within the total area of the forest, and of a considerable quantity more that lies outside its boundaries within a short distance therefrom. As in most other parts of the country, this land is mainly in the hands of the larger owners, and these do not, as a rule, cultivate the land themselves, but farm it out in the usual way, charging an additional rent for the land or house to which are attached the rights over the forest, for in every case the right attaches to the actual land or house, and not to the individual owner or occupier. From evidence given on behalf of the commoners before the Committee of the House of Commons in 1875, we find that the owners of holdings from one to twenty acres are about 580 in number, and own between them 1-26th part only of the whole of the land entitled to rights of common. Of the remaining 25-26ths, 14-26ths, or rather more than one-half, is owned by ten large proprietors, who possess not less than 2000 acres of land to which common rights attach, besides other property. Of the remainder, considerably over two-thirds is owned by about twenty-one possessors of over 500 acres of the land with rights, and the balance of about 7000 acres is owned by those who possess less than 500 acres of such land. The value of the common right has been recently stated to add one-half to the letting value of the land. A cottage with a turbary right fetches £1 a year more than one without it. These figures will show how large is the question of rent as compared with any other which can be raised locally. There need be no difficulty in understanding why it is that the landowners of the New Forest* are so exceedingly alert to resist anything, whether for national or other purposes, that appears to touch, however remotely, the fringe of their rights over the forest, and to invoke the aid of the public by the cry that the whole forest is in danger when some comparatively unimportant local question is under discussion.

COMMON RIGHTS.

The rights of common are of three kinds: common of pasture, of turbary, and of estovers, or fuel wood. The first of these rights is in itself perfectly harmless; there is ample room for all those who desire to exercise it, to turn out their cattle to make the best of what can be got out of the forest, where the feed is at best of the most inferior kind, only fit to nourish inferior stock. It is the abuse of the right that makes it hurtful from the national point of view, such as when the planting of a few trees in the open spaces of decaying woods is resisted, on the plea that they occupy space where enough grass might grow to increase the feed by a few mouthfuls. Indeed, of late years we have had such absurdities as proceeding taken against a golf club "for injury to the commoners' pasture," by the cutting of nine holes 4½ inches in diameter! against a telegraph company for the loss of pasture by the space occupied by their poles! even against a converter of felled timber for the injury caused by depositing a heap of saw-dust! and all of these operations have had the sanction of the Crown as owner of the forest. It is but fair to the actual exerciser of the right of pasture to say that he is, as a rule, no party to these proceedings, caring, like Gallo, for none of these things so long as his right is not really interfered with, which he knows will never be done by such practices as

* The total number of commoners who claim "common right" in the New Forest has been recently stated in evidence to be under 90

have been described. It is his active friends who thus engage in warfare on his behalf, especially when an election is pending!

TURBARY.

The other two rights, of turbary and estovers, are both entirely harmful. The "turbary" or turf right is practised by paring the surface of the heath lands, removing the Heather with its roots and all vegetable humus, which make a kind of inferior fuel—there is no real peat in the forest. The land, poor at first, is impoverished by the removal of what little soil will grow even Heather; then, as in course of years it slowly recovers, and the roots of the adjoining plants spread over the denuded space, it is again pared, and so on year by year. Nothing can be imagined more injurious to land, and the only excuse for the practice is, that it is only performed on land of the very worst quality, and is a boon to the poorest of the population. It is greatly falling into disuse, to the public advantage.

ESTOVERS.

The common of "estovers" is also a most injurious tax on the property of the public. Every report or inquiry that has been held on the forest has recommended that this claim should be abolished. As long ago as the twenty-sixth year of Queen Elizabeth it was ordered, with the view of checking the growth of this practice, that "no inhabitants of any house newly builded since the beginning of the Queen's Majesty's reign that now is, shall be allowed any wood in the same forest to be burnt and expended therein." The claims consist of so many loads of "good fuel wood," and each house now enjoying the right is supposed to be able to trace its existence back to the commencement of the reign of Elizabeth. But it is to be feared that this order has been frequently evaded, for it appears that in 1809 the number of loads had risen to 841, of which 160 were stopped as being unlawfully claimed. In former years this right was the subject of very great abuses. Whole trees of Beech, or even Oak, were assigned, and often more trees were cut than were assigned, while much damage to young timber was done in felling them. The wood is all now cut and stacked before it is delivered, and while abuses are thus prevented, a considerable charge is made on the public purse for the labour. The right is more destructive than formerly, for as it is limited to the "waste of the forest," and as all planting is now at an end, while the existing young plantations are subject to enclosure, and thus free from the right, it follows that it can only be satisfied from the ancient plantations of the Stuarts or of Elizabeth, which are the very woods standing most in need of protection. In view of this destruction, the Crown authorities have lost no opportunity of buying up the rights of all who would sell them at a fair price. The number of loads or "cords" of wood is thus reduced from 800 to 367 in the present year, which are held by forty-three owners, about one-third belonging to one landlord. In 1883 the Commissioner of Woods, Sir Henry Loch, introduced a Bill to buy up all these fuel rights at a price to be decided either by arbitration or by the magistrates of the county in petty sessions. The Bill was vigorously opposed by the commoners, and though it readily passed through the committee stage, yet, owing to press of business, it did not become law, and the Crown authorities have not renewed the good offer that was thus rejected. The right thus remains as a perpetual drain on the most precious part of the forest. The origin of these rights is obscure. By some it is contended that they were existent before the actual formation of the forest. It is very probable that the inhabitants of the district did make what use they thought right of the whole of the waste land at their doors; but this is hardly consistent with the idea of a "right," by which is implied a claim on the part of one man to make certain use of the property of another. Manwood says that the rights were granted by the Crown as a sort of compensation for the hardships inflicted by the enforcement of

the forest laws. This seems probable, and is an explanation of the existence of the earlier rights. So little is heard of these rights up to about the year 1700, while there is so much written about the forest that it would seem that they were few in number, and, with the exception of the fuel right, not of sufficient importance to attract attention. During the eighteenth century they come prominently into notice, and as during the same period there is much said of the lack of order in the forest and the need for enforcing the law more strictly, it seems that the commoners availed themselves of this state of things to possess themselves of the various rights without any further claim than that of usurpation, upon which it is to be feared the original title of nine-tenths of these claims rests. Precisely the same state of things existed during the earlier part of this century, and the commoners seem to have multiplied exceedingly, so that we may take it that while some of the rights are very ancient, and held by grants from the Crown—as, for instance, the Charter of the Abbey of Beaulieu, given by King John—yet that most of them came into being during the 150 years from 1700 to 1850, and were acquired by simple usurpation, which in time became a prescriptive right. This explanation will show what is the nature of the right claimed by the commoners, the extent to which it has grown, and the great impediment which it presents to anything like arboriculture, even in such form that the forest might be handed down to posterity as a possession similar to that which we have inherited.

THE NAVAL SURVEY OF 1850.

To return to the legislation of 1850, which, as I have said, was eminently utilitarian. One of the first steps was to institute a survey to ascertain what amount of timber fit for the navy was standing in New Forest. It appears that none had been supplied since 1833, and consequently a large amount was found ready for use. During the next few years a very large quantity was felled, both to supply present wants and to clear the ground for the planting of the area prescribed by the Deer Removal Act. A second proceeding was to complete the planting of the William III. legislation, and to do this some 6000 acres had to be cleared and planted. As the commissioners were bound to select, in the first place, land suitable for the growth of navy timber, their choice was restricted to the better land, all or nearly all of which had at some time or another been enclosed and planted. It was at this time that the majority of the William III. woods were felled and replanted. Much blame has been showered on these in charge of the forest for acting thus, but it is difficult to see what other course they could pursue. The plantations had been formed solely in order that when mature they might supply the navy; they had arrived at the mature stage, and contained a large amount of valuable timber of which the navy stood in need. It was impossible to resist the claim of the dockyards, although to grant it involved the sacrifice of many acres of beautiful woods, which were a source of pleasure to the inhabitants of the locality, who loudly protested against their removal. There was the more excuse, because authority had been given to replant, and every wood as it was cleared was replaced by a young plantation, which is in most cases now producing a crop of Oak that, at an equal age, will vie with or surpass the older wood which it has replaced. The pendulum had, however, swung too far. Before the whole of the power obtained under the William III. Acts was fully exhausted, or very soon after that given by the Deer Removal Act had commenced to be put in force, it was apparent that the effect of the measure was to gradually cover the whole of the forest with wood. The idea of this filled the commoners with apprehension, for they feared that, in spite of the removal of the deer, the amount of pasture, as the land became planted up, would be much decreased. Moreover, the new Act authorised the planting of trees other than those for navy use, so that the inferior land became available for the growth of Scotch Fir,

while a provision inserted at the instance of the commoners to guard against good land only being taken compelled the formation of enclosures not less in extent than 300 acres in each case, so that the inconvenience to the inhabitants was increased. Another important factor in the situation arose in the increasing appreciation shown by the public of the beauties of the New Forest and its value as a recreation ground. Perhaps most important of all was the change that occurred in the building of ships, whereby iron was substituted for wood, and British Oak, from being of paramount national importance, became a drug in the market. When, therefore, but 5000 acres out of the 20,000 acres authorised by the Deer Removal Act had been planted, and as soon as the deer had been removed and the register of the commoners completed, an agitation of the most active kind was instituted by the commoners against the further carrying out of the bargain of 1851. The public was led to believe that the enclosures, which were made against the cattle of the commoners for the protection of the young trees, were really intended to exclude it from the forest altogether, and though nothing could be further from the truth, the idea caught hold, and the press were loud in their support of the commoners, and in their deprecation of the policy which Parliament had so lately ordained. There was much to be said in favour of an alteration of that policy. With the cessation of the needs of the dockyards for Oak timber, the pressing necessity for a continuous supply came to an end. As population increased, the wants of more open spaces became more and more felt, and it was a reasonable thing for the nation to decide that as an open space the New Forest was of mere value than as a timber farm worth so many thousands a year. The effect of

THE FIRST GREAT EXHIBITION

had begun to tell; the æsthetic education of the people had commenced, and one of its first effects was shown in the growing appreciation of beautiful scenery. All these causes, after being at work for some years, culminated in the practical repeal of the Deer Removal Act, and in the passing of the Act of 1877, under which the forest is now administered. But just as in the former case, the pendulum again swung too far. A bitterness had been imported into the discussion, which was as mischievous as it was deplorable, and, just as in 1851, the provisions of that Act, by the excessive planting they ordained, resulted in the long run in abolishing all planting whatever; so now, in 1877, an Act was passed which, while intending to provide for the preservation of the woods of the forest, in reality prevented any steps whatever being taken for that end. A hard and fast line was drawn between plantations formed since the year 1700 and those made previously. The former alone were allowed to be re-enclosed or replanted, but as they were all well covered with a crop of trees, the provision was of little or no use. Under no circumstances may the whole of the crop be removed from a single acre, so that in the event of a last thinning being reached, or a failure of the crop setting in, the decaying trees must be left to perish at their leisure, and the wood will have to wait till, by the hand of time or some serious gale, it is cleared enough to admit of a chance of regeneration by enclosing and natural succession. As the time when this can for the most part be done is in the dim future, it is not worth while to speculate upon what may then take place. But the case of the older woods is widely different. These are naturally, from their greater age, the very ones that stand most in need of being specially protected, and call for some steps to be taken to provide that they shall be perpetuated in all their magnificent beauty. Unhappily, the Act that in so many words ordains that they shall be preserved, in the same breath prevents that object being achieved. Under no circumstances may one single rod of land outside the limits of the "ear-marked" plantations be enclosed against the cattle of the commoners. It would be waste of time for me to enter into the

impossibility of arboriculture on land that is open to excessive grazing. Most of these woods are far past their best, and are hastening to their end; every gale leaves gap after gap in their ranks; in all of the less recent of these gaps may be seen hundreds of the young saplings and scions of the ancient trees struggling up, only to be gnawed down and destroyed or injured by the cattle, except where kindly thickets of Blackthorn here and there save them from the injury, and show, as if in mockery, what a wealth of reproduction is in the soil if the simplest protection be afforded, and Nature left to do her own work with a free hand. This is prohibited by a well-meant but ill-drawn Act. As things stand now, the old woods of the forest, the glory of the greatest of our national estates, are being slowly destroyed by Act of Parliament! Nothing is more certain to the observant forester than that these woods, under

THE PRESENT SYSTEM,

are gradually diminishing, and that a second generation will see the trees, from having become a mere remnant of their former selves, disappear altogether; and so the best land in the forest will become denuded entirely of trees, and the property will be to posterity but a shadow of what we now enjoy, owing to the care and better management of our ancestors. Arboriculture may for the present be said to be dead in the chief national forest. It is practically restricted to the thinning of a certain number of plantations of no great age. From these, revenue has to be obtained to keep up the roads, drains, bridges, &c., over a vast tract of unremunerative land, and as long as they can perform the task, the country enjoys its vast park free of cost. Planting is restricted to replenishing the damage wrought by occasional fires or similar disasters. A certain amount of planting of single trees in the open spaces of the older woods has been done, in the teeth of strenuous opposition from the commoners or their allies; but the great size of the trees that had to be used, so that they might be safe from cattle, and the consequent expense and numerous failures, have proved this to be but a broken reed to rely upon to stem the rapid decay of old woods past a certain stage of growth. For the latter part of this century the managers of the forest are forced to assume that position of lookers-on at decay and deterioration which they were so heavily blamed for voluntarily taking up during the first years thereof. In fact, by a curious turn of the wheel, the forest has gone back about 400 years, and is again under rules such as governed it from the days of the Red William to those in which a revival first took place, and planting or care of some kind was bestowed upon the woods. The position is, however, curiously inverted. As by the old forest laws no subject might cut woods, even on his own land, within the "regard of the forest" for fear of interfering with the prerogative of the Crown, so now the Crown may not clear timber on its own land for fear of interference with the pleasure of the subject! Even the cutting of a few decayed trees will generally provoke attacks in the newspapers, and assertions that the law is being contravened! And as in ancient days no man might erect a house or building on his land, so now an enclosure of any kind, even the smallest, made by the Crown upon its own land is held to be contrary to the latest law upon the subject, and the representatives of the commoners watch jealously for an occasion to put the letter of the law in force against it. Thus to set four hurdles around a group of young trees that are being destroyed by the cattle, or to protect a spring of water from pollution by a fence, would be held to be a heinous offence against modern forest law, just as in former days a man might "lose life or member" for the like offence. A village or a house may be reduced to the extremest danger for lack of a supply of water or for the means to drain its premises, where the necessary land can only, by reason of the circumstances, be found in the adjoining forest; but it may perish from epi-

demic disease before it can, save by the costly intervention of Parliament, obtain so much as one rod of waste land from whence to draw a supply of unpolluted water, or on to which to convey out of harm's way its accumulating sewage. Nay, even in cases where the aid of Parliament has been sought, opposition has sprung up to prevent dwellers in this forest from obtaining those advantages which they would readily obtain if they lived outside the verge. In this way we have a reproduction of the ancient hardships of the old forest law, such as were found intolerable in the days of Magna Charta, and may be said to have reverted to the condition of affairs that prevailed six centuries ago, both in sylvicultural as well as in other matters. What the next turn of the wheel may bring it is impossible to foretell; but it is to be hoped that the reaction from the present state of affairs may not, as on former occasions, be too great a one, and will be only such as may remedy the existing evils, and may tend to preserve the beauties as well as the usefulness, in all respects, of this magnificent national inheritance.

To the student of arboriculture the New Forest will always be a most interesting field for observation. In it, as I have explained, may be traced the earliest efforts of our ancestors in the direction of tree cultivation, sometimes successfully, sometimes thwarted by adverse circumstances. The results of the various methods may be watched, from the first days of encoppicing and farming out, with its attendant shrouding and pollarding. The later method of sowing mast broadcast and leaving it to take its chance can be seen, but in this and the foregoing case we have only the successes to judge by—the failures have long been wiped out. Later on we come to the more modern methods of planting according to the style introduced by Evelyn, and of the introduction of nurses of the coniferous kind. The effects of the too rapid removal of the nurse and of its being left till too late can all be seen by those who will observe and will take pains to learn the history of the district. Still later we come to those plantations that afford an object-lesson in the reclamation of waste land, and which show what can be done with land that is good for no other kind of cultivation, and in some cases will not even do to plant. We have also admirable specimens of natural reproduction by the simple method of enclosure and leaving the parent trees to seed the ground. Although for the present all progressive arboriculture is at a standstill, nevertheless, much may be learnt from what was done more or less continuously up to twenty years ago. Many kinds of tree have been tried in the forest by way of experiment. Some forty years ago large consignments of the seed of the Deodar were received from India, and the experiment of growing them was well tried in the New Forest. Except in a few favoured spots where they have done very well they have proved a failure, and the result of the experiment may be traced by anyone desirous of testing it. The Douglas Fir has also been largely tried, under rather rougher conditions than prevail in the well-kept pinetum of most ardent arboriculturists, and is a most pronounced success. Many others of the best of the coniferae have been planted in groups or in avenues, and form objects of great beauty, affording illustrations of varying success that are instructive. Possibly at some future time this forest may be again available for experiments that are of interest to the whole world of tree planters, but until that time arrives a good deal may be learnt from what has been done before all enterprise of the kind was abolished.—The Hon. GERALD LASCELLES, Deputy Surveyor, in the *Royal Scottish Arboricultural Society's Transactions*.

Notes from Ireland.—Early Peas prom's well, but they will be at least eight days later this year on account of damaging north-east winds. I commenced yesterday (June 1) digging fine tubers of Sutton's A 1 Potato. I have never before been able to dig the earliest kidney on

June 1 here in the open, nor before the 10th. Sutton's A 1 is a grand Potato, and with me has been earlier than any kidney I have ever tried. Strawberries are promising exceedingly well, and I have to-day (June 2) gathered a nice dish. Black Currants and Raspberries promise well. Apples, Pears, and Plums showed abundance of bloom, but have suffered severely from high cutting winds. Sutton's First Crop Cauliflower is almost fit, and Walcheren sown in August is just turning in. Carrots sown under glass have been very useful, and will in about ten days be followed by nice roots in the open.—JOHN WILLIAMS, *The Gardens, Annetstown, Tramore, Co. Waterford*.

ORCHARD AND FRUIT GARDEN.

PROFITABLE PEACHES FOR FORCING.

In these days, when large quantities of Peaches are needed for special purposes, the cultivator cannot afford to grow those kinds which are not reliable. After a fair trial both of trees in pots and planted out, I have reduced my list of profitable kinds to very small dimensions. Variety, as far as it goes, is interesting, and where large quantities of one kind are not needed there is a great charm in noting the characteristics of the different kinds; but where quantity is required, only those kinds that are reliable and productive should be grown. I find small Peaches are little favoured by the consumer, and those who send to market know too well what seconds mean. Those that colour well are always favourites, not but that the beautiful pale-coloured large Peaches are in request, but these are later and do not force so freely. It may be asked, Why should varieties be omitted that are known to be of better quality? However, one cannot study the flavour as much as he would wish, because the best flavoured fruits are not the most productive and do not force so freely.

Doubtless many persons will feel inclined to add to my select list of forcing varieties, but it must be remembered that my note refers only to those that are productive, as the Peach that fails to set a crop, even under the most careful management, is not profitable. My most profitable forcing Peach is Amsden June, an American variety, and one of the earliest to mature. It is a vigorous grower and appears to like hard forcing. The fruits are of a good size and of a beautiful colour. I planted a tree of this variety six years ago. It has been hard forced and never failed, and what is more remarkable, I have been obliged to remove the adjoining trees to give the Amsden June room. It will doubtless fill the house in time. Alexander was planted in the same house. This was a failure, as the buds dropped badly, whereas in Amsden June this does not happen; indeed, the fruit sets far too freely. I thinned the bloom where badly placed, a proceeding anyone would hesitate to do with some of the earlier Peaches at the season named. Any variety that crops year after year with so little trouble must become a great favourite, and it needs little forcing to get ripe fruit in May. I place this variety before all others for first supplies, and as regards flavour it is not inferior in that respect, as the fruit is very juicy and rich for the time of year. I have gathered this variety in the middle of April, but of course do not advise such hard forcing. With the American Peaches grown for hard forcing I have found it advisable to lay in plenty of small wood, as on this the fruit is produced. On the strong wood there is less fruit. If the trees are allowed to carry heavy crops, there will be less tendency to gross wood.

My next selection, Hale's Early, is likewise an American introduction, but better known. This is a splendid Peach in every way, and if the Americans had not given us any other variety this one should make us grateful, as it has few equals if crop, quality, and good forcing points are considered. I need not describe this variety, as it is well known, having been a good few years in this country and much grown on walls for its early cropping. This variety rarely fails to crop well, and the fruits are much liked for their size, colour, and good flavour. With me it sets well even when forced hard. I noted some excellent fruits of this variety at the recent Temple show, Mr. Featherley having for several years staged this Peach at this show. Hale's Early is quite a fortnight later than Amsden June, and grown in the same house forms a good succession to the earlier variety. Dr. Hogg is an excellent variety to follow Hale's Early. The fruits are large and it sets freely, but should have the coolest part of the house. I have had it fail grown over hot-water pipes, but do grandly on a back wall with the earlier kinds named above on the front trellis. This will not stand hard forcing like the kinds advised, so that when planting this should be borne in mind. G. WYTHES.

Peach Early Alfred.—This is an excellent open-air Peach, as the fruits are large and richly flavoured. Few varieties are so hardy as this. I have grown it on an east wall in the southern parts of the country, but in less favourable localities would advise a south or west aspect. The fruits ripen early in August. I have had splendid fruits in June from forced trees. Its value is doubtless as an open-air variety, as the trees are so free of canker and make a free growth. This Peach was raised from a Nectarine by Mr. Rivers and has large flowers. It is a freestone, with a pale straw-coloured skin on the shady side, dotted with bright crimson on the opposite side. It is a free-bearing variety. This season the earlier Peaches on open walls are none too plentiful, having suffered by the gale at the end of March. This variety on a west wall is bearing freely; indeed, I rarely miss having a crop, being obliged to thin freely most seasons.—S. H. B.

Thinning Cherries on walls.—The heavy crops set on both dessert and Morello Cherries point to the necessity for early thinning, as advised recently by Mr. Wythes. No doubt the trees and crops suffer when so thickly set as they are this year, unless some steps are taken to relieve them at an early date. Mr. Wythes is quite right in his assumption that thinning is left undone from fear of a further reduction by dropping naturally. Being so subject to the attacks of black aphid, too, is another reason why the Cherry crop is left unthinned in many cases, for when this from any cause gets full possession of the trees it is not easily eradicated, and crippled foliage brought about by this terrible pest invariably ends in a partial loss of the crop. There are already indications of an attack of black fly on Morello trees, which points to the necessity of preparing a remedy, and the sooner one attends to such an important matter, the less trouble will there be in effecting a clearance of the enemy, and the better the prospect of a crop. On light soils an early mulching of the border will be attended with good results, but trees in cold soils and on north walls will this season scarcely need this provision against drought.—W. S.

Gooseberry caterpillars.—Up to the time of writing, these have not been in evidence, but the immunity is attributable to the cuckoo, which visits the trees in the evening when all is quiet. I have found the same thing occur repeatedly, and it is seldom that our trees become defoliated to any extent so long as the cuckoo remains with us and is not unduly disturbed. Lime and soot mixed or used separately are remedies with some

growers, but the fruit when gathered needs to be washed before it is fit to be used, unless there are heavy rains to wash it clean while on the trees. Hellebore powder put on in a dry state with a dredger, or mixed in water and syringed on the trees soon makes a clearance, but the fruit must not be used for some time, or until the poisonous properties are evaporated. Petroleum emulsions I have not used, but have noted a clearance by their use in other gardens. Care must be exercised in applying petroleum, or much injury may be done. The sun acting on the freshly applied oil quickly destroys the foliage, and the same evil occurs if the oil is not well mixed with the water before it is syringed on. A vigorous shaking of the trees dislodges a great many, which, if sheets were previously spread under the trees, could be gathered up and destroyed, or they could be treated with a heavy dusting of dry, hot lime.—W. S.

MANAGEMENT OF VINE BORDERS.

In a general way market Grape growers do not concrete the bottom of their Vine borders, neither do they go to much expense in changing the soil. But no man would embark his capital in Grape growing as a commercial speculation on a bad site. He looks out for a soil that requires nothing beyond manure to make it suitable for the object in view. I fancy the day for making large excavations for Vine borders is passing away. If the subsoil is not quite the thing, or if the situation is damp and cold, make the border altogether above the ground level and save the expense of digging out the soil and carting it away. The Vines will certainly do better with their roots lifted out of the cold, damp border and brought up into the genial sunlight. And there is another and a further advantage attending this. The cultivator may, if he likes, easily keep touch of the roots of his Vines, just in like manner as he has full command over the branches.

As regards top-dressing the border, if the food supply is ample both as regards moisture and manurial stimulants, not forgetting that essential ingredient, lime, the roots will keep near the surface. When Vines get out of reach, which they frequently do in the holes usually dug out of the cold subsoil to receive them, it is because there was no regular supply of food close at hand, and they were compelled to go in search of it. Water is the great necessity of vegetable life, and when a Vine border becomes too dry for healthy root action, the instinct of self-preservation, which is as powerful in the vegetable as in the animal kingdom, teaches the roots where to go for moisture, and under the impulse of the drooping leaves the roots descend to where water can be found. This always leads to derangement of the condition of the plants and brings on all sorts of evils, and renders root-lifting a necessity at no very distant day. This also is Nature's way of teaching the careless or unobservant cultivator that in future it will be better and cheaper to place a supply of food and water—especially the latter—within easy reach of the roots. Top-dressings of bone-meal may be given to both inside and outside borders now. A mixture of guano and nitrate of soda has considerable effect as a change for one season or so. In the old days very good Grapes were grown in old-fashioned houses without artificial stimulants; but this is an age of progress, and the wise man takes advantage of every aid to growth the chemist and the manure manufacturer place at his disposal, and it is certain that money laid out upon artificial stimulants for Vines will pay if judiciously employed. It is customary at this season to mulch Vine borders, but in doing so it is as well to bear in mind that though this may check evaporation, and may to a certain extent husband the resources of moisture in the border, it will not make soil already dry moist. It may be, perhaps, stated that a border lifted up above the ground-level increases the labour, and it does so to a certain extent undoubtedly, but compensation is found in the fact that it offers facilities for making the water that must be given a carrier of the necessary stimulants which

will expand the bunches, swell out the berries, and increase the strength and productiveness of the plant generally. Very few inside borders, unless special facilities exist for watering, get moisture enough to enable the plants to do their best.

GROWER.

Peach Belle Bauce.—Those who need late Peaches will find the above valuable, as it is large and of first-rate quality. I am surprised this variety is not more largely grown for September supplies. It ripens from ten days to a fortnight after Grosse Mignonne. In appearance it is not unlike this, but a much finer fruit and has the same good qualities as regards flavour and cropping. The fruits are highly coloured, the skin being covered with a deep red. I have had this Peach ripe early in September during the last two seasons from trees on a south-west wall. The hot summer, however, favoured early ripening, the middle or third week in September being its season. Belle Bauce is not so vigorous as Barrington, but with me it crops quite as well, and in a cool house is really a grand Peach. On very light poor soils I have noted a tendency to stone-splitting.—S. H. B.

Strawberry Royal Sovereign.—I am quite in accord with those who have written in favour of this as a forcing variety, and believe that it will hold the field for that purpose until something better is raised. There is one point in its favour that I do not remember to have seen mentioned, and perhaps my experience may be solitary, but I have found it remarkably free from red spider at all times, and if this is general, the bonn is a great one. This year I have had it side by side with La Grosse Sucrée, which has hitherto been grown as one of my forcing varieties, because of its free setting under difficulties, and while the latter became simply poisoned with spider in consequence of the weather not being suitable for syringing, the former remained quite free even where the plants came into actual contact with each other. The other points of merit in Royal Sovereign I need not mention, but I take this opportunity of answering "A. D.'s" query as to the Strawberries I force. I have reduced them to three, viz., Vicomtesse H. de Thury, Royal Sovereign and La Grosse Sucrée, and I think the last at least will have to give way in favour of the newer variety.—J. C. TALLACK.

The season's fruit prospects.—It seems very probable that again this year we shall see verified in relation to our prospective fruit crops the old saying, "Much cry and little wood." Writers on every hand, and especially in the general press, have been eloquent over the wondrous wealth of bloom seen on fruit trees in every direction and of the splendid fruit crop to follow. Those who have watched the seasons for many years have so often found exceeding disparity between the bloom promise and the fruit fulfilment, that they are seldom, in such case as was the bloom promise of the present year, optimistic. There was far too much bloom on the trees, and the result is, so far as it is yet possible to ascertain, generally a very moderate set of fruit. Cherries always bloom profusely, and whilst, all the same, the crop of fruit varies this year, everywhere there is great promise. But Plums and Pears flowered profusely, and the results seem with both fruits to be a very thin set relatively. It may be early to tell of Apples yet, but the fallen bloom indicates a thin fruit set on these also. Probably the best fruit crops of the season will be found on Cherries, Gooseberries and Strawberries in the open; and on walls, Peaches and Nectarines, for in many directions these have set abundantly. Unless there be some rigid thinning of fruit spurs on the trees during the winter, I do not see very well how we are to avoid having a big bloom on most trees again next spring, for a sparse fruit crop will doubtless lead to abundant spur formation. As to the spurs of the past winter, none could well have been plumper or produced under more favourable conditions than the previous autumn furnished. No

doubt many writers will again, as hitherto, ascribe the thinness of the set to frost and biting winds. But Apples bloomed late and suffered little from frosts, though perhaps somewhat from heavy rains. Still, with these, as with Pears and Plums, the few seem to be saved and the many have fallen. The July reports will tell us exactly how we stand, but they cannot possibly be highly favourable.—A. D.

ROSE GARDEN.

AYRSHIRE ROSES.

It speaks volumes for the beauty and constitution of these grand old Roses that they still succeed in holding their own. For the draping of arches, arbours, summer-houses, scrambling over rocks, clothing banks, running up or depending from trees, rambling through or forming rough masses in woods, few Roses equal the Ayrshire.

As to the culture of Ayrshire Roses, nearly all depends on the position. Of course if used to clothe the formal arches, arbours, summer-houses, &c., a little pruning and training may be needed to prevent their growing wild, unduly encroaching on other objects, or running all over the place. But to have Ayrshire Roses in perfection they should hardly be pruned or trained. Give them a yard or so of good soil to grow in, cut out any weak wood, and unless the plants are strong cut the shoots hard back to force a vigorous start, and then let them have their heads and shift for themselves. Of course they will be on their own roots, as Ayrshire Roses will root as freely as Gooseberries or Currants if put in at about the same time and treated in a similar manner. If inserted with a heel, they will root with all the more certainty. But to grow these or indeed any other Roses to the highest perfection, the roots must have a good larder. This is one of those practical difficulties of detail often overlooked by amateurs and others, to their bitter disappointment. It is so easy to say, clothe that house or wall, cover that bald, ugly roof with Ayrshire or other Roses, or let them run up and drape with beauty an ugly pollard or bald, bare tree. But such scenes of beauty can only be successfully repeated in certain conditions of food supply and due preparation. For example, we can but seldom have a fresh start. A vacant place where we want to place our plants of Ayrshire or other scrambling Roses is already crammed full of the roots of trees, bushes, weeds, or other plants, or if not, it will be the moment we disturb it or place anything specially tempting or good in it. Place a yard or half a yard of good loam mixed with manure in any of those semi-wild apparently vacant spaces, against trees, banks, or walls which we desire to clothe or drape with our Roses, and see what hosts of alien roots will forthwith hasten into and exhaust our Roses' food. This robbery and exhaustion of Rose or other plant food are worst against trees. No tree can be trusted as too old to turn aside its roots from such new and tempting larders. The surest remedy, and it will last for years, is to sink a cask into the ground where you wish to plant your Rose, first boring a small hole or two in the bottom for drainage; then adding a few crocks so disposed as to let the water out and hinder as far as possible the roots from entering. Then fill the barrel with the Rose soil and plant the Rose in it. From this point all will be smooth sailing. A few dwindling or weakly branches, should such appear, may be cut right back to the root-stock, and will result in the springing

up of exceptionally strong shoots for running up chimneys or tall trees. And for the rest, let the Roses ramble and grow unchecked at their own sweet will.

After the growth and the prodigal blooming of years, should these Roses show signs of weakness, solid top-dressings of good manure or thorough saturations of sewage or other liquid feeders will restore them to or sustain them in their original beauty. But it should never be forgotten that such a profusion of growth and prodigality of blossoming cannot be sustained through a series of years unless the root larders are liberally replenished with good things and carefully guarded against the scramble for food.

Mrs. Newman, of Hazelhurst, Haslemere, who sent us the photo from which the illustration was prepared, writes as follows:—

The first Rose arch in the Hazelhurst garden was required as a screen or entrance from the

trouble and difficulty to get it back. After six years the woodwork showed signs of decay, and material for rebuilding had to be considered. Iron was suggested, and, by way of experiment, was tried in another place rather more sheltered. The very next year this iron arch was blown out of all shape, and became useless. It was a lesson not to use iron. By this time a good many other arches had been erected and were wearing out. It is awkward, unpleasant work to renew an arch with its great weight of prickly Rose shoots, and to be done only at the longest intervals possible. Larch was decided on as material for all new work, and with considerable labour it was generally introduced. It has now stood three years, has always looked well, and does not show the slightest sign of giving out. Alice Gray has proved so vigorous as to require two subsidiary arches to use the growth from the original plant. Other Roses that have done well for this purpose are Dundee Rambler, Ruga, The Garland, and Félicité Perpétue. The Noisettes seem unable to cope with the more sturdy growth of the evergreens and Ayrshires.



An arch of Ayrshire Roses. From a photograph by Mrs. Newman, Hazelhurst, Haslemere.

drive to the more private part of the garden. It was exposed to the full blast of the south-west wind, and thus would act also as a wind-break. After consideration, Oak was chosen as the material for the arch, not heart Oak, but substantial boughs; the straighter lengths were picked out and sunk some 3 feet into the ground. They were made double and joined by cross-pieces of rustic work. Here were planted in deeply-dug well-manured ground, Alice Gray, Adelaide d'Orleans, and Bouquet d'Or. The second year the arch was well covered and gave a good display; afterwards the covering became dense, and Bouquet d'Or retired from the contest, and has since run over the house in a different direction. In heavy gales much of the mass of Roses has been blown out of place and occasioned

of it to the late Mr. Bennett. It has achieved notoriety as the reputed parent of Her Majesty. Apart from this it is a lovely Rose, with its simple, perfectly-cupped, semi-double flowers of almost snowy whiteness. Of course, it is not so lasting as Merveille de Lyon, but many prefer the simple beauty of its semi-double flowers to those of the more majestic Merveille de Lyon. Mabel Morrison is an excellent Rose for forcing and a very free seeder, but I cannot recommend it, as I think we have enough scentless Roses already.—P.

Rose Ethel Brownlow (Tea).—Where Roses are cultivated for garden decoration only, and no attempt made by thinning out shoots and disbudbing to produce show blooms, one would hardly believe that the above variety has some-

Rose Nardy.—This Rose was brought out in 1889 by MM. P. and C. Nabonnand, of Golfe-Juan. The variety is a seedling from Gloire de Dijon. The main stem is so rigid that it attains sometimes nearly 12 feet high without a bend and without support, so that it is in fact a delightful bushy tree. In the south of Europe it sometimes attains a height of 14 feet. The leaves are very large, of a fine green and very ornamental. The bud is enormous and globular. In La Brie it is cultivated for cutting, the long stems of the flower adapting it for bouquets. The flower is much larger than that of Gloire de Dijon, opens well, and is of a handsome salmony-coppery yellow colour.

Rose Mabel Morrison (H. P.).—All the Baroness Rothschild tribe have one great merit, and that is the blooms, appearing as they do upon stiff, moderately vigorous stems, show up well upon the plant. Perhaps this showy quality they possess somewhat compensates for their want of fragrance. The above Rose was a sport from Baroness Rothschild, and was found by a shoemaker named Broughton, who disposed

times gained the silver medal as the best Tea Rose in the exhibition. It is a very free-flowering Rose, but the blooms, although pretty as button-hole flowers, are decidedly small. Let it be grown, however, as a standard, severely thin the growths of all laterals and disbud freely, giving at the same time some good manure, and some wonderful flowers will be produced that will well repay anyone for the extra trouble involved. No Rose, unless it be Catherine Mermet and seedlings from it, can approach the variety under notice in the ideal form, namely, good pointed centre. The colour is rosy flesh, shaded with yellow at the base, and the growth is very free. It should be added that fine weather is necessary to see this Rose at its best. Under glass, either as a pot plant or planted out, it does well.

SOCIETIES AND EXHIBITIONS.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The fifty-ninth anniversary dinner of this institution took place on Wednesday evening last in the Whitehall Rooms, Hôtel Métropole, when, through the regrettable absence of the Duke of Portland from ill-health, the chair was kindly taken at the last moment by Sir Oswald Mosley, Bart. Anniversary dinners are much like one another, but we have never been present at a more pleasant gathering than the one on Wednesday. Amongst those present were the Dean of Rochester (the Very Rev. S. Reynolds-Hole), Messrs. H. J. Veitch, Arthur Sutton, N. Sherwood, Geo. Monro, G. A. Dickson, Arthur Turner, J. James, A. F. Barron, J. Hudson, Geo. Wythes, J. H. Laing, W. Baker, H. Manning, J. G. Veitch, J. Veitch, and many others.

After the usual loyal toasts had been proposed, the chairman wished "Continued Success to the Gardeners' Royal Benevolent Institution," and in a commendably brief and interesting speech urged the claims of the institution. He reminded those who had the interest of the gardener at heart that the need for this institution was very pressing. It encouraged the principle of self-help by giving preference in granting relief to those who had subscribed to it. Sir Oswald was happy in his remark relating to employers, who, he said, would be wise if they did the same, and when their employes were old and sick and in receipt of help from societies to which they had subscribed in times of prosperity to give their assistance also. All gardeners if possible should become subscribing members.

Mr. H. J. Veitch, the treasurer, who responded to this toast, was warmly welcomed. He said the Duke had written regretting deeply his inability to be present, but offered to take the chair on some future occasion. He was pleased to say that the institution had prospered during the past year. There were 168 pensioners on the list, and thirty-four pressing cases waiting for election. The number of applicants had more than doubled during the past year, when they also established the Victorian Era Fund, which was to give temporary relief to candidates waiting for pensions. They asked for £5000, and had obtained £4000, which was satisfactory indeed considering the tremendous efforts made on all sides in 1897 to raise funds. The interest from this fund will go to the relief of persons not yet elected, as previously mentioned. Mr. Veitch referred to the legacy left by Mr. Thomson to the institution, an example that might be followed.

The Dean of Rochester made a happy speech, which provoked continuous laughter, when proposing the toast of "Gardening," to which Mr. Arthur Sutton responded. Mr. Sutton pressed home the importance of encouraging the auxiliaries, to which Mr. Veitch also made allusion in his address.

A new toast was "Our Country Friends," proposed by Mr. George Monro, who said that this was the first occasion upon which it had been pro-

posed. He alluded to the great help that came from country friends, and to this toast Mr. George A. Dickson replied. The health of the chairman was proposed by Mr. Sherwood, and brought a very pleasant evening to a close.

We must not forget one impromptu toast, and that was "The Secretary," Mr. George Ingram. All who have watched Mr. Ingram's keen interest in this institution will be pleased to know that his efforts are appreciated. He thoroughly deserved all the good words spoken of him.

The musical arrangements and the decoration of the tables were faultless.

Mr. Ingram announced that the list of subscriptions and donations amounted to £2350, including 50 guineas and 10 guineas annual subscription from the chairman, 50 guineas from the Duke of Portland, 50 guineas from Mr. Harry Veitch, 100 guineas from Messrs. Rothschild, and 100 guineas from Mr. Arthur Sutton (50 guineas of this for Victorian Era Fund); Leonard Sutton, £50. Mr. Monro's list was upwards of £130; Mr. Sherwood, 50 guineas; Mr. Coleman, 50 guineas, &c.

Royal Horticultural Society.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, June 14, in the Drill Hall, James Street, Westminster, 1 to 5 p.m. This will be the first meeting at which the Sherwood £10 10s. silver cup for annuals and biennials will be competed for. A lecture on "Hybrid Orchids" will be given by Mr. James O'Brien at 3 o'clock.

NOTES OF THE WEEK.

Cheiranthus Marshalli.—The exceptional colour of this plant renders it well-nigh unique, and certainly among the best subjects both for the rock garden and for spring bedding where the latter is made a feature. The above and *C. alpinus* are now quite a mass of colour and of especial value.

Dryas octopetala.—A beautiful patch of this at Kew nearly 3 feet across is just now smothered with its handsome white flowers that are not much raised above the close, low-spreading growth. *D. Drummondii*, a trailing kind, is less frequently seen than this, yet a good plant in certain suitable positions.

Eremurus himalaicus.—A fine group of this species is among the attractions of the moment in the upper portions of the rock garden at Kew, where four handsome spikes may be seen. One of these, so far as could be determined, appeared to be nearly 10 feet in height. The same species was abundant at the recent Temple show.

Aquilegia Stuarti.—This handsome species is among the best of dwarf kinds now in bloom, and a goodly-sized mass in full flower constituted a conspicuous feature in Mr. Perry's group at the Temple show. The dwarf, sturdy character of this kind, as also its great freedom, should render it welcome generally in the rock garden.

Lychnis Haageana.—A well-flowered example of this brilliant perennial was in Messrs. Jackman's group at the Temple show. This is certainly among the most showy of border plants, the individual flowers very large and freely produced on sturdy, leafy stems not more than 2 feet high. Deep, rich and comparatively light soils suit this group of hardy flowers.

Heuchera sanguinea var. alba.—This is simply a pure white variety of a well-known plant. The type in some soils is shy flowering, possibly the outcome of excessive drought. In all such the tuft should be parted biennially and the ground well manured. In some shady positions where extremes of dryness do not obtain, the typical kind often flowers grandly.

Iris cristata.—Some lovely patches of this pretty species are flowering abundantly in the rock garden at Kew at the present time, where it is quite a feature. The species is not particular as to soil, but appears to appreciate a rather firm surface, and will raise its rhizomes on this and flourish. In quite light soil, and again in heavy soil of a clayey nature, the plant flowers well when established.

Maianthemum trifolium.—A solitary spike, or even a dozen, gives no idea of the exquisite beauty of this pretty plant when it has formed handsome and

spreading patches 2 feet or more across. In such condition its pure white spikes are singularly pretty and neat; indeed, in the latter respect both in foliage and flower the plant may be regarded as almost unique. It is now flowering freely at Kew.

Rhododendron myrtifolium album.—This is perhaps the dwarfest member of its race, the smallest plants barely 3 inches high, each bearing a truss of pure white blossoms. This pigmy little member of a most showy race should find a suitable home among choice rock shrubs, where in company with such as *Daphne rupestris* and other similar genera it would prove an acquisition.

Primula capitata.—It is obvious that I am in error in confusing the above with another well-known Himalayan species, viz., *P. denticulata*, as having done so well in Mr. Dod's garden at Edge Hall. Nothing was further from my thoughts than to misrepresent facts as stated by Mr. Dod, and I hasten to say it is due entirely to my having trusted to memory whereby the two species were thus confused.—E. J.

Onosma Bourgei.—Though quite distinct from other members of this small group, the species here noted can scarcely be regarded in the light of a generally useful rock plant. Less showy and indeed less beautiful than the ever-welcome and showy *O. tauricum*, it appears also less vigorous and free in the numbers of its rather smaller pale cream-coloured blossoms. It is a native of Armenia.

Ixiolirion Ledebouri is a very distinct and desirable species that so far is but little known or grown in gardens, yet deserving more general cultivation. It is, perhaps, not sufficiently hardy to be placed in the ordinary border, but where a sunny position exists for such things as *Calochorti*, *Zephyranthes*, &c., the above should find a congenial home. The delicate lilac-manve flowers are very distinct.

Fritillaria recurva.—Quite recently we have seen much of this species in flower, a proof, we trust, that it is either more plentiful or that its culture is better understood than formerly. It is quite unique in its scarlet recurring blossoms, and if greater permanent vigour could be secured, it would be of much value in the choice border or in the rock garden. In loam, peat and sand in equal parts it grows quite freely.

Chrysanthemum segetum.—What a bright-coloured bloom this is, and so large and beautiful when autumn sown. I have several hundred plants now in flower on the Daffodil ridges, also the blue Cornflower. The yellow of the one and the blue of the other mixed with the bronze foliage of *Epimediums* are most lasting in a cut state, the *Chrysanthemum* lasting for three weeks in water.—W. B. HARTLAND, Cork.

Eremurus robustus Elwesianus.—A giant spike of this noble kind, some 8 feet in height, was a fine feature in Mr. Ware's group at the recent Temple show. It was perhaps the most perfect spike of its kind yet seen, and from base to summit was without flaw. Quite half, possibly much more, of its entire length was crowded with the delicate flesh-tinted flowers, the latter on short stalks 3 inches long so arranged as to constitute a perfect column-like pyramid of blossom.

Anthyllis montana is a creeping alpine of sterling worth and withal of no common order, yet so beautiful a species is not so often seen as its merits really deserve. The soft, downy nature of the close-growing prostrate tufts of which the plant is composed is a feature, and when studded with the crimson, white-striped heads of flowers is most pleasing. The plant is of quite easy culture, and when well cared for soon forms a good-sized tuft of its spreading woolly leaves.

Rosa gigantea.—Of two plants of *Rosa gigantea* planted in autumn, 1891, one perished in the spring of 1895; the other—on west wall of my house some 10 feet or 12 feet high—is quite healthy, but has never shown any sign of bloom. The first two cold winters, though protected, it was cut to the ground, but has not been since, though without protection except a heavy mulch. Last winter it remained more or less evergreen, but the leaves are not so large as in the earlier years.—J. R. D., Reigate.

Flowers from Winchmore Hill.—I send you per separate post a few flowers of *Pentstemon Menziesii*. I have a clump nearly 3 feet across with over 300 flower-spikes. It is a plant, I think, well worth figuring. I also send two flowers of hybrid Poppies, one quite a new shade of colour and the other most distinct in form from any

other. *Geum montanum* var. *aurantiacum* is also a seedling, and is quite distinct in character and colour from either of its parents, *G. Heldreichii* and *montanum*.—AMOS PERRY, JUN.

* * The *Pentstemon* is charming in form and colour.—ED.

Iris Leichtlini.—This lovely species was one of the most beautiful things in Messrs. Wallace and Co.'s group at the recent Temple show. It is perhaps one of the most exquisitely marked of all, the standards of a distinct smoky bronze and shaded blue, the falls violet and bronze. The most striking characteristic in this species is the erect deep azure-blue beard or crest on the upper part of the falls. This is probably unique. The lovely *I. iberica*, the noble *I. atrofusca* emitting its unique fragrance, and several forms of *I. Korolkowi*, notably *I. K. violacea*, *I. K. concolor*, &c., were great attractions in the same exhibit.

Pinguicula grandiflora (Butterwort).—One of the prettiest plants in flower just now is the above, the Irish Butterwort, yet not so freely cultivated as may be expected when the beauty of the plant is considered. Essentially moisture-loving, *Pinguiculas* give but little trouble if rightly placed. To some extent a position akin to that for *Ramondia* would be suitable if greater moisture were forthcoming. Some kinds will grow quite well on the face of a moist rock, but more generally suitable is a slight projecting ledge of rock where a handful of *Sphagnum* and soil may be placed and opportunity afforded the roots for entering to the soil behind. The violet-purple blossoms of this plant are now very attractive, and where freely grouped in moist or wet peaty beds with hardy *Sarracenas* or *Cypripediums*, are very pretty.

Cytisus Adami.—I have sent you this morning per passenger train a branch of *Laburnum* from a tree which has three distinct sorts growing on one branch. I was obliged to cut it to get it into the box. The dull-looking flower smells very sweet—indeed, quite different from the yellow. I should like to know if you have ever seen anything like it before on one tree.—W. RICHARDSON, *Hassocks Nurseries*.

* * Your tree is the curious hybrid *Cytisus Adami*, and shows *Cytisus purpureus* (small leaved), *Cytisus Laburnum* (yellow flowers), and *Cytisus Adami* with large pale purple flowers. This last is supposed to be a graft hybrid between *C. purpureus* and *C. Laburnum*, and cases are very frequent of all three varieties growing on the same tree.—ED.

Flowers in the North.—Having been through my shrubberies and gardens this morning and thinking they looked specially lovely, I picked a few specimens of the blooms which struck me most, and hope you may make some mention of them in THE GARDEN. I think you will say we have done well to grow *Habranthus pratensis* and *Crinodendron Hookeri* in the open air on the west coast of Ross-shire. Everything I send you has been grown unprotected. A few days later I could have sent you *Incarvillea Delavayi*, *Mitraria coccinea*, and *Olearia macrodonta* full of flower. The *Libertias* are wonderful just now with flower-stalks nearly 4 feet high. *Schizostylis coccinea* blooms in early summer as well as in late autumn with me. I send you the following: *Ceanothus dentatus*, *Erica arborea*, *Erica australis*, *Crinodendron Hookeri*, *Rosa acicularis*, *Genista præcox*, *Genista Andreeana*, *Azalea* (scarlet) *Fritz Guihoo*, *Azalea rustica flore-pleno*, *Magnolia Lennei*, *Camellia* (double crimson), *Buddleia globosa*, *Olearia Gunniana*, *Libertia formosa*, *Libertia ixoides*, *Habranthus pratensis*, *Schizostylis coccinea*, *Ixias*, *Ourisia coccinea*.—H. G. MACKENZIE, *Inverewe, Poolewe, N. B.*

* * A most charming lot of flowers, the *Crinodendron* being in fine bloom and vigour; the tree *Heaths* also remarkable coming from a northern county. The *Habranthus*, too, is fine in colour and distinct.—ED.

Iris nigricans.—Among the more recent additions to the Cushion Irises this handsome form appears one of the best, particularly of the dark

forms, as implied by its specific name. So far as can be determined by present experience it promises also to be somewhat more free in growth and flower. The plant is a little over a foot high, very compact and erect, not the inclining growth of either *I. atrofusca* or *I. nazarenensis*, for example, the handsome and well-proportioned flowers being of a dark purple mingled with grey in the upper petals, and a crimson-maroon shade in the lower, with an intense black blotch and dark beard. With age, however, the colour changes to a fine brownish velvet crimson, and the flower has a peculiar yet pleasing fragrance. In short, it is an acquisition to this section. The first flower began to expand on June 1.

PUBLIC GARDENS.

Supplying flowers to schools from the public parks.—The School Management Committee reported that they had had their attention called by their chairman to a report as follows from the British Embassy at Berlin, giving the arrangements made in Berlin for supplying primary schools with flowers from the public parks: "In the town gardens here (Berlin), and especially in 'Humboldt-Hain,' flowers are gathered in proportionate quantities during the summer months of the year, and are placed at the disposal of the upper grade and lower grade municipal schools, at their desire, and also at the disposal of private schools for a consideration, for the purpose of furthering the study of botany. The flowers are sent to the schools in especially ordered carts twice a week; they are sent in bundles, each bundle containing fifty specimens of the same species of plant, and only one bundle falls to each botany class. The names of the plants which may be expected during the week are published every Sunday in the public Press. Flowers from the town gardens are not supplied for the decoration of schools, or making presents of them to scholars." The committee were of opinion that similar arrangements might possibly be made in London, and with a view to achieving that object recommended that letters be addressed to the London County Council and to Her Majesty's Office of Works, setting forth the arrangements which were now made in Berlin for supplying flowers from the public parks to the elementary schools, and inquiring whether somewhat similar arrangements could not be made for the benefit of public elementary and other schools in London. On the motion of Mr. Graham Wallis it was decided that letters be addressed to the London County Council and to Her Majesty's Office of Works with reference to supplying flowers to schools in accordance with the terms of the report.

Metropolitan Gardens' Association.—A meeting of the Metropolitan Public Gardens Association was held at 83, Lancaster Gate, recently Sir William Vincent presiding. The Hon. Dudley Fortescue asked whether anything had been done in reference to the Baptist Burial Ground, Long Lane. The secretary replied that if the vestry were ready to take up the lease on the same terms as the Friends' ground, the association were prepared to lay out the same. The question of the Postmen's Park, Aldersgate Street, was discussed. The secretary (Mr. Holmes) gave important information concerning the possibility of acquiring half the ground at once. If £6000 were paid, the other half could stand over for two years. But he understood building was being commenced. He suggested that the subscriptions already obtained should be used to secure part of the ground, and that a contract be signed on the lines laid down in the solicitor's suggestion, viz., that £1000 be paid down and the £6000 be paid by June 21, and the other half be open for purchase within two years. The question was raised whether the sums collected should be used for this purpose. Eventually, on the proposition of the Hon. Dudley Fortescue, it was resolved that the secretary be instructed to acquaint the subscribers

of £5 and upwards that the money collected by the association would be used to secure half of the ground, including the entrance from Little Britain, with every hope that the other portion would be secured during two years. The conference then discussed other subjects, including the site of Christ's Hospital, which, it was stated, the Midland Railway Company desired to acquire for the purpose of a central station.

OBITUARY.

Mr. S. Spooner.—We regret to have to record the death, on the 3rd inst., of Mr. Stephen Spooner, of the Hounslow Nurseries, at the age of seventy-five.

Mr. John Gibson, of the Erleigh Road, Reading, died very suddenly at his residence on the morning of the 7th inst. at an advanced age. Occupying a position of trust in the railway clearing house, which occasioned a great deal of travelling, he devoted much of his leisure time when at home to his garden, and found great pleasure in it. Though small in size, this garden was full of not a few things of interest. He had a fine patch of *Irish reticulata*, which was particularly striking in spring. He also grew a select collection of *Daffodils*, adding a novelty from time to time. These, being well cultivated, grew with great vigour among his bushes of *Tea Roses*, and flowered finely. He had a small but carefully selected collection of *Tea Roses*. He was successful in striking cuttings of *Tea Roses*, putting them in in little patches in the shady portions of his borders, and covering them with small glass vessels under which they rooted. The *Auricula* found in him a great admirer, and he had small collections of the best named show and alpine varieties, which every season he carefully fertilised and raised seedlings. He was most careful in the selection of his seed parents, as he bred only for the best possible results, and every cross was systematically recorded. He succeeded in raising some highly promising alpine varieties, always insisting upon high quality in his seedlings, and rejecting everything that did not come up to his standard. The National *Chrysanthemum*, the National *Auricula*, and the National *Carnation Societies* have lost a valuable supporter.—R. D.

Carpenteria californica.—Will some of your readers tell me if there are two varieties, both in leaf formation and blossom; the distinction in foliage being that of a broad and narrow-leaved *Veronica*; the bloom as between that of *poeticus ornatus* and the common *May-flowering poeticus*?—W. B. HARTLAND.

The weather in West Herts.—Since the beginning of the present month the temperature has been gradually rising, and instead of being about 8° colder is now several degrees warmer than is seasonable. The ground has also become warmer, particularly at 1 foot, but both at 1 foot and 2 feet deep the soil is still somewhat cold for the time of year. Rain fell on four days, but to the total depth of little more than a quarter of an inch, and no measurable quantity of rain-water has come through either percolation gauge for three days. The sun shone on an average for over six hours a day, and on the 7th inst. fourteen hours of clear sunshine were recorded. The second *Rose* to flower in my garden was *Rosa altaica*, which was in blossom on June 3. The wild *Dog Rose* was first out on the 7th, or three days later than its average date in the previous twelve years, and later than in any of those years since 1892.—E. M., *Berkhamsted*.

Names of plants.—M. S.—Look like forms of *Acer*, but impossible to say from such dried-up scraps.—A. C. *Bartholomew*.—1 and 2, forms of *I. sibirica*; 3, *Ornithogalum pyramidale*; 4, *Allium paradoxum*.—G. F. W.—*Andromeda* (*Pieris*) *formosa*.—J. Roberts.—The *Lilac* is, we think, *Geant des Batailles*.—C. Parker.—*Cytisus Adami*, see note above.

directions under Furze bushes that had been in flower nearly all the winter, and now Foxgloves are pushing up their spikes of bloom amongst the graceful fronds of the common Bracken, while the drooping branches of the Birch trees are always admired by those who come to this centre of Strawberry growing, where piles of baskets are in readiness for the pickers, and ranges of new fruit vans provided by the South-Western Railway look as if a busy time for the next month or so was anticipated.—JAMES GROOM, *Gosport*.

Fabiana imbricata.—This pretty Chilean shrub, which was represented at the recent Temple show, thrives better, as a rule, in seaside districts than it does inland, and along our southern and western coasts grand examples are sometimes met with. In many parts of the country it needs the protection of a greenhouse, but where this is not necessary it forms a first-rate wall plant. It is a fairly quick-growing shrub of a somewhat upright habit, clothed with very small crowded leaves and bearing a good deal of resemblance to a Heath, from which, however, it differs widely from a botanical point of view, as, instead of being in any way related to the Erica family, it belongs to the order Solanaceae. The flowers are pure white, tubular in shape, and borne in great profusion. They remain in good condition a fairly long time. This *Fabiana* is not at all difficult to propagate from cuttings of the half-ripened shoots dibbled into pots of sandy soil and kept close in an ordinary garden frame till rooted.—T.

Rhodotypos kerrioides.—This shrub is often referred to as a *Kerria* (an instance of this occurring recently in THE GARDEN), and it certainly bears a considerable amount of resemblance to the members of that genus. It was introduced about thirty years ago, and is by most authorities referred to as a native of Japan, but Professor Sargent in his "Forest Flora of Japan" questions the correctness of this. The *Rhodotypos* in question forms a free-growing bush, that usually reaches a height of 6 feet or thereabouts, and is clothed with ovate acuminate leaves, which are distinctly plaited and much serrated. They are also somewhat silky on the undersides. The blossoms, which form a most conspicuous feature, are each about a couple of inches in diameter, pure white, and a good deal like a single Rose. They commence to open in May, and in the case of a thriving specimen a scattered succession is kept up nearly throughout the summer. It is quite hardy and not particular as to soil, but still it succeeds best in a fairly good, well-drained loam. The *Rhodotypos* is not at all a difficult subject to propagate from cuttings, while seeds are also occasionally ripened.—T.

Cytisus purpureus.—Among the hardy shrubs exhibited by Messrs. Veitch at the recent Temple show this species of Broom was particularly noticeable, not so much from its display (as there are other species more showy), but from the fact that it stands forth almost alone in the colour of its blossoms, which are of a pinkish purple hue, and are therefore totally distinct from the yellows and whites which prevail almost exclusively throughout this genus. The purple Broom forms a low-growing shrub, whose slender branches are disposed in a very graceful manner, and just now they are wreathed with blossoms throughout the greater part of their length. It is sometimes grafted standard high, and from its semi-pendulous character it forms a very uncommon specimen, but at the same time it is, I think, far more effective in its natural form of a dwarf spreading bush. That curious Laburnum known as *Adami* owes its origin to this species, being a graft hybrid between *Cytisus Laburnum* and *C. purpureus*. This, which has the habit of the *Laburnum*, produces three kinds of blossoms—first, the *Laburnum* pure and simple; next, *C. purpureus*; and thirdly, an intermediate form with purplish yellow flowers.—H. P.

Shrubs at Enfield.—As I only see THE GARDEN in monthly parts, my remarks upon catkin-bearing trees and shrubs are rather out of

date. I may, however, say that the male *Garrya elliptica* flourishes with me as a border shrub, and this last January it was loaded with catkins, many of them 10 inches long, and the showers of golden pollen which fell when the plant was shaken were a sight to be remembered. My specimen is 8 feet high, and would have been larger but for a check it experienced by removal three years ago. *Choisya ternata* also does well here, one plant being 7 feet high and 9 feet in diameter, and of most symmetrical rounded shape. It blooms twice a year profusely. A *Magnolia Lennéi* planted in the spring of last year as a standard has not only flowered well, but has set six fine fruits. A plant of *Nicotiana affinis* has occupied the same position in an open bed for the last three years, and throws up new shoots from the old stool each spring. My garden is between 300 feet and 400 feet above sea level, and on the eastern slope of the high road leading to Potters Bar. From what I have told you, it would seem that many shrubs and plants are not so tender as is generally believed.—T. C. GREENFIELD, *West View, Enfield*.

Variation and its effects in gardens.—At the Temple show, speaking to an exhibitor of things in the open air, mostly composed of variegated plants and shrubs, we asked him about the absence of the good things he knew we had, such as *Rhododendrons*, *Kalmias*, and *Hollies*. He said he believed people "liked a bit of colour," referring to the spotted "stuff" shown, few of which are of the slightest consequence for garden use. And if those things look poor and hard in the nursery, what are we to say of their effect in the garden, where, happily, many of them die away. We except the gold and silver *Hollies* as among the few variegations worth seeking, but even these should be used with care. We mean in gardens where the true colours of the trees are preferred—infinately more beautiful as these always are—and where there is any attempt to make the garden a picture, which is always quite a practicable thing. Among the most worthless are the variegated conifers, of which scores have been sent out with much flourish, not one of which is of the slightest value from the garden point of view, most of them being diseased objects, as in the case of the variegated *Wellingtonia*, which, wherever it survives at all, shows well the folly of planting the variegated conifer.—Field.

Laburnums.—Although we see in some districts and even in individual gardens rather too many of these flowering trees in the early summer, yet very much is forgiven when some of them are late, and especially have long pendent racemes of bloom of a rich yellow hue. I have noticed in several directions that whilst all the earliest bloomers are over or fading away, here and there some few late trees, because so much more rare, seem to have been singularly beautiful. I could but notice one such close to Herne Hill Railway Station on the 7th inst. that was in lovely form, the racemes of bloom each fully 12 inches long, hanging down in glorious profusion. So many of these, too, seem to have a stunted aspect, as though worked on stocks that strangled growth, and if from seed, then of a bad strain. Probably little thought is given by nurserymen to this matter. In some cases check to root action, perhaps arising from the crowd of shrubs and trees about them, leads to this stunted growth and stubbornness of the floral appendages. Hard cutting back, rendering the creation of new, longer growth needful, helps to remedy the defect somewhat, but the original character of the variety presently returns. The trees which have fairly robust shoots and leafage and produce these long racemes of flowers may not carry such masses of bloom, but that is far from being loss. When there is a fair blend of flower and foliage, the effect obtained is far more pleasing.—A. D.

Larix Lyalli was discovered in 1860 by David Lyall, the surgeon of the British Commission which marked the northern boundary of the

United States west of the Rocky Mountains. It is a small tree, rarely 75 feet in height, with a trunk generally 18 inches or 20 inches, but occasionally 3 feet or 4 feet in diameter, and remote, palmately divided, exceedingly tough, persistent branches, thin, dark red-brown scaly bark, cones from 1½ inches to 2 inches in length. *Larix Lyalli* grows only near the timber line, at elevations between 4500 feet and 8000 feet above the level of the sea, and is distributed from Southern Alberta and the interior of Southern British Columbia southward along the Cascade Mountains, and through Northern Washington to Mount Stuart, one of their eastern spurs at the head of a fork of the Yukima River. In Alberta this alpine Larch grows on steep slopes and benches, usually facing the north, either singly or in groves of a few hundred trees, and alone or mixed with *Engelmann's Spruce*. In the region where the boundary between British Columbia and the United States crosses the Cascade Mountains, and where it was probably discovered by Lyall, *Larix Lyalli* is scattered at an elevation of about 6000 feet above the sea, over undulating grass-covered table-lands, where its associates are *Pinus albicaulis*, *Abies lasiocarpa*, and *Tsuga Pattoniana*. On Mount Stuart, where it finds its most southerly home, the trees form a straggling line along the upper margin of the forests, or occasionally small irregular groves up to 8000 feet above the sea.—C. S. SARGENT, in *Gardeners' Chronicle*.

The double white Chinese Cherry (*Cerasus serrulata*, or *Sieboldi*).—Without question this is at once the most beautiful and useful of all our flowering small trees or shrubs. The height given by the authorities is 15 feet, but one seldom meets with plants more than half that in stature. As it was introduced from China in 1822, it can hardly be that it has not had time to arrive at its full stature. The only tall plants I have met with have been drawn up in thick shrubberies. Single plants on lawns or in front of shrubberies, or groups of the double Cherry have frequently a stunted appearance, as if the process of doubling its petals into round balls proved rather too much. The gnarled look of the stems points to the same conclusion. Certainly this is one of the few plants that the doubling of the flowers does not mar, but enhances the beauty of. It is surprising that this most useful and showy plant is not more grown. Many private and not a few public gardens seem without it, and in few or none is it met with in quantity proportioned to its merits. There are a few small plants in some of the squares of Edinburgh, and one or more fine plants in the Royal Botanic Gardens near to the water garden. This beautiful tree has been in full beauty all through May, and is carrying many of its silvern balls into June this year. It is hoped that some at least of the many thousand visitors that visit these fine gardens during the year will make a point of planting and growing this double-flowered Cherry.—D. T. F.

Azalea robusta.—Some charming varieties of this pretty section of hardy *Azalea* were noted at the recent Temple show. They were mostly in pots and in the form of large spreading bushes covered with bloom, showing that they are equally adapted for greenhouse work as they are for outdoors; indeed, the delicate-looking blossoms seemed grateful for the protection that had been given to them. For delicacy of colouring they vie with the better known sections, and, as with many of the mollis varieties, the colours are so wondrously shaded and blended as to make a written description next to impossible. Though the flowers are double there is nothing lumpy about their appearance, and the slight doubling is an advantage, as the flowers do not drop so quickly as is the case with the single forms. A selection comprising the most distinct and beautiful of those shown at the Temple show includes such pretty forms as *Virgile*, pale lemon; *Phoebe*, deep lemon; *Ribera*, white, with a delicate pink suffusion at the base of the flowers; *Byron*, pure white; *Rosetta*, delicate flesh-coloured; and *Freya*, pale salmon-apricot with creamy shading.

Groups of these Azaleas carefully arranged as to colour and planted in suitable soil, so that they would make a healthy growth, would be charming. It is useless planting them on chalk lands unless the natural soil is excavated to a good depth and its place taken by other soil containing much decayed vegetable matter, the exact nature of which is of very little consequence, but the nearest possible approach to peat is the best.—J. C. TALLACK.

Choice Acers.—Many of the Acers make charming shrubs for a sheltered position. There is a great diversity in their foliage, some being as delicately cut as Maiden hair Fern, others, like the japonicum section, but slightly indented or lobed; there is also great variety in the colour of the leaves, some being deeply bronzed, others variegated with many colours, others again have beautiful shades of green, while one or two are yellow. A pretty well-known form, generally known under the name of *A. Negundo variegatum*, does not belong to the true Acers, and is classified under the name of *Negundo aceroides variegatum*, but the treatment which suits this best is suited also for the true Acers, and consists in giving shelter and planting in a good, deep, well-drained loam. All of the varieties here named are good also for pot culture, and they include quite the cream of varieties for general decoration as low shrubs, but none of the well-known forms, such as *A. platanoides* and its varieties, which grow into timber trees in this country. All but two or three belong to the palmatum section, which gives the most diverse form of leafage. *A. p. atropurpureum* is one of the most vigorous forms, with large dark purple leaves, and must not be confused with *A. dissectum atropurpureum*, the latter having leaves of the same colour, but much more serrated. *A. p. dissectum palmatifidum* is a very finely-cut-leaved, almost Fern-like variety, light green in colour, and there is also a variegated form of this which is not nearly so effective, as the variegation makes the colouring indistinct and weak. *A. p. roseum marginatum* is much better than the last-mentioned, the leaves being light green, with bright rosy margins, and *A. p. sanguineum*, the crimson-red leaves of which are five-lobed, has also a variegated variety that is effective. In the japonicum section the best form is *A. j. aureum*; the golden leaves in this are most striking; and *A. j. laciniatum*, too, is beautiful, with deeply lacinated leaves, light green when they open, but changing to red as the summer advances.—J. C. T.

NOTES & QUESTIONS.—TREES & SHRUBS.

Flowers of Rhododendrons.—I have seen it stated that after Rhododendrons have flowered, the truss should be cut off and the plant prevented from seeding, which weakens it. Can you tell me if this is correct?—T. W. CRASTER.

* * Quite right; the old faded flower truss must be picked off. There is no need to use a knife, as by a slight twist the flower-head can be broken off without interfering with the shoot in any way.—Ed.

Weigelas not flowering.—In the winter of 1896-7 I planted a clump of Weigelas in a rather shady and damp position. Last summer they flowered profusely. Last winter I planted another clump beside the first. This summer I find those first planted have not got a single bloom on them, while those planted last winter are going to bloom well, just in the same way as those first planted did last year. Can you suggest any reason? Can the place be too shady for them?—T. W. CRASTER, *Craster Tower, Northumberland.*

* * We fear the position is too shady, preventing the wood getting thoroughly ripened. This is all the more likely to be the case, since the second lot of plants is also going to bloom well, showing that the wood has been well ripened before the plants came into your hands.—Ed.

Genista pilosa.—This *Genista*, which is a native of Britain, though not very plentiful, is

flowering with such freedom that the entire plant is quite a mass of its rich golden-coloured blossoms. It is of a low, spreading style of growth, being as a rule under a foot in height, hence it is particularly adapted for rockwork or as an edging or groundwork to the larger Leguminosæ. The little lanceolate leaves, which are freely produced, are clothed on the under surface with silvery hairs, from whence the specific name of *pilosa* is derived, but there are other species more hairy than this. The *Genista* in question is of wide geographical distribution throughout Central and Southern Europe, and in this country well merits attention as a beautiful free-flowering, low-growing shrub.—T.

KITCHEN GARDEN.

CABBAGE SPROUTS.

AFTER reading Mr. Tallack's note (p. 411) I fear it will be difficult to convince him that a young Cabbage is of equal quality, with shoots from plants that have given one supply and are left to produce another. This is a point both of us have briefly touched upon in earlier numbers, and I would not have alluded to it again, but Mr. Tallack claims "A. D." as being in favour of leaving old Cabbage to be cut over for sprouts. I do not think "A. D." was much impressed by the practice, as he adds, "Presumably the practice is not universally followed." It is, if that is any comfort to Mr. Tallack, and doubtless I am in a very small minority as regards my views. I note "A. D." at p. 346 says the small precocious varieties of Cabbage are elbowing out the large ones. He then names varieties for succession. What are they wanted for if the others are left for a supply? Quickly-grown Cabbages are of more value than an untidy quarter of old plants. Some years ago I was called in to advise as to the vegetable supply of a large garden falling short. I must admit this department did not receive due attention, the result being that the family got far too many of the sprouts Mr. Tallack notes, but with this difference, that the plants were left nearly two years from time of planting, being cut over again and again. The more the plants are cut the rougher the material, and I never saw a quarter so untidy in a garden with the usual labour at command. This slovenly work so impressed me that I have never left spring Cabbage to produce a second crop. As "A. D." truly says, with the great advantages we have in these days in the wealth of quick-growing varieties there is no need to do so, as I am sure by attention to rotation of crops much better results will be secured from young plants. Land planted last September with early Cabbage is difficult to keep clear of weed growth, and if the Cabbages are to be left to produce shoots, the cost of cleaning must be considered, and though, like Mr. Tallack, I advise early cutting, I would also advise early rooting up, relying on a new quarter for summer supplies. It may be that labour is deficient. It often is, but if so there will be no loss of time, as the new beds are soon planted and take no more time than clearing old leafage from the old ones. My Celery invariably follows spring Cabbage. I usually plant the Cabbage on the land cleared of Onions, not dug, as, being hard, a sturdier growth is secured. A later lot is planted in October or November with a planting in February or March, so that a succession is obtained, and a pinch of seed sown in heat will give a summer supply. I am aware planting takes time, but the gain is real, as the quarters always present a neat appearance, and what is so great a gain, the land is

given better cultivation. This should not be overlooked. I am aware autumn-planted Cabbage will give a lot of shoots, but there must be time to produce them, and I find it more profitable to clear quickly. I am in a better position to do so, as, requiring a large quantity of vegetables to send away, a row or two may be cleared at once, not a plant here and there over the whole bed. Early in the year it may be necessary to pick heads, but not at the time the plants have made shoots. I am aware it is an old practice to leave plants to produce shoots, but I would not advise it. Such kinds as Tender and True, Favourite, and Main-crop grow so quickly and are of such excellent quality, that I do not think shoots can be compared with them. My note would not be complete if I did not notice "D. T. F.'s" remarks (p. 474). He strongly supports Mr. Tallack—in fact, he goes much further. He says the plants can be cut over a second time, indeed, several more crops can be taken; by leaving to cut several more times the ground is being impoverished, and the kitchen garden is anything but neat. I call it an untidy mode of culture. I advise young plants, clearing away the old ones as soon as cut. G. WYTHES.

Carrot Summer Favourite.—Those who like a small root will not make a mistake in growing this variety. It is equally good in winter as in summer, and is of a bright scarlet colour. I have found it most useful for sowing in July or early August for winter supplies. I am not a lover of the large roots that are lifted in the autumn and stored. Doubtless this old system of culture is the simplest, but it does not give the best quality roots, and for years I have sown more frequently to get young roots. Summer Favourite is one of the best for sowing in frames or for early use in a sheltered border. I always sow a fair breadth at the period named for use during winter, and this variety never fails. Some of the Short Horn section are of much too pale a colour left in the soil so long, and do not look so nice when cooked. Being a small root, Summer Favourite does not need much space.—G. WYTHES.

Onions.—I fear many are not in the same position as "E. B. C." (p. 474) as regards the value of their Onion crops, as last year at times the demand for home-grown produce was so poor that it was anything but profitable. It will not do much good to cry over our losses. I noted that the imported produce was looked upon with greater favour by salesmen, and with an army of hawkers in all the principal towns the home-grown produce in the early autumn had a sorry time of it. Probably the roots in question "E. B. C." notes were stored, or they were sold green. If the latter, of course much depends upon the locality. I am at one with him in his remarks as to varieties and keeping. I could add Bedfordshire Champion as a grand keeper in addition to the kinds noted, but as the varieties of Onions increase so rapidly I fear there is little value in mere variety. The large quantities of foreign produce in our locality place local efforts at a great disadvantage, and I have heard of large growers giving up their culture on account of the small returns.—S. M.

Early dwarf Beans.—This year my first crop of dwarf French Beans is later than it has been for many years. This is unfortunate, as at the time of penning these notes there are none too many really good vegetables. Asparagus is fairly plentiful, but Cauliflowers and Peas are much later than usual, and this will make the loss of the Bean crop more felt. The cold nights have told badly on the dwarf Beans, and some plants are not worth keeping owing to the check. It may be asked, why plant so early? We do not always get so cold a May as the one just past, and in the severe weather we had four years last February we had much earlier produce than this year, as growth was not checked once

it had got a fair start. This year the early Beans, though protected with mats and some plants with hand-glasses, were frozen through the covering in May, and they have experienced a difficulty in pulling through. Strange to say, plants that were more advanced suffered most, and no matter how well hardened, this plant is the first to receive a check in such bitter weather. Those who can grow a late lot in frames will this season find them most valuable, as, though the supply during the forcing season has been ample, I find there is always a good demand for Beans at this date, when the forcing supplies are getting past and the open-ground supply is not in. I fear we do not grow enough vegetables in frames. I am aware many are at their wits' ends to find room, but far better devote a frame to dwarf Beans than, as is often the case, to bedding plants. Few plants give a better return in frames than dwarf Beans, and if the early kinds are grown they soon turn in; but should they receive a check they are a long time recovering, if they do at all. For years I have utilised cold frames for the last crop under glass, and have never found them more welcome than at the present time. These plants grown thus give little trouble. Of course, in severe weather they need covering and only small supplies of moisture. No Plus Ultra, Mohawk, and Early Favourite are the varieties grown.—S. H. B.

WHITE ARTICHOKE.

I AM sorry not to have replied earlier to Mr. Mayne's note on the above (p. 411), where he notes the failure of the white Artichoke and its poor quality. I fear Mr. Mayne has got hold of a poor variety of the white Artichoke. I have four distinct kinds, and the variety Mr. Mayne alludes to is so different from the ordinary round one first sent out that this should be noted. One of my new kinds differs so very much in shape, length and growth, that it is scarcely fair to class it with the smaller round, the one Mr. Mayne alludes to. Another form is more conical in shape and thicker in the middle than at the ends. This also is good. There are two round varieties almost smooth, but differing in colour, and from the note alluded to I expect Mr. Mayne's is one of these. So far I have never experienced the least difficulty in the way described. The tubers cook well and are much liked. I do not grow the old variety, as it will not be used if sent in after a good form of the white. The first white was Sutton's White, and this was such a decided improvement on the old form that it soon found favour. I would ask Mr. Mayne next autumn to give the white variety a trial himself as regards the cooking; he will find out that a good deal depends upon the cooking. Artichokes, like Potatoes, are inclined to take on a dark colour if cooked too long before being eaten. I need scarcely say Mr. Mayne is not alone in finding fault with the newer variety. I have heard from Mr. Tallack that his roots failed. I do not think it was the quality so much as disease of roots Mr. Tallack complained of. Mr. Mayne does not appear to have suffered in this respect. So far I have never had any disease. Of the varieties I grow, one from Africa is distinct, another from another part of the world is equally good, and the round whites are free of the faults Mr. Mayne notes. I should be sorry to go back to the rough, irregular-shaped roots of the old purple-skinned variety, as by care in selection of seed, tubers can be had little inferior to the Potato. I give the roots well-manured land, ample space and an open position. Doubtless this has something to do with quality. G. WYTHES.

Big Radishes.—As a visitor to the recent Temple show I was astonished to see the ridiculously big Radishes which were staged. Out of very many bunches only two or three were made up of what most gardeners would call eatable-sized roots. Had I not previously seen wagon-loads of similar rubbish in Covent Garden the same morning, I should never have thought it probable that such would be eaten by anyone,

and I pity the digestive organs of those called upon to do so. I presume that they do find consumers, but to take them as models of what should be grown in a private garden or shown in the exhibition tent is a great mistake, and tends to bring what was in many ways a good exhibition of vegetables, though it contained an element of coarseness in other things as well, into disfavour; indeed, it was an unpardonable blot.—CORNUBIAN.

Spinach—long-standing varieties.—I have never seen spring-sown Spinach so plentiful as this season, the dripping weather being favourable to growth. For use in July and August I have tried several sorts to test freedom from running. Some of the newer kinds are much better than the older kinds in this respect, and though they have different names, they do not vary much in shape of leaf, height, and freedom from running. I am not in favour of the prickly variety, as, though I have seen this advised for summer use, it does not give the thick, succulent leafage of the round-leaved type. The round-leaved forms are good selections of the Victoria, which was a great advance on the old round-leaved varieties, and the newer kinds, such as Carter's Round, Sutton's Long Standing, and a good type of Vilmorin's Round, are selections from the Victoria. Any one of these kinds is good for present sowing. Hard thinning is needed with these large growers, as if at all crowded they have not fair play.—G. WYTHES.

Broccoli June Monarch.—I have grown this variety for two seasons and am much pleased with it, as a Broccoli so late in a light soil is an acquisition. I am aware we have many varieties of Broccoli, but none too many good late varieties. No one will fail to give Model and Late Queen a good name. June Monarch is later, and this is again, as with Cauliflowers, quite a fortnight later this year than usual. Any variety of Broccoli which prolongs the season is worth a special note. June Monarch is not unlike Model in shape, with a beautifully formed, very solid and good-sized head, and does not open quickly, being well protected by leaves. Grown by the side of Model it was three weeks later. I intend to give this variety more space this year, as it prolongs the season when choice vegetables are none too plentiful. I saw a large breadth of this variety in a market garden and it was considered the best late Broccoli grown. In severe winters of course few varieties are hardy, but the one named is very reliable.—G. W.

Hicks' Hardy Lettuce.—I find no Lettuce to surpass this for standing through the winter. So hardy is it that it does not signify whether it has the shelter of a wall or not, and it endures the cold of an English winter with impunity. I generally have about 1000 plants of this variety set out every autumn, a portion at the front of a south wall, and the remainder under a wall having a western aspect. This is done with a view to secure a quick succession to those plants grown in cold pits. The plants occupying the warmest position invariably come into use about the middle of April, and the others follow on in rotation, to be presently followed by those planted out in the open garden. I also grow the same variety in the autumn for lifting and planting in cold pits for winter use, and find it all one could wish for. The Paris White and one or two other kinds of Cos Lettuces are grown for summer use, otherwise the kind under consideration is the one chiefly relied on, and it is without doubt the most useful of this particular class of Lettuce that we possess.—A. W.

Turnip Extra Early Milan.—Where Turnips are constantly in demand and the glass accommodation for growing early crops limited, the value of a very quick-bulbing kind comes in. Having no room to spare in pits to grow early Turnips, I have to depend on the above grown on an early border to give the first supply. I always sow early in March on a south border in rich, somewhat firm soil, as I find when the soil is solid the roots form less top and bulb more quickly. My first sowing this year was made on

March 15, and the bulbs were large enough to pull on May 28. The season being moist up to this time (June 9), not one has run to seed. The tops being so small, the roots take little room and soon begin to bulb. White Milan sown by its side was ten days later in coming in. By sowing Chirk Castle Blackstone for a very late crop, and allowing them to remain in the ground as late in the spring as possible, then storing in ashes at the back of a north wall, I find no difficulty in making the crop join hands.—DORSET.

NOTES AND QUESTIONS.—KITCHEN.

Pea May Queen.—There is no question as to the value of this fine Pea, either for early supplies under glass or in the open, and there is certainly no need to grow such varieties as Ringleader or other small round-seeded Peas. It is a very heavy bearer even in such seemingly unsuitable places as can be afforded it early in the year under glass. The pods yield well and the quality is first-rate. From a row about 20 feet in length I have picked half-a-dozen good dishes of well-filled pods.—H.

Turnip Jersey Lily.—I first noted the good qualities of this variety a few seasons ago when on trial in the Royal Horticultural Society's gardens at Chiswick, and, having now grown it, I am much pleased with its excellent quality. In shape it is perfect, being quite round, with a small tap-root and remarkably small top, this making it a most useful variety for gardens of limited size. In a light soil it never fails, and is much liked when sent to table. As a second early it is one of the best. It is from ten days to a fortnight later than Early Milan, but a better keeper, more solid, and a good variety for summer use, when the Milan type is not so good. I have grown it for storing in winter, and it keeps well into the spring, but I think its value is for summer and autumn supplies.—W.

Early runner Beans.—I noticed when recently in the garden at Woodhatch, Reigate, that there were in a broad span-roofed wooden frame some runner Beans that were then fully 20 inches up the 3-foot stakes. There were no lights on them, but the plants had been protected with lights so long as possible, and even after being staked had been partially protected at night with thin canvas. The shoots will be pinched when 3 feet in height, the object being to secure a few early pickings prior to the main-crop sowings coming in outdoors. Early dwarf Peas can easily be had in the same way; indeed, these broad span wood frames are particularly useful for these and similar crops, as, however moderately heated, it is easy to have what is grown under them two or three weeks earlier than on the warmest outdoor borders. Potatoes, Cauliflowers, Lettuces, Carrots, and some other desirable crops can be produced quickly with such useful and profitable appliances.—A. D.

Tomato Hepper's Goliath.—This now old variety of the ribbed type is the only one yearly sown and grown at Woodhatch. It is a wonderful cropper, throwing huge racemes of flowers that set well. Though a strong grower and a huge cropper it does not seem to need any extensive root room. In this case the plants are growing in a wooden trough 13 inches wide inside and 8 inches deep, and are planted 14 inches apart. The foliage at bottom close to the pipes had become a little yellow, leading to the conclusion at first that some disease was present. The proximity to the pipes seemed, however, to be the cause, for later growth had been very strong, the plants then being 6 feet in height and carrying a heavy crop, much of which was ripe and many fruits had been gathered. The earlier fruits are somewhat corrugated, but the later ones come of better form. These corrugated varieties seem best for early forcing; certainly it would be difficult to excel this variety for such a purpose. Hepper's Goliath has been grown at Woodhatch for many years, the seed being annually saved from the best fruits.—A. D.

FLOWER GARDEN.

DELPHINIUMS.

THE perennial Larkspurs are among the showiest of hardy herbaceous plants, most of them of noble port when grown in good form, and they provide gardens with lovely shades of blue that, but for them, would be wanting. Of late years named varieties innumerable have been sent out, many of which, though fine in their way, might easily be spared, for in selecting varieties for naming too much has been made of size and other qualities outside of colour and too little attention given to preserving only those that show clear shades of blue with very little mixtures of bronze and the various other metallic hues and lustres that run through so many named varieties, and which have gone far to destroy the colour effect which should be sought for and preserved in the garden.

The cultural requirements of Delphiniums are simple, but it is very important that the plants should be given a good deep soil containing plenty of well rotted manure, and light soils are the better for a good dressing of cow manure or any other of a similar cooling nature. As long as individual plants are doing well they should be left alone and not divided, though each year a dressing of manure should be dug in round the plants or put on in the form of a mulch, but when they show signs of declining vigour it will be found best to lift and divide them at once before the individual crowns become weak and puny. Dividing and planting may be done either in early autumn, having been cut down to the ground some weeks previously, or in spring when they have made something like 4 inches of new growth. Growers differ as to the best season for re-planting, and it probably depends more on local circumstances of soil and position than on any objection the plants have to either season as to which time is best, but I have had the best results by cutting the plants down directly the first bloom is over and planting in autumn. In any case the vigour of established plants will hardly be attained by seedlings in the first season after planting. The crowns should not be set flush with the surface, but buried 2 inches deep, as this encourages the new shoots to come away freely, and should not be lost sight of in planting many of our tufted herbaceous things. Delphinium stems being hollow and somewhat frail, it is necessary to stake and tie them when they have reached 2 feet or 3 feet in height, but they should not be drawn tightly in to a single stake, the better way being to put five or six light stakes round each good plant in such a way that they are hidden by the outer stems; then pass some strips of matting or soft string round the whole in such a way as to preserve the natural contour of the plant and to avoid a bunched appearance. Where slugs abound the crowns should be protected each winter; coal ashes form a good protection.

Very few named species or varieties are grown here, and I depend largely on seedlings, the raising and flowering of which from selected seeds is a great source of pleasure. Among the seedlings there are sure to be found many magnificent forms equal to the named varieties. Seeds may be sown in the open ground or in pans under glass in April, pricking off the seedlings where they are to remain, when large enough to handle well, in groups thick enough to allow of cutting out those which are not up to the required standard. I plant out seedlings about 9 inches apart and in groups of seven. A

method of propagating scarce varieties is to take off the young shoots as cuttings early in spring and strike them under glass in cold frames. Established plants will give a second crop of flowers from side spikes if the main flower-heads are removed before they have had time to form seeds.

The subject of illustration is an old variety named Cantab, with flowers of the loveliest shade of Cambridge blue imaginable. The plant, as may be seen, is of very vigorous habit. Previously to the photograph being taken last year many spikes had been cut, and there were about seventy spikes in all, the tallest reaching over 9 feet high. This year the spikes, of



Delphinium Cantab in the gardens at Livermere Park, Bury St. Edmunds. Engraved for THE GARDEN from a photograph sent by Mr. J. C. Tallack.

which there are sixty-five prominent ones just beginning to show colour, are about 6 feet high already, so that a fine show may again reasonably be expected. I planted this specimen as quite a small piece six years ago, and for the past four years it has been magnificent. It grows at the end of a mixed flower border in line with a row of Pear trees and about 8 feet to the north of a 9-foot wall, the shade given by which helps undoubtedly to keep the roots cool, while the head has all the benefit of exposure to sunlight. As showing the value of good soil and a fairly moist and cool bottom, I may say that on an exposed border much sucked by Box roots the same variety rarely

reaches more than 3 feet to 4 feet high, and loses much of its striking appearance in consequence. Many of the seedlings I have raised are of the formosum type, and very rich dark blue shades abound among them, the most striking being those which have clear white eyes.

Of named species and varieties grown here I describe a few. D. Belladonna has lovely blue flowers on slender and dwarf spikes, and is very free and continuous blooming, the latter a consequence of its being a sterile form; D. trolliifolium, bright rich blue, on strong spikes 3 feet high, and requiring no stakes, is the earliest flowering species grown; D. Wildenowi is a very showy form, sky blue with a white eye; D. grandiflorum, very dark blue, dwarf and straggling in habit, is very continuous flowering, but subject to mildew as the summer gets on.

Messrs. Kelway, who have done so much for the Delphinium, have raised some white and sulphur-coloured hybrids, the best among which are Beauty of Langport and Princess of Wales, in which the black eye is very conspicuous on the white sepals. Among the best of their ordinary blue forms are True Blue, very dark with black eye; Clara Stubbs, bright blue with white eye; Geneva, sky blue, very good; John Thorpe, deep blue with white eye (this forms a fine spike and the flowers individually are fine); Grand Duchess, sky blue with black centre; and Persimmon, one of the finest, with a grand spike of pure light blue and large flowers. The colour of the centre in this fine variety is very distinct, being bluish-white, this giving a tone of pure blue to the whole spike when seen from a little distance and making it very effective.

J. C. TALLACK.

*Livermere Park Gardens,
Bury St. Edmunds.*

New Tufted Pansies.—Of the many kinds exhibited at the recent Temple show two were remarkably good. The first, an almost rayless and pure white, named White Empress, was very attractive. It is evidently one of the very best and whitest in commerce, and should be in great request. The other, its very obverse in colour, was W. M. Haig, of Archie Grant character, but the flowers are richer, being of a deep violet-blue. This is a valuable addition to this class. Looking over the flowers of many varieties presented, it was difficult to believe that many of them were acceptable for massing. The flowers were thin, washy in colour, and devoid of any value for the flower garden. No doubt they answer very well to make variety for exhibition in spray or other fashion, but that is a very restricted use to which to put such flowers. The trial of Tufted Pansies now seen in the Royal Horticultural Gardens, Chiswick, should do much to establish fitness or otherwise for the town garden of the numerous varieties.—A. D.

Tufted Pansy Florizel.—This, one of Dr. Stuart's rayless seedlings, is deserving of extended cultivation in all gardens. Very early in the spring the plants present a miserable appearance and seem to be in a very unsatisfactory plight, but this is for a short period only. With more genial conditions prevailing outdoors these mere scraps break away in a remarkable manner, and very soon the smallest pieces are each found to be carrying one or two blossoms of a bluish-lilac colour. As the season advances the colour

deepens, and is even more acceptable than earlier. As a two-year-old plant this variety is also held in high esteem, veritable tufts with numerous blossoms making quite a gay display. One weakness characterises the plant, a tendency to sport into a striped blossom of very pale blush and lavender, welcome to some in want of novelty, but a decided disadvantage where colour effect is desired.—A. R. H.

Pæonia officinalis.—I think Dropmore is the only garden I know in which this fine old Pæony is found in all its various colours, crimson, carmine and white. The white is not pure, and generally seems to break from the carmine or pink sport. This latter, a lovely hue, seems to be the prettiest, but the rich deep crimson is a noble colour in the flower border also. Many of the clumps have been left untouched for a long time, and remarkably effective they are. No doubt they like to be let alone. It is an undoubted recommendation with these grand old border plants that they do not grow tall. Too many of the herbaceous Pæonies do so, and need to be well set back. Hardy flower borders are well cared for at Dropmore, and clumps of Narcissi, planted some ten or twelve years, seem to improve in strength and bloom yearly. Something is due to natural excellence of soil, but something also to good cultivation.—A. D.

NOTES ON HARDY PLANTS.

Biscutella lævigata.—A dwarf and neat plant, with stems each 10 inches or 12 inches high, bearing branchy masses of small yellow flowers in May and June. This is perhaps one of the hardier species from the Mediterranean region. I imagine its chief garden features might be the durability of the masses of a good yellow, and, better still, the powerful perfume, resembling that of Hawthorn blossom.

Saxifraga Kolenataina is a distinct type, and, what is more, for a Saxifrage distinct in its flowers. It is now in bloom here, and is sufficiently attractive as to need no pointing out, even to the novice. The rosettes of foliage are in the way of *S. Andrewsiana* for form, but in winter and summer the leaves have a lurid colour. The flower-stems are very red and the flower-bud even more so. When the flowers are open they almost resemble those of the pink *S. purpurascens* or *S. muscoides* Rhei, but the effect is different because of branching red stems each a foot or so high.

The rose-coloured Lily of the Valley.—I see this is spoken of in a contemporary as a seldom seen kind. It is now in flower here on a spot whence I have tried for some years to eradicate it. For at least twenty years it has flourished here, and still, though two barrowloads were removed last autumn, there is a patch 5 feet or 6 feet across. It is in very rotten leaf-mould, loam and pulverised charcoal.

Cytisus decumbens.—It would be hard to find for our rock gardens a more charming group of plants than the prostrate kinds of *Genista*, but in this *Cytisus*, with a similar decumbent habit, we have surely one of the most exquisite of this type of small shrub. The flowers are large and numerous, of a canary-yellow and fawn-brown, and so effective that a three-year-old plant attracts notice at 50 yards distance. All it wants is a deep seam of moist soil and a south aspect, and if there is a ledge over which the sprawling twigs may droop the effect will be enhanced. I get it from cuttings but slowly. I have also got it from seed, but it has taken three years to get flowering plants. This species is sometimes confounded with *Genista prostrata*, which is a very different thing.

Gentiana bavarica has its first flowers opening to-day (June 6) on well-established plants. Compared with *verna*, it is thus seen to be quite seven weeks later in the same garden or set of conditions. The plant is minute, with fragile stems and pale soft herbage. The flowers, however, are almost equal in size to those of *G. verna*,

but of a darker blue. They come in dense masses, almost smothering the plant. It takes a wetter set of conditions to keep this species healthy than in the case of its near relative. I have seen many ingenious dodges in various gardens to coax this plant to flourish, and when once you achieve that object it is something to be proud of. If, however, you begin with an established set of roots, a great point is gained; if with imported roots, much will depend on the period and condition of the plants when they come to hand. Under some circumstances I would prefer to have the roots in early autumn or as soon as the new growths have ripened. The winter care, however, is considerable. The next best time would be to get the roots on the earliest chance in spring, before new growths pushed. As to the best conditions for the roots, well-decayed sweet leaf-mould and grit in a cool and moist position I find are the best.

Dianthus carthusianorum proves to be the first alpine Pink to open here this spring, and what the plant lacks in neatness or dwarfness of habit is made up for by its high colour and earliness, thus helping us to realise that summer has really come, as we do when the Pink tribe begins to perfume our gardens.

Arenaria norvegica.—I have spoken of this before as a rare and pretty Sandwort, but I have been told it is not rare either as a wilding or cultivated plant. I thought I would test this, and a botanist who said he believed it was an old British species which had appeared again, and from the quantities he had seen had evidently come to stay, on being asked to get me either seed or plants later reported that he could not find any. A tradesman said he could get it for me, but he has failed. I then saw it offered in a continental list and ordered some; quite a different plant came under the name. I said, and it was agreed, that a mistake had been made, and I asked for the right thing to be sent. There then came under the name the pretty *A. balearica*. So far as I have tested the question of variety, it would seem that the true plant is hard to find. However, be that as it may, there can be no two opinions as to the charming way this neatly spreading plant adapts itself to a rock garden; for setting in the sloping and horizontal seams of the stonework nothing could look more natural. The plant is of dark but shining green all the year round, and from its substance almost rigid. The flowers, snow-white and large for such a pigmy plant, appear in succession almost the year round in a mild winter like last.

Woodville, Kirkstall.

J. WOOD.

Novelties in early single Tulips.—A bed of Golden Lion of Hillegom in the Regent's Park garden represents one of Mr. C. Jordan's novelties for the season. The flowers are large and well formed, the colour yellow, flushed and margined with orange. The white form of Joost van Vondel is a very fine white, large, handsome in shape, and not too tall-growing. Mr. Jordan has to be content with a small bed of a new variety at the first attempt, but in his nursery a stock is soon worked up. To these may be added the white self form of the striped Roi Pepin, which is now pretty well fixed; its dwarf growth is in its favour. The new form of the well-known yellow Pottebakker, in which there is a distinct bordering of white to the petals, is yet scarce and dear, but it is a variety that is sure to come to the fore.—R. D.

Notes from Hampton Court.—Very pretty just now, as they have been for some time past, are numerous clumps of Virginian Stock on the long terrace border. This is one of our best known and almost commonest of annuals, and yet how very pretty is it when seen as here in large patches, the plants well thinned, growing freely, and carrying unusually large blooms, because the soil is good and the plants have ample room. It is a pity that more of the fairly hardy and early-blooming annuals could not be thus utilised.

Such things as *Nemophila* and *Saponaria*, for instance, are most pleasing when seen in good clumps thus early in the season. There are a few round beds full of strong plants of the Iceland Poppy. These are just now full of bloom and are singularly attractive. Some Pansies intermixed during the early spring are now grown over by the Poppies. Such plants as these, apart from the singular grace and beauty of the flowers, are excellent for massing, because there is an entire absence of that formality which so many people aim to secure in their beds. As seen round some of the beds here, *Euonymus radicans variegatus* makes, when regularly clipped, a capital edging of a permanent nature. Of course, the shrub so treated wears a very formal appearance, but the examples here show that it can be made a capital substitute or variation from green Box for ordinary garden edgings, as it bears hard clipping well. Bluebell Tufted Pansy is seen in every direction, being almost lavishly used. It is interesting to note that one of the very oldest of these plants in commerce—for it was about the earliest to succeed *Viola Perfection* and has been out some twenty-five years—should still be so largely used. No doubt it owes this popularity to its continuous blooming habits. At Hampton Court it is found in all sorts of combinations, though none perhaps gives prettier effects than in the long border edging of it allied to the variegated grass, *Dactylis glomerata variegata*.—A. D.

SOME NOTEWORTHY HARDY PLANTS AT THE TEMPLE.

A FEW remarks on the more important hardy plants seen at the recent Temple show may serve to show the advance that is being made not only in the plants themselves, but in the mode of exhibiting. Reports of such meetings must of necessity be very brief in an exhibition such as this when overwhelming numbers of things are brought together. Indeed, in this respect in point of numbers the exhibition is still greatly overdone, and quantities of things—common-place subjects in every cottage garden, that are known to everybody—should be left at home. A single spike of some new, rare or specially good plant is of far greater moment in a show like this than hosts of such things as the gaudy Oriental Poppies, common Gesner's Tulips, and such like. If possible, the Temple show should contain only the best of everything, not only of hardy plants, but other subjects also; and while the display this year, as may have been gathered from the report so closely following the exhibition itself, was quite equal and in some respects superior, it was remarkable from the fact that hardy plant novelties—that is, things absolutely new and flowering for the first time—were very scarce. Indeed, the only plant that could thus be placed was a new species of *Lilium*—*L. rubellum*—represented by a delightful group. This unique species, quite new to cultivation, will, I believe, prove an undoubted acquisition to lists of the choicest gems this noble genus contains. It is not only a beautiful flower, it is also free-flowering, and if one dare to judge it by other beautiful species, we may also hope that it may prove a good doer, which is a more important matter than all else. One good sign with which I was much impressed was the manner in which the plants carried their foliage—a sure sign that good basal roots, as opposed to the more fleeting stem-roots, were existing and active. Other choice Lilies worthy of note were *L. Dalhansonii*, a richly-coloured flower, and quite a host of *L. Thunbergianum*, to say nothing of the more frequent *L. longilorum* forms and *L. umbellatum*, which were in great force. These were not merely cut spikes, but well-grown examples in pots, displaying all the beauty and charm of foliage so generally deficient where only cut specimens with short stems are staged.

Then for such as grow and admire them was provided quite a feast of the Cushion Irises, some ten or more kinds, all distinct, being grouped to-

gether in just the way any admirer could study them. One flowering spike of *I. atrofusca* stood out very boldly, much finer than I have seen it hitherto, a flower remarkable for its size, its wondrous beauty, and its indescribable, yet decided fragrance. Other kinds were *I. susiana*, *I. iberica*, a more vigorous flower than usual, the falls rounded and more generally proportionate to the standards than is usual; three varieties of *I. Korolkowi*, which are unequalled in their exquisitely traced petals. Here, too, is worthy of note the fact that these Korolkowi Irises always produce two flowers to each spike, and thus continue to beautify their surroundings for a much longer time. Another gem is *I. Leichtlini*. A feature of this kind is the azure-blue beard or crest, and then the smoky bronze of the upper petals is also most remarkable. Such are a few of the more striking of this set of plants that are perhaps never destined to over-run much space in our gardens—at least till we have learnt more concerning them. Possibly a good lesson may be gathered by an endeavour to raise seedlings at home, and so from their very infancy inure them to the vicissitudes of an ever-changing climate.

Hardy *Cypripediums* were very noticeable, more than one exhibitor staging several kinds. The more choice of these was *C. macranthum*, with rich flowers, very scarce. *C. acule*, *C. Calceolus*, *C. pubescens*, the pretty *C. montanum*, and the more showy *C. spectabile* were also conspicuous. *Ixias*, too, were very charming, and so also a choice assortment of *Calochorti*, comprising quite a representative lot of these beautiful things. Several pot-grown examples of *Incarvillea Delavayi* with its *Gloxinia*-like flowers were most attractive, and the snow-white spires of *Watsonia O'Brieni* deserve a similar remark, though unfortunately for British gardens it cannot be considered a hardy subject. With liberal pot culture and cool greenhouse treatment it is a grand plant, flowering long and profusely. One very notable feature of advancement among really good hardy plants was the representative character of the *Eremuri*, whose towering spires were to be seen in at least three tents. I say advancement here, because I believe it is about five years since a solitary spike of one kind—*E. himalaicus*, if I rightly remember—created almost a sensation, while to-day the same species was abundant, the spikes towering up among groups of hardy shrubs, in one instance in a manner that betokened the way in which the plants are grown; and not this alone, for the distinct character of the densely-flowered spikes rendered the groups a centre of attraction. And if of these *Eremuri* we remember they are not difficult to cultivate, but rather the reverse, and only need patience till the flowering stage is reached. Vigorous and robust by nature, a deep bed of soil should be given, and this, if possible, in a group where the noble character of the plants may be fully seen. Several kinds were shown and by several firms, in one instance a towering specimen fully 8 feet high of *E. Elwesianus* being among the most imposing things we have seen. Even more imposing, certainly more chaste and exquisite in their infinite variety and varying charms, were the Tree *Pæonies*, monster blooms many of them, that by actual measurement exceeded 10 inches across, mostly semi-double, these even brought into greater prominence by the abundance of the yellow anthers in the centre of each flower. The coloured forms were equally striking. E. J.

Double white Narcissus.—"Dorset" wishes to know how this fine *Daffodil* is behaving this season. Generally it seems to have done remarkably well, and flowers of it have been seen in the markets in great abundance. They have been cheap to everyone. Probably the bulbs got what *Narcissi* so much like as a rule, a good ripening under the influence of the warm sunshine of last summer. Then whilst we have had a cold spring and many small frosts, there has been none to harm the blooms. No doubt the chief mischief is done when we get one or two severe frosts just as

the flower-buds are pushing up, when they are rather sappy, or, as the growers say, milky. At Dropmore recently I saw tufts of this fine *Daffodil* making strong grass and blooming finely that had been planted some ten or twelve years. That sort of treatment may not be the best in all soils. The market growers seem to replant theirs about once in three or four years.—A. D.

Saxifraga granulata fl.-pl.—How seldom one sees this really excellent hardy spring flower in gardens. I saw a small clump or two of it the other day, where its name was unknown. The roots are like tiny *Gladiolus* spawn, and in transplanting it is wise to wait until a little growth has taken place in the winter, as then clumps may be lifted whole and divided and replanted. Many gardeners who do not know this *Saxifraga* would be delighted with it if they had a quantity in pots, stood in a moderately warm house near the glass, where it would bloom early and produce double white flowers in great profusion on stems about 12 inches in height. Outdoors it usually blooms in May, but inside it could be easily induced to flower a month earlier. The foliage forms pretty green tufts all the winter. In the summer, when that has ripened and the flower-stems disappear, the little tubers ripen and rest until October, when growth again begins.—A.

Clematis montana.—There are many larger-flowered species and varieties, but there are few more beautiful than the Mountain *Clematis*. For the past fortnight it has been very beautiful with me, though as yet the plants are not large. Not only is it very beautiful outside, but the shoots may be had of almost any length for decoration, and the individual blossoms are fine for any purpose. When placing on the turf or in borders robbed by tree roots the plants should be given a good start by taking the soil out to the depth of a couple of feet, and filling this in with good loamy compost. Obtain plants, if possible, that have not become badly pot-bound, as these are the longest in starting. Plant firmly, and only loosely tie the branches at first, this giving the soil a chance to settle without straining the branches. The plants need a season or two to get thoroughly established, but after this flower profusely.—H.

DOUBLE AURICULAS.

The double *Auricula* *Snowdrop* exhibited by me at the Temple show has been described as a greenish white, but that was because the flowers had not had time to bleach to greater purity. At the end of the third day of the show they had lost much of their green tint; a week later it had almost entirely disappeared, and I am therefore justified in terming it a white variety. All the white *Auriculas* I have yet raised, double and single, open of a greenish tint, but always bleach to white, and as a steady improvement has gone on in the double forms, I hope the time is not far distant when I may secure a double white that shall be pure through all the stages of its development. Have the two old double *Auriculas*—the double yellow and the double white—gone out of cultivation? They used to be produced at *Auricula* shows, and Mr. Turner, of Slough, formerly catalogued the yellow among his show *Auriculas*, but he has not done so of late. Both were small-flowered, and however well they were grown they developed weak stems and did not produce good trusses. I have raised two very fine double yellows, with stout, stiff flower-stems bearing full trusses of perfectly double flowers. One I have named *Golden Gem*, it being the palest in tint; the other is *Ophir*, of a rich deep golden colour. I have in my experience of double *Auriculas* found it very difficult to get yellow or white among the seedlings, the white especially, and the large-flowered and fully double varieties do not, in common with some other double flowers, produce seeds. I have one that is nearly black, also crimson, plum, blue and mauve, and a few others that consist of two or three colours. They are all strong growers and require high cultivation to have them finely developed, but it is

difficult to have them in bloom at one time, as the blossoms of some expand much more slowly than others. I can make up eighteen varieties, and to ten of them I can give four marks, as indicating the highest excellence. Some give but little increase; they are not so productive of offsets as the single-flowered varieties. I have kept some plants four years without getting an offset, so one needs to be patient if he would have increase of any particular variety. They are grown in pots under glass with the show and alpine varieties forming my collection. R. DEAN.

Dielytra spectabilis.—The number of plants of this most graceful plant grown under glass is very large, and very fine it is for conservatory and greenhouse decoration. But plants that have been so grown are not the best for planting in herbaceous borders, owing to the foliage being so liable to suffer from cold winds in spring. The plant is, of course, perfectly hardy, and when well established seems proof against this, the foliage, though appearing early, holding its own in cold and bleak situations. Then the colour of the flowers is much finer when grown entirely out of doors, and just now it is, perhaps, the most beautiful hardy plant in bloom. The white variety is a poor, weak thing compared with the type, but a clump or two of *Ranunculus aconitifolius plenus* placed near the Lyre Flower has a very fine effect, the deep green, pure white, and rosy red forming a very nice contrast. Both plants thrive well here in a cold, heavy soil, fatal to many of the fine hardy plants.—A GROWER, *Suffolk*.

Lilium candidum diseased.—A few clumps of *L. candidum* have gone off this season in quite a new way to me. In this garden I have not before had any trouble with this species, though in the south of England on a somewhat similar soil the plants used to go off when the flowers were opening. The clumps in question looked as well as any in the garden up to a few weeks ago, but now they are quite destroyed, not a sign of a green leaf or stem being left. The total collapse of plants in this way is even more annoying than losing the foliage and saving the flowers, and I hope it will go no further. A clump I have had lifted shows plainly enough that the disease commences at the bottom of the bulbs. They are discoloured and partly decayed, but the upper part of the scales is quite healthy. Cut across, the decayed stem may be drawn out, while all round it the bulb is perfectly healthy. I shall take up all the clumps that are affected, and when the bulbs are thoroughly dry remove as much as possible of the decayed portions and replant in fresh soil. With the diseased plants I have had to deal with before, the decay was not nearly so rapid or complete, and though I have lifted clumps time after time, I could not find anything wrong with either bulb or roots. *Lilium speciosum* in variety is planted close to the *L. candidum*, and is perfectly healthy.—H., *Coldham Hall, Suffolk*.

Primula Trailli.—Having had another year's experience, I can now speak with certainty as to *Primula Trailli*. I heard from my Indian botanical friend that he had met the collector of the seed sent me as that of *P. Trailli*, and had shown him the gardening papers which I had sent to India with figures of the plants bloomed here. These, he said, were quite different from *P. Trailli*, that he had collected other *Primula* seed at the same time as *P. Trailli*, that the seed was mixed, and that *P. Trailli* had not come up. I think the best name for the *Primula* which I exhibited would be *P. Monroi* or *P. involucrata major*. It is utterly unlike the form of *P. Monroi* or *P. involucrata* which I have grown for years. It has, when grown close to the glass, and thus free from any tendency to be drawn up, stems above 18 inches high, with long leaves. Probably several of the Indian *Primroses* have different forms. Some years ago I exhibited before the floral committee a giant form of *P. capitata*, which I suggested should be named *P. capitata major*. This received a first-class certificate on

November 9, 1886, and some time afterwards a nurseryman exhibited a giant form of this Primrose, which I suppose the committee considered different from mine, as this also secured a certificate or award. The committee only followed the usual precedent in rewarding a fine distinct new form of Primula in the case of P. Trailli, but I think that the name should be changed and the fact recognised that P. Trailli has still to be introduced.—GEORGE F. WILSON.

Sweet Peas.—The assumption that these beautiful annuals need very deeply-worked soil because they root deeply seems negated by Mr. Salter's practice at Woodhatch, Reigate, where to secure specially early bloom seeds are sown in stout wooden troughs of varying lengths, but only 8 inches deep and the same in width. These troughs are put into frames or houses when the seeds are sown, and the plants are well staked ere they are put out of doors. The position there is a warm, sheltered one. The boxes also are sown in succession, so that plants may be found from 5 feet in height, and just about to bloom, down to others 3 feet in height. But though the root space is so limited, growth is of the stoutest and best, and because later frequently watered with liquid manure, the whole of which the roots utilise, the blooming season is a very prolonged one. Still, it is well known that out in the open ground Sweet Peas will not do very well unless the soil be deep and well manured. Possibly the natural tendency of the roots is to strike down vertically rather than laterally; hence they sooner get out of the manured area of soil. Also when liquid manure is given, as is done with so much success in the troughs, the roots of the open-grown rows are so deep down that the liquid food is not fully utilised. In few gardens are Sweet Peas more extensively grown than in those of Dover House, Rochampton, where in one kitchen garden the borders and quarters are entirely enclosed by rows of them very neatly staked. These answer the double purpose of shutting out the vegetable crops from sight and of furnishing an immense supply of beautiful flowers. Almost everywhere, however, Sweet Peas outdoors seem to be sown too thickly.—A. D.

NOTES AND QUESTIONS.—FLOWER.

The Edelweiss.—The Emperor Francis Joseph has, we learn, sanctioned two laws voted by the Provincial Diets of Styria and Carinthia for the protection and preservation of Edelweiss. This alpine plant is, it seems, in danger of extirpation in consequence of the increasing number of tourists visiting the Austrian Alps and of the export of the plants with the roots. The new laws forbid the uprooting of Edelweiss, the sale of it to tourists, and its exportation in large quantities.

Viola cornuta.—This is a very old kind, but still it has much to recommend it. It is very hardy, free-blooming, and will continue to be satisfactory in the same position for many years. Near my cottage door I have some big stones for edging, and some eight years ago I raised some plants from seed, planting these at the edge of these stones to cover them. They soon grew away and covered them. Every year since during the summer they have been a mass of bloom, and continue in flower more or less till autumn.—DORSET.

Chalk for Gentiana acaulis.—I see that Mr. Wood in Saturday's issue of THE GARDEN (p. 495) suggests that Gentiana acaulis flowers better when there is a good quantity of chalk in the soil. Will any of your correspondents kindly state their experience as to this? The plant grows most freely with me here, where the soil is good and the climate very moist, but flowers very badly; in fact, this year I have hardly a bloom on many clumps. I have heard limestone suggested, and also a very sandy soil.—S. T., Ulverston.

Nicotiana affinis.—Whether this should be treated as an annual or not depends on the situation it is grown in. I am aware in some places it must be planted every season, while in others the roots go on for a long time. I grow it largely at the foot of a south wall of the abbey. It has been

grown thus for seven or eight years, and during that time the frost has never killed the whole of the roots. This year they are very strong and coming into bloom early in June. I observe those that come so early into bloom do not continue till the end of the season. I plant a few young ones every season, and these go on till severe frost sets in.—J. CROOK.

ORCHIDS.

ORCHIS MACULATA VAR. SUPERBA.

This fine hybrid native Orchis, which is a wild cross between *O. maculata* and *O. latifolia*, became well known as a garden plant about thirty years ago, having been liberally distributed from the Scotch garden of the late Miss Hope, of Wardie Lodge, Midlothian, where it used to be grown to perfection. Miss Hope's plants of it were said to have been all the increase of one found wild in a bog near Kilmarnock, and it has often been called the Kilmarnock Orchis. Some which came to me from Miss Hope's garden were cultivated at Edge for several years, but one disastrous spring



Orchis maculata superba in Rev. C. Wolley-Dod's garden at Edge Hall, Malpas, Cheshire.

destroyed these, and my present stock, which I believe to be the true kind, was supplied by one or two friends in Scotland. Under favourable conditions the tubers multiply fast. A slope to the east, a rich moist loam, with surface dressings of leaf-mould and rotten manure, and shelter from hot sun and cold winds supply the conditions best suited for all the terrestrial Orchises of this section. Before saying more of the variety I will give some account of the types which produced the hybrid.

ORCHIS MACULATA is of all the native terrestrial Orchises the most abundantly distributed throughout the kingdom and is known to everyone, but it must be observed that under different conditions of soil and place it varies much. In the mountains of North Wales, for example, bright-coloured dwarf forms prevail, including many nearly or quite white; these might be supposed to belong to a different species from the tall, dull-coloured type so common in the meadows and groves of the English lowlands. The spotting of the leaves—which are nearly always spotted with black—varies capriciously in every degree. In some the spots are large and confluent; in others,

large, but few; often they are small, and either countless or few; and all these variations may be found in the same field. An important character to notice in comparing this species with its near allies is the lower petal of the flower, which is divided into two lobes, separated by a central tongue. In typical *O. maculata* these lobes are broad and well developed, whilst the tongue is often nearly suppressed and never projects beyond the lower edge of the lobes.

O. LATIFOLIA.—The distribution of this is nearly as wide as that of *O. maculata*, but it is more local, being limited to boggy ground. It flowers simultaneously with *O. maculata*, generally about the beginning of June. The type of the species is tall, robust, often 18 inches or more high, with broad spotless leaves, a leafy stem, and a large loose spike of pale purple flowers, amongst which long green bracts are prominent. The divergences from the type, however, are even wider in this species than in *O. maculata*. The common type cannot be called beautiful, but there is a beautiful dwarf, sturdy form not more than 6 inches high with flowers of deep rich crimson, almost the colour of port wine. I first found this many years ago on Conway Marsh, where volunteers are generally now encamped at its flowering time. In the glades near the base of the neighbouring mountains, for instance between Aber Station and Aber Falls, the same form is common, but rather larger and somewhat less rich in colour. I have also gathered it in several places on the oozy sides of railway cuttings in Carnarvonshire and Anglesea, and no doubt it may be found in other parts of the kingdom. I have never seen white *O. latifolia*, but should not be surprised to hear that they have occurred. In the lower petal of this species the lateral lobes are narrower and less developed, and the central tongue extends considerably below their lower edge.

O. INCARNATA is considered by many botanists to be a distinct species from the last, though I have found it very difficult to draw a line between them. This kind, too, is widely distributed and is common in North Wales, mostly on low waste ground. The colour is pale washy pink, the leaves are always without spots, the lateral lobes of the lower petal are scarcely developed at all, whilst the tongue is narrow and very long. I once found near the head waters of the Lledr, in Carnarvonshire, several examples of a curious dwarf Orchis with flowers of a bright copper colour, different in colour from any native Orchis I have seen before or since. They grew in very wet ground, and seemed to belong to this species.

All these three species grow together in abundance in many parts of Anglesea, and, judging from the difficulty of discriminating them, seem to intercross freely. But the railway cuttings and mountain dingles up to 1000 feet high seem to produce the finest hybrid forms. In such situations it is not unusual to find them with large and broad and elegantly spotted leaves nearly approaching the named variety *maculata superba*, or even finer, for the hybrids seem to excel in vigour both their parents.

Those who admire terrestrial Orchises and have the opportunity of visiting Kew Gardens within a week or two should by all means notice the specimens in the bogs of the rock garden there on both sides of the path near the southern end. They are the finest I have ever seen. There is one giant example of the type, *O. latifolia*, very typical, and not larger than I have occasionally seen in English bogs. By its side are several giant hybrids, *O. latifolia* × *O. maculata*, but all labelled *O. latifolia*. I was told these came from the nursery of Mr. Pritchard, of Christchurch, who has, I know, paid some attention to these fine Orchises, but I do not know their entire history, whether they were raised in the nursery or collected wild.

O. foliosa, the Madeira Orchis, deserves to be noticed in this class. It is nearly allied to *O. latifolia*, but has larger flowers, though generally deficient in brightness of colour. In Edge Hall garden, where *O. maculata* comes up spontaneously in abundance, its pollen often fertilises the flowers of *O. foliosa*, and by the side come up hybrids, often with spotted leaves, the type *foliosa* being never spotted, and very long spikes of flowers intermediate in size. Some of these hybrids have come also in the nursery of Mr. Fritchard, and he has exhibited them at the Drill Hall, and, if I am not mistaken, two or three are flowering in the same piece of bog at Kew as contains the giant hybrids mentioned above.

It is probable that by selection of colours and artificial crossing some very good border varieties of terrestrial Orchises might be produced.

CHARLES WOLLEY-DOD.

Edge Hall, Malpas.

Listera ovata.—Although one of the commonest of British Orchids, this is an interesting plant and well worthy of naturalising in stations where it does not exist. In neighbourhoods where it is common in woods and coppices it is



The Madeira Orchis (*O. foliosa*) at Edge Hall, Malpas.

unnecessary, of course, but where it is rare it should be taken up and planted by grassy walks and shrubberies. It thrives especially well in positions where lime exists in the soil, and throws up first the ovate leaves, afterwards the tall, rather spare spikes of greenish yellow flowers. The best time to take it up is after the flowers are past. Many people are in the habit of calling

this the Fly Orchis, but the latter is quite a different and less common plant.

Orchis mascula alba.—The white form of the early purple Orchis is as rare among British species as albinos are in tropical Orchids, and though I have walked and cycled for hundreds of miles in this and adjacent counties, I have not yet found it. At Coalpit Heath, in Gloucestershire, there was a meadow where one could always gather it some years ago, but possibly this has now been destroyed. I reared a fine clump of it from a single plant gathered in this field, and a very beautiful feature it was in a small rock garden near Bristol.—H. R., Suffolk.

Aerides Houlletianum.—Messrs. B. S. Williams and Son had a fine variety of this rather uncommon *Aerides* in their group at the Temple. It is an exceptionally pretty plant, and not often seen in such good condition. The leaves are broad like those of *A. expansum Leonis*. The flowers, occurring on simple arching racemes, are tawny yellow in ground colour, marked with purple. It needs the usual treatment at the roots recommended for *Aerides* generally, and may be grown in baskets suspended from the roof or in any position near the glass. It is a native of Cochin China, and first flowered in this country in 1876.

Dendrobium stratiotes.—This, recently in flower with Messrs. Hugh Low and Co., is a singular Orchid, belonging to the same set as *D. tauricum* and one or two others. The stems are erect, the flowers occurring towards the top on close racemes of about half a dozen. The upper sepals and petals are very curiously twisted, creamy white; the lip streaked with purple. A native of the Sunda Islands, *D. stratiotes* likes plenty of heat and moisture, very little shading at any time, and water in accordance with the state of growth. Very small receptacles compared with the habit of the plants suffice.

Odontoglossum Lindenii.—Although discovered by M. Linden in 1842, this species has never become really well known, and it is seldom seen in flower. The spikes on strong plants are upwards of a yard in height, erect, and carry a dozen or more large and singular-looking yellow flowers, the sepals and petals being wavy on the edge, the lip short and pointed in front. It is a stout species, requiring larger pots than most *Odontoglossum*s and a very rough, open description of compost. Though no drying season can be recommended, it is best to keep it at rest in winter if possible.

Aerides crispum Warneri.—The value of the beautiful *Aerides* can hardly be over-estimated, this being an excellent variety of the type. In comparison with that of the well-known *O. crispum* the growth and habit are smaller, and the blossoms, though small, have a very deeply tinted front lobe to the lip, the colour the deepest purple. This gives a very distinct character to the flowers, which are produced on long, sometimes branching, spikes. It may be

grown in baskets of Sphagnum Moss and charcoal over good drainage, and given a light position in the warm house.

Epidendrum macrochilum.—This very variable plant has received many names, and is a useful garden Orchid. I have noted it in bloom on several occasions recently, a peculiarity of the flower being the incurved sepals, which in the type are chocolate-purple, the spreading lip of



Orchis latifolia.

varying tints of rose or purple. *E. macrochilum* likes a rough open compost and an annual treatment like that advised for *Cattleyas* generally. Plenty of moisture in the atmosphere helps to keep insects in check and is conducive to healthy growth. It is a native of Central America, whence it was introduced in 1836.

Dendrobium Boxalli.—This pretty *Dendrobium* was recently flowering well with Mr. W. Bull. The flowers much resemble those of *D. Devonianum*, and it appears to be equally free-growing and free-blooming. These deciduous kinds are very numerous, but all are beautiful, and this plant is worth a place in any collection. It is supposed to be a natural hybrid between *D. Devonianum* and *D. crystallinum*, and will be

found most satisfactory in small pans suspended from the roof in a warm moist house while growing, resting afterwards in cooler and drier quarters.

ODONTOGLOSSUM CITROSMUM.

The specific name of this beautiful *Odontoglossum* would imply that the flowers are citron-scented, and some of them are, but I do not know any Orchid that varies so in the scent of its blossoms. The pretty old *Dendrobium nobile* is said to have a fresh odour for every hour in the day, and sometimes it is a heavy, almost overpowering one when a number of plants is in flower, but with *O. citrosmum* this never occurs. The scent is singularly sweet when a number of plants is in flower, while the lovely pendent racemes of good form are second to none for beauty. Among a number of plants I now have in flower one may pick out several fine varieties, one especially, a delicate rosy mauve with slightly deeper-tinted lip, having twenty flowers each about 2½ inches across. There are others with pure white sepals and lip lightly spotted, while the variety *roseum* is deeply coloured on the lip. It is essentially an Orchid for home decoration as distinct from a plant for exhibition, though if a little care were taken with it, it would have a very fine appearance in Orchid groups. Suspending the plants being out of the question, as a rule, at shows, light pedestals easily hidden could be introduced, and upon these the pendent flower-spikes would look more natural than tied up to spikes, as we sometimes see them, or hanging over the edge in a convenient position to be rubbed by the knees or pulled about by the ever-ready fingers of spectators. This Orchid, as a matter of fact, is seldom exhibited in good condition, and for the simple reason that the flowers last fresh only a few days. It is true they do not fade or wilt, like those of a *Stanhopea* or a *Sobralia*, and may still be presentable after having been open for a fortnight, but the real beauty is gone a few days after the spikes open.

The culture of *O. citrosmum* is not difficult, and the uninitiated in Orchid-growing may take it up with every prospect of success. It usually arrives in this country in good condition and often—if collected while dormant—flowers freely upon the young shoots that appear almost at once at the base of the pseudo-bulbs. I have been very successful by planting the specimens in fairly large pans of crocks alone the first season, but should roots appear the crocks may be surfaced over with equal parts of peat and Sphagnum Moss. It is better to give fairly large receptacles, as though the plants are not inconvenienced by repotting or rebasketing, they do not always flower the first season after disturbance, as, owing to the slight hold they have on the new material, it is not safe to dry them off. Although this seems somewhat contradictory to my statement respecting newly-imported plants, it is explained by the fact that the latter are dried whether or not, and consequently flower, but, owing to the vigour that is characteristic of all plants fresh from their habitat, they soon get over the temporary check given. This leads to one of the principal points in its culture, viz., the drying off to cause the plants to flower. It is the only safe way, and though instances have been given where, by thorough ripening in autumn, the plants have flowered without it, I may say, on the other hand, that it is the exception for a plant to miss blooming when thoroughly dried, and no harm accrues to the plant thereby. From November until the tips of the flower-

spikes are seen issuing from the growths no water is needed. The pseudo-bulbs will probably shrivel a little, but a thorough soaking of water and a warm, moist atmosphere will soon put this right again. During the growing season any warm, light house will suit the plants, and if no intermediate house is at command, the *Cattleya* house should be chosen rather than that devoted to *Odontoglossums* generally. It is a very thirsty subject when in health and growing freely, scarce a day passing in summer without water being necessary. Overhead watering is not required, provided the proper degree of atmospheric moisture is kept up. The compost, when repotting becomes necessary, should be very rough and open, plenty of rough lumps of charcoal and burnt clay being advisable, while the drainage must be perfect. *O. citrosmum* is a native of Mexico, where it grows "upon the larger branches of trees in great profusion," and one can easily imagine what a fine sight it must be when in flower. It was introduced to this country nearly fifty years ago. H.

Oncidium phymatochilum.—The flowers of this species, so freely produced on graceful branching spikes, are amongst the most distinct in the genus, and it deserves to be very freely grown. It is easy to describe their colour, but not so easy to give an idea of the fantastic shape, each flower so singular but making up such a beautiful whole. In colour they vary a little, but are usually of a yellowish-white with reddish-brown markings on sepals, petals and lip, the last also having a prominent and brightly-coloured crest. It thrives under intermediate treatment and is a native of Brazil, whence it was imported about 1840.

Dendrobium Draconis.—This is one of the finest of the *nigro-hirsute* group, the bright orange tint on the lip being very decided and bright. The blossoms are not so large as those of the best forms of *D. formosum*, nor is the plant so plentiful, though it is equally free-flowering when in good health. It requires a lot of heat and sunlight to get the most out of it, and should not be given a large receptacle. Nice plants may be grown in baskets about 4 inches across, the compost being kept very thin and the plants disturbed as little as possible. It is better in all cases to keep this species dormant in winter if it can be managed, and with a view to this the growth may be fully exposed to the sun towards the end of the summer, this having a hardening effect and enabling the stems to stand drought in winter without shrivelling much or losing all the foliage. But it is not always possible to keep them dormant, and if they do start growing they must be kept gently moving all through the winter. Green-fly is apt to make its appearance on the young growths, which it soon cripples if allowed to remain. Whenever a house of plants is being fumigated it is well to place these plants therein, as they are more subject than most to insect attacks of any kind.

Cattleya Mossiæ.—This popular and beautiful *Cattleya* is always fine at the Temple show, and the present season was no exception. Among the trade growers' groups as usual there were some extremely handsome forms, including the beautiful albino *C. M. Wageneri* and many others more or less well known. A fine plant of the above-mentioned variety was also conspicuous in Sir Trevor Lawrence's fine group. This was carrying four fully expanded flowers and others were opening. An unnamed variety in Messrs. Low and Co.'s group was also exceptionally fine, the sepals and petals being of the purest white, the deeply-tinted lip showing a wider margin of golden yellow than usual, another coming very near *C. Mendeli*, with its much undulated margin and nearly pure white side lobes to the lip. This by no means exhausts the list of good things exhibited, for we noted some very striking forms in several other groups. *C. Mossiæ* is one

of the most useful and variable of all *Cattleyas* and under ordinary conditions of culture never fails to give plenty of flowers. Owing to the growth starting later than that of some other species, it is imperative that during the late summer and autumn months the plants be kept in a good light to ensure proper ripening.

EPIDENDRUM PRISMATOCARPUM.

There are few Orchids that flower over a longer period than this pretty *Epidendrum*, as it may be occasionally seen almost every month in the year. The growth is fairly vigorous, the leaves much longer than the pseudo-bulbs and the flower-spikes erect, bearing many flowers. Individually about 1½ inches across, they are extremely showy in the aggregate, the ground colour being a sulphur-yellow with green shading, all the segments being more or less closely covered with deep blackish purple spots. This species, if properly grown, is very free-flowering, but, like many other Orchids from the Western tropics, it cannot stand a close heat without a proper circulation of air. The temperature for this species may be the same as advised for *Cattleyas* of the *labiata* group, and the plants get along well in the same house. Large heavy specimens may be grown on the central stages of light span-roofed structures in a position where the air plays freely about the foliage, or they may, if not convenient to ventilate the whole of the house so freely, be placed near a ventilator on a side stage. Anywhere that plenty of light and air is assured, with shade from bright sunshine, will suit it well. Being fairly vigorous, the roots should not be too much confined, but to prevent anything like sourness in the compost, add plenty of hard porous material and drain the pots thoroughly. Frequent disturbance is not relished by this species, but when really in want of new material turn the plants out directly they have done flowering, carefully avoiding injury to bulbs, leaves, or roots in the case of large specimens, and removing all dead and decayed roots, bulbs or rhizomes, and sour compost, and replacing in a large or a similar sized pot, according to how the plant is doing. The usual mixture of peat and Moss in a very rough condition suits this species well, and while not burying the bases of the pseudo-bulbs, avoid elevating the plant too much, as it is difficult to thoroughly moisten large plants when they are kept much above the rim of the pot. Being a strictly evergreen plant, the water supply must be kept well going as long as growth is active, and even when at rest no drying off is necessary. A rather cooler house for a few weeks in late winter and plenty of air are better than drying off. Insects seldom trouble plants so grown, but should scale or red spider put in an appearance they must at once be destroyed, or the fine healthy appearance of the foliage is marred.

Dendrobium Parishii albens.—Though not a very decided white the flowers of this variety of *D. Parishii* are very pretty and quite distinct from those of the type. There was a nice healthy little plant of it carrying a number of flowers in Sir Trevor Lawrence's group at the Temple show. The flowers are of about the same size as in the type, and the habit is also identical. The sepals and petals are almost transparent, but this was doubtless due in part to the time the blossoms had been open; the lip is white, downy in front with a rosy-tinted blotch on each side at the base.

Oncidium undulatum.—This was recently in good form with Mr. Bull, and owing to the distinct colouring it is one of the most useful of the *macranthum* group. Instead of the usual yellow and brown so often repeated in these plants, *O. undulatum* has white petals blotched and spotted with deep purple; the sepals are chestnut-brown and the lip rich purple. It is one of the strongest growers, too, the pseudo-bulbs and foliage large and deep green, and the strongest plants produce flower-spikes as much

as 4 yards in length and freely branched. Large pots, a rough compost, and the usual cool-house routine culture suit it best.

Cypripedium macranthum.—Whether in point of colour or other details this species is undoubtedly a gem among hardy terrestrial Orchids. It is a unique species in many ways, notably in its colour and fine form, and not less so perhaps in the great difficulty experienced by all cultivators in establishing it. Such difficulty in growing the plant—or rather in failing to get it to live at all—detracts greatly from its merits, for however good and beautiful a plant may be in itself, such beauty is lessened because so rarely seen or enjoyed. It would be less discouraging did the plants flower and, as often happens with *C. acaule*, perish after, but even this is not usual with the handsome and richly-coloured *C. macranthum*. In the exhibition recently held at the Temple Gardens one small flowering plant was noted, the flower, however, proportionately small of its kind. A much finer example is now in flower at Kew, where a nice plant fully established—as I fear was not the case with the above plant—is carrying two grand flowers. The same plant yielded the same number of flowers a year ago, when some new breaks were also apparent. To-day it is satisfactory to note that there are three breaks over and above the two flowering crowns, which, coupled with the fact that the plant has already passed some six years in the gardens, at least gives hope for a permanent and good plant in the future. To encourage new root-formation, this species should always be placed against the side of the pot. In this position there is greater hope of fresh roots being emitted.

MAY IN SOUTH DEVON.

DURING the past month rain has fallen on 17 days to the amount of 3.17 inches, against 1.68 inches on 13 days in May, 1897, the average for the month being 1.96 inches. During the first 5 months of the year 9.43 inches of rain have fallen on 61 days, against 17.01 inches on 82 days for the corresponding period of 1897, the average fall being 12.71 inches. At the present time, therefore, we are 3.28 inches below the average fall for the first 5 months of the year, and 7.58 inches below that of the preceding year. The month has been decidedly sunless for May, only 170 hours' sunshine having been recorded, compared with 247 hours 30 minutes in May, 1897, and an average for the month of 231 hours 20 minutes. For the first 5 months of the year a decrease, although not so marked, is also apparent, the figures being 628 hours 20 minutes in 1898, 635 hours 50 minutes in 1897, and 696 hours 40 minutes as the average amount of sunshine for the period. The mean temperature of the month has been practically identical with that of the preceding May, being 52.5°, against 52.3° in 1897, both being slightly below the average mean temperature of the month—53.2°. The highest sun temperature was 114.6° on the 23rd, and the highest screen temperature 66.5° on the same date. The lowest screen reading was 39.5° on the 17th, and the lowest on the grass 33.5°, also recorded on the 17th. The total horizontal movement of the wind during the month was 6960 miles, the record for May, 1897, being 6114 miles. For the first 5 months of the year the movement has been 35,454 miles, it having amounted to 39,346 miles during the same period of 1897. The greatest daily run was 580 miles on the 11th, and the highest hourly velocity, 30 miles, was attained between the hours of 11 and noon on the same date. On 16 days the direction of the wind has been from the north or east. The humidity of the month shows a percentage of 76, against 71 for May, 1897, while the monthly average of ozone in the air has been 62.3 per cent.

The past month has been anything but a typical May. Cold, wet and raw, the weather caused the attractions of the fireside to outweigh those of the garden on many an evening—an unwelcome con-

trast to preceding Mays, when the sunset hour in the open air held a charm that no other period of the day could rival. For a month, generally opulent in perfume, the past May has been sadly lacking in fragrance. The double Rockets have not as yet yielded their sweet essence to the air. White Pinks are, indeed, expanded here and there, but not in quantity. The Syringas (*Philadelphus*) have scarce unclosed their buds, and the sweet-scented Tobacco plant, self-sown seedlings of which usually bloom toward the close of the month, will not be in flower till mid-June. The woodland's mantle has become denser and has acquired a deeper shade of green. The Chestnut's ivory blossom spires, in the zenith of their beauty, are thrown into high relief by the fresh verdancy of the ample fans, but the Ash is still reluctant to expand, and has this year been more markedly outstripped by the Oak than in any previous season that I can recall. During the last week of the month I noticed two large trees, an Oak and an Ash, growing side by side. On the former the leaves had lost the yellow tint that they display upon first unfolding and were of uniform green, but the leaves of the Ash, though they had started into growth, had not as yet turned outwards from the bud. Now and again, in weather the reverse of agreeable, a genial day has intervened, warm, moist and windless, when in the sunshine the orange-tip butterflies danced adown the glade, the turtle-doves cooed to their mates in the lofty tree tops, and the air was full of the promise of spring, but such days were but interludes.

In the garden, *Achillea umbellata* has commenced its blossoming, and the tall Monkshoods (*Aconitum Napellus*) by the waterside opened their first flowers before the end of the month. The Cape Pondweed (*Aponogeton distachyon*) has whitened the surface of many sheets of ornamental water with its Hawthorn-scented flowers, and *Nymphaea Marliacea carnea* has expanded its earliest blossoms. The bright yellow of *Alyssum saxatile* still lights up the rock garden, and the Sweet Alyssum attracts the bees with its honeyed scent, but the white mantle of *Arabis albidia* has been growing less conspicuous with each succeeding week. *Anemone Pulsatilla* has remained in bloom through the greater part of the month in some gardens, and the wild Wood Anemone is still enchanting around the great tree boles. *Antholyza aethiopia* was in bloom on the banks of the Dart, where *Ixias* and *Sparaxis* were also flowering, breadths of the latter presenting a brilliant colour effect. Towards the end of the month the *Aquilegia* commenced to expand their shapely and suavely-tinted flowers, but these plants will not attain perfection until June is well advanced. In a sheltered garden, protected from the north and east winds by a high cliff, the Arums have been in bloom during the greater part of May. The Thrifts are day by day coming into fuller flower, *Armeria bracteata*, *A. setacea*, and *A. speciosa* being the most forward. The *Aubrietias* are still beautiful in many gardens, though in some they lack the dense mat of colour they presented in April. Among the brightly-coloured flowers of the month *Azalea mollis* has stood out pre eminent, its tints ranging from fiery red to palest saffron and exhibiting no trace of the dull pink hue that to many is so objectionable in the garden. Late in the month some of the smaller-flowered *Calochorti* opened their hairy bells and the dark purple of *Campanula glomerata* was conspicuous. Plants of *C. caespitosa* have also here and there commenced to flower, and the dense mat of leaves of *Cardamine trifolia* has been crowned with white flower-heads. In the wild garden *Centaurea alba* is in bloom, but this plant with its spreading habit and vigorous growth is not adapted for the herbaceous border, as it is a very difficult subject to successfully eradicate, suckers continually springing up even when the parent plant has been removed. The red Valerian (*Centranthus ruber*) is already bright on cliffs and rocky slopes, and many a wall and border edging is growing white with the Summer Snow (*Cerastium tomentosum*). *Clematis montana* has draped tree and masonry alike with

a veil of ivory-white blossom, a certain plant that has climbed the trunk of an Elm tree and garlanded the fresh green of its foliage with swaying flower-wreaths presenting a charming picture, while the bright gold of *Coreopsis grandiflora* is already apparent in warm and sheltered situations. In gardens I have lately visited I noticed two Lady's Slippers in bloom, *Cypripedium Calceolus* and *C. pubescens*, and in one of these gardens the yellow *Chrysozonum virginianum* was flowering. The scarlet *Delphinium nudicaule* has produced its bright flower-spikes and the Lyre Flower (*Dicentra spectabilis*) has borne its long, curving bloom-scapes in profusion. Large specimens of this plant, 3 feet in height and more in diameter, such as one often sees growing in rich soil, their flower-sprays bright with pendent pink blooms, are most ornamental at this season of the year. The American Cowslip (*Dodecatheon*) is also flowering freely, and *Doronicum plantagineum excelsum* Harpur-Crewe, with its great star flowers, is a blaze of yellow in the borders. *Epimedium pinnatum* is still producing its bright yellow bloom-spikes; *Eschscholtzias* are flowering well in many a garden, the old plants having passed through the winter unscathed; and *Eriogon mucronatus* is daily increasing the number of its Daisy-like flowers; while the *Fumitories*, pink, yellow, and cream-coloured, are in full bloom. The *Gentianella* and *Gentiana verna* paint spaces of the rock garden with their vivid blue, and the *Geums*, *coccineum* and its double variety, the copper coloured *G. miniatum* and the yellow *G. montanum*, are all in blossom. The Sun Roses (*Helianthemum*) are commencing their season's display, the pink, yellow, red and white flowers becoming more numerous with each succeeding day, and the first blooms of the yellow Day Lily (*Hemerocallis flava*) have opened. *Heuchera sanguinea* has produced its slender spires of coral-red blooms; some plants, however, show considerable variation from the type in the hue of their flowers, these occasionally being of a flesh-coloured tint. At *Coombe-fishacre* the satiny-buff *Ilomeria lineata* was in flower, as was *Panercratium illyricum*, while the early Honeysuckle was in profuse bloom. *Tellima grandiflora* was also blossoming in the same garden, as were *Scilla pratensis* and *S. Ramburi*, and the fine plant of the white variety of *Ostrowskia magnifica* that Mr. Archer-Hind possesses has made strong growth and is showing flower-buds. An unexpected resurrection has occurred in my garden in the case of this plant, which, after lying dormant for two years and being given up for dead, has this year made about 10 inches of growth. The quaint feather Hyacinths were in bloom early in the month, and around the grey holes of the Beeches the wooded slopes are azure with countless blue bells. *Iberis trifoliata* has been white with blossom, and *I. gibraltarica* is also flowering, while the Violet Cress (*Ionopodium acaule*) spreads its flower-carpet in many a space of border and rock garden. *Iris sibirica* has in some sites commenced to bloom, as have many of the Flag Irises, but, as a rule, although the common purple Flag has here and there been in flower since February and *I. florentina* in many gardens bloomed in April, they will not be at their best until the month of June. *Leucojum vernum* is still bearing its white bells in backward situations, and old plants of *Limnanthes Douglasi*, that have withstood the winter, are covered with the sulphur-white flowers beloved of bees. The Lilies of the Valley seem growing more strongly than ever this year, and are bearing a profusion of tall, many-belled flower-scapes that fill the surrounding air with delicious fragrance and yield many a bowlful to perfume the interior of the house. *Linum narbonense* has expanded its light blue flowers, *Lithospermum prostratum* on sunny rockeries is producing its blue of deeper tint, and *Lychnis viscaria splendens* fl.-pl. is unclosing its rosy-tinted flowers. The double Marsh Marigolds have been as bright in the garden as the single form has been in the meadows. Old plants of the common single Marigolds have also been blooming freely on rocky

banks, and the *Megaseas* are still in flower. *Mertensia virginica* has produced its drooping turquoise flower-clusters, and in sunny situations the *Mesembryanthemums* have already furnished a brilliant display.

Towards the end of the month I saw, growing near the water in a rock garden, a colony of seedlings from *Mimulus cardinalis*, whose red flowers produced a striking effect. In a somewhat similar position the giant New Zealand Forget-me-not (*Myosotidium nobile*) has also been in bloom, but the plant appears to be generally difficult of cultivation, my own experiences with it having been uniformly disappointing. Of the *Narcissus* family, the twin flowered *N. biflorus*, the late Pheasant's-eye (*N. poeticus recurvus*) and its double variety have formed the rear-guard of the host of Daffodils. The Golden Drop (*Onosma tauricum*) is commencing to flower, and the Stars of Bethlehem (*Ornithogalum*) are spangling grass and border, while *Orobus vernus* is in bloom, and the handsome *Ourisia coccinea* has produced its scarlet flower-scapes. Such of the Tree *Paeonies* as had not been injured by the preceding inclement weather commenced to bloom in mid-May, but many specimens were flowerless and perfect blooms were rare, except in sheltered situations. Herbaceous *Paeonies* were still later, but *P. anemoniflora* and *P. tenuifolia* were amongst the first to expand their blossoms. *Pansies* are bright in many a cottage garden and the dwarf *Phloxes* are masses of bloom. The white *Pinks* are late this year, but the earliest were in bloom before the close of the month. The Oriental *Poppies* have scarcely entered upon their flowering season, but here and there a giant blossom glows in the border. The Welsh *Poppies* are brightening rockery and rough stone edging with their clear yellow pendent flowers, and the Iceland *Poppies*, white, yellow and orange, have commenced to bloom. Of *Primulas*, *P. rosea*, *P. japonica*, and *P. Sieboldi* have been in flower, while the single crimson *Pyrethrums* are producing their richly coloured star flowers in numbers. The Turban *Ranunculi* have made breadths of vivid colour in the beds, and *R. aconitifolius* fl.-pl., which shares with *Saxifraga granulata* the title of "Fair Maids of France," has begun to bloom. *Roses* have been unusually scarce for May. Two years ago the hedge of Austrian *Briers* was bright with bloom before the conclusion of the month, but this year it will be close on midsummer ere it reaches the zenith of its beauty. On the walls many *Tea Roses* have opened their buds—*Safrano*, *Mme. Lambard*, *Rêve d'Or*, and *Bouquet d'Or* among the number—and on May 8 I cut an almost perfect bloom from *Cleopatra*, but until the last week of the month *Roses* were few and far between. *R. levigata* at Kingswear has been in flower throughout the month. *Saxifrages* have donned their most ornamental garb, and are generally in full flower, the mossy section carpeting the surface with a dense mat of greenery, now relieved by countless white blossoms; while the Meadow *Saxifrage* (*S. granulata*) presents a delightful picture naturalised in the grass under deciduous trees, and the London *Pride* (*S. umbrosa*) has thrown up its graceful flower-sprays whose minute flesh-white blossoms stand out in clear relief against a dark background. The *Silenes* are masses of flower, and appear much in vogue in the garden of the semi-detached villa. *Solanum jasminoides* is gradually increasing the number of its white flower-clusters, and the tall curving shafts of *Solomon's Seal* are strung with hanging blossom, while the autumn-sown *Sweet Peas* are in flower, and large plants of the scarlet *Tropeolum Lobbianum* that survived the winter form spots of intense colour against a rock wall. The *Trilliums* were mostly past their best early in the month, but the *Globe Flowers* (*Trollius*) were most effective during the whole of May. *T. caucasicus* Orange *Globe* is a fine and very ornamental variety. Late *Tulips* of the *Gesneriana* type have been extremely decorative both in the open and when arranged in vases. The pretty little *Tulipa persica* is also a very taking flower and quite a gem in its way. *Veronica prostrata* is

becoming blue with bloom, and the *Wallflowers* are still a wealth of fragrant blossoms, while the lavender flower-fringe of the *Wistaria* drapes the walls with a veil of perfumed blossom that fills the surrounding air with sweetness, and in the hedgerows the *Woodruff*, with its delicate essence of new-mown hay, is starring the banks with tiny white flowers.

SHRUBS.

Abutilon vexillarium is coming into fuller bloom, and both the lavender and white varieties of *A. vitifolium* will soon be in perfection. Tall, well-furnished specimens of this *Abutilon* 8 feet or more in height are extremely handsome when in full flower. In a garden on the banks of the Dart *Acacia Riceana* and *A. verticillata* were in flower, and the *Embothrium coccineum*, to which I referred in my April notes, presented a still more dazzling sight. This *Embothrium* is of such exceeding beauty when in flower, that it is well worth a trial in sheltered situations in the south-west, in which district there are many fine specimens, two notable ones being in the gardens at Coombe Royal, near Kingsbridge. At Fota, Co. Cork, I also saw a handsome tree in full bloom a few years ago. *Ceanothus papillosus* has commenced to bloom, and the *Judas Tree* (*Cercis siliquastrum*) has been purple-pink with flower, while *Choisya ternata* is white with blossom, and *Crataegus Pyracantha* is flowering profusely. The double *Cherries* have been blooming freely, and the *Bird Cherry* (*Cerasus Padus*) has been a lovely sight, especially a variety with pendulous flower-sprays, which, with the type, was in bloom at Coombefishacre. Towards the end of May the pink *Thorn* began to show its colour and the hedges grew daily whiter with the *Hawthorn*, while the *Cistuses*, pink and white, disclosed their tints and the *Deutzias* commenced to bloom, as did *Escallonia macrantha*. The pale sulphur-white *Cytisus præcox* was past its best early in the month, but later the chestnut and gold *C. Andreanus* was a brilliant show. I was shown a large and handsome specimen of this *Cytisus* which had been raised from seed and which was correctly variegated, thus proving that in some instances, at all events, it comes true from seed. Later on the yellow *Broom* made a blaze of gold in the shrubbery. The *Guelder Rose* has been barely able to sustain its reputation as the "Whitsun Flower," but the beautiful *Snowdrop Tree* (*Halesia*) was in full bloom by the middle of May. The *Kerrias*, single and double, have been in bloom, while *Lilac* and *Laburnum* reached their fullest perfection in the waning days of the month. The first bloom was cut from the great standard *Magnolia grandiflora* on May 10. *M. Soulangeana* has also been in flower, and *Olearia stellulata*, which in some gardens has been blooming more or less throughout the winter, is covered with white star flowers. A specimen of *Paulownia imperialis* has been flowering sparsely and *Pittosporum Tobira* is in bloom, as is the pretty *Rhodotypos kerrioides*, and many of the *Rhododendrons* and *Ghent Azaleas* are bright with flower. *Ribes aureum* and *R. speciosum* are in bloom, and the beautiful white *Rubus deliciosus* has produced its large *Cistus*-like flowers. The *Bladder-nut Tree* (*Staphylea pinnata*) has been in bloom, as has *Weigela rosea*.

The rock garden at Chaddlewood, near Plympton, was bright with colour when I visited it in mid-May, many beautiful and rare subjects being in bloom. Amongst these were the red *Abelia floribunda*, *Ethionema cordifolium*, *Androsace sarmentosa*, of which a large patch which had carried over 200 flowers was going out of bloom, *Antirrhinum asarinum* and *A. glutinosum*, *Arenaria balearica* and *A. montana*, the beautiful *Cistus formosus*, with its yellow, maroon-spotted flowers, *Dryas octopetala*, *Daphne Cneorum*, *Hutchinsia alpina*, *Iberis gibraltarica*, *Ledum buxifolium*, *Linaria antirrhinifolia*, *Lotus peltorhynchus*, which was planted out in the spring, *Morisia hypogaea*, *Oxalis rosea*, *Othonna cheirifolia*, a variety of *Phloxes*, amongst which were *P. amena*, *P. divaricata* and its form known as *canadensis*, *P. reptans* and various forms of *P. subulata* or seta-

cea, *Potentilla achemilloides*, *Ramondia pyrenaica*, many of the *Saxifrage* family, *Sisyrinchium bermudianum*, the charming white *Viola cucullata alba*, the yellow *Viola biflora*, *Vaccinium Vitis-Idaea*, and the yellow-flowered *Waldsteinia trifolia*. Bright colours were present in *Alyssum* and *Aubrietias* and the reds and yellows of *Ghent Azaleas*, while the Japanese *Maples* of varying tints introduced palest green and purple-brown into the picture. In the immediate neighbourhood of the rock garden, *Andromedas*, tall specimens of *Abutilon vitifolium*, and bushes of *Cytisus* were in flower, as was *Erica codonodes*, which reproduces itself freely from self-sown seed and grows to a great height, having reached a stature of 15 feet prior to the disastrous blizzard of 1891. A fine specimen of *Rhododendron calophyllum* was flowering in the open, as were the *Nepaul Laburnum* and *Thermopsis montana*.

S. W. F.

GARDEN FLORA.

PLATE 1175.

SOME CALIFORNIAN IRISES.

(WITH A COLOURED PLATE OF—I, I. CUPREA; 2, I. TENAX.*)

I. TENAX, figured in the plate, may, I think, be taken as the brightest and most highly coloured representative of those Californian Irises which can in any sense be described as having lilac flowers. *I. cuprea* (the specific name *fulva* appears to have the right of primogeniture) is, from a gardening point of view, absolutely *sui generis* in relation to its own family, for there is no other *Iris* producing flowers of the same colour or anything like it, while the spreading segments appear to bring it closer to a *Moræa* than any other species indigenous to the northern hemisphere. The subject of Californian Irises has within the last year or two excited some interest among the cultivators of hardy flowers, and to this have contributed not only the intrinsic beauty of the flowers themselves—many of them being quite distinct in colouring as well as in habit from any of the apogons hitherto commonly in cultivation—but also the confusion of the nomenclature, and perhaps I may add also the exceptional difficulty which has been found not so much in growing as in establishing certain of the species. With regard to the nomenclature, we are, I think, beginning to see daylight. The American botanists have recently revised and multiplied the species, and the confusion (if any) which may still exist is confined to one or two kinds at the outside. I may, perhaps, add that the plant from which the accompanying portrait of *I. tenax* was taken holds a certificate from Mr. Baker as being identical with the specimens in the Kew herbarium and as answering to his own description of the same ("Irideæ," p. 7). Of the culture of Californian Irises it is unnecessary to say much, for the whole matter has been discussed in the current volume of this journal (pp. 1 and 47). Mr. Purdy in his article (p. 1) enumerates nine species (*I. longipetala*, *I. Douglasiana*, *I. macrosiphon*, *I.*

* Drawn for THE GARDEN by H. G. Moon from flowers sent by Mr. J. Carrington Ley, St. Helens, East Farleigh. Lithographed and printed by J. L. Goffart.



1

2

TWO IRISES IN CULTURE AT TEXAS

missouriensis, I. Hartwegi, I. tenax, I. bracteata, I. Watsoni, and I. Purdyi) as being strictly Californian, and he alludes incidentally to two more, I. Parishii and I. californica. Of these the four last-named were not identified or admitted as species at the time of the publication of Mr. Baker's "Irideæ," and they are not alluded to in that work. Of the eleven species, I. Watsoni (seemingly allied to I. longipetala) and I. Parishii (recently separated from I. missouriensis) are not probably in cultivation in Europe—at any rate, under these names; but of the remaining nine I believe I may say that eight are growing here. I. longipetala and I. missouriensis (syn., I. Tolmeana, though these last two are frequently offered in catalogues as if they were distinct species) are pretty well known, and the latter was figured in THE GARDEN, vol. 1., p. 183.

I. DOUGLASIANA is less common, I believe, in European gardens, but it is nevertheless one of the most vigorous apogons I possess, and my plant is now (June 3) expanding some thirty or forty blooms simultaneously. This, too, was figured in THE GARDEN, vol. 1., p. 272, and it is satisfactory to know that the plant figured is now admitted all round to be the true species.

I. PURDYI.—I am disposed to think that the strange and interesting dwarf Iris which originally reached me as I. Douglasiana is identical with the plant now named I. Purdyi. I should have said I had little or no doubt of this, but my plant is certainly extremely like the woodcut of Herr Max Leichtlin's plant given in THE GARDEN, vol. iii., p. 126, and it will be noted that he has found distinct botanical differences between his own plant and the dried specimens of I. Purdyi.

I. MACROSPION.—I have an Iris which has been named for me by Mr. Baker as a form of the above. It has not flowered this year, and I was away from home when it came into bloom last, but it is said to be slightly deeper in colour (yellow) than the last named.

I. BRACTEATA.—This has come into bloom for the first time on the day I write (June 3). There being only one flower, I have not the heart to cut it and send it to Mr. Baker, but as far as I can trust my own botanical knowledge it corresponds with the description ("Irideæ," p. 7), and it certainly answers exactly to Mr. Purdy's description of this Iris (p. 1 of the present volume). It is of a pale though genuine yellow, much deeper towards the claw, finely reticulated with purple veins. It is by far the best yellow Iris I have yet seen among the North American species.

None of the Irises above named appear to present any insuperable difficulties in establishing, though, no doubt, much care should be taken in moving the three latter, and the operation if done at all should take place in the spring. With I. tenax, I. Hartwegi, and I. californica, however, *c'est tout autre chose*. So far as my experience goes, the only way to establish them is to plant them in pots (when well established) after removing the crocks, and subsequently to break the pots in the ground, though this latter operation must be done with great care and caution. The portrait of I. tenax speaks for itself, and I have succeeded in getting I. Hartwegi to take hold in the same way, but it has not yet bloomed. This plant, however, has been exhibited two years running by Messrs. Wallace and Co., of Colchester, at the Temple show. Apart from its rarity and interest, it is a beautiful little dwarf Iris with pale

yellow flowers, and well worth growing. With the species named by Herr Max Leichtlin I. californica I have hitherto persistently and consistently failed. I have still one plant (out of six apparently strong and healthy ones received about two months ago) maintaining a doubtful struggle for life, but already, I fear, *mors atra caput tristi circumvolat umbra*—I feel sure it is doomed. My friend Mr. Ewbank, however, tells me he has several plants of this established and blooming well. There is evidently difficulty in getting these things to travel even short distances, and the difficulty of importing them alive from their native homes is *à fortiori* still greater. About six weeks ago Mr. Purdy was so kind as to send me from California a plant of one of the yellow varieties (probably I. californica), but, to borrow the words of King Richard III (though in no truculent sense), "I found it sleeping, and I shall leave it (or at any rate it will leave me) as I found it." I have not yet thrown it away, but I have no hope of its starting.

I. CUPREA is one of the four species that appear to be almost confined to the Southern States of N. America, the others being I. tripetala (more commonly named I. tridentata), I. hexagona and I. caroliniana. All four, as far as my experience goes or as well as I can guess, require sun and a certain amount of moisture.

I. TRIPETALA is one of the most distinct of all the apogons. It is, I believe, somewhat rare and is not a very vigorous plant, having a habit (with me at any rate) of dwindling way sometimes without any apparent reason. It has not bloomed here this year.

I. HEXAGONA is not quite hardy in this country and is a shy bloomer, but the beautiful variety La Mace, sent me some eighteen months ago by Mr. J. N. Gerrard, of Elizabeth, New Jersey, who named it, has neither of these defects. I hope, perhaps, some day the editor may give us a portrait of this, for, except the varieties of Iris Kempferi (I. lævigata), it is in my judgment a prince among the apogons. This grows strongly, but is as yet, I believe, very scarce. I have also from the same kind donor the white var. of I. hexagona, which has, I fear, the faults characteristic of the type.

I. CAROLINIANA is alive in this garden, but I have not yet found a spot in which it can apparently make itself happy. I suspect that more moisture is what it is wanting. Mr. Baker speaks of it as very near I. versicolor (the common Iris of Northern N. America), and says it differs from this mainly by its glaucous leaves. This, however, does not seem to tally with the plant sent me by Mr. Gerrard under this name, for the foliage is most noticeably of a yellowish green and stained with purple. J. C. L.

Ramondia pyrenaica.—Rightly placed in the rock garden, the Ramondias are among the most beautiful of flowering plants. A quiet shady nook that is never dry in the hottest summers is an ideal place for these choice plants, which when of good size and freely planted are exceedingly showy. In artificial rockwork a suitable spot is easily arranged, and if water be laid on, a spray or shower overhead daily will assist materially to full development. Excellent positions are forthcoming on the face of nearly perpendicular rock where Moss will grow, and the plants, tightly wedged in with soil and stones, will quickly take to their position. There is some variety of colour in the blue forms, one comparatively rare being almost azure-blue with a clear lilac shade. The lovely white form, the gem of all, is happily equally vigorous and profuse in its flowering as

the type. A lovely colony of this choice Pyrenean alpine may be seen now at Kew flowering grandly. Clambering near over the stones also the lovely little Arenaria balearica is a sheet of snowy blossoms, luxuriating without soil, so to speak, and in its whiteness only enhancing the value of the Ramondia now at its best.

THE WEEK'S WORK.

HARDY FRUIT GARDEN.

WATERING FRUIT TREES.—Upon shallow and well-drained soils this important work should now receive regular and prompt attention. A deal depends upon the qualifications above given, and due judgment and discretion must be exercised in its performance. Prior to writing these lines I noted symptoms of distress here and there, and shall lose no time in rendering the needful assistance. It does not in every case depend upon previous cultivation, however good that may have been. To neglect these symptoms of want may be to lose a crop or to have it considerably deteriorated.

MULCHING AGAINST DROUGHT.—Where this is done systematically and well, a considerable amount of labour may be saved. If not already attended to, as advised in previous notes, no time now should really be lost. Personally, I was under the impression that a greater rainfall would by this time have been accounted for, but such has not been the case; hence mulching will have to be extended where it was thought better to postpone it for fear of tending towards too luxuriant a growth. All newly-planted trees most certainly need it for the first season or two, and in spite of the appearance it should be performed. Nothing is better than farmyard manure for mulching; it keeps the roots cooler, retains moisture, and provides a stimulating food.

CHERRIES.—Cherries against walls will often need watering before any other fruits, especially newly-planted trees. Mine have already had two applications, and before these lines are in print the third will have been given. The mulch here is most essential in the case of young trees not yet established. If the trees now suffer a check, it will be seen in the dropping of the fruits even in spite of otherwise good conditions.

PEACHES AND NECTARINES.—A few weeks back I noted a tendency towards a weakened growth here and there, hence a couple of liberal waterings have been given, and that with already good results. This did not occur either in the case of trees newly planted, so that any who may also be located on similarly shallow soils may do well to take note in time. With the long continuance of dry weather and the rainfall for a few years past below the average, it is quite possible that many large fruit trees of various kinds may need a good watering to save the crops from harm. In the case of the Peach and Nectarine, regular syringing will now be resorted to. It would have been started earlier, but owing to the chilly nights it was deferred.

PLUMS, PEARS AND APPLES.—Where well established these fruits should hold out for a time, but if any be young and newly planted, do not lose sight of them any longer. Young trees of the last-named on the Paradise stock were well watered a few weeks back. Pears on the Quince and not yet established need the same attention, and so will young trees of Plums, upon which the red spider will soon gain a foothold if not attended to. Afternoon syringings for all of these will be beneficial where growing against walls. Apricots bearing good crops of fruit should be watered freely now, being kept on the dry side when colouring commences where the splitting of the fruit occasions trouble. Now, however, a good dose of water will serve a timely purpose.

BUSH FRUITS.—These perchance may be for the moment overlooked as of less importance, but the results of such neglect will soon be apparent in the case even of Raspberries or Gooseberries

that are newly planted. Currants, as a rule, do not suffer so soon. If bush fruits were duly protected by mulching as previously advised, an occasional watering during dry weather will keep them in a satisfactory condition.

STRAWBERRIES.—At the present time, after due attention has been given to newly-planted trees, this is the most important crop of any, and it well repays for being done at this stage before there are many symptoms of colouring apparent. The very earliest crop in warm situations may not require any watering at all, the matter of first importance here being to secure as early a picking as possible, the question of size being a secondary consideration. If the watering of Strawberry crops be not, as it were, anticipated in advance of direct distress of the plants, there will be a check to the swelling, which oftentimes will result in a hardening of the fruits, after which they will never swell away so freely. Do not rest satisfied with a mere perfunctory watering, but let it be done thoroughly and well. Let the water be chiefly directed to the crowns of the plants, where, if the foliage be dense, the soil will be the driest by a considerable degree. The use of liquid manure, whether from the farmyard or stable, is not advisable at this stage; indeed, I strongly deprecate its use, as there will be a tendency to act prejudicially upon the flavour. If anything is really needed, as in the case of an extra heavy crop, a quick-acting artificial manure would be much better, but then even be moderate in its application. Alpine Strawberries in particular need early attention to watering, and here again every hour expended upon it will be amply repaid in the heavier crops. Having a water service at command—every garden should have one if the best results are to be obtained—my plan is to spray the beds with a light serpentine jet, which causes the water to fall upon the plants like fine rain. This can be done at a small expenditure of labour, as all that is necessary is to shift the piping and jet every hour or two.

INSECT PESTS.—These are already very abundant in most gardens, but if the advice already given of attacking the few rather than the many be acted upon, the trouble will not be so great. Black fly, a most troublesome pest and one which quickly works destruction, has not with me, I am glad to say, been much in evidence so far, but a constant watch is being kept against its appearance, when immediate proceedings are taken by a strong dose of Bentley's quassia extract. Cherries are, as most of us know, very liable to an attack, and it often commences upon the shoots that are partially covered; hence it is not immediately seen. Hand-picking where the shoots or leaves can be spared has oftentimes to be resorted to in extreme cases. Upon Peaches and Nectarines it has been the green-fly that has occasioned trouble, but after repeated doses of the aforementioned compound it has almost disappeared, and it is now safe to follow on with the disbudbing, which in extreme cases should under a bad attack of fly be postponed, otherwise those shoots left to cover in the wall space may be so weakened as to be practically of no value. Some may perhaps adopt the opposite view and thin at such times in order to reduce the number of insects, but it is better to kill them first where they are, and to encourage root action as speedily as possible by the retention of the shoots. The blue aphid upon Plums often causes a lot of trouble, being located chiefly on the under surface of the leaves, where it is not so easy to reach it. My method is to syringe sideways, upwards and downwards, more than directly against the trees, but the dose has even then to be repeated. The American blight where now making a marked appearance ought to be attacked unmercifully. I have still a little hanging to some old trees; these will be well dosed with a strong solution of a penetrating insecticide by means of a painter's brush. To syringe the trees all over is a waste of material when it can be avoided, and thus far it has not, as noted, spread to the young shoots and leaves. As a last resource, use hot water in bad cases with paraffin if it be syringed off again before the

sun shines on the trees the following day. The close inspection of all young trees where there is the slightest indication of this pest making an appearance is imperatively necessary. Minutes will now suffice where afterwards hours will have to be given to its destruction. Pear trees are being attacked also by an aphid, which so far I have not had time to critically examine. Where this is the case the quassia extract will be again resorted to. Red and Black Currants are similarly troubled, but for these I chiefly depend upon a free use of the hose.

EARLY PINCHING AND STOPPING.—This is necessary, more especially in the case of young trees which have not as yet furnished their allotted space. If taken in hand now, the energies of the plants will be more easily directed to those shoots which ought to form the leaders rather than to foreright or otherwise misplaced shoots, which afterwards have to be cut away. Cherries are a case in point, so also are Plums, and, in fact, almost all fruits that could be named. Those who may not have taken this work in hand early are strongly advised to do so and watch the after results for themselves. If it were done more extensively we should not see so many of those gross shoots which disfigure our trained trees in their earlier stages, and oftentimes make them objects of pity later on. No knife need scarcely ever be used; it is merely the work of finger and thumb.

HORTUS.

KITCHEN GARDEN.

GENERAL WORK.—With so much rain there is much to be done in this department; indeed, where labour is none too plentiful it is a difficult matter to keep the work up to date. There should be no delay in clearing away vegetable crops that are cut over or not required. The quarters the early Cabbage occupied will now come in useful for the main-crop Celery, and owing to the rainfall there will be no difficulty in getting out the trenches. The best Celery is grown in single rows, as the plants have more room and can get better treatment. The ground for later crops may with advantage be prepared at this date, and I find it the best plan to plant out of the seed-beds direct into the trenches. This saves time in pricking off. Ground should now be got ready for most of the winter crops. I fear planting of various kinds will be later this season owing to the cold weather we had in May, which retarded growth, so that early crops cannot be cleared as soon as one could wish. Asparagus may now be fed freely, and such aids as salt and soot may be used to advantage. Spinach, owing to the heavy rains, has made such rapid progress that I am digging in a portion not needed, owing to the crop coming on too quickly. A sowing on a north border will be valuable for succession. There should be no delay in thinning seedlings of all kinds, as the weather is opportune for the work.

FAILURE OF CROPS.—Failures are not many, but I have some, and now is a good time to make them good. Chicory this year has failed badly, but there is yet time to secure strong roots. The Witloof, or Belgian Chicory, is the best. I am still putting out small seedling plants of Asparagus. The roots taken up with a ball of earth move well, and at this season one can see the bare places in beds and make them good, the weather being favourable for the work. Should there be any scarcity of Carrots for late supplies, a sowing of such kinds as Model or Early Gem will give nice roots by the autumn. The same remarks are applicable to Parsnips and Beet, as these roots sown now will keep better than larger roots. Beet this year failed badly. Doubtless the heavy rainfall caused the seed to decay badly, and I am now sowing rather closer, as growth will not be so robust at this season of the year. It is not too late to sow the earlier varieties of Peas for an autumn supply if earlier sowings have not been a success. I do not advise sowing the 6-foot high varieties after midsummer is passed. A late sowing of runner Beans will be useful

where these are in request, but I prefer the new climbing varieties, these being so much more prolific than the Scarlet Runners. Dwarf kinds sown now will be valuable for August and September dishes.

SEAKALE.—Now is a good time to feed Seakale; indeed, I have seen splendid Kale from soil not given animal manure, but an ample supply of liquid from stables. I am sure few plants repay attention during the growing season better than Seakale, and it is well to get strong growths. The plants at this season need going through, thinning out the crown growths. Root cuttings planted this year should only carry one crown, and older roots two at the most. If, however, the roots are much divided it will be well to leave one crown to each shoot, and after this thinning out not allow any more to form. Plants, especially old ones, have a tendency to lift the crowns well out of the soil, and if such is the case it is not good for the plant. In such cases I have moulded up to the crown, or, what is better, given a mulch of soil or manure. Food may now be given freely, and I find a good dressing of salt and soot is much liked by Seakale. These aids given in showery weather and lightly hoed or raked into the surface soil will soon be absorbed by the roots. Fish manure and guano are likewise good. Whatever food is given is best applied when growth is fairly vigorous. All seed growths should be removed.

PLANTING OF GREEN CROPS.—Under this heading may be included most of the Brassicas. Brussels Sprouts come first as needing a fair season's growth; it is well to get them in as early as possible. I dealt with the earliest lot a few weeks ago. These will now be large enough to draw soil up to the stems, as I find moulding up of great assistance in rough weather, and it conserves the moisture. Later plants may be given less space, as these will not grow so large. A space of 2½ feet is not too much between the rows, with nearly that distance between the plants. At times this and other Brassicas follow the early Potatoes, and these being later than usual, it will not do to let the plants spoil by keeping them too long out of their permanent quarters. In some cases where the Potatoes have small tops I have planted green crops between, and before lifting the tubers the plants have obtained a good hold of the soil. Doubtless all the Brassicas do far better when in an open, exposed place. It is well to obtain a good plant at the s'art and space to develop. Next to Sprouts, the Kales are the most useful winter vegetable. These need the most open quarters and not too rich soil, as, though a good growth is needed, a hard one also is essential to stand our variable climate. My Kales are not all planted at one time, the Asparagus and Cottagers' being the last. These occupy a north border. If any of the green crops follow a similar crop, precautions must be taken against disease. I would in no case advise a similar crop to the preceding one if it can by any means be avoided. If a necessity, it is well to give the land a good dressing of soot and lime or wood ashes, with a light dressing of gas-lime before digging. Kales should not have less than 2 feet between the lines, but if land is scarce 6 inches less between the plants may be a necessity. I strongly advise planting out any of the crops alluded to before the seedlings get too large, as they need so much more attention if drawn. Early Savoys should get good land, as their season of growth is short. For the dwarf kinds a space of 15 inches between the rows is ample, or they may be planted at 12 inches apart all ways. Late Savoys I do not advise planting for another month, as these are more useful after Christmas.

TRANSPLANTING.—There is often more need for transplanting during this month than at other seasons, and this is more necessary should the previous month have been cold and have retarded growth. Seeds are sown at given dates, and the seedlings, if left in the seed-beds, are so much injured that they are not always worth planting. This may be remedied by what is termed pricking

off. It is work I place much importance on, as by pricking out into rows at a distance, say, of 9 inches to 12 inches between the rows and 6 inches between the plants, there will be excellent material for planting out later on. Should the present crops occupy the land long, the plants are progressing, and will not suffer much by removal if this is done carefully. With the soil in a moist condition transplanting is soon done, whereas if the plants are at all thick in the seed-beds, they will soon spoil at this period of their growth. In transplanting it is well to plant in well-manured soil, as, given a rich quarter, the seedlings lift with a compact ball and never lose their lower leaves. Such plants present a much nicer appearance in a kitchen garden than tall, weakly scarecrows drawn out of seed-beds and nearly rootless.

COLEWORT.—Few vegetables are more useful than the Colewort, and it is well to make a sowing at this date for the first supply. Sown now there will be good heads in September and October. The Colewort is one of the best vegetables for autumn on account of its quick growth. I usually plant after Strawberries. The ground is double dug, well manured, and then planted, and, after the Coleworts are cleared, is turned up rough during the winter, being then in excellent condition for root crops. I always make three sowings of this vegetable—one now, another a month later, and a sowing of the Hardy Green in the middle of August. The Rosette is the best for early use, as the quality of this is superior to that of the Hardy Green, which is valuable for late work, as it will stand so much hard weather. By sowing as advised there will be ample material from September to March or up to the time the spring Cabbages turn in. I plant at 12 inches to 15 inches between the rows. By drawing drills the planting is soon got over and the seedlings take to the soil, and once established give little trouble.

LEEKs.—At this date it will be well to get the main and late crops of Leeks into their permanent quarters. Trenches are much best for these if the soil is light, and to get good roots there must be a fair supply of food in the way of decayed manure, though I have had excellent roots with surface feedings and the plants only grown in shallow drills. The latter is a good plan in heavy soil, as the plants get more air and light. To save space I plant in shallow trenches with a few inches of decayed manure for the roots, each trench having two rows of plants. The trenches are 3 feet apart, and this allows of earthing up with the soil thrown out. The latest lots are grown in deep drills 15 inches to 18 inches apart and in an open quarter. During the late summer or autumn I flood the quarter with liquid manure or employ a fertiliser in rainy weather. Leeks grown as these latter are good well into May if lifted early in April and placed in moist soil in a shady place. For early supplies it may be necessary to give more attention to cultural details, but I find the roots large enough for all purposes planted now and grown as advised. S. M.

Iris tectorum.—This species is not usually seen thriving so well as is now the case in the Royal Gardens at Kew, where in at least two instances fine patches are undoubtedly at home with their roots dry and warm at the base of a brick wall. If memory serves me aright, Mr. Arnott recently spoke of this species in connection with his roof garden. Perhaps Mr. Arnott will say if so placed his plants are a success, because any plant that will with even partial impunity live and flower in such a position should prove of value in many gardens—not for roof gardening exactly, but where the soil is of an exceptionally hot and dry nature. The number of really good plants for such soils is naturally somewhat limited, so that the handsome showy flowers of the above species would be welcome. Many Flag Irises also may be grown in soils much drier than is usually supposed, and flower freely also.

ORCHARD AND FRUIT GARDEN.

THE APPLE CROP.

As sufficient time has elapsed since the blossoming of the trees to allow for the dropping of all imperfectly set fruits, and after making due allowance for the further casting of fruit on heavily-laden trees, it is perhaps now safe to venture to give a general idea as to the condition of the crop. This, I am pleased to say, is most satisfactory, and unless any unforeseen event should occur, I am inclined to think that the crop will be the heaviest we have had since the year 1887. I have not arrived at this conclusion hastily, as the trees have been carefully surveyed and the condition of each particularly noted. In the first place it should perhaps be stated that the collection of trees grown here is for a private place, a large and representative one, consisting of upwards of 140 varieties. Among these are a great many kinds which bear more or less every season, but among the whole lot there are this year but few exceptions, and of these are some which have the reputation for being shy. It should be stated that the reason why so many sorts are grown is to afford a kind of object-lesson to those on the estate, so that anybody who wishes to do so can see which are the kinds best suited to the district and what to avoid planting. For this reason most of the new sorts are bought in as introduced, and this has led to the collection reaching to such numbers as it has done.

The blossoming of the trees was unusually profuse, but the blooms were a long time unfolding, and by the time all were open the majority had developed a considerable amount of leaf growth. This tardiness was no doubt the result of the effects of the cold and sunless weather experienced during the flowering period, but it exercised no harmful effects on the setting of the fruit. Many hold the opinion that Apples do not set well when the trees have developed such an amount of leaf growth, but the contention certainly has not held good this year. The slight frosts experienced also did no harm, and in consequence of the trees having been thoroughly sprayed prior to the unfolding of the blooms, but few insects put in an appearance. They were again sprayed as soon as the fruit was set, and the result is that the trees are cleaner than they have been for years. The heavy rains which fell during last month have exercised a very beneficial effect, which has been the means of causing the fruits to swell more quickly than they would perhaps have done in so short a time. Considering the lateness of the flowering period, the fruits are really in a forward condition, and they have individually a clean, healthy appearance. The trees are also well clothed with an abundance of healthy foliage, such as they have not carried for years past, and in consequence look the picture of health. This great fruitfulness and general satisfactory condition may be attributed in a very large measure to the thorough ripening which both wood and buds underwent last autumn; also, in a less degree, to the vigorous measures taken to give the trees as perfect a cleaning as possible during the winter; also to keeping the soil under the trees frequently stirred afterwards. A great many of the popular heavy-cropping kinds will have to be thinned as soon as it can be ascertained which will be the best to leave, as it would be the height of folly to overcrop them. Among those promising a full yield are Seek No Further, Ribston and Cox's Orange Pippins, Nonpareils of sorts, Beauty of Bath, Duchess of Oldenburgh, King Pippin, Potts' and Ecklinville Seedlings, Rein-

ette du Canada, Northern Greening and its newer variety Cellini, Lord Derby and Lord Clyde, Maltster, Cox's Pomona, The Queen, Small's Admirable, Stirling Castle, Lady Henninger, and Annie Elizabeth. To give a further detailed list at the present time will take up too much space and serve no good purpose, and those mentioned suffice for the matter in hand. In conclusion, it may be mentioned that sulphate of iron is being tried on some of the trees as an experiment to ascertain whether it will influence or add to the depth of colour in the fruit. A. W.

THE PEAR CROP.

The Pear crop in Herefordshire as given by "A. W." (p. 458) compares very favourably with that here; all, or at least with few exceptions, are thickly set with healthy fruits. The trees, too, as noted by "A. W.," are abundantly furnished with healthy foliage, and without the insect troubles common to so many crops this season. Trees of Beurré Clairgeau were so thickly covered with blossom, that I anticipated a very scanty crop, if indeed any remained; but a surprising quantity is swelling away. It is not usual when trees flower so thickly to find an average crop result, and the moist state of the soil at the flowering period must, I think, be taken as a highly favourable condition tending towards this end. It would be yet unsafe to make any calculation as to certainty of the crop generally, for though the high position of the garden under the charge of "A. W." places his prospects beyond doubt, it is not so with many others. Tender crops have been hopelessly cut down by frost at a later date than the end of May here on more than one occasion. I have known the Pear crop almost wholly destroyed when in the same stage of growth as at the present time, but this was in a low-lying garden. With the prospect of a full average crop here, I was not a little surprised when calling on a gardening friend some few miles distant to see so scanty a set of Pears in his garden. His trees, I was told, flowered with unusual freedom and were in excellent health and vigour, yet not one tree had an average set of fruit. The garden was well sheltered with tall trees and buildings, but the cold winds apparently were more than the tender blossoms could resist. This proves the variable influence brought to bear on flowering trees when the position of the garden is not favourable. It would be interesting to learn what the prospects of some other growers may be. Trees in full flower at the time when the cold winterly spells were in evidence would, in the case of those exposed to its force, probably be thinly cropped, while later districts would escape. Without any further winterly or insect visitations the present appearance of the trees here points to the necessity of thinning very generally, early and late sorts being alike plentiful. The same remarks apply to the wall and open-air trees. As pointed out by "A. W.," it would be quite premature to attempt to give a list of sorts at this early date that are in a promising condition, because future events may yet change the prospects very materially. W. S.

Rood Ashton, Wilts.

Apple Duchess of Oldenburgh.—I have grown the above-named Apple for some twelve or thirteen years, and during the whole of the period mentioned I have never known it to fail. This year the crop is again a heavy one, and the fruits are in a forward condition, owing no doubt to the great benefit the trees have derived from the recent heavy rains. In addition to its being an early variety, the fruit ripening at the latter end of August and early part of September, it is on account of its heavy cropping an excellent kind to grow for market. The flesh is soft, it is true, when the fruits are fully ripe, but all danger likely to arise from this fact when sending t

market may be avoided by gathering before they are quite ripe. It is a handsome Apple, the skin being pale green, which turns yellow when mature, and is striped with red. Although classed as a cooking Apple, it may also be used for the dessert by those who prefer a briskly acid, though pleasantly flavoured fruit. In size it may be classed as medium, and it bears in clusters. To get extra large fruits, thinning must be done when the crop is heavy and the trees be well fed at the roots afterwards. The tree possesses a hardy constitution, is an excellent grower, and may be grown in either of the approved forms with success.—A. W.

PEACH STONES SPLITTING.

COULD you tell me the cause of the stones of Peaches splitting? Several have not ripened properly in consequence. The sort is Early York.—H. M., *Bonchurch*.

* * The actual cause of split stones in Peaches and Nectarines is yet to be discovered. Probably it may be brought about in more than one way, and we know that some varieties, such as Early Rivers, Early York, Grosse Mignonne, and in a less degree Hale's Early, have a predisposition to splitting. It has been variously attributed to imperfect fertilisation, to injudicious watering, to a deficiency of lime in the soil, and to badly-made borders, and it is to the roots we must go to alter matters. It is a significant fact that though no section of Peaches escapes from this defect, the early ones suffer much more than the late or midseason ones. Early Peaches finish their growth early and ripen up when the weather is hot; this, combined with the usual neglect of watering when the trees have yielded their fruits, causes a premature fall of leaf and a suspension of vigorous root action just when it is needed to finish the wood properly. This premature ripening is as bad for the wood as under-ripening it. Last summer would be a very likely one to produce such early ripening, especially at Bonchurch, on the south coast of the Isle of Wight, where the heat in summer is often intense. If the case under notice is an uncommon one with this tree I would suggest greater care in watering, so that the roots may not get dry after cropping, also a light shade for the roof, and full ventilation from now onward. The shade must not be too great, and nothing would be better than a light application of lime-wash mixed with butter-milk; this would gradually be washed off by the time full exposure is necessary, and would not unduly retard ripening. Should there be a suspicion that the errors of root action are on the side of grossness, arising from an undue amount of animal manure in the border or from defective drainage, the border should be re-made before the leaves have dropped and the soil used should be turfy loam mixed with good garden soil, and air-slaked lime might form from 3 to 5 per cent. of the bulk, lime being an absolute necessity for stone fruits and hardly ever used freely enough among them. Of course, ample provision for drainage should be made and some means provided for keeping the roots out of the subsoil if they show a tendency to run into it. I do not advise a very deep border for Peach trees under glass; 2 feet of good soil is quite sufficient if they are well attended to in respect of watering. Whether the tree should be actually lifted and replanted will depend much on its size. If it is a large old tree it will be best to let it stand and simply bare the roots up to within a few feet of the stem, undermining the ball somewhat to allow for drainage. If a young tree it might be lifted and replanted without harm or loss of crop next year, but avoid deep planting.

Whatever may have been the cause of split stones in "H. M.'s" case, he will find that by adopting the foregoing suggestions the defect will disappear, but not unless the trees are as well attended to with water after the crop is gathered as before; indeed, the roots of Peach trees should never be allowed to get dry, and it is this that makes good drainage so necessary, for though the roots must

be kept moist, they will not brook anything approaching stagnation. I would suggest doing away with such an out-of-date Peach as Early York, which is not only poor, but subject to mildew, replacing it with Amsden June, the best of the very early Peaches.—J. C. T.

PROTECTION FOR FRUIT TREES.

A QUESTION which appears to be agitating the minds of fruit growers just now is whether protection of the trees at blossoming time and onward till the fear of sharp frosts is over is an advantage to the trees and fruits or the reverse. Again, granting that protection in some form is a benefit, to what extent should it be used and what form of protection is the best? Tender fruits and blossoms are very much at the mercy of the elements, and we know that subjecting them to 10° or 12° of frost, and even less when accompanied by a cutting east wind, is sufficient to destroy open blossoms and small fruits, such frost being sufficient to blacken the kernels of stone fruits, even when it does not destroy the fleshy envelope which surrounds them, and the motive for their existence being thus swept away, no further swelling takes place, and ultimately the fruits drop. Any form of protection which will prevent this without at the same time having a debilitating influence on the tree must do good, and will be the means of saving crops that would otherwise succumb, but there can be no doubt that the most frequent error fallen into by those who use some form of protection is to over-protect, the results then being worse than the occasional loss of a crop.

Where elaborate means of protection, such as fixing glazed copings, with movable glass or otherwise, and drop curtains of closely woven material, are contemplated, it is questionable whether, in these days of cheap glass and cheap wood, a glass roof placed over the trees would not be cheaper in the long run; certainly it would be less trying to the grower. We should at least, in the case of Peaches, get rid of that bugbear blister, so prevalent of late years, and for which no absolute cure short of glass protection has been yet discovered, and which is the almost certain forerunner of unripened wood, and this again of unhealthy trees; for though badly-ripened wood may carry fruits and ripen them, it is not fit for building up healthy trees, and once a tree has to go through a winter in an unripened state, nothing short of hard cutting back beyond the unripened portions will induce healthy growth. Copings of all kinds beyond the merest projection of an inch or so from the wall, and which is necessary for the preservation of the wall itself, are an abomination: they cost a great deal to fix, and the trees which they cover are particularly liable to insect pests, while their value as protective agents is not proven, to say the least. Again, branches of Fir or other evergreens stuck into and about the trees are really bad protective material; they render the new growth and the fruits tender before they shrivel and drop, and if not renewed indefinitely are generally found wanting at the critical moment when protection is needed. The same tenderness is caused by heavy or closely-woven curtain material frequently used for dropping over the trees, unless constant attention is given to its removal whenever the weather is at all mild, and to dropping it or drawing it over the trees just when the danger of frost or winds makes it necessary. Curtains should not be kept in constant use, nor used at all except when actual frost is in the air and when hailstorms prevail. Protecting beyond this is mistaken kindness.

Probably the very best form of artificial protection next to a glass roof is a three-fold covering of common 1-inch mesh fish netting dropped over poles, which are set against the wall at the top and slope with an acute angle to the ground, with the bottoms about 4 feet or 5 feet (according to the height) away from the base of the wall; this will admit light and air freely, and is generally sufficient protection to ensure enough fruits for a crop. It does not render the trees tender, keeps them dry even in a heavy rain, and wards off hailstones in a manner which would hardly be realised unless seen. The nets need not, indeed it is best that they should not, reach to the ground; 3 feet or 4 feet clear at the bottom allows more freedom for the air, while it adds nothing to the dangers of frost, which strikes vertically.

While writing of netting trees, I take the opportunity of saying that in my opinion much of the unripened wood seen in Peaches, Nectarines, Apricots, and other fruit proceeds from the close netting in vogue for a few weeks to protect from birds the fruits when ripening. This is bad for the trees, and especially for Peaches and Nectarines which ripen their fruits late; ripening of wood and fruits should go on simultaneously, and the exclusion of sunlight for a fortnight or so perhaps during the sunniest and most important time of the year is altogether wrong, for well-ripened wood is the most important factor in the successful culture of fruit trees. The fruit should be protected in such a way as to give the wood all the benefits of our short summers.

Retarding the buds on trees by whitewashing the spray is much in vogue in America, and the method has been praised and advocated for trial in this country; but here our springs are more uncertain, and we are just as likely to get a sharp frost in April or May as we are earlier, and as Peach and Apricot fruits are more or less hardy, according to the size they have reached when the frost comes—the advantage being always with the biggest fruits—early blossoming is just as likely as not to prove the salvation of a crop. This year, for instance, we had frost at the end of April and beginning of May, which killed all the Apricots that were then much below the size of ordinary Cherries and many of the smaller Peaches, as well as the blossoms still left; but all the bigger fruits escaped, and enough of them was left to provide for a good crop. Had these trees been retarded, the chances are that all the fruits would have been killed. In the Peach-growing and some other districts in America the spring comes with a rush, and, though it sometimes happens that there is a return of wintry weather, this is very seldom; but with us here the bursts of spring weather and alternate wintry weather are frequent enough to discount all the good there may be in retarding fruits, seeing that it is impossible to retard them by any ordinary means sufficiently long to escape frost altogether. J. C. TALLACK.

Melon Eureka.—Another season's trial of this Melon strengthens the good opinion I formed of it last year, and the fruits I am now sending to table are excellent in every way. They are handsome in appearance, large enough for all purposes, and ripen quite to the rind. I have grown it three seasons, and find it quite reliable in every way, free setting, coming quickly to maturity, and of robust though not particularly strong growth. The flesh is deep, bright red in colour, very luscious, and the skin when the fruit is well grown is golden yellow and finely netted.—H. R.

Flavour in early Peaches.—Though doubtless we shall look in vain for really first-rate

flavour in Peaches ripened in May, a great deal depends upon the way they are finished, and I have been forcibly reminded of this lately. The fruits from nearest the glass on trees trained across the house were very good and several days earlier than those nearer the back wall, and yet, though the latter were well coloured and quite as large as the former, complaints were made as to flavour. This is the one fault of the cross method of training, especially for early fruit, which needs every ray of sun obtainable even when the trees are trained close under the glass.—A GROWER.

Figs on open walls.—I think the condition of the trees affords an instructive lesson, for I find that those which have a large root run in a deep and well pulverised surface soil are deficient of fruit, while those which have the root space restricted and the surface trodden quite firm, and in some cases paved with stones, are promising much the best crops. Those trees which were allowed to make shoots 2 feet and more in length, and as thick as one's thumb, clearly, by the absence of fruit, tell us the way how not to grow Figs. Then, again, I find that young trees are not so fruitful as old ones; all this evidently showing that the cultivator who expects good and regular crops must not aim at securing an undue luxuriance in the growth. From many years' observation of the Fig in various parts of the country I am quite satisfied that the character of the staple occupied by the roots has as much influence on the fruitfulness of the trees as climate, and an over-luxuriance in the growth is as injurious to the crop as an ungenial position. If the roots are too well fed the growth is strong, and in the majority of seasons indifferently ripened, and a light crop is the result. With regard to the influence of climate on the Fig, it is quite clear that, except in very favoured positions in the south and west of England, it cannot be relied upon to pass through a severe winter away from a wall. I have seen standard Fig trees twenty years old killed down to the ground in Somersetshire, and in exposed gardens on walls I have known them injured by frost when not protected. I am aware that there are exceptional instances where pretty regular crops are obtained from trees not protected by a wall, but the positions are peculiarly favourable and should not influence anyone in coming to a decision as to the capacity of the Fig to endure the severity of a long winter unprotected.—J. C.

PRUNING EARLY PEACH TREES.

TREES cleared of their fruit cannot be too early divested of all old wood not required, this giving the young shoots more light and air and allowing room to lay it in its proper place. Often where the trees looked quite thin enough at disbudding time, it will be found that more shoots have been left than there is room for, and this will allow of much of the older wood on which foreright shoots were left to be taken out entirely. The lower the young shoots are left the better prospect of a well filled-up tree, and by the same reasoning the fewer of these foreright shoots that are left the better. But in many cases, especially where the trees have carried a heavy crop, the basal shoots that were heeled in will be found not to have elongated, but formed short woody, spur-like growths. A few shoots higher up the growths proceeding from the fruiting eyes will have been stopped closely and also formed spurs. Should there be any deficiency of fruiting wood, that carrying these fruiting spurs may be left at their full length, young wood being obtained and laid in from their base the ensuing season. This will be better than having bare places in the centre of the tree, and in the case of large specimens is preferable to shifting a lot of the older wood to make up the deficiency. Where young and old shoots start at almost the same angle, care is necessary that in removing

the latter the former are not injured. A slight cut from the knife does apparently little or no damage at the time, but will be found the forerunner of gumming and undue swelling, and the eventual cause of the death of the branch. A keen knife is indispensable, and a practised hand not less so when the wood is very close. Where there is room at or near the top of the trees for laying in sub-laterals it should be done, but to crowd the top is a great mistake, and it is better to cut all that there is not room for clean out.

Trees of very early varieties, such as Early Beatrice or Waterloo, may with advantage be given a rather closer atmosphere after the fruit is gathered than the late varieties, for with these there is a much longer season between the stoning and ripening, consequently the growths are in a more forward state at gathering. It is easy to see when the principal shoots on a tree are finished up for the season, and no good can be done by keeping a close house after this. Rather let the trees have the full benefit of air and light, at the same time keeping the roots moist to enable them to develop and finish up their fruit-buds early. When fully developed the foliage soon begins to turn, and the earlier the trees are brought into a perfectly resting state the better they answer to warmth in spring.

STRAWBERRY PRESIDENT UNDER GLASS.

MUCH valued as this old variety is for open-air culture, it is not nearly so much grown in pots as Sir J. Paxton and other well-known kinds. It would seem that many find it somewhat disappointing when the plants are forced, and for this reason neither market nor private growers who wish to obtain early supplies of Strawberries care to employ it to any great extent. One never sees any great bulk of this Strawberry in Covent Garden, and the few good samples of it to be met with from time to time do not as a rule come from those who make a business of forcing this fruit, but from private gardens where at times surplus produce is marketed. Between twenty and thirty years ago, and before the merits of Sir J. Paxton were fully recognised, President was much grown. Very fine samples came into Covent Garden from the London market growers. One man who lived at Twickenham grew this Strawberry to a point of excellence that I have never seen equalled. It was not only that the berries came to an enormous size—much larger than I have ever seen them since—but the colour was so remarkable, the purple tinge, which in a general way is faintly shown, being so highly developed. The culture was in one respect different from that ordinarily followed in the case of this fruit, the pots being plunged to their rims in tan beds in frames, where they remained up to the time they perfected their fruit. The grower apparently made a practice of taking the second runners, as the plants without exception produced one strong truss only, which carried from five to seven berries. The lights were 8 feet long by 4 feet wide, each one containing thirty-two plants, each one thus having a square foot of space, so that every berry was fully exposed to light and air from the time it formed until it finished off. It was a curious fact, and one that testified to the vigorous root-action induced by this method of culture, that the berries ripened up so quickly that the largest were still in prime condition when the smaller ones were ready to gather. The gentle warmth of the tan bed doubtless caused a very lively root-action all through the

time the fruit was swelling, thus increasing the size of the berries and hastening the ripening. I happened once to look through the place towards the end of May, just as the frames were full of ripe fruit. Trade had been rather dull, and in anticipation of a rise in price the grower was keeping the fruit, the frames being heavily shaded with straw mats. Thousands of plants were carrying berries of such large dimensions that nearly every one could be used for prime examples. This was by far the finest lot of President Strawberry I ever saw, and so different from the samples ordinarily brought into Covent Garden as to have the appearance of a distinct variety. The average price realised for this fruit was 10s. per pound at the end of May, but this was in the palmy days of Strawberry forcing. In the same place, and grown in the same way, I saw Impératrice Eugénie, a Strawberry which has apparently gone out of cultivation. Many of the berries must have been nearly 2 ozs. in weight. One row of frames, about 50 feet in length, was filled with this Strawberry, the crop being, as regards size, uniform throughout. The fault of this variety is that, no matter what culture is practised, the berries remain poor in colour, and when grown for an outdoor supply there is apt to be a large proportion of barren crowns. When the plants do bear well, a greater weight of fruit can be taken from this Strawberry than from any of the older varieties commonly cultivated at the present time.

Although we have now a considerable number of varieties suitable for midseason and late crops under glass, I doubt if any of the newer ones are superior to President for this purpose when the conditions which it likes can be accorded it. Ripened under glass under the influence of a May sun, the fruit has a fine, full flavour, such as few varieties, old or new, take on. If anyone desires to know what President really is as regards flavour, let him allow the fruit to ripen in a cool, airy house, not gathering until every berry on the truss is ripe, but thinning out to about four berries when they are set. The slow ripening, with abundance of light, air, and sun, develops the saccharine matter, so that fruit finished off in this way is totally different from that produced in a forcing temperature and close atmosphere earlier in the season. By allowing the fruit to hang about a week after colouring, the berries will be somewhat reduced in weight, but they will be quite free from acidity. I have found President very valuable for planting out in frames for giving a supply of fine fruit at a time when pot plants are over and the earliest outdoor crops are not in. Excellent fruit may be gathered from the close of May up to the middle of June if the plants are carefully lifted and set out in free soil during March, or, indeed, at any time before the flower-trusses appear. If they can be planted in January, so much the better, but it is not often that frames are empty at that time of year. It is much easier to secure a good lot of late Strawberries in this way than by having them in pots, the labour of watering the latter being so great and there being so much danger of Vines, Peaches, &c., getting infested with red spider. I grow a good many planted out in frames, and in a lean-to house. I plant the former early in November, and put the lights on in January or early in February. The plants seldom need water before the end of April, and when they come into flower mats are put on in frosty nights. The two great enemies are green-fly and mildew, the latter being most destructive in unheated structures if there is any lack of cultural care. Shutting up the frame at night will bring on a bad attack; where

as if a chink of air is left on, a slight circulation will be maintained through the night and the plants will come on quite as fast. Greenfly can be kept under by dusting two or three times with tobacco powder. J. C. B.

BAD-SETTING PEACHES WHEN FORCED.

SOME Peaches fail to set their fruit, and Early Alexander is one of the worst in this respect. I am aware fruit growers differ in their regard for this variety. For years I have lost faith in it, as I do not care to grow a variety which is so untrustworthy when others equally good in quality can be grown forced or otherwise with every prospect of a full crop. There are others almost as bad as the Early Alexander; indeed, I consider the Alexandra Noblesse almost on an equality as regards setting, as this if hard forced with me is very shy indeed, though its size and good quality are greatly in its favour if a fair crop can be secured. It may be urged that the last-named variety is not always a failure, but even in the open in a warm locality I have noted this variety is not so free setting as one of its parents, the old Noblesse, and with me it is one of the poorest croppers I have. Some kinds, such as Royal George, Dr. Hogg, and several of the mid-season and late, well-known varieties, rarely fail to crop, so that I must place Alexandra Noblesse in the black list as regards setting. Another equally bad forcer with me is Grosse Mignonne. This I have seen good elsewhere, but I have a difficulty in securing a fair crop. In the open on a south or west wall it is a grand cropper, and this makes up for any deficiency under glass if forced. It is not one of the best for early work. Brought on slowly there are better results. I refer to Peaches that are ripe in May, and to get them at the season named there must be hard forcing. In the open it is one of the best to resist mildew. For forcing, the Early Grosse Mignonne is excellent. This is distinct from the Grosse Mignonne noted above, earlier, and with me sets much better under glass when forced. I do not consider it superior for open walls.

Another Peach which does fairly well on open walls fails with me under glass, and for two years I gave it pot culture to get better crops, but the result is the same. The variety is Condor. In catalogues it is advised for forcing, but with me it fails. I prefer Hale's Early for forcing or wall culture, as Condor does not make such good growth. Waterloo with me is superior to Condor for pot culture or forcing, and being one of the earliest to mature, is valuable. I find it needs time at the start and should not be forced hard till the fruits are swelling freely. A variety I have rarely seen in any catalogue is Early Canada. This is a splendid forcer and of very good quality. I like it very much, it does not cast its buds. It is a large highly-coloured fruit, and I intend this autumn to replace Alexandra Noblesse with Early Canada in an early house, as it forces so freely. This is an American Peach, and is certainly far ahead of Alexandra as regards setting and cropping. On a west wall in the open it was very fine. Another American variety named General Lee is the most precocious flowering variety I have seen, it is in bloom weeks before any other kind, but I am unable to give it much praise, as it is none too free setting and the fruits that set, though large, are a long time perfecting. These American varieties would no doubt be more at home in a cool case or with glass protection. A Peach I had from America under the name of Harper's Early is the same as Hale's Early. I know of no variety to equal Amsden June. This is a grand Peach, and does not cast its buds. I have just cleared a tree that carried over twenty dozen fruits and of excellent quality. No one who needs to force hard will make a mistake in growing Amsden June. G. WYTHES.

Apple Bismarck.—This fine variety will undoubtedly take a leading place in the list of market varieties of the future, for it is not only a

large handsome fruit of good quality and a good keeper, but it is one of the most constant and regular croppers I have yet met with. Quite small trees that were planted three years since have borne a nice even crop each year, and are now studded regularly over with bunches of small fruits. Pruning may be entirely dispensed with in the case of such kinds as this, for they form fruit buds right to the tips of the young wood.—J. G., Gosport.

Scarcity of Gooseberries.—Probably the complaint is very partial, for I know of some cases where the crop is quite a good average one, but in my case the Gooseberry crop will be very light, much less a quantity being available for gathering than has been known here for several years. It can only be explained from the fact that frost and cold cutting winds were experienced during the flowering period. Many of the trees exposed showed injury to the foliage, this being discoloured, but the berries did not drop for some time; indeed, it is only recently, or since gathering has become general, that the poorness of the crop became known. It would be interesting to know whether other counties, especially those in which fruit growing is largely carried on, have suffered by the frost visitation, and to what extent. The frequent and almost continuous rains have had a marked effect on the development of the fruit, the berries being of a marketable size fairly early in the year, notwithstanding that almost all of the crops are later than usual. The trees, too, are full of vigour, the lightness of the crop no doubt contributing somewhat to this end. As a rule, however, Gooseberries grow quite strong enough for all practical purposes, but usually those relieved of their crops early in the year grow the strongest.—WILTS.

FRUIT PROSPECTS.

INQUIRIES and observations, says the *Walsall Observer*, in the great fruit-growing district of the Vale of Evesham encourage the belief that the coming season will on the whole be a very good one. The blossom on the Plum trees, the staple product of the fruit gardens in the Vale, was exceptionally fine and promising, and up to a few weeks ago there was every prospect of their bearing more fruit in 1898 than for many years past. The fruit crop is, however, notoriously susceptible to the influence of the weather, and while there has been no severe frost, such as before now has cut off thousands of tons of fruit in a single night, the continued cold has very adversely affected the young plums. The common Egg Plums, which are the hardest sort grown in the district, were the least affected, and there is still a promise of heavy crops. The finer varieties, such as Victoria and Early Prolific, have suffered more, and though in some gardens there will probably be a very good yield, it is anticipated that the crop will be somewhat partial. Damascenes have also been considerably thinned by the cold nights of last month. Strawberries, of which an enormous quantity is grown in the Vale, are looking well, and the yield of this luscious fruit is expected to be very abundant. The Evesham gardeners have noticed with concern this season indications of exhaustion in the Asparagus beds, for which the borough has so long been famous, but the more recently-planted gardens of the surrounding villages show no signs of failure.

—The prolonged spell of cold winds has greatly reduced the prospect of a heavy fruit crop, for although trees of all kinds flowered profusely and the fruit apparently set well, it has lately dropped so much that many trees, especially those that bloomed the most, are very thin or altogether bare of fruit. At the present time Apples look like a good crop generally, and if we get some warm weather soon they may go a long way to make up for the scarcity of other fruits. Pears must be a very thin crop in this locality, and we, on the south coast, consider ourselves rather favoured as regards climate. The best market sorts, such as Williams' Bon

Chrétien, Pitmaston and others, are beyond recovery. A singular thing connected with the failure of Pitmaston Duchess is that while all the large trees are quite bare of fruit I have some old stocks of common Pears that were regrafted two years ago with this variety, and nearly every bloom has set. I can only account for the difference by the fact that in proportion to the amount of bearing wood to roots to support it, the grafts had by far the best of it. Possibly some readers of THE GARDEN may have had a similar experience. Apricots set well and continue to swell up satisfactorily, but Peaches and Nectarines are thin and feel the effects of the cold winds much more. Strawberries promise a good crop, but are later than last year, and bush fruits are generally plentiful. Owing to the heavy rains the trees are looking well and making exceptionally strong growth.—J. GROOM, Gosport.

PACKING TENDER FRUIT.

ALREADY the performance of this delicate operation is engaging many hands, forced Strawberries, Cherries, and Figs coming first, Peaches and Grapes following close in their wake. In the olden times when only a few were engaged in culture for market, when prices were eight times higher than they are at the present day and fruiterers were dependent upon that small knot of growers, an occasional shaking up made little difference; but the whip has changed hands, and fruit in every way perfect and spotless is the only commodity for which the trader will now deign to offer his own price. Nine-tenths of faulty consignments of tender fruit sent by rail are damaged through nervousness on the part of the packer, who allows too much space for his fruits, which move in transit and spoil each other. When fruit of any kind is to be sent away, the first thing to be considered is the size of the box or basket, the selection and preparation of the most suitable material for keeping it in position without bruising, and last, but not least, an arrangement by letter or wire for a trusty porter to meet the train on its arrival at the terminus. If

STRAWBERRIES, say, in quantity are to be sent off regularly, and shallow trays or boxes for dropping three or four into a case be preferred, all the trays and cases should be of uniform size and depth, to prevent the possibility of giving the slightest trouble to the busy trader or salesman. These should not be too large—say 8 inches by 12 inches and 1½ inches in depth—as it is always practicable to fill any number of duplicate trays, independently of the fact that several small boxes travel better than one or two large ones. The best packing for the Strawberry is its own leaves, which should be picked overnight and placed in a dry, airy room to become limp by the time they are wanted. The fruit cannot be too dry at the time of picking, and on no account should the berries be placed one upon another in the tray or basket used for conveying them to the packing-room. Having well padded the bottom of each tray with leaves—some use a sheet of wadding—all fruits of even size, one by one, should be placed in separate leaves and packed as closely as they will lie without bruising each other. A double leaf here and there may be put in to keep each row of fruit tight, and a few soft leaves over the layer will complete the operation.

PEACHES may be packed in boxes varying from 3½ inches to 4½ inches in depth, but the length and breadth, say 24 inches by 14 inches, should never vary, as several can then be tied together, when their weight and bulk will protect them from frequent disturbance. I always line my boxes with cap paper, allowing the half of each sheet to hang over the sides for turning up when all is finished. Gather the fruit dry and under-ripe; fold each Peach in a square of tissue paper, and pack tightly in well-beaten, elastic Moss, the best and cheapest of all packing materials. Here, as with all soft fruits, the secret of success rests in starting with a good bottom of Moss and very tight packing, with half an inch or a little more

of the Moss forming the divisions between the Peaches and making each cross row of four secure at the sides. A covering of Moss rising an inch or so above the sides is then placed upon the Peaches and the paper is turned up, when the slight pressure of the lid makes the whole mass quite tight and yet elastic. Some use cotton wool or bran, the last a costly, heavy, deceptive material, as it shakes down into a solid mass, no matter how carefully it is pressed, when the Peaches rise to the top, roll against each other, and are ruined. Wool being expensive and apt to sweat, it should be avoided, clean, short, well-dried Grass from the mowing machine being preferable. If thoroughly dried and put away when the weather is fine, this excellent substitute where Moss is scarce may be had for use throughout the Peach season.

Figs should be rolled up in soft, dry Vine leaves, then in squares of tissue paper, and packed in very dry Moss or paper shavings. Either, however, will do provided the fruit is carefully folded in leaves which do not stick to the tender skin. Ordinary Figs can be packed in boxes 3 inches to 4 inches in depth, and extra large ones travel well in Peach boxes divided into equal parts by a transverse partition running across the centre. As some may inquire why wool is not recommended, I may say the Fig being so liable to mould in hot weather, a material more likely to absorb than produce moisture, to let in rather than exclude air, is most suitable. On this account I am not quite sure that I do not give first choice to paper shavings, as they admit most air and favour the escape of moisture.

GRAPES.—The methods of packing these now are legion, the modern basket system having grown rapidly into favour. The basket is a most excellent substitute for the box where changes upon the route can be avoided, or where, as in transit from the Channel Islands, the porters quickly learn to handle and transfer them as deftly and carefully as any trained gardener. For cross roads and by roads where little mercy may be shown to fragile goods, the box must still be used, and then the great secret of success will be found in packing so tightly that it will be impossible for one berry to injure another by friction. C.

NECTARINE CARDINAL.

I SAW this Nectarine remarkably well grown for market in Cambridgeshire shortly after its introduction, the grower's views of its earliness and usefulness agreeing with those of "G. W." (p. 458). I have not yet seen it outdoors, but a Nectarine that can be ripened in five months from the start and of such good quality as to command a good price in the market, will probably find its chief place of honour and profit under glass. It was pointed out to me as likely to prove the earliest and best forcing Nectarine of the future. If, as some say, Cardinal is some days—others put it quite a week earlier—than Early Rivers, grown side by side, and Lord Napier is a fortnight later than Early Rivers, a gain of three weeks or more will prove of immense importance in regulating supplies and commanding top prices. Most growers will agree with your correspondent's estimate of the superb quality of Lord Napier Nectarine, and it is not likely to be relegated to a back seat, but planted yet more widely for table supplies in later houses and on open walls.

By the way, we very seldom see or hear of Goldoni Nectarine, a second early, ripening in the end of July or early in August, with golden-coloured skin and flesh, very juicy and richly flavoured, a vigorous grower, and an abundant bearer. Writing of early Nectarines, it may be useful to note a curious statement of one of our latest and generally trustworthy authorities on the subject recommending the Stanwick Elruge as the best forcing Nectarine. Now this is a decidedly midseason or even a late variety. The statement is liable to be misunderstood, as this fine variety in the open air seldom ripens till the end of August or early in September. And yet,

in a sense, it is quite true that the Stanwick Elruge forces well. Its vigorous constitution, free setting, &c., enable it to bear hard forcing if need be better than most Nectarines, and to ripen its fine and luscious fruits with fewer losses through stoning, &c., than other varieties. D. T. F.

Gooseberries on walls.—I was recently in a Surrey garden where fruits were very thin on Gooseberry bushes in the open owing to sharp frosts, but plentiful on single and double cordons on walls and wood fences. That is interesting to know, because it serves to show that from the danger from frost to which bushes in the open and near the ground are subject, those on walls are free. None of these had been, in the case mentioned, protected when in bloom. It was worthy of notice that double cordons seemed to suit the requirements of the position best, and although but some three years planted, yet in each case the shoots had got fully 6 feet in height, topping the wall and covering it admirably. Single cordons planted later were also doing well, making stem growth at the rate of 2 feet per year. The double cordons seemed, however, to have an advantage in mere root room. Common Red Currants, with four erect stems similarly trained, were laden with fruit, covering the wall completely, whilst Mammoth—possibly La Versailles—had from the first broken badly and had very little fruit. This variety, however, usually does well as a bush when it is hard pruned and kept compact. Even cordon Gooseberries on wires or trellises seem to be less susceptible to attacks of frost than do bushes. That may be, perhaps, because the vertical training exposes a small surface to condensing vapour and following white frosts. But if the netting that is commonly thrown over these trellises when the fruit is ripening be cast over them double in the spring, a good deal of protection is given to the bloom. Gooseberry culture of this description merits adoption in every garden, and nurserymen knowing its value cater for it by providing double, single, and gridiron cordons in quantity. It is much cheaper in the end to purchase nice prepared two or three-year-old cordons than it is to plant maidens that have to be got into shape.—A. D.

Peaches failing in cold house.—Though my Peach trees were covered with flowers there is no fruit. The trees are planted outside and brought in. The house is a lean to and unheated. Notwithstanding the water famine with which we were visited last summer, I supposed that I had given enough water to prevent mischief. All through the autumn and up to the present time ample water was available.—A.

** In answer to the above, an insufficient supply of water to the roots at some time or other since the last crop was gathered is undoubtedly the cause of failure. Make a thorough examination of the border by delving with a hand-fork quite down to the drainage, and if it is found that the substratum is still dry, correct the defect by repeated waterings; then mulch well to keep in moisture, and treat the barren trees precisely as though they were carrying full crops of fruit. Although root drought after the leaves fall is the most common cause of buds dropping when they should commence swelling, the fact that they passed this stage and opened freely leads one to suspect that the mischief was done before the leaves fell; that great heat with a short supply of water caused them to ripen prematurely before all the delicate organs of fertilisation were properly formed. Rain and copious watering later on caused them to swell and in due time to open, but with imperfect male organs and minus pollen, fertilisation could not take place. From these remarks "A." will gather that his crop of Peaches may have been doomed as far back as August or September last, otherwise a full blossom having opened it is only reasonable to suppose that a fair percentage of the strongest flowers would have set fruit. It is just possible that frost or the prevalence of bad weather may have de-

stroyed the flowers, but it is more probable, nay, almost certain, that a failing supply of water is at the bottom of the mischief. Peaches cannot be grown without a full and abundant supply of water.—Ed.

MELONS GROWN AS CORDONS.

IN THE GARDEN (p. 458) there is an interesting contribution from Mr. Wythes on the advantage of growing Melons as cordons. I quite agree with all that he has to say in favour of the system, as I largely adopt it myself. Having to produce a large number of Melons through the summer and autumn months, and the means at command being somewhat limited as regards space, I find that the most economical and expeditious way to grow them is as cordons. Besides their taking up less space, the plants produce fruit so much earlier than when grown on the extension principle, and they can be fruited and cleared out to make way for another batch before the fruits are full-grown in the last cited case. I use the heaviest loam obtainable to form the borders, which are from 9 inches to 1 foot wide and the same in depth. The soil is rammed as firm as it can be, and fresh additions of soil are placed at the front of the borders whenever the condition of the roots demands it. I plant somewhat closer than Mr. Wythes does, and take the two first fruits which set together, fruiting every other plant on the lower part of the trellis and the remainder towards the top. By adopting this method the fruits are then more evenly distributed. Seed is sown every fortnight, so that a batch of plants is always coming on to take the place of those from which the crop has just been cleared, and but little delay ensues in consequence. Some sorts are better adapted for this purpose than others, but the strong growers can be brought into subjection by plunging the pots in the border, as mentioned by Mr. Wythes, instead of planting them out. I have obtained excellent crops of Melons in this way, but enlarged the crock-holes slightly to give the roots better egress. I have three new sorts on trial this season, viz., Countess of Derby, Diamond Jubilee, and The Czar. The first and second are splendid croppers, but of the flavour and quality of the fruits I am not in a position to form an opinion, as they are not yet ripe. A. W.

Peach Early Alexander.—True to its character for hardiness and fertility this Peach is again bearing a fine crop of fruit outdoors, which is now passing through the stoning stage. Growth is also clean and free and quite forward enough, the tacking in of the young shoots having been done some little time. This kind I have observed is not nearly so liable as are others to insect attacks, and this immunity should be noticed by all amateurs who are anxious to make their first essay in Peach growing outdoors. In addition to this the fact should be borne in mind that it matures early, as it ripens about the second week in July. This is a great gain, particularly where the glasshouses are none too numerous or are too limited in extent to allow of Peach growing being attempted indoors. Early Alexander may be planted with confidence in any district where the climatic conditions are favourable to the growth of the Peach. When given proper attention it soon becomes established and quickly yields the grower a good return.—A. W.

Peach Alexandra Noblesse.—Having grown this variety for the past thirteen years, I quite agree with the good opinions which have at different times been expressed by various growers in its favour. It is a fine cropper, and since the tree became established it has never failed to yield a good crop of fruit annually. The fruits attain a fine size, colour splendidly for the variety, and are richly flavoured. It is of course later in ripening than Alexander, its season being the latter end of August or beginning of September, much depending on locality. The variety is almost if not quite as hardy as Alexander, but appears to be more subject to attacks of fly. A watch, there-

fore, needs to be kept on the trees, as indeed should be the case with all wall fruit trees for the matter of that, dealing with the aphides as soon as they put in an appearance. On account of its free-bearing habit and hardiness of constitution, amateurs would be perfectly justified in planting this Peach. If not required to ripen early, it should be accorded a position on a west wall. It is a seedling from the old Noblesse, but enjoys complete immunity from mildew. It is a free-stone Peach.—A. W.

A VIEW AT THE CRYSTAL PALACE. PALACE.

In recent discussions in books on garden design issued by architects it is laid down as an axiom that during the present century all

is an illustration has always seemed an example of mere extravagance, never growing out of the conditions of the ground, the wants of gardening, or any artistic ideas, but based simply upon an attempt to carry out book plans whether the ground suited them or not. Such things are full of lessons for those who look at gardens and parks from an artistic point of view. The immense waste of means on stonework is well shown here; and all stonework in gardens being more exposed to the weather than in any building, the waste through repairs would be enormous, if it were possible to keep up such an extravagance. The Royal Horticultural Gardens at Kensington were another example,

and site exert considerable influence over the thickness and whiteness of the downy covering on the leaves.

STOVE AND GREENHOUSE.

BLANDFORDIAS.

THE Blandfordias are certainly a very beautiful class of plants, yet despite the fact that a coloured plate of them was issued in *THE GARDEN*, May 11, 1895, a first-class certificate awarded by the Royal Horticultural Society to *B. aurea* in June of the same year, and several eulogistic notes that have from time to time appeared concerning them, they are very rarely seen, and even when met with by no means invariably in a flourishing condition. Still, for all that I consider them extremely valuable for greenhouse decoration at



A view at the Crystal Palace. From a photograph by Mr. Stuart, Southampton.

ideas of garden design have been based on treating the ground in a picturesque manner. The statement shows well amongst others that the people who make it have never given the facts of the matter any observation, because it is our own time that has given birth to some of the most ugly gardens of a wholly opposite character. Therefore it may be of some use to give a few examples of gardens made in our own day, and herewith one of the Crystal Palace, giving a glimpse of some of its features—its temples, ghastly stone-embraced ponds and lakes. To us the sort of garden design of which this

and many private gardens made in our own time show like features.

The true Service Tree (*Pyrus domestica*).—There is a very fine tree of this now in full flower in the Royal Botanic Gardens, Edinburgh. It is probably 60 feet or more high. On the last day of May it was in full blossom, the usual creamy white being almost whiter than usual. The leaves of this tree are always beautiful, serrated towards the point and clothed beneath with cottony looking down that gives to the Service Tree that semi-glaucous hue that constitutes one of its special charms. I have noticed, too, that this downy covering varies in thickness and in whiteness in different trees and localities. Soil

this season, as the blossoms are not only very handsome, but from their thick wax-like texture they remain fresh and bright for a much longer period than most subjects. As each individual bloom lasts from ten days to a fortnight, and a number of flowers are borne on one scape, it follows that their beauty extends from a month to six weeks, and there is something so chaste and elegant about them that appeals strongly to anyone almost surfeited with the common occupants of the greenhouse. I find they do well with much the same treatment as a *Pelargonium*, that is, grown throughout the year in a cool greenhouse, and shaded during bright sunshine in summer. Various composts have been recommended, and while a soil composed principally of peat finds the greatest favour, after a

thorough trial I have succeeded much better with the plants potted in a mixture of about equal parts of good yellow loam and peat, to which a liberal amount of rough silver sand has been added, than in sandy peat alone. The best season for repotting is directly the flowers fade, and the roots, being then active, they soon establish themselves in the new compost. The pots should be well drained, and when in active growth the Blandfordias require a liberal amount of water, but during the winter just enough should be given to keep the soil moderately moist. Propagation is effected by seeds or division, but the latter requires to be very carefully carried out, as if there is not a fair amount of roots to each piece, the plants will often stand for a long time before they recover from the check. To guard against this as far as possible, a plant intended for dividing should have a good deal of the old soil washed away, so that the separating can be done with little risk. The forms with more fibrous roots, such as *B. nobilis*, can be divided with less danger than *B. flammaea*, in which the roots are thicker, but fewer in number. Even when out of flower the Blandfordias, with their grass-like, gracefully recurring leaves, are decidedly ornamental. One point in their favour is that they are rarely troubled with insect pests; the only thing I find is that a small whitish kind of scale effects a lodgment on the leaves and causes a yellowish indentation thereon unless removed. Though the plants should be shaded directly the flowers expand, they are much richer in colour if exposed to the sun up to then.

H. P.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 14.

THOSE who visited the Drill Hall meeting on Tuesday last could not fail to be impressed with the remarkable wealth of floral beauty to be seen on every hand. Three weeks after the Temple show, it afforded ample opportunity for variety in both tender plants and hardy flowers. Both the floral and the Orchid committees were kept busily employed until a late hour in order to do justice to the many and varied exhibits. On the other hand, the labours of the fruit and vegetable committee were comparatively light, there being but a few exhibits of either fruit or vegetables.

The groups of Orchids were perceptibly of less extent, but what was lacking in this respect was amply atoned for in the quality and rarity of many of the exhibits. Truly there is no end to the variety obtainable in the hybrid Orchids. On this occasion one or two gems of the first water were to be seen. The *Lælio-Cattleyas* are choice additions and as beautiful as they are unique. *Odontoglossums*, too, were strongly represented. The topic of conversation naturally turned upon the loss of the Orchids of M. Jules Hye at the Temple show. Rumours were prevalent, but no actual information was to be had. This occurrence should be a warning to all exhibitors of choice plants never to leave them until packed and otherwise made secure. If losses do occur through inattention in this respect, it is the owners themselves who are to blame, not the officials of any society.

The floral committee had a redundancy of exhibits. On this occasion Carnations may fairly be said to have ruled the day. Some grand plants of the Malmaison type came from Dover House, occupying a large space, whilst the arrangement was most attractive. From Hatfield, too, came some very fine flowers, notably of King Arthur and Miss Audrey Campbell. Herbaceous and bulbous flowers were represented in profusion, notably from Thames Ditton and Colchester. The bulbous flowers from the latter source are always full of interest. Some grand Cannas in pots were shown from Swanley, admittedly the finest ever staged in the hall, the trusses being large, the colours bright, and the varieties

of the best. Other choice new kinds, many being decided acquisitions, came from Cheshunt. Roses were not so numerous as usual. It is now between seasons, and rosarians are admitting that they never knew a much later season than this. Hardy shrubs in flower came from Coombe Wood, and as usual, were choice. Tuberos Begonias were staged in good character, chiefly doubles, some with immense blooms, and of good habit. Ferns, as on many former occasions this year, were staged well. These small decorative plants of the choice kinds do much to popularise the cultivation of Ferns. We have seen too much of just a few kinds which in numbers may be counted upon the tips of the fingers. Let us have by all means more of these choice kinds. It is a pleasure to add that at this meeting no less than 108 new Fellows were elected. This is a record number for any one meeting, whilst the total already for this year has reached that of several completed years. The society is undoubtedly gaining in popularity on its own merits, whilst the success of the shows and meetings proves abundantly that mere cash prizes do not attract all classes of exhibitors.

Orchid Committee.

First-class certificates were awarded to the following:—

LÆLIO-CATTELEYA DUKE OF YORK (L.-C. *elegans* × *C. Brymeriana*).—This secondary hybrid is very distinct, the sepals deep rose, the petals similar in colour, but veined with a darker shade. The lip is rich purple in front, mottled with a lighter shade of colour, the side lobes deep purple, shading to rose, and veined with purple towards the base. A plant carrying a two-flowered spike came from Messrs. F. Sander and Co., St. Albans.

LÆLIO-CATTELEYA EUDORA SPLENDENS (C. *Mendeli* × *L. purpurata*).—This is the finest hybrid that has been seen of this particular cross, the sepals and petals deep rosy lilac, the lip rich velvety crimson in front, margined with rose, the side lobes rose, shading to yellow, which forms a prominent band in front. At the base there are several prominent lines and a suffusion of purple. A plant carrying a two-flowered raceme came from Messrs. J. Veitch and Sons, by whom it was raised.

ODONTOGLOSSUM CRISPUM PRINCE OF WALES.—This is one of the largest and most perfect forms of this species we have seen. The flowers each measure nearly $4\frac{1}{2}$ inches across, the petals pure white and beautifully fringed at the margin, the sepals also white, slightly tinted with rose; the lip white, heavily fringed at the margin. The plant carried a raceme of eleven flowers, and came from Messrs. Hugh Low and Co., who have grown it for eleven years without previously being able to induce it to flower. They may be congratulated on its proving one of the best *Odontoglossums* in cultivation. A silver medal was also recommended.

Awards of merit were adjudged to the following:—

LÆLIO-CATTELEYA HIPPOLYTA AURANTIACA.—In this the sepals and petals are rich saffron-yellow, the lip similar in colour, lined with bright purple and much fringed at the margin. From Messrs. J. Veitch and Sons.

EPI-CATTELEYA RADIATO-BOWRINGIANA.—This, raised from the species indicating the name, is a distinct bigeneric hybrid, the colour of the sepals and petals being a peculiar slaty purple. The lip is similar in colour, mottled with white, and having darker purple lines. The plant has the intermediate character of both parents, both in growth and flower. From Messrs. J. Veitch and Sons.

LÆLIA PURPURATA ERNESTI.—This is a distinct and pretty form, with pure white sepals and petals, the lip white, with a distinct band of rose-lilac in the centre, the side lobes white, shading to yellow and lined with rose at the base. A cut raceme of three flowers came from Mr. R. I. Measures, Cambridge Lodge, Flodden Road, Camberwell.

ODONTOGLOSSUM ELEGANTIUS VAR. BARONESS SCHREDER.—A pretty form with dense spikes of flower, the sepals and petals light yellow, thickly spotted with rich brown, the lip white, shading to yellow at the base, with a rich large brown blotch in the centre. From Sir T. Lawrence, Et.

SCUTICARIA HADWENT.—This distinct and well-known species was represented by a finely-grown and well-flowered specimen, having seven flowers and buds. The sepals and petals are deep brown, marbled and margined with rich yellow, the lip white, spotted with purple and brown at the base. From Sir F. Wigan, East Sheen.

CATTELEYA MOSSIE VAR. MADONNA.—In this the sepals and petals are pure white, the front lobe of the lip pure white, with a distinct rose blotch in the centre, the side lobes white, shading to yellow and lined with pink and purple at the base. From Messrs. Stanley Mobbs and Ashton, Southgate.

LÆLIO-CATTELEYA CANHAMIANA SUPERBA.—This is a lovely form, the sepals and petals deep rose, the lip also finer both in size and colour than in the type. From Messrs. J. Veitch and Sons.

A silver Banksian medal was awarded to Mr. J. Hudson for a grand specimen of *Lælia purpurata* with ten spikes and thirty-two flowers. This is a remarkable example of the durability of Orchids, the plant having been in Mr. Hudson's possession for thirty-three years, and still in the finest possible condition.

Messrs. J. Veitch and Sons, Ltd., sent a choice group consisting principally of rare and distinct hybrids, prominent amongst which were several forms of *Lælio-Cattleya Hippolyta* (L. *cinnabarina* × C. *Mossie*), L.-C. *Canhamiana* (C. *Mossie* × *L. purpurata*), two grand forms of L.-C. *Eudora* (C. *Mendeli* × *L. purpurata*), a variety of C. *Mossie* *Reineckiana*, and a fine made-up plant of *Epiphronitis Veitchi*. In *Epidendrum radicante-vitellinum* (E. *vitellinum* × E. *radicans*) the sepals and petals are rich orange-scarlet, the lip yellower than the sepals and petals and slightly spotted with purple in the centre. It is remarkably free and gives promise of a useful future. A grand plant of *Trichopilia suavis alba* with four flowers on the spike, several finely-flowered *Disa langleyensis* and grand forms of *Disa Veitchi*, which improves on acquaintance, were also shown. A silver Flora medal was awarded. Messrs. Stanley Mobbs and Ashton (late W. L. Lewis and Co.), Southgate, sent a choice and interesting group. In the back row were several finely-flowered and good forms of *Lælia purpurata*, *Oncidium crispum* and *O. hastatum*. Among the many grand forms of *Cattleya Mossie* was one with almost white flowers, having distinct rose-pink markings in the centre of the lip. *Lælia grandis tenebrosa* in variety, several good forms of *Odontoglossum crispum*, *Cypripedium Gertrude Hollington*, C. *Rothschildianum*, C. *Evenor*, *Dendrobium Victoria Regina*, and other interesting species were also included (a silver Flora medal was awarded). Messrs. Linden, Brussels, sent *Odontoglossum crispum Dallamagna* with white rose-tinted sepals and petals thickly blotched and spotted with light brown; *O. c. Morning Star*, a lovely form in the way of *O. c. Starlight* (certificated last year), and *O. c. Le Czar*, very similar to *O. c. Bonnyanum*. Messrs. F. Sander and Co. sent a few choice Orchids, including *Sobralia Veitchi*, with its delicate white-tinted rose flowers, and the darker-tinted *S. Amesiana*, *S. xantholeuca alba*, *Thunia Veitchi*, and *Lælio-Cattleya Lily Measures*, with deep rose sepals and petals, lip rich crimson-purple, margined with rose, throat yellow with brown markings. J. McBean and Sons, Cooks-bridge, Sussex, sent a collection of *Odontoglossum crispum*, the plants well grown and the flowers well developed.

Sir F. Wigan sent a neat and choice collection, prominent in which were forms of *Cattleya Mossie*, a beautifully grown plant of *Lælio-Cattleya Arnoldiana* with a four-flowered raceme, L.-C. *Lady Wigan*, and L.-C. *Canhamiana var. Iolanthe*, lighter than the typical forms. *Lælio-Cattleya superba elegans*, raised from the parent-

age indicated in the name, is a distinct, highly-coloured flower with the intermediate characters of the parents. Mr. J. Bradshaw, Southgate, sent a small group, consisting principally of fine forms of *Cattleya Mossiae* Wagneri, *C. Mossiae* Reineckiana, *Laelio-Cattleya Arnoldiana*, *L.-C. Aphrodite*, fine forms of *Odontoglossum crispum*, and various other species. Sir T. Lawrence sent a small group consisting of good plants of *Odontoglossum crispum*, *Disa kewensis*, and *Celogyne Schilleriana*, in which the sepals and petals are bronzy green; the lip creamy white, barred and blotched with brown. In *Geodorum Augusti* the sepals and petals are white, lip yellow in front, white, veined with purple at the base. In *Bulbophyllum Lobbi*, Burford variety (botanical certificate) the ground colour is creamy yellow, mottled, lined, and spotted with purple. *Bulbophyllum saltatorum* (botanical certificate) is a small-growing species, the sepals and petals pale green, spotted dark brown; the feathery lip deep brown, shading to almost black in the centre. *Dendrobium Bensoniae*, a finely-grown plant with upwards of three dozen flowers on one growth; *D. Parishii polyplebium*, and a cut spike of *Phalenopsis grandiflora* were also included. Mr. J. W. Moore, Bradford, sent a form of *Vanda cristata*. Mr. De B. Crawshay, Sevenoaks, sent *Laelia purpurata* var. *De B. Crawshay* and a form of *Laelia purpurata* named Mrs. De B. Crawshay with a distinct purple band in front of the throat, the ground colour throughout being pure white. Mr. G. H. Bird, West Wickham, sent a form of *Odontoglossum crispum* Bonnyanum, and Mr. H. Druce, Circus Road, N., sent forms of *Cypripedium bellatulum*, *C. concolor*, and *C. Godefroya*.

Floral Committee.

First-class certificates were awarded to the following:—

MIKANIA SANDERL.—A plant of striking appearance, the leaves of a dark olive-green, clouded here and there with a still darker tint. The reverse side of the leaves is of a reddish purple hue, excepting where the heavier green tint prevails. From Messrs. Sander and Co., St. Albans.

CALOCHORTUS PURDYI.—A valuable addition to this pleasing race of bulbous plants. The bloom is in the way of *C. Maweanus* for colour and general markings, but is a great advance on this kind when its vigour and freedom of flowering are taken into account. Some of the stems—indeed, the majority exhibited—were close on 10 inches long, the blossoms creamy white and densely bearded. The plant carries about half a dozen flowers to a stem, and with its long lanceolate leaves is very distinct. From Messrs. Wallace and Co., Kilnfield Gardens, Colchester.

Awards of merit were given the following:—

CALADIUM LORD ANNESLEY.—This is one of the new strain of these fine-foliated plants, a characteristic of which is that they are devoid of the two projecting lobes, thus leaving a distinctly ovate acuminate leaf. The markings of this kind are reddish crimson, with green margin, the habit dwarf and compact. From Messrs. F. Sander and Co., St. Albans.

BEGONIA MRS. F. SANDER.—A handsome tricolor form of the Rex type, very striking and picturesque in the variously coloured tints that prevail, with a very free habit of growth. Messrs. F. Sander and Co., St. Albans.

GLOXINIA GALATEA.—A white variety, the segments of the corolla distinctly furnished with a half-circular outline of violet, with just a suspicion of purple. From Messrs. James Veitch and Sons, Chelsea.

PHILADELPHUS CORONARIUS MONT BLANC.—As shown, this is a dwarf, compact shrub less than 2 feet high, with a number of pure white fragrant flowers. Messrs. James Veitch and Sons.

PEONIA ELLA CHRISTINE KELWAY.—A very handsome herbaceous kind with white blossoms, faintly tinted with salmon-pink. The variety is remarkable for its fulness and the great solidity of the blooms. From Messrs. Kelway and Sons, Langport.

PYRETHRUM LADY KILDARE.—A distinct variety with double flowers of good size, the colour a sort of orange-bronze that is welcome among these plants. Messrs. Kelway and Sons.

MECONOPSIS CAMBRICA FL.-PL.—A double-flowered variety of the Welsh Poppy, in which the colour remains much the same as in the type. Messrs. Paul and Son, The Old Nurseries, Cheshunt.

CANNA MRS. W. MARSHALL.—A variety with chrome-yellow flowers, slightly shaded with crimson-scarlet. Messrs. Paul and Son, The Old Nurseries, Cheshunt.

CANNA MOSAIC.—This has golden yellow flowers, abundantly netted and spotted with scarlet. From Messrs. Paul and Son, Old Nurseries, Cheshunt.

PYRETHRUM MONARCH.—A very fine single-flowered kind, with immense blossoms of a clear and good pink shade. It is valuable not only for its colour, but as affording a late succession to the others of this shade. From Messrs. Collins Bros. and Gabriel, 39, Waterloo Road, S.E.

BEGONIA COMMODORE DEWEY.—A tuberous-rooted kind, with double flowers of an exceedingly rich and glowing crimson-scarlet—a most intense shade of colour. From Messrs. Cannell and Sons, Swanley.

Upon this occasion the Drill Hall exhibited in no small degree the manner in which good hardy plants are being grown on all sides; indeed, the exhibition may be said to be almost made up of these things, so very extensive were the displays from such varying sources. Of other notable exhibits, however, the group of Malmaison Carnations from Roehampton occupied a very important place, filling the entire ground space in the centre of the hall. Many of the larger plants were more than 3 feet high and nearly the same through. The plants, however, were not so freely flowered as on a similar occasion a year ago. Of greater value perhaps is the tendency the plants exhibited to profuse flowering. Some plants bearing eight fully expanded blooms, had buds to the extent of a score in varying stages that would continue the flowering for weeks to come. So far as vigour and perfect health are concerned the specimens were splendid, from the smallest to the largest, in this group. The plants came from the gardens of Mr. J. P. Morgan, Dover House, Roehampton (gardener, Mr. J. F. McLeod), and were represented by blush, pink and scarlet varieties, and arranged with Ferns and tall graceful Kentias towering overhead. This fine group received a silver-gilt Flora medal. A very striking lot of plants came also from Messrs. Cannell and Sons, Swanley, composed of dwarf Cannas forming a separate group, with double Begonias and hybrid Columbines. The double Begonias were excellent. The Cannas, too, were equally meritorious, representing the very cream of this useful group (silver-gilt Flora medal). From Edmonton Mr. H. B. May brought a fine assortment of new and choice Ferns, the lovely new *Phlebodium glaucum* Mayi included, which has already been described. The plant is quite unique in several ways, not only as a novelty of a very high order, but as a novelty that will be wanted by the thousand shortly, because the enduring properties of the type are known to everybody. Other good things were *Lomaria ciliata grandis*, *Asplenium ornatum*, *A. Mayi*, with deeply cut fronds; *Davallia amoena*, *Pteris serrulata corymbosa*, with remarkable tassels; and *P. biaurita argentea*, a robust and striking kind. The new American *Tropaeolum Sunlight*, with orange-gold flowers, a dwarf *Marguerite* called *Nivale*, and a basket of *Pelargonium Millfield Rival*, with rosy peach blossoms and very large, compact truss, were also shown (silver Flora medal). From Langport Messrs. Kelway and Son brought, for the season, a really marvellous array of herbaceous Peonies, many of them exquisitely fragrant and all more or less choice in colour. A few good kinds are *Agnes Mary Kelway*, rose; *Olivia*, white, yellow centre; *Stentor*, pink; *Duchess of Sutherland*, soft pink; *Cavalleria Rusticana*, rosy crimson; *Lady Lilian Ogle*, white, gold stamens; *The Bride*; and *Queen of May*, white, orange stamens. Pyreth-

rums, both single and double, were also largely shown, as also spikes of *Delphiniums*, with a few perennials (silver Flora medal).

An extensive group of hardy flowers was put up by Messrs. Barr and Sons, Covent Garden, in which Irises of several sections figured largely. *Iris dalmatica* Princess Beatrix is a very large pallida form. Mrs. H. Darwin is an improvement on *Innocenza*, yet lacking the purity of Princess of Wales, while *Aurea* and *Gracelus* need no comment. *I. orientalis* (syn., *ochroleuca*) with white and yellow is ever striking, and not less so *I. longipetala superba*, pale lavender-mauve and yellow. Spanish kinds were good, the one named *Thunderbolt*, gold and bronze, especially. *Iris Lorteti* of the Cushion Iris group is exquisite in its dainty shade of colour. Other notable things here were *Dodecatheons* in various pretty shades, a host of *Poppies* and the singularly coloured spikes of *Ixia*, *Anemone hortensis* in variety, yellow Day Lilies, *Thalictrums*, *Brodiaea*, single and double *Pyrethrums*, and *Achillea mongolica*, a capital plant for cutting. Very fine also were *Anthericum liliastrum majus* with snow-white spikes and *Camassia grandiflora* with deep lilac-blue flowers on spikes 2 feet long (silver-gilt Banksian medal). Messrs. Wm. Paul and Son, Waltham Cross, had a mixed group of *Rhododendrons*, about a dozen trusses of each kind, thus giving a good idea of each variety. These with the dwarf single and double Scotch Roses made a good display. These miniature-flowered Roses are very pretty and well suited among other things to grouping in certain parts of the rock garden or the like. Several varieties of *Rosa rugosa* were also shown (silver Banksian medal). Another interesting group, because the only one of its kind, was that from Messrs. Wallace and Co., Colchester, who brought a great variety of choice bulbous things. Here were many beautiful Lilies, including the lovely *L. rubellum*, with its varying flowers of pink, rose-pink, and almost rosy-peach, yet all very beautiful. Other Lilies were *L. columbianum*, orange-apricot shade; *L. tenuifolium*, scarlet; many spikes of *L. longiflorum robustum*, very pure and ever welcome. Here and there groups of the best Flag Irises were distributed in batches, such notable kinds as *Jacquinianna*, *Queen of May*, *Victorine*, *Hector*, &c., *Iris sibirica* in variety and *Iris Lorteti*, *Heuchera micrantha*, *Delphinium nudicaule*, *Watsonia O'Brieni*, Spanish Irises in considerable variety, *Orchis foliosa*, *Ixiolirion Pallasii*, the lovely peacock *Iris (I. pavonia)*, a nice lot of Day Lilies, more especially *Hemerocallis flava* and *H. aurantiaca major*, the self-coloured flowers of the latter very effective in their rich shade, with a small array of *Calochorti*, including the handsome *C. Purdyi*, made a most interesting lot (silver Banksian medal). From Hatfield, the Marquis of Salisbury (gardener, Mr. Norman) sent a basket of Carnations (cut spikes) of two well-known kinds, viz., *Miss Audrey Campbell* (yellow) and *King Arthur* (scarlet), a flower almost as large as a Malmaison, yet not of this type. The yellow kind was in great abundance, and is evidently a favourite at Hatfield on account of its colour, a soft though clear yellow (silver Banksian medal). The group of Irises from Messrs. Veitch and Sons, Chelsea, while apparently receiving no mark of distinction from this committee, was indeed one of the finest groups of its kind ever presented, the plants set up in an excellent manner and fresh and bright-looking withal. The group contained many of the best kinds, such as *Mme. Chereau*, *Bergi* (gold, crimson falls), *Walneriana* (blue), *Pallida Albert Victor* (deep blue), *Khedive* (soft mauve and violet), *Darius*, *Mrs. H. Darwin*, &c. *Pyrethrums*, mostly double, were also largely shown and in good form. These, together with large masses of *Heuchera sanguinea*, pans of *Edelweiss* and *Saxifraga nepalensis*, *Papaver nudicaule* vars., hybrid Columbines and such like, made a fine group near the entrance. Spikes of two kinds of *Eremurus*, *E. robustus* and *E. himalaicus*, were also included in this capital lot. Messrs. Collins Bros., 39, Waterloo Road, S.E., formerly among

the most regular exhibitors of hardy flowers, brought from their Hampton Nurseries a select lot of things set up in good and distinctive colours and in sufficiently large numbers that the merits of each were determinable at a glance. Crowding found no favour here, while the ample bunches were sufficient for all purposes. The Gaillardias in this group were very fine, a strain of quilled flowers some fully 5 inches across being conspicuous. *Heuchera sanguinea* and *Achillea mongolica* were excellent, as also *Geum minimum*, of which a fine batch was staged. Other good things were *Senecio Doronicum*, a composite with golden-orange flower-heads; *Inula glandulosa*, *Anthericum Liliago*, very fine, and *Phlox ovata*, a very good plant, with reddish crimson flowers, little more than 1 foot high and too rarely seen. *Linum perenne* was beautiful, while *Potentillas* and *Pyrethrums* were very showy. Of the latter a bold central group of about 100 flowers of *Monarch*, a single pink kind, large, showy, and distinct, made a telling display. Messrs. Paul and Son, The Old Nurseries, Cheshunt, had a mixed group of shrubs and showy perennials, also *Cannas*. The *Columbines* and *Thalictrum aquilegifolium* were very good. *Rubus nutkaensis*, *Dictamnus* (red and white), and the ever-welcome double white *Rocket* (*Hesperis matronalis alba plena*) were also noticeable. Here, as elsewhere in the hall, confusion existed among the *Iris*es from want of proper naming, the variety of *I. sibirica* known as *orientalis* occupying specific rank and thereby clashing with the species so called, which has its synonym in *I. ochroleuca*. In one instance only was the naming correctly rendered. Mr. John Russell, Richmond, also contributed hardy flowers in bunches, though nothing fresh was included among many showy things already enumerated. Messrs. F. Miller and Co., Fulham, had a display of *Mignonette*, *Petunias*, *Stocks*, and such things, the first of an excellent strain and well grown. Some *Carnations* in pots from Mr. Martin S. Smith, Hayes, included *Lady Hermione*, a border kind with salmony scarlet flowers of capital form and good size. Messrs. J. Cheal and Sons, Crawley, had various shrubs, such as *Genistas*, *Weigelas*, *Rhododendrons*, *Eurybia Gunnii*, *Akebia quinata*, *Spiraea Van Houttei*, *Xanthoceras sorbifolia*, *Colutea arborescens*, &c.; and the Messrs. Veitch and Sons one of their usual exhibits in baskets, among which the graft hybrid of *Cytisus Adami* was conspicuous with its purple and yellow flowers. Other things were *Hydrangea japonica Mariesi*, *H. Hortensia mandshurica*, a fine form, very free; *Hibiscus grandiflorus superbus*, and *Fraxinus Mariesi*, small white flowers very fragrant and abundant. Messrs. Sander and Co., St. Albans, had in addition to other certificated plants a batch of the new *Acalypha Sanderi* with its pendent crimson inflorescences hanging in profusion, and a batch also of the equally new *A. Godseffiana*, a dwarfier species with creamy margin to the leaves. Mr. Frederick Perkins, Leamington, showed *Carnation Primrose Queen* in capital condition; the flowers of this are good and freely produced, but the habit is, we think, unduly tall for a border kind.

Fruit Committee.

Awards of merit were given to the following:—
MELON EMPSON'S SEEDLING.—A small round fruit, skin netted, of bright golden colour, flesh white with a tendency to scarlet at the centre. It is richly flavoured, and was excellent considering the sunless weather of late. From Mr. J. Empson, Amptill, Beds.

CUCUMBER THE KEEPER.—A beautifully shaped fruit, dark green, with numerous spines. It is noted for its long keeping after being cut from the plant. It is a cross between *Telegraph* and *Duke of Edinburgh*, and should make a profitable market variety. From Mr. S. Mortimer, Swiss Nurseries, Rowledge, Farnham.

CABBAGE BEACONSFIELD.—A very compact grower, with close outer leaves, heart conical, very solid, and of just the size for a private garden. It is much later than *Ellam's*, but much like it in shape. This had been grown in the Society's

Gardens at Chiswick, and was a remarkably true stock. From Mr. J. Rouse, Hallbound Gardens, Beaconsfield.

Mr. Beckett, Aldenham House Gardens, Elstree, sent *The Carter Spinach*, immense leaves and very succulent, well meriting the cultural commendation awarded. This *Spinach* was requested to be sent to Chiswick for trial with others. Mr. Hudson, Gunnersbury House Gardens, Acton, sent a box of *Lord Napier Nectarines*, splendid fruit, and of a beautiful colour. These were gathered from a tree carrying 450 fruits, and were awarded a cultural commendation. The same exhibitor sent the first dishes of *Cherries* from the open wall, the variety being *Guigne Annonay*, fine fruits for this late season. Apples were sent by Mr. Powell, Ilington House Gardens, Dorchester, the varieties being *Reinette du Canada* and *Dutch Mignonne*, but both were much past their best as regards flavour.

ROYAL BOTANIC SOCIETY.

JUNE 10.

THE summer exhibition of the above society, postponed from the 8th and 9th to the above date in accordance with the expressed desire of their Royal Highnesses the Prince and Princess of Wales to be present at the floral parade held in conjunction with the exhibition, took place in the large marquee, when a large and distinguished company inspected the various groups of plants and other exhibits. The exhibition was by far the best display of the present season, the whole of the available space being well filled with excellent material. In this respect great credit is due to the members of the trade for their untiring and untainted efforts on this occasion to make the show a success. The whole of the plants and groups shown upon this occasion were non-competitive, and we noted with some regret that the fountain space—indeed, the fountain itself—was obscured from view by an exhibit the reverse of instructive in so far as the utilisation of plants and flowers is concerned. The usual pretty view obtainable was likewise shut out by the lofty erection referred to.

Upon this occasion the unique exhibit from Messrs. Geo. Jackman and Son, Woking, Surrey, was a great attraction, being composed entirely of their new hybrid *coccinea Clematises*. That these lovely forms will occupy important positions in future there is no doubt; indeed, it is possible their usefulness may not terminate in the garden, as one lovely kind named *Duchess of York*, with white flesh-tinted blossoms, would be equally unique in any bouquet or floral device. Indeed, the size, the form and wax-like substance of the flowers specially adapt this new race of hybrids for purposes of ornamentation in the direction suggested. Other beautiful forms included *Duchess of Albany*, rose-carmine; *Sir T. Lawrence*, crimson; and *Countess Onslow*, purple-carmine. The whole of the plants were splendidly flowered and of large size, and appeared very free and charming on the sloping banks in the large tent. The monotony of the trained plants was relieved by rustic stems with the *Clematises* upon them, and interspersed were *Acers*, *Spiraeas*, and the like in just sufficient quantity for the purpose. A small group of *Streptocarpus*, *Gloxinias*, and the like mixed with *Palms* and *Maiden-hair Ferns* was sent by Messrs. J. Peed and Sons, Roupell Park, the flowers varied and of a good strain. A capital yellow *Carnation* from Mr. Fred Perkins, Leamington, named *Primrose Queen*, is free-flowering, though somewhat tall in growth. A group mainly of *Rhododendrons* and *Azalea mollis* × *sinensis* forms from Mr. John Russell, Richmond, was most attractive. A small group of *Orchids* from Mr. L. Mond, Avenue Road (gardener, Mr. J. O. Clarke), included many well-flowered examples of *Cattleyas*, *Odontoglossum crispum*, *Cymbidiums*, &c., and associated with *Acers*, *Palms*, and *Ferns* was very pretty. A large display of *Rhododendrons* and other shrubs from Messrs. Wm. Paul and Son, Waltham Cross, covered a large area

and made quite a display. The *Rhododendrons* were vigorous, compact, and well-flowered, and among them the following were specially good: *Onslowianum*, soft lilac; *The Queen*, very fine truss, white, with soft blush; *Mrs. John Waterer*, crimson; *The Princess*, white, with gold-brown spots; and *Standish's Perfection*, rose-lilac. The centre of the group was filled by fine masses several feet high of *Bougainvillea Sanderi*, and here and there several *Cytisuses*, such as *C. Andreanus*, *C. pallidus* (soft yellow), variegated *Ivies*, *Purple Hazel*, *Viburnum plicatum*, *Arundo Donax* fol. var., *Eulalia*, and other such plants completed a very interesting group. Mr. John Russell, Richmond, Surrey, also staged a variety of hardy shrubs, mostly of a variegated character, *Ivies*, *Euonymuses*, *Acers*, *Cornus*, and such things predominating. *Robinia aurea* and *Cotoneaster horizontalis* were also included in this useful lot.

The *Roses* from Messrs. Wm. Paul and Son were a feature, not only as the only exhibit of the kind, but likewise from the variety it contained, specimen and half-specimen plants together with a margin of boxes making up a very fine display of the popular flower. Among the most meritorious was *Enchantress*, an ever-flowering kind, and certainly more deserving the term hybrid perpetual than most *Roses* so classed; indeed, this excellent kind partaking as it apparently does, of the *Tea* and *China* sections, is among the most perpetual-flowering of all, and doubtless greatly improves with age. *Merveille de Lyon*, very fine, and *Clio*, which is in the same way, were also good; *Spenser*, a very full flower, somewhat like *Baroness Rothschild*, forces well. A very useful lot of single and double *Scotch Roses* so effective for hedges in the *Rose garden* and elsewhere was also noted, together with one or two seedlings. One of these latter, an unnamed one, was greatly admired by the Prince and Princess of Wales, the Prince naming it "*The Alexandra*." It belongs to the *Tea* section, very beautiful in form with something of the *Glorie de Dijon* shade and tinted with a ruddy bronze, which with the perfect form of *Catherine Mermet* at once places it in the front rank. A large bank was occupied by Messrs. Laing and Sons, Forest Hill, with a beautiful arrangement of choice flowering and fine-foliaged plants. Here were represented several sections of *Begonias*, *Streptocarpus*, *Gloxinias*, *Caladiums*, *Heaths*, *Hydrangeas*, *Malmalson Carnations* (mostly pink variety), *Cypripediums* in variety, *Odontoglossum crispum*, *Nepenthes*, *Dracenas* (the silvered *D. Sanderiana* included), *Anthuriums*, *Phyllocactus*, *Arums*, *Lily of the Valley*, &c., which with *Eulalias*, *Acers*, and *Ferns*, and backed by *Kentias* and *Arecas* made up a really fine exhibit, in which the individual plants were specially well done. Some of the tuberous *Begonias* in this group were superb, as *Countess of Aberdeen*, a pure snow white; *Sir W. Lockhart*, a salmon-scarlet, very full and with gophered petals; and *Lord Rendall*, intense crimson velvet, a remarkable shade of colour.

Hardy flowers, too, were numerous and excellently displayed; indeed, in a tent of this description the more vivid hues of the flowers by their association with grass banks and the like are much more natural than when shown on tables covered with white calico or even green baize. The group from Langport was replete with good and showy subjects, particularly *Paeonies*, represented by singles and doubles in herbaceous and tree sections. Some of the latter flowers were very remarkable, as much in size as in the lustrous beauty of the flowers. Single and double *Pyrethrums* were also largely shown, but here there were too many names and not sufficient distinctness in the variety. *Aphrodite* is still the best and purest double white. *Amaryllises* and *Delphiniums* were also represented, and other hardy subjects included *Lupins*, *Columbines*, *Poppies*, *Dictamnus*, *Onosma tauricum*, and the brilliant red-flowered *Ononis rotundifolia*. A good and showy group likewise came from Messrs. Geo. Jackman and Sons, Woking, and included a fine lot of *Pyrethrums*, both single and double, a

lot of *Iris germanica* and allied forms, the pretty *Iris sibirica lactea* with its creamy white flowers, *Thalictrum aquilegifolium*, *Achillea mongolica*, *Campanula glomerata dahurica*, *Cypripedium pubescens*, together with Tufted Pansies, Pinks, Rhododendrons, Weigelas, *Mertensia virginica*, &c. Messrs. A. W. Young and Co., Stevenage, also had hardy flowers, including *Anemone hortensis*, double white *Narcissus*, Poppies, Irises, &c., also a large bank of *Pelargonium King of Denmark*, a fine showy salmon-pink. Another large bank of hardy flowers was set up by Messrs. Barr and Sons, Covent Garden. In this Irises predominated, Mrs. H. Darwin, a creamy white, with lilac-striped falls, being conspicuous. *I. pallida* Princess Beatrice, *I. ochroleuca*, *Campanula persicifolia grandiflora alba*, *Anthericum*, *Thermopsis fabacea*, and *Heuchera sanguinea grandiflora* were also good. Smaller things included *Gentiana verna*, *Dianthus alpinus*, *Primula frondosa*, *Dodecatheon meadia album*, *Erodium Howelli*, &c. Fruit trees in pots from Messrs. Rivers, Sawbridgeworth, were a feature in themselves, splendidly grown and fruited throughout, Peaches, Nectarines, Cherries, all in considerable force and variety and fit for table, being augmented by Apple, Pear, and Plum trees equally well done.

A stand erected by Messrs. Carter and Co. in the centre obscured the fountain from view on this occasion, and the loftiness shut out the far-reaching and most effective views as usually seen from the corridor end of the tent, *Calceolarias*, *Petunias*, *Gloxinias*, *Streptocarpus*, *Begonias*, *Pelargoniums*, mostly in well-grown plants, forming the chief of the plants employed in the arrangement, the four corner posts being trimmed with flowers. Floral designs, bouquets, &c., came from Messrs. Laing and Sons and B. S. Williams and Son, and in each instance taste and originality were duly regarded. A dish of good Nectarines was staged by Mr. Geo. Kelf, gardener to Mrs. Abbott, South Villa, Regent's Park, while a great variety of plants, arranged on one of the side banks, displayed to advantage the benefit of employing Jadoo either wholly or in part in the cultivation of plants. The majority, if not indeed all, were wholly grown in the material referred to, and a few plants, *Dracenas* for instance, had been purposely removed from the pots to glass vessels to show the manner of rooting when grown exclusively in the Jadoo fibre. Regal and decorative *Pelargoniums* were as fine as need be, and a grand piece of *Asparagus Sprengeri*, grown for eighteen months in the material, was lovely.

Rose show, change of date.—We are asked to state that the council have changed the date of the Royal Horticultural Society's show advertised on p. 59 of the "Arrangements for 1898," from June 28 to July 12. This alteration is necessitated by the abnormally backward state of the Roses this year.

The tents at the Temple show.—All those who visited the recent Temple show will, we are sure, agree with the following note written to the *Gardeners' Chronicle* by the Rev. C. Wolley-Dod: "Is the efficient ventilation of a marquee-tent impossible, or even very difficult? If not, it is to be hoped that those who are responsible for the arrangements of the Temple flower show will do their best to remedy what was a great drawback to the show this year—the stifling atmosphere of the tents. No doubt many of the visitors were strong enough in nerve and stomach to continue in the tents without inconvenience or distress; but the many exceptions, especially ladies, whose nervous system and circulation are not vigorous, felt much discomfort, and after being pushed through one tent, without a chance of escape, were very glad to take refuge in the open air till they left the show. This complaint, it is true, is common when flower shows are crowded. The tents at Shrewsbury last August were equally stifling, but the weather was much hotter."

NOTES OF THE WEEK.

Pentstemon Newberryi.—This is now very pretty at Kew and quite distinct from any we have before seen. It is a graceful little bush, with bright purplish-red flowers.

Geranium cinereum album is a very chaste and pretty rock plant, with white flowers and neat, pleasing habit, such as is indeed possessed by the original species. It is a valuable addition to good rock-garden plants and grows quite freely in deep gritty loam.

Saponaria Boisseri is a dwarf and showy alpine, of quick and free growth, somewhat tufted in character, spreading out into good-sized plants, and bearing a profusion of its bright pink flowers. It is a capital rock plant and quite at home in the choice border.

Heuchera brizoides.—This interesting plant, said to be the result of crossing *Heuchera sanguinea* with *Tiarella purpurea*, is now flowering at Kew in the hardy department, and exhibits the peculiarities of both its parents, excepting the colour of the former.

Chrysogonum virginicum.—This species is attractive when in a good clump owing to its starry orange-gold blossoms and free flowering. The colour, too, is good even in small plants, while the dwarf habit is suitable to a variety of positions. It is among the easiest things to cultivate or increase.

Arenaria balearica.—This little creeping plant, whether growing over stones, steps, rough gravel walks, or brick or stone walls, will carpet the space as it goes. The plant possesses perhaps some preference for shade, wherein the freest growth is made, and is now crowded with snow-white flowers in positions where little or no soil exists.

Caragana gracilis.—Most of the members of this family we have seen in gardens hitherto have surprised us by their want of beauty or interest, but the above kind is a really graceful form and pretty as any Broom. It is grafted on the gouty stem of something else, but that does not hide its beauty, while it must be charming in a natural state for rocks and banks.

Achillea umbellata is now abundantly covered with its snow-white flowers, and is among the most useful of its class. The foliage, too, is neat and attractive, and though of a silvery nature does not clash with the exceeding purity of the flowers of the plant. Another species, *A. Huteri*, is in the same way, so much so that both kinds are not needed in a collection of only choice things.

Dianthus neglectus is a gem among the alpine kinds and one only rarely seen, with its large handsome blossoms covering really good tufts. Slugs are particularly partial to this alpine gem and can only be kept from it by continued vigilance. It is doubtless to this latter being duly exercised that a capital example in flower was recently noted at Kew, bearing several of its richly-coloured flowers on the puny tufts of leaves.

Ajuga genevensis.—This is welcome if for no other reason than the fine colour of its flowers, a very distinct shade of blue, and when grown freely and large patches exist it forms a striking object. From a colour point of view it is the best of its race, though not so perfectly hardy or so strictly perennial as the creeping or the purple-leaved kind. There need be no trouble, however, in maintaining a supply of young plants in those districts where it is not quite hardy.

Freesias in the open.—A neighbour here planted *Freesias* in the open ground last November. These came through the winter without protection and are now in flower. They are of the *Leichtlini* variety and have blossoms of large size and delicious fragrance. I fancy this may be worth recording in *THE GARDEN* as a remarkable sign of the mildness of the past winter and of the genial nature of the climate on the North Wales coast.—L. PRING HORTON, *Pennacmaur, N. Wales.*

Orchis latifolia.—This is one of the most interesting of hardy Orchises because of the variety afforded in both plant and flower, the majority having spotted leaves and much spotted and otherwise variable blossoms. Here and there, however, a plant occurs with green stems and leaves, and is useful because of the distinctness afforded in grouping. The plants are not difficult to cultivate; indeed, this species and its forms are among the most vigorous and succeed well in good pasture loam. When established some

kinds are very robust and valuable in cool spots in the garden.

Heuchera sanguinea grandiflora.—At the Regent's Park exhibition last week Messrs. Barr and Son exhibited this striking novelty, which is a great improvement on the original plant. The latter, brilliant as it is when seen alone, is rendered comparatively dull by comparison with the new kind, which is not so much superior in size, as may be inferred by the varietal name chosen, as it is brilliant in colour. The effect is in the remarkable brilliancy of the flowers, and in this respect it is a great gain; the spikes even on small plants have a tendency to be stronger, and if this is lasting the new-comer will prove an acquisition.

Phlox divaricata is, perhaps, the only species of the genus where the blue flower is at all tolerated; anything approaching the shade in other forms is usually of a slaty character. In the above species, which is only a foot or 15 inches high, the colour is good, and a large clump is very striking in the border or rock garden, where it flowers in company with the alpine kinds. A form of the above is *P. d. canadensis*, but the difference is very slight, the indented petals being perhaps the chief distinction so far as the form of the flowers is concerned. Some improvements should be possible with this easily-grown species if taken in hand with that intention.

Calandrinia Leeana.—Though considerably smaller in its flowers individually than is *C. Tweedii*, recently mentioned in *THE GARDEN*, this species is not without its value. It appears rather free-flowering—I cannot speak more definitely, as the plant only recently came into my possession—and in other respects is widely distinct from the other kind named. The rosettes of leaves bear some likeness to those of a long-leaved Saxifrage, but are quite distinct in their fleshy succulent nature, while in flower it would compare almost with *Erodium trichomanifolium*, not so much in being its counterpart for colour as in the manner the flowers are veined. In this respect the two are singularly alike. Of its hardness I hope to speak at a future time.

OBITUARY.

HENRY HEMSLEY.

We regret to announce the death, at Keymer, Sussex, on Tuesday, 7th inst., of Mr. H. Hemsley, in his 79th year. For many years he used to be manager at Mr. G. Parsons' (now Balchin's) nursery at Hassocks Gate, near Brighton, and while there improved the *Cineraria*, Chinese *Primula* and *Mignonette*. After several years' selection by him, *Mignonette Parsons' White* (*Reseda odorata eximia*) was sent out. It received a first-class certificate from the Royal Horticultural Society in 1870, and was, we believe, the first step in the improvement of this useful plant. Mr. Hemsley has lived in retirement for some years.

Pomegranates in tubs.—Can any reader of *THE GARDEN* kindly tell me in what country these are most likely to be obtained? I have often been struck with their beauty in tubs outside small shops abroad.—S. T.

Names of plants.—*Kingshill, Dursley*.—1, *Cattleya Mossiae*, a pale, but good form; 2, *Amaryllis reticulata*.—*S. T.*—1, *Iris sibirica orientalis*; 2, *Iris sibirica*.—*J. P. Quinton*.—Please send better specimen.—*G. Brown-Guthrie*.—Looks like a *Weigela*, but impossible to say from leaves only.—*J. B.*—*A. Spiraea flagelliformis* probably; *B. Spiraea prunifolia fl.-pl.*—*A. T. B.*—1, *Adonis pyrenaica*; 2, *Clematis indivisa lobata*.—*Gavin Cullen*.—*Hemerocallis flava*.—*Miss Gibbs*.—1, the common *Butterwort*; 2, the *Bird Cherry* (*Prunus Padus*).—*J. B.*—*Phaius Wallichi*.—*A. Fitt.*—1, 3, 6, forms of *Cypripedium Lawrenceanum*; 2, send again, flowers very badly packed; 4, *Dendrobium primulinum*; 5, *Dendrobium nobile*, a very poor form.—*Sprinchill*.—*Oncidium crispum*; 2, *Polygonatum verticillatum*; 3, *Ceanothus azureus*. Yes; you may treat the *Rhododendrons* as you suggest.

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TREES AND SHRUBS.

TWO NEW RHODODENDRONS FROM YUNNAN.

AFTER Sir Joseph Hooker's travels in the Himalayas had revealed the great wealth and variety of the Rhododendrons of Northern India, that region for many years was looked upon as undoubtedly the headquarters of the genus. And regarding the Himalayan Rhododendrons from the standpoints of beauty and size, it does not seem likely that the hitherto unexplored parts of the globe contain any to surpass them. But, so far as mere number of species goes, the recent explorations and discoveries by David, Henry, Delavay and others in Yunnan and other provinces of Central China point to that region as the one where Rhododendrons exist in greatest variety. The species from Yunnan that have hitherto flowered in Europe—most of which have come to us by way of Paris—have not proved to be the equals of the best of the older species. Perhaps the most interesting and distinct of them is *R. racemosum*, a coloured plate of which appeared in THE GARDEN for October 8, 1892, and which has from time to time been exhibited in charming condition at the Drill Hall and elsewhere by Messrs. Veitch. Of those that have not yet flowered, the most promising one that I have seen is *R. lacteum*. This is grown under glass at Kew and Paris, but last autumn I saw a plant, probably as fine as any in Europe, growing in the open air in Mr. Acton's garden at Kilmacurragh, Co. Wicklow. This has leaves larger than those of Rhododendron Falconeri, similar to them in shape, and covered beneath with a beautiful felt, milky white on the young leaves, but turning to a pale reddish brown on the older ones. Specimens in the Kew Herbarium gathered by the Abbé Delavay during 1883-85 show the flowers to be apparently of about the same size as those of *R. Falconeri*. Unfortunately, these big-leaved

Rhododendrons are many years, as a rule, in reaching the flowering stage when raised from seed. The dwarfer ones are much quicker, and to those that have already flowered in Europe the two following may now be added. They both flowered at Kew this spring, and neither, so far as I am aware, has been recorded as having bloomed under cultivation in Europe before. *R. yunnanense* flowered previously in 1897, but the material at Kew was not sufficient for it to be identified then. This year both it and *R. rubiginosum* were sent to Mons. Franchet, of the Museum of Natural History at Paris, and he identified them as the species originally described by himself under the present names.

R. RUBIGINOSUM (Franchet).—This is an evergreen bush, at present about 3 feet high, and, judging by other species of a similar character, not likely to ever grow more than 6 feet or 8 feet high. The leaves are oblong-lanceolate, acute, tapering gradually towards each end; the blades of the largest are from 2½ inches to 3 inches in length, with a petiole half an inch long; the upper surface is of a lustrous dark green, whilst the lower surface is thickly covered with minute rusty-coloured scales. The same scaly dots, only larger, occur on the midrib, petiole, and young wood, giving them quite a scabrous character. The flowers are borne (from four to eight together) in small terminal trusses during the latter part of April and early in May. The calyx is very small, merely a tiny green disc showing five rounded shallow lobes. The corolla is rather funnel-shaped than bell-shaped, the five lobes extending about one-third of its length; it is 1½ inches long, a little more wide, and of a clear rosy-lilac, with numerous maroon spots on the upper side. It was collected first by Delavay between the years 1883 and 1885 on the Tsang-chan Mountain, above Ta-li, in Yunnan, at an altitude of about 8200 feet above sea level. Among the Rhododendrons already well known in gardens it bears the nearest resemblance to the North American *R. punctatum*, and will probably prove to be of about the same value in gardens.

R. YUNNANENSE (Franchet).—This is a more beautiful plant than the preceding and likely to

become a greater favourite in gardens. It flowered very freely at Kew last year and less freely this. Compared with *R. rubiginosum* it is of freer habit and less sturdy and compact in growth, although it does not strike me as likely to grow more than 8 feet high. A point in its favour is that it flowers a month or so later than *R. rubiginosum*—that is to say, towards the middle or end of May—and is therefore likely to escape damage by late frosts. The leaves are each from 1½ inches to 4 inches in length, dark shining green, and set with bristling short hairs above, rather glaucous beneath, and covered (but much less abundantly than *R. rubiginosum*) with small dark glandular dots. The flowers appear in fascicles, four or six together, each on a stalk 1 inch or rather more long. The calyx is very small with a scarcely perceptible lobing. The corolla is spreading, averaging 2 inches in diameter, and lobed to half its depth; the colour is a most pleasing, delicate shade of pale lilac, much paler than in the other species, and relieved by two clusters of crimson spots on the upper side. It was discovered by Delavay at Houanglipin, in Yunnan. W. J. BEAN.

Kew.

Rhododendron myrtifolium.—This is a kind not often seen, and when compared with the big-headed kinds it is insignificant. Nevertheless, what it loses in size it makes up in quantity, as when in bloom it is covered with delicate rose flowers. There are many positions that are not adapted for planting the strong-growing kinds, but here this low-growing kind may be planted advantageously. This applies to round the outside of beds or near the turf, amongst low-growing shrubs, &c. I have some plants now (June 22) a blaze of bloom growing amongst deciduous Azaleas at the outside of the beds, and being evergreen they help to take off the bareness of the Azaleas in winter.—DORSET.

Weigelas on the grass.—These are amongst the finest low-growing flowering shrubs in the garden. In most gardens they are grown in mixed beds, and very often are planted in conjunction with common Laurels, these often choking them or causing them to grow weak and fail to bloom. These difficulties are removed when they are grown in

groups, or, better still, when they are used as single specimens or planted three or five in a group on the turf. I know nothing that looks so handsome when in bloom as a group of one or more kinds of Weigela standing alone. Weigelas are well adapted for such positions, seeing they are low growing. I have a large bush of one of the highly-coloured kinds. It is nearly twenty years old and stands on the turf in the abbey yard.—DORSET.

Abutilon vitifolium.—One of the most charming things I saw during a visit to Ireland this month was two bushes (or rather trees) of *Abutilon vitifolium* in the delightful garden at Mount Usher, Co. Wicklow. No description can give any idea of the graceful effect of these plants, which would be 12 feet or 15 feet high, and were not on a wall, but grown with a little clear space from other flowers. The garden at Mount Usher is a very sheltered one, but there must be many more where the Vine-leaved *Abutilon* would do as well. It was figured in *THE GARDEN* of May 8, 1897, and I had flowers sent me recently, but neither the plate nor individual flowers could possibly indicate the elegance of these shrubs which with their hanging bells of soft lilac or, as the colour is somewhere described, porcelain-blue, made a delightful picture.—S. ARNOTT.

Late Laburnums.—"A. D." (p. 508) alludes to there being too many of these planted in some districts and gardens. I am at one with him on this point, and the same holds good with some other common garden shrubs and trees. It is equally true that in many large gardens Laburnums are conspicuous by their absence, and in not a few places I could name the garden is one mass of greenery, principally common Laurels. I consider the Laburnum one of the very best flowering trees we have when well placed. I should like "A. D." to have seen some young trees in various positions in this garden, and now (June 22) fine masses of the late kind he so favourably mentions are in flower. There are racemes of bloom over 12 inches long. When these are associated with white and pink Thorns and other greenery, or a big tree standing over a mass of greenery is in full bloom, the effect is good.—J. CROOK, *Fords Abbey, Chard.*

Crinodendron Hookeri.—It will doubtless surprise many to learn that *Crinodendron Hookeri* both flourishes and flowers in the open air as far north as Ross-shire, while in England, unless in an especially favoured spot, it must be regarded as a greenhouse plant. Much the same may also be said of *Mitrasia coccinea*, which is referred to in the same article (p. 506). The *Crinodendron*, which by the way is also known as *Tricuspidaria dependens* and *T. hexapetala*, is a very distinct shrub and extremely beautiful when in bloom. It is a stiff-growing bush, while the leaves, which are each about 3 inches long, are dark green, wrinkled and serrated at the edges. The striking blossoms are urn-shaped and of a bright rosy crimson colour. They are thick in texture and are suspended by very long stalks, so that when in bud they look at a distance something like reddish fruits. It is a native of Chili and Valdivia, where in the low valleys it is said to reach a height of 10 feet, but in this country it will flower freely when less than a yard high. I have succeeded well with it when given the same treatment as greenhouse *Rhododendrons*, and it strikes fairly well from cuttings of the half-ripened shoots put into well-drained pots of sandy peat and kept in a close propagating case in a gentle heat till rooted.—H. P.

The Mock Oranges (Philadelphus).—The Mock Oranges or *Syringas* are such handsome and free-flowering hardy shrubs that it is a pity we so seldom meet with any but the common species, *P. coronarius*, which is not the best of them, and its scent is so very strong that many people dislike to have it in profusion in their gardens or shrubberies and think it decidedly obnoxious in the house. Among the tall-growing species *P. grandiflorus* is the best. It forms a handsome shrub 10 feet to 12 feet high, its flowers are pure

white and sweetly, but not strongly scented, so that they may be used for many purposes and in greater profusion than is possible with those more highly perfumed. *P. Gordonianus* is another tall-growing species, especially free-flowering, and altogether devoid of scent. Among the dwarf species *P. microphyllus* is the smallest and forms a very neat little bush, which in its season is covered with tiny flowers. Of late years a few hybrid forms, in which dwarfness of habit and free-flowering are strong points, have been obtained, and of these *Boule d'Argent*, a pure white variety, with large scentless flowers that are so plentifully produced as almost to hide the foliage, and *P. Lemoinei*, equally free, but with flowers not so pure in colour, and smaller, are both charming little shrubs, suitable for growing where room is limited. They would form capital subjects for miniature hedges. The *Philadelphuses* are at home in almost any soil, and all they require to induce them to flower well is sufficient exposure to the light to ripen up the wood. The tall growers when they become ungainly may be cut to the ground and allowed to spring up again from the bottom. They do this freely enough, this treatment suits them better than subjecting them to an annual pruning, though it means a loss of flowers for one season.—J. C. TALLACK.

THE MARKET GARDEN.

MARKETING TOMATOES.

THERE is good room for reform in the matter of marketing Tomatoes, but I doubt if it will ever take the form recommended by Mr. W. Neild in his paper read before the Royal Horticultural Society and given on pages 472 and 473. Packing in a single layer in flat boxes may read like being the correct method and may answer very well on a small scale, one or two fruiterers taking, as in Mr. Neild's case probably, all the fruit grown. Let him try the plan on a larger scale, sending away not less than half a ton of Tomatoes a week during the greater part of the season and to various parts of the country. If packing in flat boxes prove a success under such conditions, or better, say, than the common cross-handled, neatly-woven baskets, then, and not till then, will his remarks have much weight with market growers. I am frequently on the platforms of two important stations where immense quantities of Channel Island fruit, and Tomatoes in particular, are changed from Weymouth to west of England trains, and have repeatedly noticed how much easier to move and how carefully the baskets of fruit are carried as compared with any in boxes or bundles of boxes. There is no excuse for or inclination to move the baskets other than by the handles, and, therefore, the right way up, and if not filled too full these cross-handled baskets can be stored in the vans closely and to a good height one above another. The boxes can, it is true, be packed more closely together, but they will not be carried cheaper on that account. They can also easily be battered in unless provided with strong, rimmed, tin-plated lids, such as are used for *Chrysanthemum* boxes, and which, as a rule, are handled roughly, not unfrequently getting pitched on their ends or sides, occasionally being turned the wrong way upwards. Boxes also suffer badly on the return journey, and must be extra strong, or otherwise have to be renailed after each journey.

Cross-handled baskets are an expensive item, commission agents who provide these annually spending heavy sums on them. Senders use them badly, retailers still worse, the majority always having enough in stock to hold and hawk about Potatoes, Onions, Carrots, and other vegetables most of the year round. All

the same, nothing better seems forthcoming, and no other method of packing finds favour with the buyers. Try boxes, margarine baskets, crates, and other substitutes, and it will be found that the prices will be lower than the same fruit would fetch if offered properly packed in cross-handled baskets. I have tried it repeatedly, and have arrived at the conclusion that it does not pay. A visit to Covent Garden or other large markets during the height of the season ought to convince any impartial observer that cross-handled baskets are the best for packing Tomatoes in, these being cleared out rapidly, large quantities of fruit in various makeshift packages being left behind to be sold cheap.

Nor do well-grown Tomatoes when ripe travel so badly as Mr. Neild seems to think. The Channel Island growers have themselves to blame for the comparatively low prices much of their produce realises. If they will persist in growing the old Large Red type, principally because it sets heavy crops with a minimum amount of trouble, or if they will use artificial manures to excess, their fruit will continue to be at a disadvantage owing to its softness. Ripe, soft fruit does suffer from a long journey, but firm, rich red, ripe fruit does not to any appreciable extent—that is, if properly packed. We are told to gather and consign the fruit before it is fully ripe, and hundreds of growers do adopt this practice, at a loss to themselves of considerable sums during the season. Large quantities of Tomatoes are sold daily by the leading grocers and fruiterers, and their customers expect to have fruit fit for immediate consumption. As a consequence of all this, growers who send fully-coloured, not necessarily or advisedly soft, fruit will if fairly treated get 6d., sometimes 1s., per basket of 12 lbs. more than those who hurry their Tomatoes to the markets before they are fully coloured. My plan is to gather the fruit when three-parts coloured and before cracking takes place, and to ripen it in a dry heated packing room. The fruit may colour up in a few hours, or it may be three days or more before, according to our ideas, it is in a fit state to pack. Instead of the quality of these early-gathered Tomatoes deteriorating, it is really improved by my treatment, that left on the plant till quite soft losing acidity and becoming somewhat mealy.

It ought not to be necessary to point out that Tomatoes should always be carefully graded. When all, whether large or small, rough or smooth, sound or disfigured by disease are mixed together, the price of seconds only is obtained, and a low average prevails. What are most in demand are medium-sized (about six to the pound), smooth, round, highly-coloured fruits, and these should be selected and kept by themselves. The seconds would necessarily be much more mixed, but should be sound and bright in colour. Extra rough fruit, any touched with disease or cracked, and quite the smallest fruit ought, where possible, to be sold to hawkers locally, and, if fairly presentable, will not unfrequently realise as much as the seconds do in the open market. Extra fine, perfectly formed fruits are in limited demand at a slightly advanced price, leading fruiterers buying them for showing in their windows, and large fruits are also good for cooking. It is a mistake to say large Tomatoes are invariably inferior to smaller ones in point of quality. Sometimes they are really superior, especially if they consist largely of pulp surrounding seeds. Solid Tomatoes with few seeds are the poorest in flavour, and good judges who are not anxious to have as many

fruits as possible for their money are beginning to appreciate well-grown large examples. The baskets for either grade should be lined with what is known as kitchen paper, leaving the ends for folding over and tucking in, and no other packing material is necessary. Dispose the firmer fruit in the bottom, this favouring travelling soundly and also suiting the buyers. With a little practice all the Tomatoes in a basket may be made to fit together, so to speak, all being furnished with stalks and these downwards. They ought to be made to present an attractive appearance, and this can be done without any trickery or any covering up inferior fruit with a few extra good ones. The baskets should hold twelve pounds of fruit, enough to travel well, without these actually filling up to the level of the rims, for reasons already given. All further necessary is to neatly paper over the fruit and to "lace down" with cheap string sufficiently to prevent easy pilfering. A label with address of consignee and consignor, together with weight and quality of fruit, completes the preparation for a journey from the south of England to Glasgow if need be, notifying what is sent by post, at a cost of one halfpenny. Complaints of bad travelling are rarely received, and when they are made it is usually because the fruit was kept a little too long. Some of the Guernsey growers are covering their cross-handled baskets with lids, but at present I fail to see the necessity for this additional expense. Let me advise those new to the occupation to charge the full value for all their own baskets sent to customers, giving credit for the full value on their return. Unless this is done the stock of baskets will soon dwindle down to small proportions and the time arrive when fruit will be plentiful with nothing to pack it in. W. IGGULDEN.

ROSE GARDEN.

EARLY-FLOWERING ROSES.

THE early-flowering species and varieties of any genus are perhaps more welcome than the late comers. It is sometimes advantageous to the planter to know which are the kinds that flower early so that they may be grouped together. I was led to make a few remarks upon early-flowering Roses from a recent visit I paid to Kew Gardens. One is compelled to admire the singles not only for their earliness, but also for their in most cases bold, vigorous habits and also for their simple beauty. The glade by the pagoda exhibits in a practical manner what can be accomplished with these wild-like Roses. Here one can see a bold mass of the lovely Carmine Pillar fully 12 feet in height scrambling up a tall Pine tree. I think shelter is a point worth remembering in planting single Roses. Screen them as far as possible from the wind and their beauty remains much longer. In this dell is an object-lesson in grouping, and also a hint what can be done with large stumps and roots of trees. The soil is thrown up into a kind of terrace and kept in place by the roots, these latter serving a double purpose, for they lend a rustic air to the arrangement. In the background of a part of this dell is a long row or hedge of a crimson rugosa which I took to be Mme. C. Worth. Beside it huge bushes of the Dawson Rose gave a beautiful contrast to the crimson R. rugosa. Its pale rose flowers are perhaps a trifle dull, but it is a valuable variety for its early flowering and also for its delicate fragrance. In another part of the grounds I saw it planted on the lawn. About seven or

eight plants were scrambling over a huge tree stump about 5 feet high, and the effect was very striking. Below the mass of Dawson Rose was the charming single cream Rosa hispida. This is a lovely species, and its tiny buds resemble in colour those of the Tea Rose Isabella Sprunt. I can see but little difference between this variety and one called ochroleuca save in the buds, those of the latter having carmine markings, whereas the others are a pure sulphur-yellow. R. lutea, with its beautiful single yellow blossoms, was most lovely. Its long shoots had been allowed to grow at will; little or no pruning whatever appeared to have been done. A variety of this species—R. lutea flore-pleno—was also very charming. It is, I believe, synonymous with a variety known as the yellow Scotch Rose, and differs from Harrisoni, another variety of R. lutea, in its paler edged petals. One must not overlook the copper Austrian, known botanically as R. lutea var. bicolor, or punicea. It is, perhaps, the loveliest of all single Roses, and if its sprays are plucked ere they expand, they open in water and are most useful for house decoration. R. altaica was also out, and very delicate are its lemon-white flowers. Its spiny wood resembles that of the Scotch Roses. The crimson Boursault is worth mentioning among these early Roses, for, if rather dull in colour, it is a valuable variety if only for its vigorous, smooth growths, which so quickly cover up unsightly places. The forms of R. rugosa are fast becoming, by the aid of the hybridist, a very valuable early-flowering race.

In addition to such as Blanc double de Courbet, with its paper white double flowers, Mme. Georges Bruant, beautiful double white, Souvenir de Christophe Cochet, with its large, semi-double china-pink flowers nearly 4 inches in diameter, America, crimson-lake, large single, and of course the old single white and rose, so useful for hedges and so showy in autumn with their fruit, mention must be made of the more recent Mrs. A. Waterer, a rich crimson hybrid between R. rugosa rosea and General Jacqueminot, and as sweet as the latter Rose. This must prove most valuable. I saw a bed of this variety by the temperate house, the 3-foot growths covered with blossoms and buds from bottom to top. It really seems to have inherited the free-flowering propensity of the General as well as its rich colour and sweet fragrance. A single variety from the Arnold Arboretum, resulting from a similar cross to the above, was also in flower. It is of a rich crimson colour, certainly the brightest single we have at present, and its flowers are quite white at the base of the petals. Fimbriata, one of the prettiest flowers when out, but not very showy on the plant; Chedane Guinois-seau, fine double, satin-rose coloured blossoms, very continuous and late-flowering; Belle Poitevine, double, pink flowers; and Calocarpa, not so very interesting as a flower, but its immense bunches of small fruits are very showy in autumn, were also in bloom. Some hybrids from Baron St. Paul will surely be heard of again. I presumed they were rugosa hybrids, for they appeared to partake of the spiny character of the tribe. I noted as being good Thusnelda, beautiful buff-pink, reminding one of the Bourbon Queen, only the flowers were as handsome as those of a show Rose; Libe, salmon-pink, immense thorns, and extra vigorous growth; and Tamogled, large flesh-pink buds. There were others that looked promising, but they were not open. R. rugosa var. glabriuscula was interesting with large, light pink, single blossoms.

Turning again to the single Roses, there are some delightful varieties, valuable as much for their individual beauty as for their earliness in flowering. Rosa nipponensis should be added to every collection. The variety from Wurzburg pleased me very much. Its flowers are almost a pure red and its wood nearly smooth. R. nutkana was flowering freely upon bushes fully 10 feet high. The colour of the blossoms is almost mauve, and they are each about 2 inches in diameter. The foliage is glaucous and the wood smooth. R. acicularis is pink, with a distinct white eye. R. macrophylla var. parviflora is one of the smallest-flowered varieties, the blossoms being barely three-quarters of an inch in diameter and of a rich pink colour. R. alpina has very showy stamens and deep rose-coloured petals. R. microphylla × R. rugosa has handsome petals, quite 2 inches wide, of a delicate pink shade, but the flowers appeared to expand rather badly. R. Webbiana has tiny pink flowers and extremely small glaucous foliage. R. pisocarpa is of a rich rose colour. R. hibernica var. Grovesi resembles our blush wild Rose, but it is earlier, and its beautiful cupped flowers have a peculiar transparent beauty. R. pomifera is pink and well known for its showy Gooseberry-like fruit. R. mollis resembles the latter in flower, save being of a much deeper pink shade. R. multiflora, with its varieties grandiflora and Thunbergi, are all lovely, and must always be included in every collection of single Roses. There is a host of other species and varieties, but I only mention now the earliest to bloom. Perhaps a departure may be made to draw attention to the curious buds of R. microphylla, which resemble a Beech nut ere they unfold, and also the remarkable beauty of wood and foliage of R. ferruginea, known also as R. rubrifolia. It should be extensively planted, as at Kew, among evergreen shrubs where its rich ruby foliage and wood, charmingly glaucous, produce a very striking effect when thus mingled. The Penzance Briers must of course be classed with the early-flowering singles. I prefer to see them as large bushes growing in wild profusion, but they may be employed as low hedges. At Kew a hedge may be seen quite 3 feet thick and about 2 feet 6 inches high that will soon be one mass of blossoms. The shoots have been bent down to a wire, which is now totally hidden. This bending down has induced the shoots to break out into lateral growths their entire length, and there are very few of the growths but what are bearing blossom-buds. It is very convenient to have Roses that are suitable to almost any form in which one cares to grow them. Of course there are many Roses that can be so adapted, but, apart from the rich colour of the blossoms of some of the varieties of these Sweet Briers, we can have a fragrant hedge either high or low that will remain a pleasant feature of the garden for months. Another charming early-flowering group suitable for hedges is the Scotch Roses, and the singles of various colours are not the least beautiful. The one great charm of these Roses is the density of the bushes. They should be given plenty of room, for they spread out more quickly than they grow upward. The Double White is the most delightful of the doubles. A hedge of this variety backed by the taller-growing Austrian Brier Harrisoni should be a feature in any fair-sized garden. I would specially recommend the planting of masses of them by lakes or any position where Roses have to almost take care of themselves.

This article on early-flowering Roses cannot be concluded without mentioning the pretty miniature Provence Roses De Meaux, White

De Meaux and Spong. They seem to fill the place in early June that the Polyantha Roses occupy later on. The common Monthly Rose must certainly be included in this survey; also that pretty old Gallica Rose, Blanchfleur, flesh-white, so useful for cutting at this time of year. Yet another not to be overlooked is Stanwell Perpetual. It deserves this latter appellation more than any Rose in existence. As if to give us a foretaste of the superb double Roses that will soon adorn the garden, we have as the harbinger one of the best of the late Mr. Bennett's varieties, namely, Grace Darling. This is one of the earliest to open in most gardens, excepting perhaps Gloire de Dijon and a few other wall Roses. If one requires an example of what can be done in pegging down Roses, he should examine beds of Gloire de Dijon and Grace Darling at Kew. Here they are one mass of fine buds, and have none of the stunted appearance which is sometimes said to follow this treatment of vigorous growing Roses. P.

Rose Brilliant (H.P.).—This variety is well named, for there are few brighter kinds that can also claim good form and fulness. It is not a large Rose, perhaps not even a front row flower, but it is a beautiful garden variety and a better grower, if a trifle less brilliant in colour, than Victor Hugo. As a button-hole variety nothing could be better in its colour, and I can confidently recommend it for this purpose. It is best grown in bush form or upon 1-foot to 2-foot standards. Having wood of a reddish hue covered with small spines and rich dark foliage, the brilliant scarlet-crimson colour is rendered still more effective by the contrast. —P.

Rose Josephine Marot.—This Hybrid Tea is steadily gaining popularity as a garden Rose. It is difficult to know where the Tea nature comes in beyond the remarkable freedom of flowering of the variety, for both in wood and foliage it greatly resembles the Hybrid Perpetuals. In this Rose we have beauty of form combined with freshness of colour. The flowers are inclined to flatness, but now and then one gets a perfectly formed blossom that closely resembles that capricious beauty, Margaret Boudet, but the growth is far superior—indeed, it almost equals Mme. Abel Chatenay in vigour. The colour is shell-pink, shading to white at the edges of the petals, and the flowers usually appear in enormous corymbs, rendering it a most effective Rose. It has fragrance, but not very powerful. No one will regret adding this variety to his collection.

Tea Roses difficult to open.—It is not necessary at the present day to cling to Roses that have notoriously bad habits, but some rosarians have a weakness for attempting to grow these difficult Roses. It is, however, only the favoured few that can successfully cultivate outdoors such bad doers or hard openers as La Boule d'Or, Smith's Yellow, Triomphe de Rennes, Reine du Portugal, Comtesse de Nadaillac, &c. They require dry and warm situations to obtain them in anything like presentable form. Some years ago an old friend of mine had a desire to grow that exquisitely formed Rose Smith's Yellow, but he found it always opened badly. His plant was on a border at the foot of a south wall, and he was recommended by an ardent rosarian to lay some slates on the ground around the plant to throw off excessive moisture, which he considered was the cause of the ill success of his plant. The result was satisfactory in this case, and it occurred to me in recalling the circumstance that the idea might be adopted with advantage by many exhibitors, because the Roses named, if difficult to grow, would be most welcome for their glorious colour and form.

Rose Danmark.—If this variety could be had as good outdoors as it comes under glass it would be one of the grandest Roses in cultivation. As a pot Rose it possesses perhaps more good points

than the majority of varieties, for it is of perfect globular form, very double, having quite ten rows of petals, and these of great substance. The colour is a very clear La France-like shade, but perhaps a little deeper, and Danmark is equal to this latter variety in fragrance. Combined with these qualities it produces its blooms on very erect stems which are clothed with thick leathery foliage. Unfortunately, outdoors the extremely double blossoms refuse to expand unless it is a very hot season. If grown in cold pits and brought on very gradually and the lights simply used to throw off heavy rains and to assist the flower to expand, some very useful blooms could be obtained, and would most assuredly be serviceable at exhibitions, the more so as form is looked upon by experts as of primary importance. I have seen it stated that Danmark is a sport from La France, but its growth does not favour this assertion, for sports invariably partake of the same habit of growth as the variety from which they emanate.—P.

The Crimson Rambler Rose under glass.—Those who have seen this Rose in perfection in the south or east of England may say that a Crimson Rambler under glass is already half spoiled and robbed of very much of its brilliance and beauty. The finest Crimson Rambler I have yet seen north of the Tweed has been flowering profusely in a cool house in the Botanic Gardens, Edinburgh. The plant is a picture of health from base to summit, is some 18 feet high, and has from 150 to 200 trusses of blooms and buds. Such fine specimens under glass make one deeply regret that Tea and other Roses are not more frequently given a free head to grow into dwarf trees under glass instead of being hard pruned and stiffly trained against walls on rafters or trellises. Allowed to grow freely, the yield of bloom would be largely increased. Among some of the finer Roses for this free culture under glass the following may be named as very effective: Celine Forestier, Niphotos, Etoile de Lyon, Fortune's Yellow, Cleopatra, Comtesse Panisse, Corinna, Henriette de Beauveau, Homère, Lamarque, L'Idéal, Luciole, Mme. Hoste, Mme. Cochet, Maréchal Niel, Marie van Houtte, Perle des Jardins, Princess Beatrice, Princess of Wales, Rêve d'Or, Solfaterre, Souvenir d'Elise Vardon, a creamy white, yellowish tinted Rose, worth growing for its grand copper or purple coloured foliage alone; Souvenir de Mme. Antoine Levet, better than Wm. Allen Richardson at its best, though room should always be found for both, and Triomphe de Rennes. Many of the Hybrid Teas, including La France, Duchess of Albany, a deep coloured La France, and Lady Mary Fitzwilliam, are admirable for this style of growth. —D. T. F.

NOTES AND QUESTIONS.—ROSES.

Rose Corinna.—I can never understand why this Rose has not met with more favour, for it is very vigorous and free-flowering, with a good pointed bud, its colour being flesh, shaded with rose, deeper in the centre. It ought to be more extensively grown.—D.

Rose Carmine Pillar.—This is a very charming addition from Cheshunt to our single Roses. It is of a good habit, the colour very bright. I have found it one of the earliest to bloom, coming in even before Lord Penzance's Hybrid Sweet Briers. It produces bunches of flowers in great profusion, covering the shoots from base to tip and is indispensable where a collection of Roses is grown.—D.

Rose Austrian Copper.—Why is it that one does not oftener see this Rose, for it is certainly one of the most remarkable that we have, a coppery red in colour. Some people seem to have found it moderate in growth and others vigorous, but I believe it will thrive well in most places. Its habit is graceful and drooping, and it forms a very striking object in the garden. It is one of the most fugacious of Roses, but while it lasts it is one of great beauty.

Rose Rubens.—Although this is not a very reliable exhibition Rose, yet it has many claims on the amateur. It is an old Rose and has been pushed aside by many of more recent origin. Its flowers are produced in large numbers, and though not so firm in

texture as those of many others, yet from the vigorous character of its growth and its early and late flowering it ought to find a place in all Tea Rose collections. Its colour is white, with a slight suffusion of rose.

Rose Cheshunt Hybrid.—If anyone wants a good dark Rose to plant as a companion to the old well-tried favourite Gloire de Dijon, he cannot do better than plant Cheshunt Hybrid. It is singular that there are comparatively few dark Roses grown as climbers, but possibly now that we have the Crimson Rambler becoming so popular we may eventually get more colour amongst wall Roses. I do not think there are many Roses, either new or old, that can surpass Cheshunt Hybrid for effect.—J. G., Gosport.

Single Roses becoming double.—What tends to make single Roses more or less double? Single specimens on the lawn of Penzance Briers, strong and a mass of bloom; Meg Merrilies, and Anne of Geierstein, dark varieties, have this year twelve petals or more instead of five. The lovely Lady Penzance and Brenda fortunately remain single. Several plants of Bardou Job have quite lost their beauty, having become small double Roses. Is it perhaps manure—only the winter mulching? In Italy it is said that the scarlet Anemones in the Olive orchards become double, owing to the manure given the Olives.—J. A. D.

Rose Georges Nabonnand.—One of the results of the large number of Roses sent out by the French is that very often a valuable Rose gets overlooked. There are comparatively few catalogues in which this beautiful Rose is to be found, although sent out by Nabonnand in 1889. My first acquaintance with it was at Mr. George Bunyard and Co.'s exhibition three years ago, but even since then it has not been shown so often as its merit deserves. It is one of the pointed, globular Tea Roses, the colour being pale flesh, shaded with rose. It is vigorous in habit, a free bloomer, and alike valuable for exhibition and for the garden.—D.

Rose Fortune's Yellow.—This remarkably coloured Rose was introduced by Mr. Fortune from China in 1845, and yet withal it is very little known. Probably the reason why it is not so generally known is that, although very vigorous, it is not perfectly hardy, and cannot indeed be grown except on a wall. I have noticed lately that many persons have been very much astonished at a collection of its flowers which have been exhibited at the Drill Hall. These, however, had been grown in a house, and lacked the brilliancy of colour which is the great characteristic of the flower. The rose is only semi-double, and its colour is orange-yellow, shaded and flaked with metallic red.—D.

Rose Janet's Pride (Sweet Brier).—This variety will surpass in beauty and distinctness many of the Penzance Briers. Its great attraction lies in its heavy white ground colour, richly suffused with brilliant pink; as the flowers open, the white colour runs in a line down the centre of each petal, which gives the blossom a most distinct character. Perhaps the foliage lacks the strong Sweet Brier fragrance of the common variety, yet there is a clear and refreshing perfume. But were it not so, this Rose would be worth a place in the garden, especially where it could be grown in quantity, such as in hedge form, for then I question if any of the semi-double Roses would give greater satisfaction.

Rose Francois Dubreuil.—I think this may be said to be the richest coloured of any of the dark Tea Roses. It quite eclipses Souvenir de Thérèse Levet, the colour being a brilliant red, shaded with maroon. The flower is of the true pointed Tea shape, the wood stout, and the habit of the plant good. It is an early bloomer, and I have it in flower in the first week in June. It ought to be handled carefully, for it has the most vicious thorns. Personally I do not care much for these highly-coloured Teas; I much prefer the more delicately shaded ones with their apricot, peach, cream, and yellow shading, amongst which these dark-coloured Roses seem to be intruders; but this is a mere matter of taste. This flower at any rate is not likely to pass off into those magenta colours which are so peculiarly disagreeable.—D.

STOVE AND GREENHOUSE.

CAMPANULA PYRAMIDALIS.

THIS fine old plant, the well-known Chimney Bellflower, has been in cultivation for centuries, and it continues to have its quota of admirers and to be largely grown in many gardens. Its habit suits it well for association with massive stonework, and the quiet-coloured flowers of the typical form embellish the environs of old buildings without producing anything approaching a garish effect. For decorating large, old-fashioned, plainly-built conservatories, too, its noble proportions and somewhat prim habit fit it admirably. Though the plant is hardy enough to be grown out of doors in many parts of the British Isles, it has so many enemies and is so subject to injury from excessive moisture, that pot culture, through the winter months at least, suits it best. The flowers vary in colour from a deep lavender-blue through all intermediate shades to pure white, but by careful selection of the best-coloured forms for seed production, the seedlings will come fairly true. By a process of selection, a strain of dwarf plants, in both blue and white varieties, that only reach a height of from 3 feet to 4 feet, has been secured, and it is useful for special purposes; but, to my thinking, robbing the plant of half its natural height robs it also of the striking characteristic which is one of its greatest charms. Well-grown plants of the normal type should reach a height of about 8 feet when fully grown. The flowers, which are very closely set on the spikes, commence to open in July, and, if seed production is checked by picking off the flowers as they fade, the plants will remain in full beauty for nearly three months. The best-shaped and healthiest plants are raised from seed, and though root cuttings may also be used as a means of propagation, they are not recommended, except to save specially good forms for seed production; but they do not seed freely when raised from roots.

Seedlings may be raised by sowing in pans of sandy soil in March, placing in heat, and taking care to prevent the seedlings from damping off—a thing to which they are liable at that season. The majority of plants raised from a March sowing will flower in about sixteen months, and nearly a year is thus gained over those sown later, which will not bloom until they are two years old, but the plants will hardly reach the size attained by those which are given more time. The safest way to get the best results is to sow in June and allow two years' growth before flowering. The seeds, which are very small, should be sown on the surface of the soil and lightly pressed in without giving any further covering. Raise in a cold frame and shade the seed-pan, which should be covered with a sheet of glass during the sunniest part of the day. Prick off the young plants, when big enough to handle, into other pans, early pricking off being a great preventive of damping. Not later than August transfer the plants to pots, using 3-inch or 4-inch according to the size of the plants. Whichever pots are used it ought to be with the certainty that they will be filled with roots before winter sets in, as on that and a careful use of the water-pot their safety depends. Plunge the pots in ashes in a drip-proof frame, and from October to March give no water at all. Never let the frame be without a circulation of air even in the depth of winter. Early in April the plants should be repotted into 6-inch or 7-inch pots, and grown on through the summer in a frame which does not catch the mid-day sun, and in August transfer into

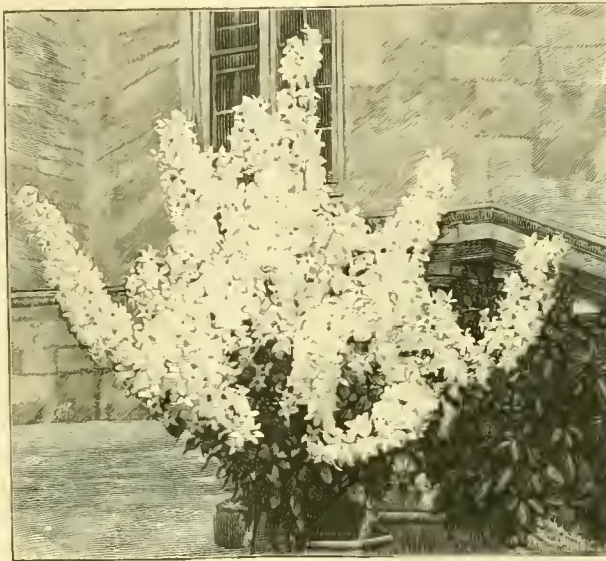
9-inch or 10-inch pots, wintering the plants as before. This August potting will be the final one except in the case of the finest plants, which may have a further shift in the following April or any time before the flower-spike commences to run up. Firm potting at all times is a necessary item of good management, and the soil I find best suited for the plants is a mixture of half sandy loam, quarter road grit, and quarter leaf-mould. Should the loam be heavy, a little broken mortar rubbish may be incorporated with the mixture to keep it open, and the addition of one quart of old soot to the bushel of soil will help to keep the leaves of a dark and healthy colour. During the summer, water may be given with tolerable freedom, but never until the soil becomes almost dry, for the plants will not stand the indiscriminate watering that many soft-wooded plants will exist under. If soot has not been used in the soil, an occasional dose of clear soot-water will answer the same purpose; indeed, this is the usual method of applying it. From the time the spikes begin to run up, weekly doses of clear manure water made from cow, sheep, or deer droppings assist develop-

The delicate flowers are, however, easily injured by bad weather, and they deserve a better fate.—J. C. TALLACK.

Mr. Ward sends the following note as to his mode of culture:—

The *Campanula pyramidalis* the photograph of which I sent you was grown from seed which was sown early in March in pans in a cold frame, and as soon as the seedlings were large enough to handle they were pricked out in the open border into rich soil and left there until the following spring, when they were lifted, potted up and left in the open air until the flower-spikes appeared. They were then placed in a shaded position in a cool greenhouse where they bloomed profusely.

Anthurium Duvivierianum.—This is a particularly fine white-flowered form of *Anthurium Scherzerianum*—that is to say, if a good example is obtained, for the different individuals that have come under my notice are not all of equal merit. In all probability this is owing to the fact that *Anthuriums* of this class are readily raised from seeds, and when this is done in the case of the variety in question there is of course a certain amount of variation in the progeny. Propagation by division is the only course open for increasing with absolute certainty any particular form. It will be found that the seeds of these *Anthuriums* take nearly a year to ripen, but they soon germinate if sown in a mixture of peat, chopped Sphagnum and sand, and kept in a close propagating case where there is a gentle bottom heat.—H. P.



The Chimney Bellflower (*Campanula pyramidalis*). Engraved for THE GARDEN from a photograph sent by Mr. A. G. Ward, Lulworth Castle, Warcham, Dorset.

ment, but stable drainings should be avoided on account of their burning nature; a cooling manure is the best. In May of the year when the plants are expected to bloom, they should be stood on a bed of ashes in the open, and not plunged, removing them to the positions in which they are to flower when the earliest buds open, as the less exposure they get while flowering the better and clearer will be the blooms. In selecting seedlings of the white variety for potting on, choose always those which have the palest leaves; these may be depended on to give a large percentage of plants with pure white flowers. In kindly summers the plants flower well outside, and surplus plants and seedlings should be planted about in various positions among foreground shrubs or on sheltered rockeries. In the latter position they are at home, as they like the elevation, and it is surprising how very little soil they manage to exist in; indeed, I have had them growing in the merest crevices, where they have appreciated the position so much as to take on a perennial habit and exist for years.

favourite. Its free-flowering properties will make it valuable. As it makes a rapid growth, it will make a fine pillar or wall plant.—G. WYTHES.

Rhapis humilis.—Now that seeds of so many Palms are readily obtainable and immense quantities are raised therefrom, we see but little of those whose propagation is a much slower matter, and which, consequently, realise a higher price. Under this latter heading must be included *Rhapis humilis*, an extremely pretty little Palm, with gracefully divided leaves, very like a miniature counterpart of the larger *Rhapis flabelliformis*. This latter is harder than many other Palms, and will keep in health in a sitting-room for years, provided it receives reasonable attention. *Rhapis humilis*, on the other hand, is rather more delicate and succeeds best in an intermediate temperature, but it may be used for indoor decoration at times without injury. In the case of both of the above-named species propagation may be effected by division, but if the suckers are not well rooted when separated from the parent plant, it is a difficult matter to induce them to start into growth. A little bottom-heat will often assist them greatly in this respect. Both are great favourites with the Japanese, who

also cultivate a variegated-leaved variety of each, but they are very seldom seen in this country, and at best present a somewhat patchy appearance. Like most other Palms, a soil consisting principally of good loam, lightened by a little rough sand and well-decayed manure, will suit this *Rhapis* well.—H. P.

Greenhouse Heaths.—Though many of the oldhard-wooded Cape Heaths have almost dropped out of cultivation, there are several belonging to what is sometimes termed the soft-wooded section that are still grown in considerable numbers and made quite a feature of by our market cultivators. One of the most prominent is the winter-flowering *Erica hymemalis*, and just now the pretty little free-flowering *E. ventricosa*, represented by several varieties, is very noticeable in many gardens. Its neat compact growth and profusion of comparatively large blossoms render this Heath a decided favourite. A Heath just now flowering freely is *E. Spenceriana*, which is believed to be of hybrid origin. It forms a freely-branched, somewhat upright-habited plant, clothed with ample bright green foliage. The flowers, which are closely packed together in the spike, are each about an inch long, deep pink in colour at the base of the tube, but becoming paler towards the mouth of the flower. They are, however, somewhat variable in tint, being influenced in this respect by the position in which they have been grown, or other particulars. This Heath is when at its best an effective plant and of good constitution, hence its popularity. White flowers being always appreciated, the pure white *E. candidissima* is often grown, and a good decorative Heath it is. Quite a break away in colour from any of the preceding is furnished by the rich golden blossoms of *Erica Cavendishi*, of which charming little specimens are turned out by our nurserymen. Apart from their wealth of flowers, they are also remarkable for the deep, solid tone of their ample foliage. *Erica perspicua nana*, with its profusion of little pinkish blossoms, is also very pretty, while the bright red flowers of *Erica hybrida* are quite distinct from those of any of the preceding.—H. P.

PROPAGATING GREENHOUSE RHODODENDRONS.

THE latter part of June, and in some instances the month of July, are the best seasons for taking cuttings of the different hybrid greenhouse Rhododendrons. The shoots should be taken when in a half-ripened condition, and this is an important item, as if too succulent they quickly decay; whereas if, on the other hand, they are quite woody, the cuttings will in many cases stand for a long time before they root. When the happy medium is attained, the selection of cuttings is another consideration, and for this purpose close, short-jointed shoots of medium vigour are preferable to the particularly strong or the very weak ones. The length of the cuttings will vary somewhat, as some varieties are naturally more vigorous than others, but, as a rule, a length of 3 inches to 4 inches is a very convenient size. If the entire shoot is not longer than this, it may be cut off cleanly just where it starts from the older wood, and two or three of the bottom leaves having been removed, it is then fit for insertion. If, on the other hand, the shoot is too long to be used in its entirety as a cutting, the base should be fashioned with a sloping cut half an inch or so in length, and terminating just at a joint. Suitable-sized pots for the cuttings are those 4 inches and 5 inches in diameter, which should be thoroughly drained with broken crocks to about one-third of their depth. Then they should be filled very firmly nearly to the rim with a compost consisting of equal parts of peat and silver sand, the whole passed through a sieve with a quarter of an inch mesh. A thin layer of silver sand having been placed on the surface and lightly sprinkled with water through a fine rose, the pots are then ready for the reception of the cuttings. Care should be taken that they are pressed in

firmly, and, above all, that the base of the cutting rests on the soil, to secure which the hole made by the dibber must not be too deep. When a pot is filled with cuttings, a thorough watering must be given through a fine rose—sufficient, in fact, to wash the sand into an unbroken surface. As most cuttings strike root with the greatest certainty in a temperature rather higher than that in which they have grown, I put the Rhododendron cuttings into a close case, which is placed in the coolest end of the stove, and in this way they root freely. The soil must be kept fairly moist and the lights should be lifted every morning, and if there is too much condensed moisture a little air should be given till it is dried up. Of course the cuttings must be well shaded. Should any thrips get on the foliage they should be at once removed, as in a close, warm propagating case they increase rapidly, and the disfiguring marks caused by them are permanent. Most of the cuttings will be rooted in a couple of months or a little over, when they may be inured to the ordinary atmosphere of the house, and after that potted off, using for the purpose a mixture of peat and sand. Rhododendrons of this class have a tendency to run up unless stopped freely, and this should be particularly borne in mind during their earlier stages, as it is then that the foundation of a good plant is laid.

The Javanese Rhododendrons also root readily with the same treatment, but in their case, growing as they do nearly throughout the year, no particular season can be indicated as the most suitable for taking the cuttings. T.

ORCHARD AND FRUIT GARDEN.

RAISING YOUNG VINES.

IT is not everywhere that the conveniences necessary for propagating and growing on young Vines exist, but as they are expensive to buy and cost a good deal for carriage, it is worth a little trouble to have home-raised canes to take the place of old worn-out Vines or for planting new vineries. As with everything else, a good start is important, and the wood for propagating must not only be clean and free of all suspicion of insects, but healthy and well ripened. The largest wood is not of necessity the best, but it should be large, as typical of the variety, and have good prominent eyes. If a propagating frame with well regulated bottom heat is at command, nothing is simpler than raising Vines in the earlier stages, but care is afterwards necessary to avoid checks to growth. The eyes may have an inch of wood above and below, and they should be cut clean across. Some growers advise a sloping cut below the eye, and a thin slice of bark to be taken off the under side, the idea being to present a greater surface of the inner layer of bark to callus and form roots, but according to my own experience it matters little how they are cut as long as a sharp knife is used and the eyes are properly developed. If the strength is in the wood, roots will be produced freely if properly treated, though I am willing to admit that the more points the roots start from and the more freely these ramify, the better. Three-inch pots are large enough at first, and these must have one good crock over the drainage hole, this being covered with a little rough loam fibre and filled to within half an inch of the rim with fibrous loam, chopped fine, and crushed charcoal or burnt refuse. The eyes prepared, place one in each pot, by first removing a little of the soil and filling its place with coarse silver sand. The whole of the wood must be buried, the top of the eye coming just below the surface of the sand, so that when the pots are watered the

point just shows. If buried more deeply than this, the fibrous coating to the buds is apt to become so close that the moisture settles about it and causes the young shoot to decay, while if kept higher, the roots appearing at the base of this shoot are left dry and bare. In any case, should any push above the surface it is safest to cover them with a little fine soil. Kept moist and with a gentle warmth the buds soon start, and when about four or five leaves can be seen the pots may be lifted out of the plunging material, this levelled, and the young plants stood on the top. The temperature of the house where they are grown should be about 65° at night, rising 5° by day from fire-heat, and more, of course, by sun in bright weather. The beginning of February is early enough to start, and, as the sun at this time has not much power, shading will not usually be required. In about six weeks, or perhaps a little more from the time the eyes are inserted, the roots will have filled the small pots and will need a shift. Cold soil must not be used, or the young plants will be checked, and may possibly refuse to start growing again. For this shift I use two parts of good fibrous loam to one of lime rubble and burnt refuse, adding a 9-inch potful of a good fertiliser to a barrow-load of the mixture. The plants are shifted to 5-inch pots, and the compost rammed in very firmly—of course, avoiding injury to the roots. By the end of May the rods, if kept in a genial temperature, will be from 24 inches to 30 inches in length, and are now ready to be transferred to new borders or potted up for fruiting, or cut-backs in pots. If for fruiting in pots the next season, they should be potted not later than the first week in June and in the same compost as mentioned, except that a few half-inch bones are placed over the drainage. A richer make-up may have the effect of producing larger canes, but if this is used and rammed firmly into the pots, the canes will be quite strong enough to carry about three bunches each from a 10-inch pot. If intended for cutting back, the canes may be stopped at about 4 feet; in fact, I believe that all are better for it, especially such strong growers as Gros Colman and Gros Maroc. It materially helps to swell up the wood below, and, by the slight diversion of the sap, strengthens the back eyes. I have tried taking the first and second laterals as leaders after this stopping, being led to do this by the fact that the second is in most cases stronger than the first; but I am doubtful if any benefit accrues, as the second, being stopped at the first leaf, diverts the sap to the first when this is chosen.

A word may be necessary as regards potting. I have advised the soil to be rammed as firmly as possible, but this does not apply to just the upper layer. A little of the surface should be left loose—say the top inch in large pots—as this is sure to get firm enough by watering, and, if rammed tightly at potting time, does not allow so free a passage for water. The rougher, in fact, the surface is left, the more freely will sun and water penetrate to the roots, and I like to see the rough lumps of loam fibre, lime rubbish or charcoal protruding a little. The growing treatment is important; all lateral shoots must be closely pinched to the first leaf to allow the principal leaves to be thoroughly exposed to the light. Thus they carry out their proper functions of sap elaboration, strengthening and properly developing the buds at their base, upon which so much depends. Watering at the roots is much the same as for other plants; the roots should never be so dry that the foliage flags, but water must not be given until the compost is getting

dry, and then sufficient to thoroughly soak every inch of compost. As the pots become filled with roots a little of a good concentrated manure may be sprinkled on the top after watering, or the Vines may be first watered with clear water, and afterwards with liquid manure. When full grown they must be placed outside in the full sun and a rather lessened supply of water allowed as the foliage falls, to be afterwards cut back or housed for forcing, as the case may be. When grown especially for "cut-backs" there is no need to use larger than 7-inch pots. These Vines if cut low down make splendid fruiting canes the ensuing year. H.

RED, WHITE AND BLACK CURRANTS.

JUDGING by appearances the above promise to be exceedingly plentiful this season, as all bushes which I have seen up to the present time are heavily laden with fruit. They are also clothed with an abundance of healthy foliage, while the caterpillar of the Currant sawfly is conspicuous by its absence. The heavy rains have no doubt contributed in a great measure towards keeping the leaves and points of the shoots clear of fly, and at the same time they have also been the means of promoting a greater degree of growth than is usually experienced so early in the season. With regard to the first two quoted varieties of Currants, they now require attention, as the greater part of the fruit in many instances is hidden from view by the young growths. All the side shoots on the branches should in such cases be stopped to four or five leaves, which will let in the necessary amount of light and air that the fruit now requires. The leading shoot need not be stopped, especially if the bushes are dwarf and have their lowermost branches close to the ground. If the leaders are allowed to grow above the height of the bushes can be increased considerably in the course of a season or two. This will allow of the lowermost branches being cut away, thus considerably lessening the loss of fruit through its becoming splashed with soil during heavy rains. It is to be feared that many have suffered in this way already, as but few practise putting a layer of strawy litter under their bushes; but this latter becomes unnecessary when they are trained to single stems and the lowest tier of branches kept well above the surface of the ground. I intend adopting this method very extensively in future both for Red and White Currants and Gooseberries also, as it will greatly lessen labour through not having to place a mulch of litter under them to keep the fruit clean. Black Currants are not so easy to deal with in this respect, as their mode of fruiting is so different; but they do not produce their fruit so near the ground, and the quantity spoilt through splashing compared with the other varieties is infinitesimal. I have had the Black Currants mulched this year, but it was done more as a precautionary measure in case of drought than for any other purpose. A. W.

Melon Duke of York.—Grown alongside Blenheim Orange, Sutton's Scarlet, and other Melons of this class the above is about a week or ten days later in ripening, but the flavour is much better than that of either of these. The growth is very vigorous, the fruits set freely, and the round, golden yellow prettily netted fruit is handsome. The seed-vessel is smaller than usual, and the flesh, which ripens quite to the rind, is of great depth, paler than usual, but rich and melting.

Peach Early Grosse Mignonne.—This is a fine handsome Peach when well grown and attention given to exposing the fruits. It just follows Hale's Early, and, like this, is a free setting and free-growing variety. The quality is first-rate even from trees somewhat sharply forced, the colour extremely bright on the sunny side. The vigorous habit of the tree renders free disbudding necessary, or a crowded state of the branches

will follow, not conducive to a perfect maturation of the wood. Over-luxuriance is, of course, to be guarded against by firm planting in poor soil, but it is noteworthy that this, *Violette Hative*, and one or two others will fruit freely upon much stronger wood than *Waterloo* and other early kinds.

PEAR BEURIE D'AMANLIS.

ON suitable soils this Pear should pay to grow in quantity for market, as it is not only a hardy and vigorous sort, but a very abundant bearer also. To these qualifications should be added that of high flavour, as all fruits that I have tasted—no matter where grown—have been excellent in this respect. It is to be met with in most parts of the country or wherever the Pear will succeed, and I was agreeably surprised to find it in first-rate condition in more than one garden in North Wales a few years ago. It is generally considered by all who grow it to be a valuable autumn fruit, and if grown expressly for market I am inclined to think it would be found a very remunerative sort. The fruits are handsome, large, and generally highly coloured more or less on the sunny side. The colouring is more marked on fruits taken from trees growing in the open than from those on walls, and, if anything, the former are slightly the richer flavoured. Another good point in *Beurrie d'Amanlis* is that it succeeds equally as well on the Quince as on the Pear. This fact renders it doubly valuable, as it can be grown by the amateur, private gardener, and market grower alike. The Quince is the better stock for cordons, dwarf bushes, and small pyramids where growth has to be restricted; but when the trees can be allowed liberty in the matter of growth then the Pear is the better stock. Standards and half-standards come under this category, and, although I cannot speak from experience, the variety under consideration does, I believe, succeed very well in some parts of the country grown in this way. The nearest approach I have to a tree of this description is what might be termed a very dwarf standard—for it cannot be called a bush—the lowermost branches being about 4 feet from the ground. This tree, although nearly forty years old, is still healthy and vigorous, and bears heavy crops of fine fruit. To prolong the season the fruits should be gathered at intervals, taking the most forward each time, and if placed in a little artificial warmth they ripen up more quickly. For market the fruit must be gathered before it begins to soften, in which condition it travels well if care is exercised in the packing. S. E. P.

RASPBERRIES.

ALTHOUGH the weather of late has not been nearly so favourable as one could wish, fruit trees are, notwithstanding, looking remarkably well, which remark also applies to the Raspberry. The Raspberry, perhaps, received a little more than ordinary attention this last spring, as, fearing a repetition of the two past seasons in the way of drought, I had the plantations well mulched with short manure. A quick-acting chemical manure was applied at the same time, and this and the mulching were done about the latter end of February. The drenching rains which fell during May thoroughly dissolved the chemicals, and also washed the manurial properties out of the mulch, with the result that growth is more exuberant than it has been for years. The summer fruiterers are coming into bloom generally, and if favourable weather prevails for the setting, the crop will be a heavy one. Superlative is making the most robust growth, and next to this is *Carter's Prolific*. With regard to the blossoming, matters are about equal, as the canes of all varieties are without exception well laden with an abundance of flower-scapes. With such an abundance of growth on the stools to deal with, thinning of the young canes must be done earlier than usual, and but few more will be retained than will actually be required for next summer's fruiting. I always thin early, as the canes grow so much stouter;

they also become more solid and much better ripened. From such canes as these, heavy crops of fine fruit are always forthcoming. Such crops are far superior to any gathered from canes which are not thinned out until the winter months. The mulch mentioned will keep the roots cool and moist for some few weeks to come, but, should dry weather set in presently, it may become necessary to water them. For Raspberries in full growth there is nothing to equal liquid manure if it can be spared, and it is astonishing the quantity a well-established plantation will absorb. Applied at the right time it helps to prolong the bearing of the canes in a hot, dry season, and even in an average one its use greatly benefits the crop. The autumn-fruiting varieties are sending up equally as strong growths as their neighbours and they will shortly be thinned out. Owing to their being extra strong, the young canes will be left and trained 1 foot apart on the trellises. Market plantations also promise a good yield, and there appears to be every likelihood of a great deal of labour being required later on for the gathering of the crop. S. E. H.

THE REGENERATION OF THE PEAR TREE.

I.—GENERAL PRINCIPLES.

THE fruit trees which we cultivate in our gardens for the sake of their produce are usually not left to their natural growth. The cultivator, on the contrary, often trains them in various more or less artificial forms which, although practical and useful, should never be too complicated or difficult to produce. Whatever may be the form thus given to them, our trees, and especially Pear trees, are also frequently subjected to special methods of pruning, as applied to the fruiting branches. These prunings of the fruiting branches should be mainly for the purpose of obtaining more regular and finer crops than the trees would yield if left to their natural growth. When properly applied, the mode of fruiting-branch pruning proper for each species enables us to attain, more or less completely, the object aimed at. However, in order that this kind of pruning may be effective and that the labour which it involves may not be entirely thrown away, it is necessary that it should be performed on branches which are possessed of a certain amount of vigour and capable of producing well-formed fruit-buds and supplying sufficient nutriment to the fruits which should succeed the flowers. Frequently, after some years of existence, the main branches of fruit trees, from various causes, lose somewhat of their vigour. The secondary branches then produce only weak shoots, and often the fertility of the tree rapidly diminishes and is soon entirely lost. It is not that the flowering is always in fault; on the contrary, this is sometimes abundant, at least at the commencement of the weakening of the branches; but this flowering, which is at first superabundant, is not often succeeded by any fruit, or else the fruits are small and badly formed, and are emphatically of very little value. The aim of the cultivator, however, is to obtain, as inexpensively as he can, produce that will sell well, and this applies to fruit as well as to anything else. Now, as fine fruit alone brings a good price, it is certain that the cultivator ought to aim at managing his trees so that they may mainly produce fine fruit—and, whatever he may do, he will always have plenty of small ones—by making all his operations really effective, at the same time striving to keep his expenses within due bounds. The various kinds of fruit trees which we cultivate have not all the same mode of growth, the same requirements, or the same duration of

life. In some of them fertility is readily maintained for a great number of years, while in others, on the contrary, it diminishes very rapidly. There is no doubt that, in a general way, the cultivator can prolong the duration of fertility in his trees by judicious attention to them, by a rational method of pruning, generous manuring, the destruction of injurious insects, and by every other means that may conduce to maintain them in vigorous growth and prolong their life. It is equally certain that, after a

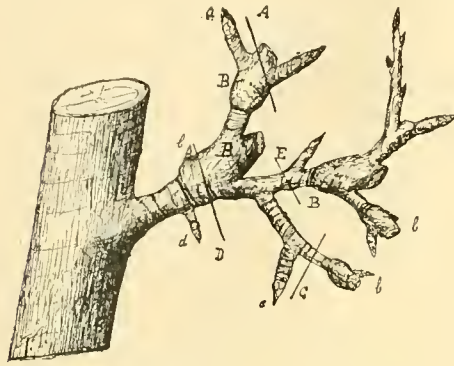


FIG. 58.—Partial renovation of a fruit-spur left to its natural growth and become sterile.

longer or shorter period of time, we often find the fertility of trees much diminished, although the vigour of their growth is not really affected, and this simply because the ramifications of the branches no longer discharge their functions in a perfect manner. Under such conditions, ordinary treatment will not suffice to restore fertility, but a renovation of the shoots and branches, on the other hand, may induce a return of fertility.

The Pear tree is undoubtedly one of the most important of our fruit trees—the most important, perhaps—in supplying us with dessert fruit. Although it is very long-lived and its

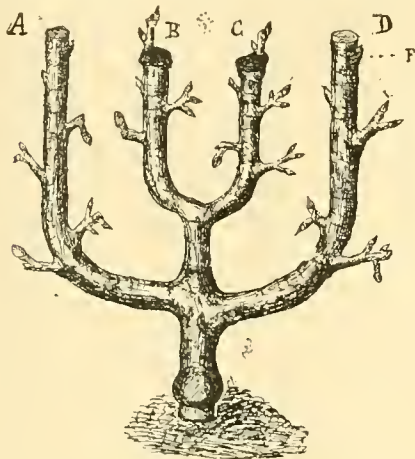


FIG. 66.—Main branches cut back, two (B and C) being regrafted.

branches may continue to be productive for many years, it may, nevertheless, from various causes, become necessary to subject it to regenerating or restorative operations, and these, according to circumstances, may be either partial or entire. Generally, the Pear tree is able to endure the severest pruning without any serious injury, provided that the operation is carried out with certain precautions. Most of the operations which amateurs may employ in

regenerating their Pear trees I shall now describe, hoping that the practical advice given will enable them to select the method most suitable to the special conditions in which they may be placed.

The following practical considerations are obviously as applicable to trees grown in the open ground as they are to wall trees, but in reality in this article I have the latter more particularly in view, as they are always more carefully attended to and more productive, and it is important to maintain them in a condition of constant fertility, so that no wall space may be wasted on unproductive branches. Moreover, from the conditions under which they are planted, wall trees are always less vigorous in growth than trees of the same species growing in the open ground. The growth of their wood is not so well maintained, and sometimes even it diminishes very rapidly, in consequence of the frequently intense sun-heat which they have to endure and the ravages of certain insects by which they are liable to be attacked and which find a protection in the wall. The various kinds of scale insects, for example, which are so injurious to fruit trees and whose attacks are a frequent cause of sterility, are always much more abundant on wall trees than on trees grown in the open ground, and we frequently see in the same garden the latter almost free from them when the wall trees are seriously attacked. We may then affirm that the regeneration of wall trees is a much more common and frequent operation than that of trees grown in the open ground.

2.—PARTIAL RENOVATIONS.

(1.) BY THE RESTORATION OF FRUITING BRANCHES.—The flowers of the Apple tree, like those of the Pear tree, are produced a good many together in the same cluster, which contains, besides the flowers, some leaves and a greater or less number of leafy axils. These latter send out shoots more or less developed, which, after a variable period of time, may bear fresh flower-clusters at their extremities. Hence it follows that from one original cluster there may appear in succession a variable number of shoots and fresh flower-clusters, thus enhancing the produce of the branch. The fruit-spur may, moreover, at any time produce fertile or barren shoots below the original cluster. It follows emphatically from this that a fruit-spur, originally simple, ramifies more and more, so that after a few years, if left to itself, it presents a complex form similar to that represented by Figs. 58 and 59. When it has arrived at this condition the fruit-spur most usually remains sterile, because the sap which it receives from the main branch is insufficient to nourish completely each ramification and enable it to form flower-clusters. If any clusters happen to be formed, they remain feeble, and most frequently the flowers fall soon after they expand without being able to produce any fruit, as shown at *b, b*, Fig. 58.

By means of a properly-applied method of pruning—which I cannot enter into here, for I should have to describe the special pruning of Pear-tree fruit-spurs, which is beyond the scope of the present article—this excessive ramification may be prevented and a fruit-spur may be maintained in a fertile condition by keeping it in a simple or unramified form. The capable fruit-grower will never have his fruit-spurs ramified in this way, and consequently will have no occasion to renovate them. But he may happen to fall in with trees which have

been badly attended to and of which the fruit-spurs have ramified to excess. He will then have occasion to have recourse to a renovating process, which will be a partial one, because it is only applied to the fruit-spurs.

This method of renovation, although not involving much cutting, is not always easy to

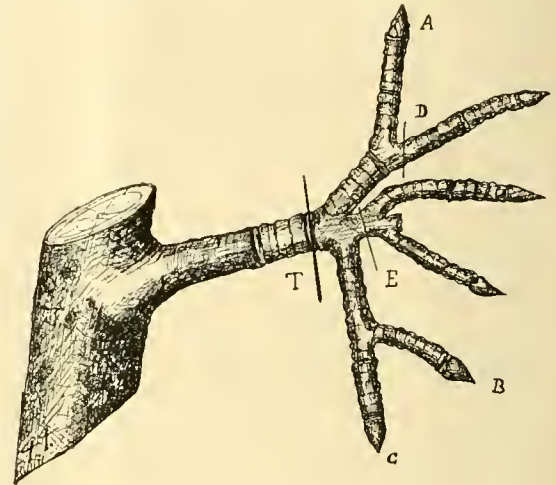


FIG. 59.—Partial renovation of a spur which has ramified early and never produced any fruit.

practise with success. The operator should aim at simplifying all the fruit-spurs by retaining generally only three ramifications on each, and these should present an appearance of health and vigour that will warrant the expectation that they will produce flower-clusters.

In the case of a spur similar to that represented by Fig. 58, at the time of winter pruning, it should be cut back, as shown at *A, E* and *C*. By this means the spur will be reduced to a simpler form, which will enable the buds *a, c, d* to receive a larger supply of nutriment and become transformed into fruit-buds. Should the first ramification have a bud at its base, as shown at *b*, we might, especially in the case of productive varieties, make a more complete renovation by cutting off just above this bud,

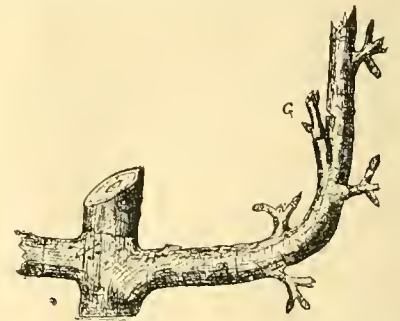


FIG. 67.—Renovation by means of a scion (G) inserted under the bark.

as shown at *D*. If, however, instead of a fruit-spur such as I have just been describing, that is, a short shoot with rather short ramifications, several of which have formerly borne fruit, we have to deal with a very long branch, all the ramifications of which, already old and very much elongated, are sterile, deeply wrinkled and brittle—as represented by Fig. 59—it would generally be advisable to prune in a much more drastic manner by cutting away as shown at *T*. The object of such short pruning is to stimulate the growth of latent buds which lie concealed

in the wrinkles of the bark and which will afterwards develop into fruit-bearing shoots. The treatment indicated in the preceding case, that is, simply cutting away at D and E, if applied here, would result badly in most cases, because very long shoots, like those shown at A, B, and C, are only brought into a fruiting condition with great difficulty, and, besides, if flower-clusters should happen to form at the extremities of these long shoots, they would be at a great distance from the main branch and, consequently, under conditions not at all favourable to the satisfactory production of fruit.

The method of renovation which I have just described is only and exclusively applicable to fruit-spurs. Although it does not involve much cutting, its successful application is not always very easy. It frequently happens that some of the fruit-spurs remain unfurnished, the latent buds not being able to develop themselves, while in others the buds develop them-

These shoots are left intact when the others are pinched back. In order to favour their growth and proper ripening, they may be even directed slightly away from the main branch. If the branches which it is desired to restore do not naturally produce any shoots which promise a sufficiently strong growth, the development of such shoots might be induced by means of incisions or notches made in the bark of the main branch. At the time of winter pruning, these so-formed branches are pruned long and afterwards fastened down along the sides of the original main branch. The shoots which in the spring may issue from the inner side of these secondary branches are to be removed as they appear, while those on the outer side are retained to form fruit-spurs, as shown by Fig. 60. Some of these spurs may be in a fruit-bearing condition in the second year, as illustrated at B.

This method of renovation is certainly not a very elegant one, and is not suitable for gardens where the appearance of the trees is a most important consideration; but it has the advantage of being very simple, easily carried out by anyone, and causes no check in the production of fruit, as the establishment of secondary branches may be commenced and carried on without interfering with the fertile shoots on the main branch. Subsequently, in order to avoid any falling off in the produce, it will be sufficient to establish a system of rotation whereby secondary branches whose fertility seems to have become impaired are removed one after another, their places being supplied by fresh secondary branches produced in the same manner, and in this way a continuous condition of fertility is ensured.

III.—TOTAL RENOVATIONS.

The preceding remarks have reference to the various methods of partial renovation which may be applied to Pear trees in order to regenerate them.

As these methods are not always sufficient to effect the object, I shall now describe the methods of total renovation.

(1.) BY HEADING-DOWN THE TREE.—In some cases it may be necessary to cut back the tree as shown by Fig. 66. The Pear tree is very amenable to this operation, as it endures and hardly ever suffers from the most severe pruning, if this done during the resting season, and sometimes even in summer if the subjects are young trees. As it readily produces adventitious buds and its latent buds are always numerous, a large number of adventitious shoots make their appearance in spring. The finest and best placed of these is selected and tied down in the direction of the extension of the main branch. It will quickly form a fresh main branch, which will soon be in a fruiting condition.

Cutting back in this way most frequently yields excellent results, and the cuts mostly heal without difficulty, especially if the always

commendable precaution of covering them with grafting-wax has been observed. It is, however, always advisable to complete the process by putting in a scion or two at each cutting, which will facilitate the healing and will, more-

over, grow in the direction of the extension of the cut-back branches, thus giving a regular form to the tree. Cutting back in this way is also pretty often practised for the especial purpose of grafting new varieties to replace that of the stock. As the Pear tree admits of all modes of grafting, cleft-grafting, which succeeds very readily, may be very well adopted. Crown-grafting is an easier and more expeditious method, and is often used in preference. It yields excellent results.

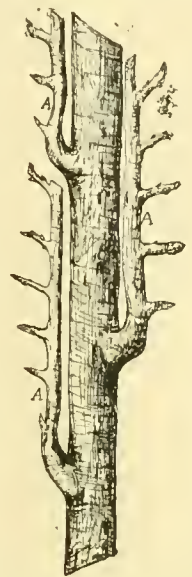


FIG. 60.—A branch renovated by means of secondary main branches.

under the bark, as shown at G in Fig. 67.* The taking and development of this scion will be facilitated by making an incision or notch in the bark of the branch with a pruning-knife or saw. When the time comes for cutting back the branch, the scion, which will then have formed a small branch, will quickly grow vigorously, replacing the cut-off branch and coming into a fruit-bearing condition in a short time.

(2.) BY CUTTING BACK TO THE GROUND.—From various causes (the effects of frost, for instance) it may be necessary to employ a mode of renovation of a still more drastic character in cutting away all the upper part of the tree (Fig. 68), retaining only from 6 inches to 12 inches of the stem. After the terrible winter of 1879-80 this operation was found necessary in many places. All the upper part of the trees was killed by frost, the lower part of the stem, being protected by the snow, alone escaped.



FIG. 68.—Total renovation by cutting back to the ground.

The Pear tree bears this operation in a perfectly satisfactory manner (although, on the other hand, it is seldom successfully applied to the Peach tree) if the precaution is taken of carrying it out only when vegetation is in a complete state of rest. This tree spontaneously produces adventitious shoots, which can be employed to form a fresh head, the shape of which may not be entirely faultless, but it will have the advantage of being formed much more speedily and bearing fruit much sooner than the head of a fresh tree planted in its place. At the time of cutting back, should any small

* This mode of grafting is not very commonly known; it requires a little nicety in operating, but presents no real difficulties. We have always found it satisfactory during many years' practice.

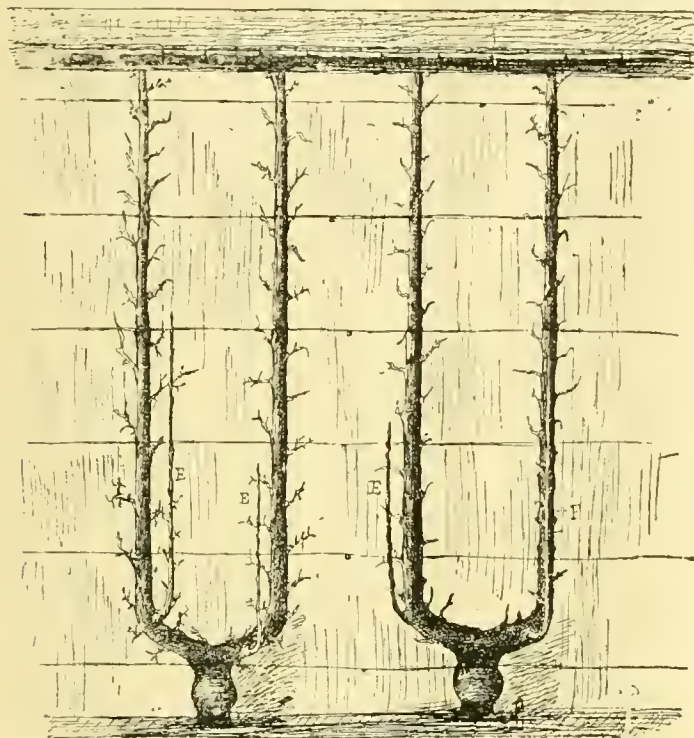


FIG. 69.—U-trained Pear trees showing at the base of the original main branches the young branches which are intended to replace them; E E, replacing branches left free; E, replacing branch tied down, from the commencement of its growth, to the old main branch.

selves into strong-growing shoots which have a marked tendency to form wood and, consequently, are difficult to bring into a fruit-bearing condition. It must also be observed that, generally, the ramifications of main branches which are somewhat advanced in age or have attained a large diameter are most frequently not very productive. For these various reasons, some might prefer another method of renovation, which is very simple and which, although not elegant in appearance, is capable, nevertheless, of yielding excellent results, namely, by—

II.—THE PRODUCTION OF SECONDARY MAIN BRANCHES.

This is effected in the following manner. When a diminution of fertility is observed in the fruit-spurs, in the course of the summer, shoots which are likely to develop with some vigour are selected, at suitable distances from one another, along the sides of a main branch.

shoots be observed below the cut, care must be taken not to remove them, as these, when they come into leaf in spring, will discharge in some degree the functions of a head while other new shoots are being developed. Renovation by cutting back in this way may have excellent results. However, a large cut when exposed to the air is very liable to be attacked by destructive agents and often to become more or less disorganised. Besides, in some varieties adventitious shoots are not produced without very great difficulty, and the tree will then perish from the want of a head of some sort. Grafting, therefore, is always to be recommended when trees are cut back to the ground. In this case, crown-grafting is the only method used, as, by employing it, a great number of scions may be put in all round the cut. In the first two modes of renovation which I have described the original main branches are preserved, and consequently these modes are only applicable when the original main branches are sound. By the other two modes the branches are totally renovated, but the production of fruit is suspended for a longer or shorter period of time, and this is obviously a serious inconvenience to the fruit grower.

COMBINED TOTAL RENOVATION.

The method of renovation which I am now about to describe, has the advantage of combining the renovation of the head of the tree with continuous fruit production. The trees to which this method is applicable should especially be of vigorous growth and inclined to produce at the base of the main branches vigorous-growing shoots which may serve to replace the original branches. As soon as it is observed that the old branches are beginning to fail by their producing fruit of inferior appearance and in diminished quantities, a well-formed shoot is selected near the base of the main branches, and this shoot is left intact and its growth is stimulated by the various means known to fruit growers. One of the best of these is to draw the shoot out and fasten it some distance from the wall. In this way not only is its growth favoured, but it is also prevented from coming into contact with the fruits on the old main branch and interfering with their proper development.

This shoot, a veritable replacing branch, as shown at E, fig. 69, is for two or three years pruned long, to enable it to form a new main branch quickly, but during that time fruit is gathered from the old main branch as usual. As soon as the new main branch is well furnished with fruit-buds, the old branch is cut away and the new one is fastened down in its place, where it will soon produce fine fruit in abundance. Instead of drawing out the shoot from the wall, in the second year it may be tied down to the old main branch, all the lateral shoots of which are to be cut away except those beyond or above the replacing shoot, as shown at E, fig. 69. This mode of renovation is an excellent one. It certainly may be wanting in elegance, for the replacing shoots detract from the regularity of appearance which wall trees should present, and anyone who should for the first time see wall trees in this condition might be tempted to criticise their appearance and find fault with this mode of treatment, in ignorance of its great advantages.

There is no doubt that in a garden where the form and elegant appearance of the trees are considered to be matters of the highest importance this method of renovation cannot be employed. Under such conditions the grower must try to preserve the old wood of his trees as long as possible. However, the genuine and

skilful fruit grower (for he must know how to bring the old and the new wood together in such a way that they will not injure each other, which requires a certain amount of skill) will profit by the application of this method, which enables him always to have fine fruit without any interruption in the bearing of his trees. M. Jamet, a skilful fruit grower at Chambourcy, in whose grounds I first saw this method of renovation practised, and whose example I have followed, has for a long time regularly applied it to his well-trained trees of Doyenné d'Hiver Pear. This variety, as is well known, is very subject to spotting, but the fruits produced by the new wood are always less liable to be attacked and also grow to a larger size, so that, in the case of this variety, the total renovation of the wood is attended with more important results than are seen in any of the others. When a main branch has reached four or five years of age, M. Jamet encourages the development of one of the shoots near the base of the branch, and this shoot ultimately becomes the replacing branch. When it becomes furnished with fruit-buds the old branch is cut away. Some years afterwards the new branch is cut away in its turn and replaced by a fresh branch provided in the same way, and so on. The wood of the tree is thus constantly renovated without loss of time.* The trees are not so elegant in appearance, but they are more productive, and that, in my opinion, is the interesting point.

It is obvious that the wood of the tree, being so often renewed has less to suffer from the various destructive agents, fungi and insects, which gradually spread over it and diminish the vigour of its growth. I must, however, remark that this method of renovation is only applicable, as is obvious, to trees trained in the smaller forms, and whose branches grow in a direction approaching the vertical. Under such conditions there is little difficulty in bringing the replacing branches into their final position, even after they have been allowed to grow freely from the commencement. It is not so in the case of the larger forms of trees whose branches grow nearly horizontally. With them the replacing shoots, tied down from the commencement in the direction of the main branches which they are intended to replace, never attain any vigour of growth, on account of their direction being so contrary to the natural one. If, in order to encourage their growth, we allow them to grow as they please, they will naturally take the vertical direction, from which it will be afterwards impossible to bring them down to grow in a horizontal position.—PIERRE PASSY, in *Revue Horticole*.

Apple Golden Spire.—This is a bright medium-sized Codlin Apple of very taking appearance, and one which growers find no difficulty in disposing of when produced in quantity. Though not to be compared as regards size with many other sorts, this deficiency is amply compensated for in its continuous and fine cropping qualities, and it is an Apple which can be recom-

* If we compare this mode of treating the Pear tree with the long pruning practised in the case of the Vine, we can trace a certain amount of analogy between them. In the long pruning of the Vine, the main branches are every year replaced by new rods which have been grown on for this purpose during the summer, and which will be similarly replaced in their turn after they have borne fruit. In the case of the Pear tree, the replacement is certainly not carried out with such regularity nor so speedily, its wood being renewed only at several years' interval; nevertheless, there is a pretty close resemblance between the two methods applied to trees which are so different in themselves and which are pruned for fruit by methods so dissimilar. (P.P.)

mended for profit. The fruits, as all who grow it are well aware, are conical, much resembling Crimson Queening in shape, but a little more tapering and not quite so puckered at the eye as that variety. The colour is pale yellow, deepening to a golden-yellow when the fruits are fully exposed, while the skin is smooth and shining. Well-grown specimens always make a telling dish when included in a collection of Apples for exhibition. It will keep if required until the end of the year, and is a first-rate sort to grow for private consumption. The tree is a good grower, and may be cultivated as a standard quite as well as a bush or pyramid. It is known in some parts of the country as Tom Matthews, and is, I believe, largely grown in some parts of Gloucestershire.—A. W.

Grapes scalding.—"Hortus" at p. 493 does well to warn growers against scalding. I was only this week asked to look at a very large house of Muscat of Alexandria Grapes. I never saw such sad havoc as a few days' bright weather had caused, nearly every bunch being touched more or less. A few days' bright sunshine with Grapes just at the colouring stage after a spell of dull weather is the cause. I would supplement "Hortus's" advice, and not only give more air earlier in the day, but leave a little on the ventilators all night. I have great faith in the latter to prevent scalding, as I have observed it usually happens when the house is charged with steam, and a little air at night gives a sweeter atmosphere earlier in the day. Madresfield Court scalds badly in such a season as this with a lot of cold, dull weather and one warm day intervening. Madresfield is my worst Grape to scald, as unless I shade the glass with a little whitening the berries are never free from scalding at this time of year. Much may be done by allowing a little more lateral growth on the varieties named at the finishing stage.—S. M.

The R.H.S.'s fruit show and artificial manures.—Not found in the published rules of the coming Crystal Palace fruit show, but placed, as if an afterthought, on one end of the entry form issued with the schedules, is an "N.B." to the effect that "advertising with what manure the fruit has been grown is prohibited." Presumably the intention of the framers of this prohibitory injunction is to prevent the placing of cards on fruit of any description at the show by owners or others referring to any manure used or professedly used in the growth of the exhibits. The action of the council in this matter cannot be too highly commended. The manure merchant is absolutely unconcerned as to whether fine exhibition fruits or vegetables have had the least application of his manure so long as he can get leave to place cards on the products to the effect that they have. Or perhaps the exhibits have had a proportion of the special manure given them at the rate of 2 per cent., whilst all credit for production is given to it. The council of the Royal Horticultural Society are right to check these misleading statements at their shows, and it will be well if other bodies having the control of shows will follow suit.—A. D.

Late-keeping Apples.—What seem to be well-kept Apples are often very deceptive. We see fruits presenting a nice fresh appearance in May that were ordinarily at their best three or four months previously, and marvel at their keeping properties. But when we cut or bite these fruits we find flesh of a soft, woolly, or gritty nature, and there is neither flavour nor juice. Just such were samples of Reinette du Canada, well known as a very fair keeper, and Dutch Mignonne, placed recently before the fruit committee at the Drill Hall. Any spring Turnip would have been pleasanter eating. It seems difficult to understand why persons should delude themselves into the belief that their fruits are keeping well because external appearance may be fair, whilst internally they are worthless. Very few indeed are the fruits that are fit to eat or to cook in May; still less so in June; and unless we can devise some means of keeping

Apples absolutely fresh and well flavoured, it is folly to try to keep them long after their proper season of maturity is passed. In the case of the fruits referred to it might reasonably have been expected that the senders would have satisfied themselves as to the quality of the fruits before sending, and not have left to the fruit committee the duty quickly performed of showing that the Apples were quite worthless. When Prince Albert, Newton Wonder, Norfolk Beaufin, or Wellington are long past their best, where can we look for better keepers?—A. D.

NOTES AND QUESTIONS.—FRUIT.

Apple Boston Russet.—I was interested in a note by Mr. R. Nisbett on Apple Boston Russet in your issue of June 4, as I have a tree which has borne fruit abundantly, but I find the Apple is a bad keeper. The fruit generally shrivels, and is quite soft by Christmas. I should be glad to know the cause of this. The soil is heavy, but well drained.—S. DEAN, *Maidenhead*.

Tomatoes in vineries preventives against wasps.—Some time since Mr. Iggulden, in an excellent article on Tomatoes in vineries, alluded to these as preventing wasps destroying the Grapes, and asked what the experience of others was in this matter. Having grown them in this way to a limited extent for many years I do not find them to be a preventive. I have often seen wasps come and eat the Grapes close beside the shoots of the Tomatoes. I often allow a shoot of Tomatoes to run close to the laterals of the vines, and it is no uncommon thing to see a bunch of Tomatoes and Grapes hanging close beside each other. Some two or three years ago I could not keep wasps away from some Muscats till I put canvas over the open lights, and in this house I had many Tomatoes. What the effect may be if the house has a very large quantity of Tomatoes in it and only a few Grapes I cannot say.—DORSET.

DESTROYERS.

THE SAN JOSE SCALE.

(*ASPIDIOTUS PERNICIOSUS*.)

THIS, according to a special bulletin issued by the Ontario Department of Agriculture, is one of the most destructive insects that has ever been found in Ontario. Fruit-growers and entomologists have been much concerned during the past few years as to whether it would reach this Province, and whether, if it should come, it would be able to survive the winter season. It has come and it has survived, and in 1897 it was definitely located in several orchards in the Niagara district, and also in the south-western district of Ontario. In three or four cases the trees infested are numbered by hundreds. The danger has come upon us with great suddenness. It has escaped observation until it has appeared in such extent as to cause alarm. The Ontario Department of Agriculture has had extensive investigation as to the distribution of the insect, and the Minister submitted a Bill at the recent session of the Legislature which was passed and is now in force. The hearty co-operation of all fruit-growers is asked in the enforcement of this Act. Legislation as to this scale has been passed in most of the Eastern and Northern States.

WHEN AND WHEN'E IT CAME.—The general consensus of opinion after much investigation is that it came originally from California, where it was noticed as a pest in the San José Valley as far back as 1873. In 1880 Prof. Comstock described it, and named the insect *Aspidiotus perniciosus*, on account of its serious character as a scale. It is believed to have been introduced into the East in 1886-7 by two New

Jersey nurseries, one at Burlington, the other at Little Silver. These firms imported from the San José Valley a variety of Japanese Plum, the Kelsey, which was claimed to be curenlio-proof. In 1889 or 1890 the first scaly stock from this importation began to be distributed, and in August of 1893 the San José scale was first observed on the eastern side of the Rocky Mountains. It was located in an orchard of Charlottesville, Virginia, and since then each season has extended the list of infested districts.

WHY THE INSECT CAUSES ALARM.—(1) It possesses marvellous powers of reproduction. A single female that has wintered over may be the progenitor of millions in a single season; some have computed that her progeny may reach the incredible number of 3,000,000,000. There may be four generations in a season, the adult females of each giving birth to living young for five or six weeks, the progeny of these bearing young when about thirty days old. Each female brings into existence 100 to 500 insects during her lifetime. Thus it will be seen that a great confusion of generations will soon exist, as there may be upon a plant at one time the young of several generations. (2) Infested young trees perish in two or three years. (3) The range of food plants is extensive, and all parts of the plant may be attacked—leaf, stem, twig, and fruit. The scale has been found upon the Peach, Pear, Plum, Apple, Cherry, Apricot, Quince, Currant, Gooseberry, Raspberry, Rose, Hawthorn, and even Elm. (4) The insect and scale are exceedingly minute. The scale is often of much the same colour as the bark of the infested trees. Most are less than one-sixteenth of an inch in diameter, and are thus almost invisible to the naked eye. (5) It is readily introduced by nursery stock and fruit from infested trees.

HOW IT MAY BE DISTRIBUTED.—In the work of distribution the insect itself can do but little, as it is quite helpless to move from place to place. Its life of active movement is very brief—a few hours; at most a day or two. It moves only a few inches from its birthplace, then settles, becomes covered with a scale, and, in the case of the female, remains fixed for life, and begins producing young in about thirty days. After becoming fixed, it lives by sucking the sap of the plant upon which it is located. The males have wings, and may fly about at maturity, but the females are always wingless. During the few hours or days the tiny lice are moving about, they may get upon birds and such insects as ants and small beetles, and by them be carried to other trees. One observer has noticed that in infested districts the scale is often more common near a bird's nest. As trees in a nursery grow close together, they present favourable conditions for being infested. Fruit from infested trees may have the scale upon it; even wind may assist in spreading these insects that appear at first so comparatively helpless to travel by their own efforts. Thus birds, insects, fruit, scions from infested trees, infested trees, and wind may all be important factors in the distribution of the scale.

THE LIFE-HISTORY OF THE INSECT.—The nearly fully-grown insect passes the winter beneath its wax-like scale. About June the young begin to appear, as exceedingly minute, six-legged insects, like yellowish specks, moving about. They creep about only for a few hours, at most a day or two, then settle but a few inches from their birthplace, and become attached to the spot, from which the females never move. During their sedentary life the females lose their feelers and legs, and have

neither eyes nor wings. The males, however, have legs, feelers (antennæ), eyes, and wings in the adult condition. The scale of the female is circular, with a small nipple in the centre. This scale is from a twelfth to one-twentieth of an inch in diameter, and may be of a light or dark grey colour, and usually is of much the same colour as the bark; the nipple in the centre may be a pale yellow or blackish colour. The scale of the male is oblong, with the nipple near one end, and is thus readily distinguished from that of the female. The female brings forth living young, and does not lay eggs, as is usually the case with scale insects, such as the oyster shell and scurfy scales. She may bring into life from 100 to 500 young during the six weeks of her existence after reaching the adult stage. The males develop about a week sooner than females, the latter taking about five weeks, and emerge from their scales as exceedingly minute, two-winged, fly-like insects. From June, when the young appear, a constant succession of generations is observed. The scale of these insects is formed from a waxy secretion which commences soon after they come into existence, and forms a protective covering as development proceeds. In the early stages of growth the scale presents a somewhat greyish-yellow colour, and gradually becomes darker. The general appearance upon affected twigs is that of a greyish, slightly roughened, scurfy deposit. This hides the natural reddish colour of the young limbs of the Peach, Pear and Apple. They sometimes even look as if sprinkled with ashes. If the scales are crushed a yellowish oily liquid will appear from the crushed soft yellow insects beneath the scales. Examined in summer many show orange-coloured larvæ, snowy-white young scales, mingled with old brown or blackened matured scales. This insect produces a peculiar reddening effect upon the skin of the fruit and of tender twigs. An encircling band of reddish discoloration around the margin of each female scale is very marked on the fruit of Pears. The cambium layer of young twigs where scales are massed is usually stained deep red or purplish. Where the scales are few the purplish ring surrounding each is quite distinguishable. It is certain that the scale was introduced on infested nursery stock. The same danger is to be feared again. Every person who buys stock should have it thoroughly examined before setting it out. The examination should be thorough, as the scales are minute and are easily overlooked. There is one method of treating stock that is sure to destroy all kinds of insect life, but it is applicable only in nurseries and not by the farmer or fruit-grower; it is the treatment with hydrocyanic acid gas. Nurserymen will do well to consider the advisability of treating all stock handled by them in this way. We give the following for their benefit:—

HYDROCYANIC ACID GAS TREATMENT OF NURSERY STOCK.—The following method is given in Bulletin 87 of the New York Experiment Station, Geneva: "This gas is lighter than air, hence will work better if the generator is placed below the pile of trees to be treated. A convenient way would be to make a rack a little less than 6 feet long, 5 feet wide, 4 feet high. The bottom of the rack could be made of loose slats raised a few inches above the ground to allow room to place the gas generator under the rack. When the rack is filled with trees, a piece of gas-tight canvas thrown over the whole and fastened down at the sides by throwing dirt on the margins would complete the apparatus. One side could be left open until the water and chemicals are placed in the dish and the dish

slipped beneath the rack. This gas is a deadly poison, and great care should be used not to breathe it while placing the dish under the rack. To generate the gas pour three fluid ounces of water in a glazed earthenware vessel, to this add one fluid ounce of sulphuric acid; place under the trees, and then add one ounce by weight of fused cyanide of potassium. This will make gas enough to fill a space of 150 cubic feet." An hour's exposure will likely kill all the scale insects.

ORCHARD REMEDIES.—When trees are at all badly infested there is only one treatment to be recommended with safety, and that is to root up the trees and burn them at once. Even when only slightly infested the work of washing and spraying may not be done thoroughly enough to destroy every scale, and as the insect multiplies so rapidly the greatest care must be taken not to allow even one scale to remain. The advice given is to thoroughly destroy all stock and all trees found to be infested. During the winter and early spring, before the insects appear, some may desire to treat the trees before the inspector arrives to destroy under the Act. In that case the two remedies or methods of treatment are with soap-wash and with kerosene.

SOAP WASHES.—“The soap wash should be made by dissolving 2 lbs. of fish-oil soap or so-called ‘whale-oil soap’ in one gallon of water. It is absolutely necessary that a potash soap be used, as soda soaps cannot be kept in solution at this strength, and are not so efficient as the former. The manufacturer should be required to guarantee his soap to meet the requirements as to strength and solubility. This wash should be used warm, if possible, and preferably on a warm day.”

KEROSENE.—“If old orchard trees are infested, the probability of clearing out the pest is not at all promising. But if the trees are valuable, and have not been seriously injured, the attempt is worth while. They should first be judiciously pruned, but large wounds avoided; the trunk and branches should be cleared of rough bark, and especially the sprouts and any trash removed from around the base of the tree. Then for all orchard fruits, except Peach and Cherry, spray with pure kerosene, using great care to only moisten the bark. The tree must be washed, every twig and branch, but do not put on enough oil to run down the stem and collect about the base. If a band of any sort is placed about the tree or if oil collects about the base of the trunk damage is almost certain to result. When kerosene is used it should be purchased by the barrel, and of a grade not lower than 120° flash test. Low grades are more dangerous to plants than high grades. Forty gallons of kerosene will spray 300 to 400 trees, depending on size, and ought not to cost over 10 cents a gallon in barrel quantities. This does not make it very expensive treatment. It should always be used on a bright, warm day, when the plants are dry, and just as little applied as can be made to wet properly every part of the plant.”

INSECT ENEMIES.—There are two enemies to the scale among insects, both of which are reported to aid very materially in keeping the scale in check. One, the “Twice-stabbed Lady-bird” (*Chilocorus bipunctatus*), is very common on infested trees, apparently feeding upon the scale; the other is a parasite (*Aphelinus fuscipennis*).

Pentstemon Menziesi.—This is an ideal plant for the rock garden, particularly in those localities where its hardiness is assured. I very much doubt, however, if any plants in the south of England survived the great frost of three years

ago in the open with or without protection. At the same time, with young stock in reserve it should always be planted out in the warmest positions, and, where the soil is deep and good, it will not disappoint. It is to the early summer what the brilliant *Zauschneria californica* is later on, the same brilliant tone of colour prevailing and a similarly free-spreading habit, covered by a great profusion of its blossoms. The species is of rather bushy habit, and of quite easy culture. Cuttings root readily in sandy soil, and if a few young plants are secured each year it will be quite easy, by planting half a dozen in a group, to obtain the best possible results with this brilliant and striking plant.—J.

Saxifraga umbrosa.—It seems needless to call attention to the merits of such a very old inmate of our gardens as the Loudon Pride, but there is always a danger of old favourites being pushed out into the cold to make room for newer introductions. In this way many really good things at one time much cultivated are in a great measure unknown to the younger generation of gardeners. I have lately seen this *Saxifraga* under conditions that convince me that it is a much finer thing than many species which have been added to the list of hardy flowers during the last few years. I lately saw a piece of rock-work covered with this *Saxifraga*, and the numerous strong trusses carrying thousands of blooms produced quite a charming effect. Being of such an enduring nature this species may be employed with good effect where most things would fail. It is one of those things that do not look well in the form of small specimens; it should be made to cover a square yard or so of ground, and is then very beautiful.—J. C. B.

NOTES FROM CALIFORNIA.

In my letter in your issue of April 30 I should have written that the western part of the State of Washington has a climate as cold as that of Oregon, with a greater degree of humidity than is to be found anywhere in Europe. As my article reads I would credit Washington with a far colder climate than it possesses. *Calandrinia Tweediei*, mentioned by Mr. Bully in your issue of May 14, deserves all his praise. I received twenty-five very large old plants from Mr. Johnson last autumn. Smaller plants with a more symmetrical root system would have grown better. I planted these twenty-five plants in four places in my grounds. Three lots were planted in raised beds and one lot in the open ground in a cold situation. Ten plants now survive, of which nine are growing vigorously. The best results were secured from a lot in a raised bed, thoroughly drained and filled with a light, warm sandy soil and spent tan bark. This bed was in a full south exposure, and in it nearly every plant lived and flowered, and all are now growing splendidly. *Calandrinia Tweediei* is low, but hardly a dwarf. Mr. Johnson found masses 2 feet across with as many as 300 flowers open at once, and the flowers each are from 2 inches to 3 inches across. I think rockwork will be the place for it. It was first described by Gray in *Proc. Am. Acad.*, xxii., 227.

I surprised myself by succeeding perfectly with *Calochortus macrocarpus* this year. The bulbs were planted late in February in a soil of silt and crushed charcoal, with perfect drainage. Kind, size and quality could not be better. Similar treatment succeeded also with *C. Nuttalli*, *C. Leichtlini* and *C. flexuosus*, all difficult species. *C. longibarbus* is unusually fine this year. It is a northern species and very hardy. The flowers have not the size and brilliancy of those of the true Mariposa Tulips, but are pretty—a delicate blue, with a purple band and a few long hairs inside.

The great drought from which California has been suffering was broken by frequent fine showers and much cool, cloudy weather in May. The change came too late to be of help to either hay or grain in the great producing valleys of

California, but it helps the fruit gardens. In those few sections where cereals were not too far gone the yield will be very large. CARL PURDY.

GARDEN FLORA.

PLATE 1176.

GESNERAS.

(WITH A COLOURED PLATE OF *G. LEOPOLDI*.)

THERE is a great deal of confusion and difference of opinion concerning the correct nomenclature of gesneraceous plants, for by some the genus *Gesnera* represents a large and variable class, while by others it is split up into several genera, many of the species being regarded as *Nægeliæ*. The true *Gesneras* are characterised by a tuberous root, often large and of almost a woody nature, and to this group belongs the subject of the present coloured plate, *Gesnera Leopoldi*, whose general appearance is so well shown, that any further description thereof would be quite unnecessary. While the normal form is as here represented, there are varieties to be met with in some catalogues, among them being *alba carminea*, white ground, striped carmine; *alba rosea*, pinkish, mottled deeper inside; and *lilacea*, lilac.

GESNERA CARDINALIS has been already figured in THE GARDEN, September 10, 1892. This species forms a stout stem from 6 inches to a foot in height, clothed with bright green leaves, and terminated by clusters of tubular-shaped red blossoms. The leaves, stems, and flowers are all thickly clothed with hairs, which in the case of the last impart to them quite a velvety appearance. This *Gesnera* is often met with under the name of *G. macrantha*, while *G. Duvali* differs therefrom principally in being a more slender plant, while the leaves and flowers are both somewhat smaller.

G. DONKELAARIANA is a good deal in the way of *G. cardinalis*, but the leaves are tinged with red, while the blossoms are in some cases at least brighter than those of *G. cardinalis*. There is, however, a considerable amount of individual variation to be found among them, some flowers being brighter than others. This species is a native of Colombia, and occurs pretty plentifully in some parts of the Orchid region there.

G. COOPERI, a Brazilian species, will reach a height of a couple of feet, the upper part consisting of a number of drooping blossoms, in colour scarlet, spotted more or less in the interior. The leaves of this are of a light green tint.

G. LONGIFLORA.—This species is totally distinct from any of the others, the long tubed blossoms being white and over a couple of inches in diameter at the expanded mouth. The tuber of this is less woody than in those previously mentioned, and from it is pushed up an erect stem which will reach a height of a yard or more. The stem and branches are clothed with rusty coloured wool, while the leaves are also downy on the inside. The flowers of this are agreeably scented. *G. longiflora* succeeds best in the temperature of an intermediate house.

There are several other *Gesneras*, some of which bear a considerable amount of resemblance to those previously mentioned, and as most of them seed freely and cross readily, it is often difficult to determine the original species.

The cultivation of these *Gesneras* is not at all exacting provided a few simple particulars are borne in mind. In the case of the whole of them when the flowering season is over they perfect their growth, after which follows a period of rest, when scarcely any water should be given them. If the plants have flowered during

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by J. L. Goffart.



GESNERA LEOPOLDII

the spring, they will of course be at rest throughout the summer, and in the autumn the tubers should be shaken entirely clear of the old soil and repotted. A very suitable compost for these *Gesneras* consists of about equal parts of good loam and leaf-mould, with a liberal admixture of silver sand and well-decayed manure. In potting, the upper part of the tuber should be just covered with the soil, which must be kept slightly moist till growth recommences. An intermediate house temperature is, as a rule, the most suitable for these *Gesneras*, but to get them in flower in the winter they may be removed to the stove. As the tops develop and the roots make headway, an increased amount of water may be given, and when the pots get full of roots occasional doses of liquid manure will be of service. Although these *Gesneras* delight in a moderate amount of atmospheric moisture, they must not be watered overhead too freely when growing, otherwise the hairy foliage is apt to suffer.

While the merits of some *Gesnerads* are well known and almost everywhere appreciated, there are, on the other hand, some classes of the same order whose ornamental value is very apt to be overlooked. The quaintly marked *Tydeas* that flower so freely during the winter furnish an instance of this, while much the same may be said of the allied *Isoloma*. *Achimenes*, too, though they are well known, are not grown to anything like the extent one would expect when their simple cultural requirements are taken into consideration. When we reflect what has been done within the last few years with the *Gloxinia* and *Streptocarpus*, the probability is that other *gesneraceous* plants will in turn be taken in hand by the hybridist and new forms are likely to crop up. An advantage of experimenting with this class of plants is that it is by no means necessary to wait for years before the result of one's labour is seen. The charming little *Stenogastera concinna* may in time play a part in the production of a new race of hybrid *Gesnerads*.
H. P.

THE WEEK'S WORK.

KITCHEN GARDEN.

EARLY BROCCOLI.—The planting of this will now need attention, and though in an earlier calendar I touched upon the importance of planting early, I omitted Broccoli, as it is not often possible to plant out before this date, so many other things needing room. The earlier kinds will need planting out as soon as possible, as their season of growth is none too long, and in this respect they closely resemble Cauliflowers. Few vegetables are more useful, as in October or November, after the choice summer and autumn vegetables are over, the early Broccoli comes in valuable. The Self-Protecting is one of the most useful vegetables at the season named, and this I endeavour to plant to form a succession. Planting late in June gives the first cutting early in October. These plants follow the Autumn Giant Cauliflower, and a later planting made at the end of July will furnish the succession. The heads of these will be smaller than of those planted now, but I find them large enough for all purposes. In planting autumn Broccoli it is necessary to give well-worked and rich land. I plant in drills, as then it is an easy matter to give the plants moisture at the start. A distance of 2½ feet between the rows and 2 feet between the plants is allowed, the succession plants being 2 feet apart each way. In planting, reject any plants with weak centres, as these often go blind. Make each plant firm with the dibber and well water.

WINTER BROCCOLI.—Many fear to plant winter Broccoli, as in severe winter frost kills the tender flower before it can develop. I never omit plant-

ing, but am always on the alert to get reliable varieties. Some years ago I never had any variety equal to Snow's Winter White, but now am unable to obtain a true stock. Last year my best midwinter Broccoli was Superb Early White, not unlike Snow's in build, but true, the whole crop turning in from December to March. I always lift as the plants form the heads, and store in a shed or cellar free of frost. The winter varieties in most cases do not make a rank growth, so that much space is not needed. On the other hand, they do best in an open, airy position, as here they make a sturdy growth. There are other varieties well worth room, as should one kind fail, another may not. Christmas White is an excellent winter Broccoli, as is Sandringham Winter White. This latter, in my opinion, is a selected stock of Snow's, and is invaluable for winter supplies. The habit is dwarf and compact, and on this account it needs little space when placed under shelter.

ASPARAGUS.—With Midsummer Day past cutting should cease, and though the season was a late one to start with, owing to an ample rainfall the supply has been good; indeed, I never remember beds being more prolific. This should be borne in mind, and the plants allowed to go away freely. I am aware in some gardens—my own among the number—this vegetable is needed as late as it can be obtained. I have often cut the Asparagus well into August. To do so needs more attention to feeding. It is not well to go over all the beds. I reserve a couple of beds for this purpose, and as long as the plants are fed and given ample moisture they will bear. I find flooding the beds the best way to secure late Asparagus. I use liquid manure from stables, and the produce is cut every other day. If left longer the plants will cease to bear freely. Now is the best time to apply salt and other food. In heavy, clay land I have used salt, soot, and wood ashes freely from now to the end of July, and found the plants did better than by giving animal manures. Fish manure and guano are both excellent fertilisers, giving them freely in showery weather or well watering in after, should the weather be dry. On the other hand, it is useless to give food to plants with few roots. It is far better to make new beds than waste food and time upon exhausted plants. Continue to thin out seedlings where at all thick, and to strong shoots intended for forcing give some support, as branched sticks, to prevent rough winds twisting them about.

CABBAGE.—The spring Cabbage came in so quickly this year that it shows us the necessity of successional plants, and though it is difficult to beat Ellam's for early spring cutting, I prefer a later kind for succession. Maincrop is now giving the supply from seed sown at the middle of August. The Pea crop is much later than usual, and other choice vegetables being equally late, small, tender Cabbages are most valuable. The autumn Cabbage will now need planting out. I find such kinds as Favourite, St. John's Day, and Christmas Drumhead excellent types for present planting. Those who have but little space will find Favourite a suitable variety, as it may be planted very close, is not liable to split in wet seasons, and is remarkably hardy; indeed, for use from October to Christmas I do not know of a better variety, the others named forming a succession. In planting at this date, it is advisable to prepare the soil thoroughly. For any green crop planted now in old garden soil, it will well repay to give the land a dressing of lime or soot and burnt refuse. Land should also be prepared for sowing the spring Cabbage next month.

CUCUMBERS.—Many grow these in houses all the year round. Grown thus, one can readily train in new wood and crop so that the plants have not too many fruits maturing at one time. No matter how grown, it is well to stop the shoots at least once a week and place the new wood in a good position. In frames it will often be found necessary to remove older leaves to admit light freely, and, wherever possible, to cut away old fruiting wood to prevent crowding. I notice that frame Cucumbers are often badly

shaped. In many cases this arises from crowding, as the small fruits are crippled in their early stages. Top-dressing plants in full bearing will be beneficial, and bone-meal mixed with wood ashes and fibrous loam is one of the best fertilisers. Plants in frames may with advantage be given a dressing of spent manure and bone-meal. I find it a good plan to keep the surface roots always fairly moist, and, as it is more difficult to reach all parts with the syringe in frames than in a house, the manure advised retains moisture. Seeds may now be sown for an autumn supply where quantities are needed. I raise my plants in a frame close to the glass. It is well to keep the seedlings clear of the fruiting plants in case red spider or thrips should touch them. I always use heavier soil for these plants at the season named, as by so doing a sturdier growth is ensured during the summer months.

TOMATOES UNDER GLASS.—In this part of the country the weather for Tomatoes has been most unfavourable, as the fruits have ripened slowly and more care has been needed in setting the fruits. The early-sown plants should now be cropping freely, and will well repay for some food in the way of liquid manure or a good fertiliser. I find mulching the best aid to finish heavy crops. The best mulch I have used is spent Mushroom manure. This is light and does not promote a rank growth, and, what is so important, it saves much watering. Should the soil be poor, it may be well to give a light dressing of bone-meal before putting on the manure. I recently saw a large number of plants with stems like large Bean stakes, but many of them were barren, having been planted in a richly-manured border. With such plants setting is a difficult matter, as feeding should follow the setting, not precede it. Plants that have borne freely and are not inclined to set many fruits will now not pay for house-room, and may be cleared out as soon as new plants are ready to take their place. If the stems of old fruiting plants are cut close to the base and placed in ainery or fairly dry house in partial shade, the fruit will colour and not shrivel, and be of better quality than when cut from the stems and ripened. For late crops I find pots are best if a quick crop is needed.

AUTUMN AND WINTER TOMATOES.—Though I have kept plants two years and got fair crops, I find the best results are secured from young plants. There is a great advantage in getting a late crop of Tomatoes, and for autumn use I would plant out in a restricted border, as then one can feed more. Many rely upon the summer fruiter for a supply at the season named, taking up a shoot from the base, but the roots are exhausted, and I would advise raising young plants now for the purpose, as sown in June or July they will be ready in a month's time. If the fruit is needed as late as possible the culture must be different. I raise the plants in cold frames, grow as hard as possible and plant out, giving air freely night and day. The plants are very sturdy, fruit sets close to the base of the plant, and there will be a good crop at the season named. Grown with heat in the usual way the plants will soon fruit and be over by autumn. I have never yet succeeded in setting fruits in the late autumn, but by that time the plants sown now and grown as advised will be studded with fruits, and there is then no difficulty in finishing the crop. From the end of July to the end of August I remove the sashes at night.

ENDIVE.—In many gardens salads are in great request, and in such Endive plays an important part, as it may be had in quantity from September to March. At this date the tender kinds which are not reliable for winter supplies may be sown. The Moss Curled and the White and Green Curled are excellent for first supplies. For winter use none can equal the Improved Round-leaved Batavian. This sown early in August will give a good winter supply. I do not advise large sowings of any kind at this date. Sow every three weeks and by so doing get a succession. For an early supply I have found it much best to sow

very thinly in drills and not transplant, as if planted out in hot summers Endive runs badly. A cool border is best and the soil should be well manured. I generally select an east border for the first crop. In dry weather the seed does not always germinate freely. It will be well to saturate the soil and then cover with mats till the seedlings show freely, and if at all thick to thin early. Later sowings may have a warmer site, but these will transplant well. If Endive is used as a vegetable, it may be well to make a sowing of the Batavian towards the middle of July, as large plants will be needed for this purpose. This I sow broadcast, and afterwards plant in rows 15 inches apart in well manured land. S. M.

FRUITS UNDER GLASS.

MELONS.—In Melon pits and houses where the earliest crops are now cut no time should be lost in first cleansing the woodwork, brickwork, and glass (for this work must not be confined to mere routine practice once every year), and then preparing to start another crop on its way. From every such pit and house two good crops a year may be had. It is of course assumed that due foresight has been exercised in sowing the seed at the right dates to suit every given case. For instance, if Melons are needed for the earliest shooting parties, now is a good time for putting out the plants, which should be large ones, by which I mean plants that have been grown freely on from the seed stage without any check and are now healthy, vigorous plants in 6-inch pots. It is all-important that young Melon plants do not receive any check by being pot-bound or otherwise. In every case almost it is best to have two or three varieties in every planting, not so much for mere variety as for extending the period of ripening. Sutton's Scarlet, for instance, will ripen a week or ten days in advance of Hero of Lockinge. With everything in their favour as regards heat and moisture, young Melon plants will now simply romp away. Do not, therefore, endeavour to encourage this by using any manure in the soil; the fermenting material, if any be used, and just at this season it is not even necessary where fire-heat is still continued, will supply this in an ample measure. Depend rather upon good turfy maiden loam, and if this has a tendency towards heaviness, it will be all the better so long as it is not on the wet side when the beds are prepared. Let the preparation be done by carefully solidifying the soil as it is taken in, for it will pay to both do this work well and to use good soil also. In no single case should the soil from Melon beds be cast aside after the crop is taken as useless. It would be simply worse than waste of material to do so, as all such loam has still retained within it ample food for plants of a different character from the Melon. Now is a good time to sow to have ripe fruits by the middle and end of September on until the middle of October. Melons at such times are valuable additions to the dessert, and for the breakfast-table, too. In sowing now, bear in mind that Hero of Lockinge when true is one of the best keeping Melons after cutting that we have in cultivation. If the fruits be cut slightly in advance of ripening, but with colour, they will keep for fully three weeks (or more) in a cool fruit room. This matter of keeping in some cases is all-important, and should be borne in mind when and where it is likely to be needed. Guard against raising young Melon plants in houses or pits where there is likely to be any red spider, and take just as much pains also to keep the plants dwarf and sturdy as if it were for the first crop of the season, which not unfrequently does receive the best attention, whereas later crop plants are thought to be capable of looking after themselves. Pits where the plants can be kept close to the glass will be good places for them up to the planting stage. Do not from the very first allow the plants to be overcrowded. My plants from the seedling stage when room is short at this season are raised and kept on shelves near the glass.

MELONS IN FRAMES.—Where there is a good stock of frames, not just at this season in use perhaps, it will be an easy matter to take a crop of Melons by immediately making use of the time at disposal. In the worst of cases where tender bedding plants are still the rage these movable frames should by this time be empty, with no further use possibly for them until the late autumn. If the Melon plants be of good size now, they will soon give a satisfactory account of themselves when planted out in close frames with a little fermenting material to give them a start. As in houses, so in frames, plant them firmly and well, taking care in any and every case to keep the balls of the plants well above the surrounding soil. Say, for instance, as an example, when turning out a Melon plant from a 6-inch pot, the customary way would naturally be to make a hole for its reception, but rather than do this stand the plant upon the soil and then mound the soil up to it. The surface-dressing latter on will add sufficient soil to assist the plants as growth progresses. As in houses, so in frames, keep the plants warm by closing early in the afternoon, and make the atmosphere humid by damping the soil and over the plants. Melons revel in heat and moisture during bright, sunny weather. On the other hand, ventilate in a moderate degree early in the morning; a sudden rise of the thermometer then is not advisable, as it may engender scalding. In any case it is better at this season to hasten on the growth at an early stage, so as to be able to dispense with it somewhat as ripening takes place.

PINES.—The first early Queen Pine-apples should now be ripe or ripening, and when this is well managed, with the fruits abounding in juice, the imported examples of Smooth Cayenne at their best are poor in comparison. From now onwards by successional crops the Queen variety is the very best up to the end of September, and it should be still grown in gardens with plenty of glass at disposal if for that season alone, allowing the imported fruits afterwards to fill in the supply. It is a popular notion with many that Pine-apples are expensive articles to grow in our gardens, but it needs qualifying, and as regards the culture of the Queen Pine for summer supply, it is a mistake and a delusion. What is at fault in such cases is not so much the Pines as their management, for during the resting or winter season the stock of Queens may be safely kept in a minimum temperature of 55°. That surely cannot be deemed expensive. Those who still grow other Pine-apples, as the Smooth Cayenne, should take note of their stock to see that the strongest plants are induced to show fruit as soon as possible for early autumn supplies. Those for the winter's use of the same variety and of Black Jamaica, which is better in flavour than, should still be growing. If these give indications of fruiting by the end of August, it will be quite soon enough. As regards any part of the stock that may need potting, attention should be given at the earliest opportunity both in the case of suckers and of young established plants. Those who adopt the one shift system will find this a suitable season to pot their suckers (strong ones) into the fruiting pots. The Queen Pine if now treated in this way will make strong plants by the autumn, and these will next summer yield a very good class of fruit, not possibly the very largest. Labour will, however, be saved, and this in any case is of importance.

Those who practise the planting-out system will find the present a very good time for putting out a stock of plants. Here, again, is an opportunity for testing the expense or otherwise that is incurred in Pine apple culture by now putting out a stock of strong suckers of the Queen variety for next summer's cutting. By this method the cost of cultivation is reduced to the minimum, whilst successional fruiting can be secured by growing the Ripley Queen for the earliest crop and the Old Queen for later use. All that is needed is a fair command of bottom heat. If pipes are provided, so much the better, but their absence need not cause any anxiety at all so long

as it is possible now to secure fermenting material to set the plants going and so get them well established as soon as possible. If Smooth Cayennes be planted out for winter supplies it is better to do the work later on, say early in September; then there need be no apprehension of premature fruiting another season. HORTUS.

FLOWER GARDEN.

THE CLEMATISES.*

THE most familiar type of these is the hedge Clematis (*C. Vitalba*), in France known as *Viorne*, or in England as *Traveller's Joy*. From the hedges it often makes its way to the tops of neighbouring trees. In July the fine sprays of white flowers give out a pleasant odour, and in winter, when all else is bare and leafless, its silky tufts still survive to adorn the roadsides. It is essentially a plant of Central, Western, and Northern Europe. Next to the hedge Clematis comes naturally the sweet-smelling garden Clematis (*C. Flammula*). Forty or fifty years ago in France it was almost the only species in general cultivation in courtyards and arbours and on walls by the roadside, where in August the bushy heads of little white flowers filled the air with sweet perfume. Along with it in some gardens could be seen *C. Viticella*, known by its larger flowers and cross-shaped sepals of blue, violet, or purple colour. Sometimes, too, in the gardens of amateurs one came across two of the non-climbing species; they were the erect-growing *C. erecta* and *C. integrifolia*, these comprising nearly all the known kinds in those days when the introduction of exotic plants was less common, and the cultivation restricted to the five species above named, all of them natives of Europe. No doubt in botanic gardens there was even then a certain number of exotic species of North American origin, such as *C. Viorna*, *crispa*, *cylindrica*, &c. Other species also, and those not the least interesting and belonging to the alpine and Mediterranean regions, formed two distinct family groups: the *Atragenes*, with their large sepals and the petaloid stamens forming semi-double flowers, and the *cirrhusa* group or evergreen Clematisses, flowering in mid-winter, unless the cold was very great. To these two groups add the yellow-flowered Eastern kind (*C. orientalis*) from the Caucasus, and, speaking as regards fifty years ago, we have exhausted the number of Clematis in cultivation. The Clematisses of Japan and China were not then introduced. Siebold, Fortune and other botanical explorers, however, were very soon to make known to us new forms with large flowers and colours until then never seen in the Clematis, such as the *azurea* group—*C. azurea* or *patens*. Japan had even before this given us the *florida* group, of which one double-flowered variety was to be seen in some greenhouses under the name of the Indian *Atragene*. The mountain Clematis of Nepal (*C. mon-*

* "The Clematisses," By Dr. Jules Le Bele. Extract from the "Bulletin of the Horticultural Society of Sarthe," vol. xii.

tana) then also made its appearance, and very soon was to be seen almost everywhere like our own *C. Flammula*. A little later on China gave us that most beautiful of them all, *C. lanuginosa*. With the introduction of this and *C. azurea* dates the entry of the Clematises into the domain of horticulture as plants of recognised merit, and capable of hybridisation and of being improved by cultivation. Here it will be my endeavour to give the history of the Clematis, at first fixing and grouping the botanical species into natural sections—a difficult task at the present time in the midst of the mass of hybrids in always increasing numbers.

But before attempting to describe the many species of cultivated Clematises I think it may interest readers to hear how, more than forty years ago, I came to love the Clematis, and the efforts I have since made to search out and collect the various species of this beautiful race from all parts. It was at a time when horticulture flourished at Mans, and the professors, who were both numerous and distinguished, included such names as Foulard, Narcisse Desportés, Guéranger, Anpibault, Drouet, Richebourg—all amateurs, and ardently attached to their collections, whether of greenhouse or open-air plants. M. Desportés, the distinguished botanist—author of "Flore du Maine"—turned my attention to the Clematises one day when I had made known to him my inclination for climbing plants. My choice was favoured, it must be said, by the narrow limits of a small garden enclosed by walls and trellis-work, where I only enjoyed full play by directing my efforts heavenward. "You may possibly succeed in getting together some forty species," said M. Desportés. I did better; at the end of ten years I had succeeded in grouping seventy or eighty species or varieties. I was not the only one who cultivated the Clematis in those days. M. Desportés possessed twenty-five to thirty species arranged like the other plants in his garden, which was conducted for botanical rather than horticultural ends. M. Foulard had also a great number scattered about in the midst of collections of all sorts, forming a regular encyclopædia of horticulture. In the centre of his vast garden in the Place Saint Germain, upon walls or the trunks of trees in sheltered positions, one saw the Clematis *florida* (the Indian *Atragene* and the bi-color of Siebold), the American *Atragene*, with semi-double, rose-purple bells, besides other rare species not mentioned in the catalogues of to-day, like *C. aristata* of New Holland, relegated in winter to the orangery, and *C. novæ-zelandiæ*, which we have seen surviving many winters at the base of the south side of a wall sheltered by means of a little straw. It bloomed in spring like those of Australian origin we have known. One year we—M. Foulard and I—were both surprised to find under the straw, warmed into life by the first rays of the sun, beautiful milk-white flowers resembling those of an allied species from the same regions—*Clematis indivisa* var. *lobata*. It was, perhaps,

the first instance of a New Zealand Clematis blossoming in the open air in our climate.

It is my intention to describe here those species only which I know and have myself cultivated for the most part, dividing them into sections according to their natural affinities. I shall then attempt to classify the hybrids, giving the characteristics of the various types to which they correspond, and which form, so to speak, so many races.

The Clematises form a very natural tribe of the Ranunculus family, allied to the Buttercups and the Anemones, having, like the latter, regular and graceful blooms of various colours, but they are unlike them in their port and habit. Perennials, their fibrous roots and slender, long and Vine-like stems make them essentially climbing plants, and by their rolled-up petioles they attach themselves firmly to their supports or the branches of adjacent plants. Most frequently forming bushy masses in the hedgerows, they sometimes succeed in rearing themselves upwards on the trunks and branches of trees to a great height. Some species, however, do not attach themselves, but are merely deep rooted and are entirely drooping; others are sub-frutescent. The Clematises are cosmopolitan plants, increasing in all quarters of the globe, in all latitudes and altitudes where the temperature permits vegetation at all. They are to be found in the alpine and Himalayan regions of Europe and Asia as well as in the forests of equatorial India, Africa and America. It is true, however, they prefer the temperate regions of the globe. The flowers have petals and the simple perianth is furnished with petaloid sepals. It is seldom one sees in the species the most exterior of the multiple stamens change to petals, as is the case with the *Atragenes*, or to come across flowers, whether pedicled or not, furnished with a calyx-like calicula, or rather an involucre. In the Clematises the multiple carpels often terminate in feathery tufts.

The inflorescence is very variable. The flowers are oftenest borne in panicles in cymes, in corymbs, in fascicles, in long foliaceous racemes, and even in simple and solitary peduncles. They are of all colours and dimensions, small, medium, large or very large, and displayed so as to measure from 8 inches to 10 inches in diameter. These last are the large Clematises, those brilliant hybrids so much in favour now-a-days, and the number of which is yearly increasing and has added fresh riches to our gardens.

Of the species known and described, there are to-day about 240, according to the "Index Kewensis." As for varieties and hybrids, I am not in a position to give their numbers.

Considered as to habit, flowers and natural similarities, the Clematis may be divided into nine sections: 1, paniculata; 2, vitiellæ; 3, floridæ; 4, azureæ; 5, lanuginosæ; 6, petalæ or atragenes; 7, calycinæ; 8, unclassified; and 9, hybrids.

CLEMATIS PANICULATA.

The *C. paniculata* are the Clematises proper, with their little white, yellow or yellowish flowers borne in panicles of greater or less

length. The leaves are pinnate or bi-pinnate, and the carpels are furnished with silky tufts, as in the hedge Clematis. They are Vine-like and climbing, or perennial and upward growing. The European Clematises, which are the most common, belong to them, and are the oldest in general cultivation, but we shall presently see that these wild Clematises, like *C. Vitalba*, are to be found in all parts, so that it may be said that each great region of the globe has its own particular one. I describe here twenty-eight species which I have cultivated, and I attribute each to one or more of the seven following types, viz., 1, *Flammula*; 2, *erecta*; 3, *Vitalba*; 4, *glauca*; 5, *himalayensis*; 6, *aristata*; 7, *novæ-zelandiæ*.

(1) CLEMATIS FLAMMULA.

The species of Clematis of this type, nine in number, have small, frequently scented flowers. Excepting those of Asiatic origin, they belong to Southern Europe and Northern America.

C. FLAMMULA is the sweet-smelling Clematis of our gardens which in June and August fills the air with the scent of noyau and vanilla. It completely covers the arbour and mounts to a certain height, where it forms a compact bush covered with flowers. It originated in Southern France and other parts of Western Europe. I have seen it growing on the Pyrenees at Bagnères-de-Luchon, and in Spain in Catalonia and at Montserrat. It is the wild Clematis of the Mediterranean region, and its cultivation with us dates from 1596. *C. Flammula* has several varieties. I know of three: One with the flowers red outside (*C. F. rubella*), the other with the pedicels more slender and free, which gives to the bush a softer and more delicate aspect. This is *C. F. caespitosa*. Lastly, there is a third and more vigorous variety with larger and firmer leaves and flowers, which bears the name of *C. F. robusta*.

C. MARITIMA (Linn.) flourishes upon the sea coast in the southern parts of France and in the environs of Venice. It is generally considered as a form of *C. Flammula*. It is distinguished from it by its slender stalks, which, growing horizontally at first, afterwards rise to a height of some 24 inches, and also by its leaves, the segments of which are linear. I have never yet had an opportunity of testing these characteristics.

C. ANGUSTIFOLIA.—The narrow-leaved Clematis is perennial or sub-frutescent rather than vine-like and climbing. The stalks, which are slender, green, and marked with parallel brown lines, rise to a height of about 1½ yards to 2½ yards, and sometimes attach themselves to adjacent objects with the aid of the pinnate or bi-pinnate leaf-stalks, which occur at irregular intervals and are a deep green. The flowers, which are larger than those of *C. Flammula*, further apart, and borne upon longer stalks, have the sepals well open and even slightly reflexed, being also marked underneath with three rosy lines. The flowers are sweet-scented, the panicles terminal and limp and united in a sheaf, which has a very pretty effect. The blooming season is July and August. This species flourishes in Austria, on the shores of the Adriatic, and was first cultivated in France in the year 1797.

C. LASIANTHA (Fisch.) (the woolly-flowered Clematis).—A species nearly allied to the preceding. I have cultivated it myself. It differs from the preceding in the flowers and buds, the latter being woolly almost before they open. It comes from North America, and was introduced into France in 1812.

C. PALLASI (the Clematis of Pallas) reaches a fair height, and is allied to *C. angustifolia*.

C. MANDSCHURENSIS (the Manchurian Clematis), which came to me from the garden of the late M. Foulard, was brought out by Simon Louis, of Metz. It is a perennial, but the straight herbaceous stems attain to a height of about 2½ yards. It has a good deal in common with *C. Pallasii*, and was brought to Europe in 1840.

C. GEBLERIANA (Bongd.).—This perennial and nearly dwarf species is quite distinct from those above mentioned. It rises no higher than 24

C. LATHYRIFOLIA (Bess. Reich.).—A species closely allied to, yet a variety of, the preceding, from which it differs in the foliicles, which are

well cultivated have a very decorative effect in large gardens owing to their grace and lightness; and I may add that the flower-stalks are well suited to the making of large bouquets.

(3) *C. VITALBA*.

The wild Clematises—the European type of which is *C. Vitalba*—are the commonest and the most vigorous of the paniculate Clematises. They are often monœcious or dioecious. The Vine-like, long and powerful stems rise to considerable heights and cover the bushes with their abundant flowers, and after the flowers have faded with feathery tufts, which remain long after the flowers are over. The wild Clematis is seen in all parts of the old and new worlds. Central Europe gives us *C. Vitalba*, the Levant *C. orientalis*, Japan *C. paniculata*, China *C. chinensis*, India *C. Gouriana*, Southern Africa *C. Massoniana*, and Mauritania of Mauritius and Madagascar, brachyata of the Cape of Good Hope. The two Americas have also their wild Clematises—*C. virginiana* of North America, *C. peruviana* and *brasiliensis* of South America and the island regions, and from Jamaica, Martinique and San Domingo, &c., we have *dioica*, *dominica* and *guadalupæ* (*C. americana*). Of these numerous kinds of wild Clematises which cover the face of the globe, and the foregoing enumeration of which, though lengthy, is yet very incomplete, very few are cultivated in Europe, and such as do withstand our climate are relegated to botanic gardens. I shall therefore limit the present description to the four following species, viz., *C. Vitalba*, *C. virginiana*, *C. Grahami* and *C. paniculata*.

C. VITALBA (Lind.).—This is the common wild Clematis of our hedges. In July it climbs up into the trees, covering them with its numerous panicles of greenish white scented flowers. In winter its silky tufts adorn the hedgerows. The common name of Beggar's Herb it owes to the



Clematis indivisa.

inches; its leaves are entire, roughly indented, and its fairly large white flowers borne in a cyme or short spike intermixed with leaves. I have seen it in catalogues as *C. heterophylla*. It is Asiatic in origin, from the Songaria Mountains, and may be identical with

C. SONGARICA.—This interesting Clematis, which bears no resemblance to any other, I have, unfortunately, lost. There may, however, be one in the gardens of André Leroy at Angers, where I last saw it.

C. HOLOSERICEA.—I believe I am right in attributing this ternate-leaved Clematis to *C. paniculata*, a Carolina species, which I had in cultivation not long since, and upon which I discovered a ticket bearing date September 21, 1855. Its blooming season is the end of August. The short panicles carry few flowers, and these a greenish white and unscented. The buds are conical and pointed.

C. DRUMMONDI.—I recollect possessing this species, which comes from Texas. The leaves are finely pinnate and hairy, and the flowers white and borne in little panicles or corymbs.

(2) *C. ERECTA*.

C. ERECTA (All.), *C. RECTA* (Linn.).—The upright Clematis is frequently to be seen in gardens. Its herbaceous stems and pinnate leaves are numerous, closely set, and rise to little more than a yard high. The flowers, which are white, grow in handsome clumps for a great part of the summer. It is found in uncultivated places in the south of France, and grows also in Spain, Switzerland, Hungary, &c. Of the upright Clematis several varieties are known to me, notably a very early one with ruddy stalks—*C. erecta præcocior*. Two other varieties of *C. erecta* have come into the possession of Lemoine, of Nancy; one of them has double flowers (*erecta flore-pleno*) and the other is a hybrid, with panicles of deep violet flowers and yellow stamens. It was obtained by crossing *C. erecta* with *C. integrifolia*.

narrower and longer, and also in its lesser height. All the perennial (vivaces) Clematises—many of



Clematis Vitalba.

which we must connect with the *Flammula* group, such as *angustifolia*, *lasiantha*, *Gebleriana*—when caustic properties of the leaves when peeled, which in this state were made use of by simple

mortals as a substitute for blister. The hedge Clematis belongs essentially to Central Europe.

C. VIRGINIANA (Linn.) (the Virginian Clematis) is a native of Virginia, Carolina, Canada, and has been long known; it is the wild Clematis of

first appearance in our gardens. The latter is figured in Van Houtte's "Hothouse Flora" (1850-51), with yellow flowers of good size and single-flowered peduncles like *C. montana*. I mention it here, although the species is a long way from



Clematis recta.

Northern America. Brought to Europe in 1767, it formed one of a small number of species known to Linnaeus. I have grown it myself, and first made its acquaintance in the collection of the late Narcisse Desportés. It resembles the hedge Clematis in its habit and bearing. It is dioecious and the flowers are unisexual. The male—the only one I ever knew, and most likely the only one ever introduced into our gardens—is of course sterile, and has not the advantage of our European wild Clematis, which in winter is still the "Traveller's Joy." The Virginian Clematis is very closely allied to the two above-mentioned: the Brazilian Clematis and the dioecious Clematis of Jamaica. This latter was introduced into Europe in 1723, and was known to Linnaeus.

C. GRAHAMI (Bth.).—A dioecious species of Mexican origin. It has been able to survive several mild winters in our country. The year after it was planted it gave numerous panicles of male flowers, yellow in colour, graceful in aspect, and exhaling a decided odour of Chestnut flowers. It had developed enormously, and its long vine-like branches and leaves were not unlike those of the hedge Clematis. I lost it during a severe winter, the like of which this Mexican wild Clematis had not been accustomed to in its own country. *C. Grahami* came to me under the name of *C. graveolens*, a name which rightly belongs to another species hailing from Chinese Tartary, along with which it made its

being of the section of paniculatae. I have frequently inquired for it without being able to get it.

C. PANICULATA (Thunb.).—For a long time I cultivated a perfectly hardy Clematis which came to me under a wrong name, and I have several times seen it unnamed, or incorrectly named, in the collection of M. André Leroy. This quite distinct species, allied to *C. Vitalba*, which it resembles in port, seemed to me to be related to *C. paniculata*, also known as *C. Vitalba japonica* (Houtt.), a native of Japan, and the same *C. paniculata* which is figured in Thunberg's "Flora Japonica," and was known to Linnaeus.

(4) *C. GLAUCA*.

I include under this head two species of paniculate Clematides, forming a quite distinct type, the special characteristics of which are their smooth and glaucous leaves and the flowers, which are yellow, open and displayed, while the panicles are limp and the carpels feathery.

C. ORIENTALIS (Linn.) (the Oriental or Levantine Clematis) is one of the oldest known species, having been in cultivation since 1711. It is a climbing plant with long branching stalks, the leaves being pinnate in form, smooth and glaucous, the flowers yellow or yellowish, and the sepals pointed and reflexed. It flowers from July to October.

This wild Clematis is found over an immense extent of country, extending from Russia and the Caucasus as far as the Himalayan region.

C. GLAUCA (Wild.) (the glaucous Clematis), native of Southern Siberia, is very nearly allied to it. Like it, it is a climbing plant, and its leaves are composed of smooth, glaucous and cuneiform segments, but the colour is a deeper shade of sea-green. It is a very spreading plant, and the flowers, instead of being a rather tawny yellow colour or brown, like those of the Oriental Clematis, are a pronounced greenish yellow. The peduncles are divided into three. It flowers in July.

I have preserved these two species for a long time, and still possess the former. They are not decorative, but peculiar and original in appearance and rather Chinese, with their glaucous foliage and yellow blooms.

(5) *C. HIMALAYENSIS*.

I have cultivated several sorts of the Himalayan Clematis with the common characteristics of strong and long climbing stems, generally smooth leaves, campanulate flowers, with connivent, thick yellowish or greenish yellow sepals in panicles of seven to nine flowers, and exhaling an odour of Magnolia. The blooming time is late, being in October. There are three species of *himalayensis*, viz., *C. himalayensis*, *C. Buchaniana*, and *C. grata*, to which number I will add a fourth, having identical flowers—*C. japonica* Lowi.

C. HIMALAYENSIS (Hort.).—The plant which came to me under this name is very closely allied to Buchan's Clematis. The flowers opened accidentally some time between October 5 and 10.



Clematis indivisa lobata.

They were pendent, little yellowish bells borne on three-flowered panicles, the sepals being thick and woolly underneath.

C. BUCHANIANA (Buchan.).—The Clematis called after Buchan came from Nepal. It has leaves similar to the preceding and smooth, flowers bell-shaped, of a pale yellow, on axillary stems, the sepals being thick and reflexed. It begins to bloom at the end of September.

C. GRATA (Wulp.).—Under this name a species came to me which appeared to be allied to the

preceding, but was characterised by the smooth and glaucous stalks, and especially by the connate leaves, the petioles being broader at the base in such a manner as to form with the opposite leaf a complete circlet around the stem. I had reason to think it identical with the *C. connata* (Wallich) of Nepal. More delicately formed than the preceding, its flowers are borne in panicles, which, however, I only saw in the bud, the season being too far advanced to allow of their opening.

C. JAPONICA LOWI (Hort.).—This species was first brought to Mans by the late M. Bougard, who grew it in a pot, and with whom it was not a success. On the other hand, when I planted it out in the open air it grew very strongly and flowered the same year in October, and continued to do so for several years subsequently. This Japanese Clematis resembles the preceding in all respects save in the essential one of its hairiness. The stems and the leaves, which are of good size, are more than downy, being indeed hairy. The flowers are fairly large and bell-shaped, with thick reflexed yellowish white sepals. The large, limp, drooping panicles are very beautiful associated with the large, pointed, and cylindrical buds; the flowers exhale a more agreeable perfume than the preceding, similar to that of *Magnolia grandiflora*. The blooms continue to November and are the last of the season, so far as our climate is concerned. No doubt *C. japonica* Lowi is the name under which this charming species has been included in horticultural catalogues, yet I have never seen it anywhere, and I have, moreover, to regret never having been able to find it.

C. GREVILLEANA OR *GREVILLEANA* (De C.).—Judging by the description given of it and that contained in *La Belgique Horticole* (1879), this Himalayan climber has leaves thickly covered with reddish down and pendent tawny bell flowers with thick sepals, and is probably the same as our *C. jap. Lowi*. These wild Clematises from the Himalayas are an interesting race, but, unfortunately, they bloom too late to be suitable for our climate, especially in the event of early autumn frosts.

(6) *C. ARISTATA*.

I divide the Australian Clematises into two groups and types—*C. aristata*, or New Holland Clematis, and *C. novæ-zelandiæ*, whose native place is New Zealand. Such of the Australian group as I have cultivated are at the present day relegated, for the most part, to botanic gardens, and, excepting one or two, they are not included in nurserymen's catalogues. These Clematises are all characterised by being evergreen. Those of the species which I have seen in flower were dioecious, and only possessed the characteristics of the male, and, with the exception of one species that flowered in December, all were spring-blooming plants. Their place is in the greenhouse, as they are unable to stand our climate except in mild winters and unless effectually sheltered. I have cultivated five distinct species of the New Holland Clematis.

C. ARISTATA (Brown).—Of the Australian paniculate this is the oldest known type and the oftenest described; it is true under different names. It has no less than eight known synonyms ("Index Kewensis"). *C. aristata* is pretty and evergreen, the leaves being of good size, strong, and of a rich green. The panicles of white flowers are graceful with their stamens and bearded anthers, the dorsal ridge being prolonged to a point. The best place for this plant is a well-lighted greenhouse. It flowers in April. It was first introduced into English gardens in the year 1812.

C. LEEANA.—The leaves of this species are strong and indented. It flowered in my own collection in May, 1854, producing short, limp panicles of flowers, with four cross-shaped and narrow sepals, the edges rolled downwards. The

white flowers bear some relationship to those of the sweet-scented Clematis (*C. Flammula*).

C. MICROPHYLLA (De C.).—Although not showy, this species is interesting on account of its little rounded leaves and numerous panicles of greenish flowers redolent of orange blossom. I kept it for several years at the foot of the south side of a wall. This graceful and fairly vigorous Clematis possesses a general bronzy complexion which is peculiar to it, whilst the scent of its numerous male flowers is perceived from afar. The small-leaved Clematis flourishes among the barren islands of New Holland.

C. ELLIPTICA (Endl.), also belonging to New Holland, attains to great size and grows sometimes to a height of several yards. The branches are straight and fluted like the stem, the leaves oval, slender, pointed, smooth and entire. The flower-spikes are axillary, and the flowers, which are white with a tinge of pale green, are small and without decorative value.

C. GENTIANOIDES.—Likewise from New Holland (De Sainte Marie). I obtained it from the Muséum at Paris, and had a glimpse of its flowers before it was lost. The bronze-coloured leaves are oval, entire or indented, and smooth. It had all the appearance of a perennial and non-climbing Clematis. Like its compatriots, it is dioecious, and the flowers are set on single-flowered peduncles. It was brought to Europe in 1825.

(7) *C. NOVÆ-ZELANDIÆ*.

Those of the New Zealand Clematises that I know are distinguished from the preceding by their port, by their larger flowers in panicles, and by their stamens and anthers of fine rose colour, the effect of which, in contrast to the sepals of pure white, is charming. I am now going to describe two really ornamental species—*C. novæ-zelandiæ* and *C. indivisa*, with its variety *lobata*.

C. NOVÆ-ZELANDIÆ.—The New Zealand Clematis is the oldest in cultivation. It is distinguished by its fine dark green foliage. The leaves are in three lobes, with long, narrow divisions and indented. The whole aspect of the plant, which is a climber and covers a large space in the greenhouse, is original, and not unlike that of certain kinds of narrow-leaved Passion Flowers. I saw it once (in April, 1851) flowering in the open air in the collection of the late M. Foulard, and made a note of it on the spot, of which the following is an abridgment: Limp panicles of six and eight flowers, long and rather woolly pedicels furnished with short bracts, flowers 2 inches in size and displayed; seven or eight radiated sepals, oval in form, slender, with rounded summits, the underneath woolly; the male flowers milk-white and exhaling a faint odour, the stamens one-third of the length of the sepals. The grafted stock planted in 1840 by the side of a south-east wall had lived six winters, but was then blooming for the first time.

C. INDIVISA.—This New Zealand species has long been known by description, but it has not made its way in cultivation, and has given place to its variety *indivisa lobata*, from which it differs only by its leaves, which are entire.

C. INDIVISA LOBATA is a very handsome climbing plant, the foliage being a fine green, the leaves lobed, smooth, and shining. I several times saw it in bloom in April, 1854, planted out in a greenhouse at M. Chauvin's establishment, Avenue de Paris, and again in 1855 in my own collection, and also in the open air in a good sheltered position at M. Berard-Bonniere's, in the Rue de Flore. The flowers, which were borne upon branches of the preceding year, are each 1 inch to 1½ inches in size and freely produced; the sepals six to eight, star-shaped, and milk-white; the stamens were yellow and the anthers lilac-coloured. The appearance of these panicles of flowers was charming in strong contrast to the green and glossy leafage, the whole offering a combination of green, yellow, lilac, and white, the buds being green and the half-opened blooms a greenish white. To sum up, *C. indivisa lobata*

is a plant which ought to have a place in all winter gardens and greenhouses, where the effect of it is most charming in the spring, either upon a trellis or twining itself round pillars. Discovered for the first time in New Zealand by the elder Forster, a companion of Captain Cook in his great voyage round the world, it was described by the younger Forster in 1798. In the same century the learned botanist Cunningham found it on the borders of woods in the neighbourhood of Island Bay and on the banks of the river Hokianga, but the credit of its introduction into European cultivation is due to the missionary and botanist, William Colenso, who in 1840 sent seeds of it to Kew, where it was described by Hooker (*vide* "Hot-house Flora," by Van Houtte, vol. iv., October, 1848, p. 402).

Here I bring to a close the account of Clematis paniculata. All European and North American kinds, Flammula and wild Clematises, are hardy in the Paris climate, and the great development they attain to there is very effectively seen in parks and large gardens. The same may be said of the glaucous-leaved Clematises of the Levant, like *orientalis*. The Himalayan paniculate are half-hardy, late-flowering and autumnal plants, the south of Europe and the Mediterranean region being their proper habitat. In the climate of Nice the Japanese *C. Lowi* is very effective from October to December. Lastly, the Australian Clematises are adapted for winter gardens and greenhouses, particularly the New Zealand kinds, like *indivisa lobata*.

(To be continued.)

FLOWER GARDEN NOTES.

HEUCHERA SANGUINEA.—In looking through a long herbaceous border the other evening at Esher Place, I came across a very fine group of the above-named flower. Despite the fact that circumstances had necessitated moving the plants that formed this group more often and at shorter intervals than is consistent with the treatment generally accepted as the best for the Heuchera, they were in the best of health, the foliage and flower-spikes being alike strong and vigorous. A suggestion arising from the contemplation of the Heuchera is flanking the same where it does well with bold clumps of some good white Pink, as Albino; such a combination should form very effective grouping for the fronts of herbaceous borders.

LILIUM CANDIDUM.—I was sorry to note on the same border that, like myself, Mr. Jenkinson is troubled with the disease or one of the diseases that affect the Madonna Lily. There it was in its different stages, the points of the leaves touched, the leaf quite destroyed, and yet the stem and head with the flower-buds intact, a portion of the stem gone, the whole of the stem gone down to the ground-level, and so on, and this in capital soil, and where all other inmates of the border without exception looked in the best of health. Careful inspection, apart from microscopic aid, failed to discover anything amiss either with bulb or root. The examination tended to strengthen the opinion that the particular disease is atmospheric and cannot be remedied by anything applied to the bulb either in a dormant or active stage.

PYRETHRUMS.—These are very fine this year, the weather experienced having the tendency to strengthen both flower and foliage. I find autumn planting essential on this soil; if deferred until early spring and a dry time follow, growth is weak and the flowers much below the right standard. The clumps are divided in November into three or four pieces as their size will admit, and are planted in a compost consisting of three parts road-sidings and one of well-decomposed manure, a good thick mulching being put about them as soon as the planting is finished. Few outdoor flowers are more acceptable at this season of the year.

SHADE versus SUNSHINE.—The result of a trial of some few species of hardy plants in partial and

total shade with the view to test their capabilities in such situations, has led to the conclusion that no flowering plants are seen at their best in total shade. I do not mean by this under heavy foliated trees, but in the open, and yet in such a position that the direct influence of sun is never experienced. Things as widely apart as *Bocconia cordata*, *Mertensia sibirica*, white Japanese Anemones and different forms of *Ranunculus*, besides many others have been tried, and the result is invariably the same. In complete shade, as I have said, flowering plants are a failure; in partial shade much better results are obtained. Plants grown for the sake of their foliage, as the *Aquilegia* and *Adiantum-leaved Thalictums*, as also ornamental grasses in variety, do not require direct sunshine, or rather they may be grown successfully in positions where little can be found. *Iris pseudo-acorus* and its varieties are just now very beautiful on the margins of lakes and streams, bold clumps arranged between tall Ferns and Bamboos producing a very charming effect. The variegated form is worth growing for the bright colouring that is well maintained in the foliage long after the flowers are over. Many of the beardless Flag Irises are suitable for waterside planting, and a colony of these in different shades of colour is a beautiful and distinct feature.

Claremont.

E. BURRELL.

Gerbera Jamesoni.—Two years ago this fine plant delighted me when I saw it at Glasnevin about the middle of June. This year the first flower had just opened on June 8 on the same plant, which appears to be quite hardy in its rather favoured position in front of one of the houses in the Botanic Gardens. It reminds one of a glorified *Anemone fulgens*, and is, it appears, a plant much noticed by visitors to Glasnevin. So fine a plant is worthy of some care, and appears to need it, as Mr. Burbidge informs me that it will not live in the Trinity College Gardens, where a good many plants of doubtful hardiness do well. I have been trying it here, but my young plant succumbed to the wet spring.—S. ARNOTT, *Carse-thorn, by Dumfries, N. B.*

Coronilla varia and C. iberica.—Those who want coarse-growing, long-lived things for the wild garden should make note of *C. varia*. It is of such a vigorous, coarse-rooted nature, that when well established it will smother even the stronger-growing weeds, and in the course of two or three years will cover a large amount of ground. It is one of those things that may be relied on to hold its own where most hardy perennials would be more or less unsatisfactory and where many would die out. It remains a long time in flower, and the blooms being produced in great abundance large clumps have a nice appearance. In the flower border, however, this *Coronilla* should never find a place, as in the course of time it will smother everything near it. *C. iberica* is very dwarf, forming spreading tufts of intensely green foliage with which the bright yellow blooms form a pleasing contrast. It forms a tap-root like the Dandelion, and is a fine thing for dry banks or very light soil, being quite indifferent to heat and drought.—J. C. B.

Double Clammy Lychnis.—When in good condition this is one of the finest hardy flowers we have. It does not, however, seem to be at home in every garden, in some places absolutely refusing to grow. At one time it did remarkably well with me, but during the last three or four years the foliage towards the autumn became infested with a small fungus, which caused complete defoliation, so that the crowns dwindle and eventually perish. I have tried it in the sunniest and most airy place I have, but the result has been the same. The disease came on one wet, sunless summer, when the plants were set out in rather rich ground and in a partly shaded situation. My object was to increase the stock, this being a plant that nearly everyone who first sees it wishes to possess, and the growth made was probably too sappy and invited disease. When once any kind of hardy flower is attacked for

some years running with any fungoid disease, the best way is, I think, to burn the stock and discontinue its culture for a couple of years, starting again with healthy plants from a more or less distant locality. The finest specimens of this *Lychnis* I ever saw were in Mr. Wilson's Wisley garden. They were growing on rock-work, and, if I remember rightly, *Onosma tauricum* was growing vigorously under identical conditions, where the soil about the roots must at times be wonderfully dry, and where it is impossible for stagnant moisture to remain round the roots. No doubt this *Lychnis* would do well in pots, as it evidently does not require much nourishment and could then be sheltered from excessive rainfall.—J. C. B.

BLUE TUFTED PANSIES.

THE great advance in yellow and white Tufted Pansies which has from time to time been noted in THE GARDEN has not been shared in anything like the same degree in those of a blue colour. Two or three very pretty sorts certainly have come to the front, but there is a fine field ahead for anyone sufficiently interested to take up the matter and see what can be done.

In reviewing the sorts which now find most favour we must recognise the claims of that free-flowering variety Max Kolb. This is a capital dark blue sort of a fairly good habit, and the blooms are produced on long foot-stalks. As fancy goes now, there is plenty of room for improvement on this sort. Another old variety and one which is largely grown is Archie Grant, known to some growers as Admiration. This may be described as a fine indigo-blue flower, although it has been described as a purple-violet by admirers of its good qualities. The habit of this plant leaves much to be desired. The black blotch in the centre of the flower, too, must be considered a blemish. Of True Blue many favourable notes have appeared. These may have been merited in years gone by, but the heavy, dark rays in the centre of the flower seem objectionable when compared with the beauty of the rayless flowers. Its habit and free-flowering qualities, together with its fine imperial blue shade of colour, certainly make an effective display. A variety of recent introduction, of a somewhat similar shade of colour to that last-named, is Britannia. This is a medium-sized flower of circular form with a neat, rich yellow eye, and rayless. The habit is distinctly tufted, and the plant is free-flowering. This variety, when growing in large masses alongside True Blue in Mr. W. Sydenham's ground at Tamworth recently, was noted as being a capital advance in the direction of obtaining a good deep blue flower on a desirable habit. Undoubtedly the best blue sort for bedding is Blue Gown, and so long as the shade of colour will answer the purpose of the grower—this being a blue, slightly tinted mauve—I know of no other Tufted Pansy to equal this for its long and continuous display, combined with its freedom of flowering and its magnificent constitution. Two-year-old plants form perfect tufts, and in the early summer bristle with numberless rayless blossoms of medium size. Others very much resembling the last-named sorts are John Shires, very probably a seedling from the same variety, being equally dwarf and robust, with perhaps a slight improvement in the eye of the flower; Augustine, with flowers slightly deeper in colour, beautifully dwarf and free; and Magnificent. This last is a vigorous and dwarf-growing kind, and develops blossoms much larger and some shades darker than Blue Gown, from which it is a seedling. It is worthy of inclusion

in all lists where an advance is wanted. A variety just being distributed from Tamworth is Ophelia, of a high order of merit, and of a unique shade of heliotrope-blue, the colour deepening on the upper petals, and forming a pleasing soft contrast when planted in conjunction with some of the pretty blue margined flowers. The growth is vigorous and the habit dwarf and compact, and there is little doubt this variety is destined to be largely grown when once its merits are discovered by growers. Of a lighter shade is Formidable, best described as a soft lavender-blue, but having a rather large white centre with neat yellow eye. The plant is free-flowering, and in wet weather is seen to great advantage where many others fail. The habit is not so dwarf and compact as one would like. A splendid lavender-blue self is Sweet Lavender, a flower of most refined appearance, and rayless. The habit is distinctly good. A charming soft lavender-blue is Dorothy, at present little known, but meriting a place in all collections. It is a decided improvement on the last-named, being of beautiful form, rayless, and possessing a capital dwarf and compact habit. Roland Graeme, another of Dr. Stuart's gems, is a beautiful little plant, but so far it apparently lacks the necessary vigour to make a good mass of blossom. This is described as a clear blue, but of a rather dark shade of colour.

Before closing my notes I must not forget to mention a beautiful bright purple-blue named Mrs. Chas. Turner, which I have failed to find in but one or two catalogues. This is a fine effective piece of colouring and deserves prominence. It was in grand form at the last trial of Tufted Pansies at Regent's Park, and according to my own plants possesses a good constitution. D. B. CRANE.

Highgate.

NOTES FROM THE ISLE OF WIGHT.

If Mr. Wolley-Dod were near enough to pay me a visit of inspection I think he would say that I have as many plants of *Anemone palmata alba* in the garden as there are Daisies on the lawn; at any rate, over a similar space of land I am sure it would be so, the reason is—as he says—that it likes to face the south, and to be exposed to a blazing sun. Last year my gardener and I tried to get rid of it in a border where it grows over and injures other things. We fondly imagined that it was in great measure exterminated in that particular spot, but every little bit of root that was inadvertently left in the ground has increased greatly in size, and I see very little difference in the state of things so far as the *Anemone* is concerned between this year and last, and exactly the same troublesome way of becoming a regular nuisance, a characteristic of a good many bulbs and plants which in themselves are desirable enough. They are not content with doing well, they do a great deal too well and defy all restraint. *Brodiaea multiflora* and some of its congeners are here under the name of legion. *Hesperoscordeum lacteum*, which I have seen advertised in some catalogues at the rate of 3d. a bulb, will never be exterminated from this garden while suns rise and set. I literally do not know what to do with it, its powers of reproduction in a hot place are enormous, and it shows itself everywhere, and so with many other things that could be named, but oddest of all in its way of going on in my hands is *Homeria collina*. About eight or ten years ago, so far as I can remember, it was all over the place, and a lady who has lived many years at the Cape told me it behaves there just as the Poppy does in our cornfields; but a ruthless winter came and *Homeria collina* disappeared altogether from the scene. I thought it was done for, but it now turns out that it was only a temporary absence it had in view; it is coming up again and blossoming this summer

with all its wonted vigour, and I shall soon have it again to any extent I can desire and beyond it too. It is a very pretty Irid of a reddish colour, and I should like it very much in a moderate quantity. But *Hesperoscordeum lacteum* beats everything else in the place for its prolific tendencies; it is multiplied by seed, by innumerable little bulbils which are shed off in the ground, and I think it must have some occult practices which are only known to itself. If there are advantages—as is the case in living in a hot place—there are disadvantages also. H. EWBANK.

HARDY PLANTS AT THE TEMPLE SHOW.

AMONG the collections of flowers in the show tents on the Thames Embankment the hardy plant section, perhaps, scarcely claimed the consideration that its merits deserved. With banks of wondrous Orchids, regiments of glowing Cacti, stands of brilliant Begonias, and marvellous Gloxinias, the eye was saturated with a sense of bright colour and fantastic form, but those who made time to scrutinise the many excellent collections of open-air flowers were well repaid for giving them their attention. In this short note it would be impossible to touch upon more than a plant here and there of the many hundreds staged, and many interesting and rare subjects are necessarily omitted. The yellow *Adonis pyrenaica* appeared particularly pleasing, and the sulphur-coloured variety of *Alyssum saxatile* named *citrinum* should form a useful addition to rockeries where the golden type flourishes. *Androsace villosa* with its white, rosy-centred blossoms was quite a gem, and many of the Anemone family were present in good condition, amongst which *A. alpina sulphurea*, *A. narcissiflora*, *A. palmata alba*, *A. sylvestris*, and *A. sylvestris fl. pl.* were noticeable. The alpine *Aquilegia* and alpine Aster were also pretty, the latter's mauve-purple flowers forming an effective spot of soft colour. Many varieties of the *Calochorti* were to be seen in flower, those of the *venustus* section being especially handsome. *Camassias* were also well represented, their colours ranging from the dark purple-blue of the type to white. It is a wonder that these handsome bulbous plants are not made more use of in the flower garden. In some stands the brilliant orange of *Cheiranthus Marshalli* was conspicuous, and fine pans of *Cypripediums* bore evidence of successful culture, while the white *Cytisus Ledebouri* was an attractive sight. *Dodecatheons* were in good flower, and *Dryas octopetala* with its white blossoms and serrated leafage was noticeable in not a few collections. The beauty of this plant cannot, however, be duly appreciated until it is seen covering a space of the rock garden with a flower-studded mat of foliage. There were many specimens of *Eremuri* to be seen, especially noticeable being a giant spike of *E. Elwesianus*. Fortin's large-belled Lily of the Valley bore witness to the value of this variety, and *Fritillaria coccinea* and *F. Elwesi* were well shown. Among the Irises I remarked a fine clump of *I. tectorum* in full bloom, while *I. missouriensis*, the yellow *I. pumila* Leander and many beautiful varieties of the *Oncocyclus* section were worthy of comment. *Incarvillea Delavayi*, with its rose-coloured, long-throated flowers, was especially attractive, as was the lovely *Lilium rubellum*, with its blossoms of the palest satin-pink. If this latter should prove hardy it will be a most valuable addition to the flower garden. *Lychnis dioica rubra plena* was a plant that attracted attention by its brightness. Of Tree Pæonies, Henry Irving, a single red, and Jean de Reszke, single white, were both of remarkable excellence, the crimson of the former being entirely destitute of the pink shade that is almost invariably present in dark-coloured Pæonies, while the white of the latter is of exquisite purity. Among the herbaceous Pæonies, *Czarina*, double pink; *Fairy*, single flesh-coloured, and *Lucius*, single white, were three beautiful flowers. In this section I was surprised to see, exhibited by the same firm that obtained an award of merit for the Tree Pæony Jean de

Reszke, already mentioned, a Pæony bearing the same name. I was under the impression that a mistake had been made in labelling, but on inquiry was informed that this was not so, and that the firm in question were sending out a Tree and an herbaceous Pæony under the same name. I may have been misinformed, but if not, such a course of procedure appears likely to lead in time to a good deal of confusion. The dwarf Phloxes were well represented, many of the *P. subulata* or setacea section being exhibited. Amongst these were *aldboroughensis*, G. F. Wilson, Nelsoni, *nivalis*, The Bride, *violacea* and *Vivid*, while *P. canadensis* was still more striking with its larger flowers. *Ramondia pyrenaica* was present, some well-bloomed plants being shown. The great Buttercup (*Ranunculus cortusaeifolius*), with its tall heads of bright yellow flowers, was worthy of notice, and many Saxifrages were to be seen, amongst the most striking of which were *S. longifolia*, *S. Macnabiana* and *S. Rhei*. One of the most striking hardy flowers in the show was undoubtedly *Trollius caucasicus* Orange Globe, the blossoms being very large and of an unusually vivid orange colour. The pretty little *Tulipa persica* appeared particularly graceful and pleasing. The fine *Watsonia O'Brieni* may perhaps be denied a place among hardy flowers, but the *Watsonias* grow thickly along the banks of the South African rivers close to where the scarlet *Vallotas* bloom, and as these latter will live out



Typical flower of *Lælia præstans*.

through the winter in sheltered spots in the southwest, the *Watsonias* would doubtless do the same. S. W. F.

NOTES AND QUESTIONS.—FLOWER.

Senecio Doronicum.—This is a fine old herbaceous plant when left alone long enough to establish itself and throw up vigorous spikes. There is a richness in the golden yellow tint of the flowers that makes them much sought after for indoor decoration, while it has also a fine effect in the garden. The small pot-bound pieces that are too frequently sent out from hardy plant nurseries take a long time to make strong plants, but when once well established they may be freely divided and thereby propagated.

Crepis sibirica.—In a recent note I described the flowers of this as much smaller than those of a Dandelion. Dandelion flowers are very fine in this soil, but I send flowers of *C. sibirica*, which you will see are as large as those of an average Dandelion. They resemble generally in size and shape the flowers of *Hieracium villosum*, but the yellow is deeper than in that species. I have never seen a *Crepis sibirica* with any shade of

blue in the flower, as described by one of your correspondents. He was, perhaps, thinking of a *Mulgedium*.—C. W. DOD, *Edge Hall*.

ORCHIDS.

LÆLIA PRÆSTANS.

A CERTAIN amount of confusion exists among Orchid growers as to what the real *Lælia præstans* is, many asserting that most of the plants bearing this name in collections are merely the more common *L. pumila*. After all, perhaps, it really does not much matter, as *L. præstans* is now almost universally accepted as a variety of *L. pumila*, although it is still kept up as a distinct species in Williams' "Orchid Grower's Manual," thus following such authorities as Reichenbach, who named it in 1857, the *Botanical Magazine*, Bateman, and the "Reichenbachia." The accompanying sketch is chiefly interesting owing to the fact that it was made from one of the authenticated specimens of *L. præstans* from the once famous Downside collection. The flowers are of a purple hue, with an olive tint towards the tips, the petals, however, being of a brighter colour than the sepals. The bent tubular lip is of a much deeper purple, the edges round the opening being much recurved, while in the throat there is a total absence of yellow, a colour that prevails in most forms of *L. pumila*. J. W.

Epiphronitis Veitchi.—The flowers of this pretty bigeneric hybrid are so bright that it should eventually become very popular. The growth is elegant and light, the deep scarlet of the flowers showing well against the green foliage and little white roots. I have noticed a good deal of variation in the colour, but all are worth a place, as these bright tints are only too scarce among Orchids. *E. Veitchi* is the result of crossing *Epidendrum radicans* and *Sophronitis grandiflora*, and does well in a light and moderately heated house suspended from the roof in small pans.—H. R.

Cymbidium tigrinum.—The aspect of this species is quite different from that of any other *Cymbidium*, the plant being of tufted habit, the roundish pseudo-bulbs each about 1½ inches high and producing short spikes of showy blossoms. The sepals and petals are olive-green, more or less margined with white, and having a few reddish spots at the base of each. The lip is yellow, the centre marked with deep purple lines, the side lobes striped with crimson. This will not, of course, need such large pots or so much compost as the larger-growing kinds, but must not be starved. Nice specimens are occasionally seen grown in pans about 6 inches across, in which it flowers freely.

Oncidium sarcodes.—Though the number of *Oncidium*s now in flower is very large, there are few to beat this bright and effective species, the long branching spikes having a very light and elegant appearance when arranged with other Orchids. Some fine plants I recently noted were carrying spikes over 4 feet high, and when one considers how small comparatively are the pseudo-bulbs it is surprising how they go on year after year producing these immense spikes. It grows and flowers best in an intermediate house, being a native of Brazil.—H. R.

Colax jugosus.—This singular and pretty Orchid is grown better than formerly was the case, and there is little doubt that the advent of improved fumigating methods has had a good

deal to do with this. It is singularly liable to the attacks of insects, yet easily injured by inconsiderate fumigation, and unless the grower feels confident that the fumigation will not be harmful he hesitates to use it, relying more on sponging, but compared with the former mode this is a slow and ineffectual method of cleaning.

NOTES ON AERIDES.

DURING the month of June there are probably more species of *Aerides* in flower than at any other time in the year, but it is an unfortunate fact that one may visit a great many collections and see very few of them. It is difficult to say why, for they are beautiful, most of them sweetly scented, and all free-flowering when well managed. In all probability the reason is that they are not so sportive in character as *Odontoglossums* and other more popular species, and there is not the same pleasure attending the first flowering of an imported batch of plants as is felt when this occurs with more popular kinds. Indeed, it would have to be something very distinct and startling in this family to cause anything like a big price to be paid for it or to cause much interest among Orchid growers generally. Still this ought not to prevent their being grown as useful and beautiful plants, fine subjects for any kind of decoration either as specimen plants or cut flowers, and plants of much more ornamental habit than is usual among Orchids. Their culture is of the most ordinary description, and when the season's routine has been practised for a year or two no difficulty will be found even by the tyro. A few of the more salient points may be briefly touched on before noting the most popular and handsome kinds now in flower. All are evergreen, or should be so treated under cultivation, and though some individual species or even plants may take a longer rest in winter than others, nothing approaching the drying off as practised with *Dendrobiums*, *Thunias*, and other deciduous species must be permitted. Perhaps more than in any other genus the roots indicate the treatment required. When the softening of the points of the roots is noted in spring, it is safe to assume that growth of foliage if not already begun will not long be delayed, and in consequence an increased supply of moisture will be necessary, while the hardening or clouding over of the roots in autumn indicates the reverse conditions and will be met accordingly.

The habit of most *Aerides* in their native country is very straggling, and it is only under cultivation that prim, shapely plants are produced. It is not well to lose sight entirely of their habit and confine them to very small pots or baskets, because, although in a state of Nature, long clinging roots are necessary to prevent them being blown from their position, yet this natural trait must not be lost sight of. Indeed, where the plants are not likely to be needed for decorating or to be often shifted about, there is no question that they are far happier when the long white roots leave the pots or baskets entirely to entwine about the staging or whatever they happen to reach. For large, heavy specimens, broad, shallow baskets may be used in preference to those of deeper make, while small-topped pieces are easily accommodated in pans or pots. For compost, nothing is better than clean, freshly-gathered Sphagnum Moss, adding plenty of rough broken charcoal or ballast thereto. The plants may remain in the same baskets or pots over a long series of years provided a little of the surface is removed annually and replaced by new, though it will often be the case that

the Moss grows so freely during the summer months as to need trimming back in autumn. Too much about the roots in winter is harmful, holding, as it does, so much moisture in suspension. When, owing to the plants growing too large for their receptacles, a shift becomes necessary, it may and probably will be found that the bases of the stems are a little decayed, and these should be cut off with a keen knife to where they are sound. Again, a plant may have become bare of leaves below and need to be lowered to make it presentable. If otherwise in good health no harm will accrue from taking as much off the stem as is necessary, but when it can be managed—especially with plants out of health—it is safer to place them in the pots or baskets before laying the drainage, as this will sink them perhaps sufficiently. If healthy and free from insects there is little trouble in keeping them so, but if *Aerides* are attacked with the small brown scale so partial to them, this will increase very rapidly and cause a lot of trouble. Spot often attacks plants kept in close, ill-ventilated houses, but, as a rule, disappears when they are more rationally treated, allowed plenty of light and air, and an always moist, though never stagnant, atmosphere. I have not given precise directions as to temperature, as they vary a little with individual species, but with a little care in arrangement most of the known kinds may be grown in one house. Among those now in flower,

AERIDES AFFINE is a pretty plant, not so easily grown as the majority of species. There is a good deal of confusion about the nomenclature in the genus, and this plant may be met with under the names of *A. multiflorum* and *A. roseum*. But if not distinct species, there are distinct forms, some having erect branching racemes, others pendulous; the colour of the flowers being whitish, with a number of rosy spots. It comes from Nepal, and under this name was introduced by the Messrs. Loddiges in 1837, though possibly the same form had been previously known.

A. CRASSIFOLIUM is a handsome species, bearing large flowers upon loose racemes, and these are of various shades of rosy purple, this being much deeper on the lip than on the other segments. Coming from Moulmein, it may have a position in the warmest house. It was introduced in 1864.

A. CRISPUM and its varieties are very distinct and beautiful plants, somewhat slender in growth, but bearing very handsome branching racemes of large flowers. In the type they are white, with tips of bright amethyst-purple to the segments. It is a native of Bombay and various parts of Southern India, and first flowered in England in 1842.

A. FIELDINGI is popularly known as the "Fox-brush" *Aerides* on account of the contour of the lovely racemes which bear an immense number of small rosy purple flowers. It is one of the finest and most popular, easily grown either in the warmest or intermediate house, and is a native of Sikkim. It was introduced in 1850 by Messrs. Veitch and Sons.

A. MACULOSUM is not much grown, but is a pretty plant of dwarf habit, and bears white flowers rather closely spotted with deep purple. In some varieties the blossoms are of a rose colour with deeper coloured spots. It is a native of various parts of India, and first flowered in this country in 1844. The well-known

A. ODORATUM is a very useful species, and though such fine kinds as *A. Lawrenceanum*, *A. suavisimum* and many others bear larger, more deeply coloured flowers, they are all very nearly related in a botanical sense. The powerful aromatic odour given off by all these forms is very pleasant, and one plant scents a large house. They must all be strongly and well grown to obtain an idea of their real beauty, and large specimens with a dozen or two of strong racemes upon them hanging naturally are hard to beat for beauty.

It is the species upon which the genus was founded by the Portuguese traveller Tourcuro, and was in cultivation in this country in the very earliest years of the present century, if not previously. H. R.

LYCASTE AROMATICA.

ONE of the oldest known Orchids, this pretty and sweetly-scented species has always enjoyed a fair share of popularity, notwithstanding the immense number of mere showy, larger-flowering kinds. The growth is smaller than that of most *Lycaestes*, the pseudo-bulbs seldom exceeding 2 inches in height, but the amount of flower produced from these bulbs is very remarkable. The colour is a bright yellow, and beyond the tips of the leaves the whole plant is often hidden with the flowers, which exhale a rich odour all the time they are open. The plant may be recommended to amateurs having little room and beginners generally, as with ordinary care it grows and flowers freely every season. In any fairly moist house kept a little above the temperature recommended for *Odontoglossums* it will be perfectly at home. The proper time to repot is as soon as the flowers are over, the young growing shoots starting from the base about the same time as the flower-spikes, and not, as a rule, rooting much until the blooms are past. The habit of the plant suggests the treatment as to size of pot, for obviously such a plant will not require so large a one as the stouter-growing *L. Skinneri* or *L. lanipes*. A pot that allows a margin of an inch or a little more around the plant is quite large enough, and this may be filled quite two-thirds of its depth with clean crocks as drainage. After removing decayed roots and compost from the plant, place it on a level with the rim of the pot and fill up with compost consisting of equal parts of peat fibre, loam and chopped Sphagnum, kept well apart by the addition of clean crocks or charcoal, broken to suitable sizes according to that of the pot. When re-established the roots must be kept nicely moist and all through the growing season. The pseudo-bulbs finished, a slight diminution is necessary, the resting season usually lasting from two to three months. Overhead watering is not advisable as long as the partly-opened leaves form a lodgment for it, but during the latter part of the summer it is helpful in keeping down red spider and refreshing to the foliage. It must of course be discontinued in dull or wet weather. With ordinary care insects are not troublesome, the most likely places to induce attack being dry, warm corners of the house. Shading must be carefully attended to and all the air possible given the plants. *L. aromatica* is a native of Mexico, and was first cultivated in Britain at the Edinburgh Botanic Gardens.

Cypripedium Sanderianum.—There are few more handsome species than this, introduced about twelve years ago by Messrs. Sander and Co. It is a strong-growing plant, with leaves each a foot and upwards in length and a stout scape producing from two to five large flowers. The most striking feature of the blossom is the length of the petals, which, like those of *C. caudatum*, are pendulous, ribbon-like and 2 feet or more in length. The bright tints of crimson, yellow and purple seen in this species make up a showy as well as an interesting flower. Coming from the islands about Malaya, it naturally requires plenty of warmth, and, given this and a shady, moist house, it grows and flowers freely.

Dendrobium Victoria Regina.—Apparently this species is a bad one to import in good condition, not to say difficult to grow, for the majority of plants one comes across look anything but happy, and so far it cannot be described as a showy or particularly handsome plant. Like *D. Falconeri* and *D. sublaevis*, it appears to be a very free-branching species in its native habitat, growing from a great many of the upper nodes of the stems. All this class of *Dendrobium* seems to want something to lay hold of as they grow, to get the most out of them. Growing

away with their roots in the air the tiny stems are not, as a rule, very vigorous. The colour on the tips of the sepals and lip varies, in some of the best varieties being a deep violet-purple.

PUBLIC GARDENS.

A GLIMPSE OF KEW GARDENS.

THE charms of Kew Gardens are so many and varied that the casual visitor, who has but a few hours at his disposal, is from the first oppressed by the knowledge that, strive as he may, not a tithe of the beauties and treasures that the gardens contain can be seen during his limited stay. On all sides rival attractions present themselves. In the lofty glass structures tall Palms spread the delicate tracery of their arching leaves in a tropical temperature, and the climbers of the sunny south luxuriate; in the temperate houses there is likewise abundant beauty of form, while in others the Lotus live and Nymphæas of varied hue float mirrored on the still surface of the tepid water. Here are Orchids; here giant Nepenthes; here the quaint Coco de Mer, from the Seychelles, holds above its bulky twin seed-pod its broad fan leaf. Diverse are the beauties of flower and foliage stored in the various glasshouses, but the charms of Nature in the open air at that period of the year when spring and summer meet are still more delightful and varied. In the grass, among the Wood Hyacinths, the last of the crimson Tulips blaze and the latest of the Poet's Narcissi display their snowy blossoms, while on a verdant slope the massive flowers of the herbaceous Peonies glow, and a pretty effect is obtained by the tall flower-scapes of the Wood Hyacinths rising from a carpeting of variegated Periwinkle. Everywhere the Laburnums, Lilacs and Thorns are blossoming; the Bird Cherry is loaded with its white bloom-sprays; the purple-pink inflorescence of the Judas Tree mingles with young leafage of the freshest green; Guelder Roses show their white flower-balls from afar, and the Rhododendrons are bright with many a tint, while breadths of Irises give broad colour-effects. In other parts of the gardens are open grassy glades fringed with masses of Azaleas, now in the zenith of their beauty, whose varied hues create a suave colour-harmony in which there is no discordant note, with a verdant background formed by large deciduous trees clothed in their spring attire. In a sheltered dell near which the Lilies of the Valley are blossoming beneath the trees, the Bamboos lift their graceful shafts aloft and the giant Eremurus shows its 3-foot head of bloom. Around the grassy verge of the lakelet the Gunnera spreads its broad leafage, and from the shallower portions the sword-shaped Flags rise in colonies and the water-fowl float. From the wooded islet the yellow Broom gleams golden, while between the red-brown Water Lily leaves the moorhens swim to and fro, their scarlet-beaked heads jerking, rhythmically, in unison with the oarage of their webbed feet. Amid such scenes, replete with the sense of nearness to Nature and aloofness from the turmoil of city life, it is difficult to realise the proximity of the metropolis. The incalculable benefit of such a retreat at so little distance from the centre of London is, perhaps, too little valued by the multitude. The poetry of the gardens is feelingly portrayed in the picture gallery, and, although an intimate acquaintance with every aspect, under all conditions of light and shade and of the varying seasons, such as is evidently possessed by the creators of the paintings referred to, is doubtless necessary for the full appreciation of this poetry, the passer-through, if of receptive mind, becomes quickly conscious of its presence.

In the portion of the gardens devoted to herbaceous plants, *Anemone decapetala*, *Claytonia sibirica*, *Erysimum Perofskianum*, whose brilliant orange is most effective, *Geums* of sorts, a tawny yellow variety of *Hemero-*

fulva, with flowers of a colour midway between the tint of *H. flava* and the typical *H. fulva*, *Kniphofia Tucki*, *Lathyrus lætiflorus* and *L. undulata*, Lupines in variety, and *Ononis rotundifolia*, with its rose-coloured blossoms, were in bloom. *Pentstemon Menziesi* and several *Potentillas*, amongst which were *P. alpestris*, *P. argyrophylla*, *P. aurea*, *P. calycina*, *P. chrysantha*, *P. rupestris*, *P. tridentata*, and *Thermopsis montana* were also in flower. *Smilacina oleracea* was producing its white blossoms, and the giant Cow Parsley (*Heracleum*) was throwing up a lofty head of bloom from its bold leafage.

The rock garden, disposed naturally on either side of a winding path, was, perhaps, at its best at the time of my visit, and was bright with floral gems, among which were *Achillea Huteri*, *A. rupestris*, *A. umbellata*, the lilac-flowered *Æthionema cordifolium*, *Alyssum creticum*, *A. podolicum*, and a pretty light sulphur form of the golden *A. saxatile* styled *A. s. citrinum*. *Androsace lactea* was bearing its white flowers, while of the *Anemone* family *A. baldensis*, *A. multifida*, *A. narcissiflora*, *A. Pulsatilla*, *A. sylvestris*, and *A. trifolia* were carrying bloom, as were *Anthemis carpatica* and *A. cupaniana*. *Anthyllis montana* had expanded its purple heads of bloom, and the large St. Bruno's Lily (*Anthericum liliastrum majus*) was throwing up its white flower-scapes, while *Arabis petraea* was also in bloom. *Arenaria balearica* covered the stones with its creeping foliage set with innumerable minute white flowers, and *A. gothica*, *A. juniperina*, *A. montana*, *A. purpurascens*, and *A. tetraquetra* were all in flower. *Armeria caspitosa* was producing its pink flower-heads, *Aster perigrinus* was in bloom, and many of the *Aubrietias* were flowering, among the number being *Aubrietia deltoidea* Bougainvillei, *A. d. Campbelli*, with the synonymous *Hendersoni*, *A. d. Dr. Mules*, *A. d. Leichtlini*, *A. d. taurica*, *A. d. violacea*, and *A. d. W. Ingram*. *Cerastium* and alpine Wall-flowers (*Cheiranthus*) were flowering, as was *Chrysogonum virginianum*, while in low-lying peaty beds the terrestrial Orchid *Cypripedium pubescens* was in bloom, and *C. spectabile* was showing strong growth. In higher positions *Daphne alpina* and *D. Cneorum* were blossoming, and *Delphinium trolliifolium* was also showing flower, as were *Dianthus alpinus* and *D. cesius*, while *Dicentra canadensis* and *D. formosa* were in bloom. The American Cowslips, *Dodecatheon breviflorum*, *D. Meadia*, and *D. splendidum*, were displaying their umbels of pointed blossoms, and *Dryas octopetala*, though past its best, exhibited a fair quantity of expanded flowers. Of *Epidemiums*, *E. Musschianum* was noticeable, and *Erigeron aurantiacus* and *E. compositus* were flowering, as were the purple *Eriaria alpinus*, *Erodium guttatum*, and *E. serotinum*. *Erysimum Boryanum* and *E. rupestre* were also showing expanded blossoms. The Brooms were represented by *Genista hispanica* and *G. pilosa*, while of the *Geranium* tribe, *G. argenteum*, *G. atlanticum*, *G. maculatum*, *G. margaritaceum*, *G. reflexum*, *G. rivulare*, *G. sanguineum*, and *G. sylvaticum* were all in bloom. *Geum Eweni*, *G. montanum*, and *G. Heldreichi*, the latter of an intense shade of orange-scarlet, were flowering, as were *Gypsophila cerastoides*, *Hippocrepis comosa*, and *Horminum pyrenaicum*. Various specimens of the *Iberis* family were in evidence, and, of Irises, *I. cristata* and *I. verna* were in bloom. *Lathyrus canescens* and *L. vernus carneus* were flowering, as were the yellow *Linum arboreum*, *Lindelofia longifolia*, and the rose-coloured *Lychnis Lagasce*. *Mertensia virginica* was in flower and *Morisia hypogæa* was producing its small yellow blossoms, while the pale-blue flowers of *Nepeta Mussini* gave a pleasing effect. *Onosma echioides* and *O. tauricum* were bearing their pendent yellow blossoms, and, near the *Cypripediums*, *Orchis latifolia*, *O. laxifolia*, and *O. militaris* were displaying their bloom-spikes, while, among the Stars of Bethlehem, *Ornithogalum arcuatum* was perfecting tall spikes of large white star flowers over 2 feet in height, and *Oxalis enneaphylla* and *O. oregana* were blooming. The dwarf *Phloxes* in flower included

P. amoena, *P. divaricata*, *P. reptans*, *P. stellaria*, and many varieties of the *P. subulata* or setacea section, while *Podophyllum Emodi*, *Polemonium reptans*, and *Polygonum sphaerostachyum* were respectively in bloom. Of the *Potentillas*, *P. Forbesi*, *P. involucrata*, *P. japonica*, *P. j. alba*, and *P. mollis* were blossoming, as were strong plants of *Ranonda pyrenaica*, and the single *Ranunculus asiaticus*, a far more graceful flower than its double form, made a spot of vivid colour with its glowing crimson. *R. montanus* was also in bloom, as was the dwarf white *Rhododendron myrtifolium album*. Many varieties of *Saxifrages* were in flower, amongst which may be mentioned *Saxifraga Aizoon*, with its variations, *S. a. carinthiaca*, *S. A. Churchilli*, *S. A. incrustata*, *S. A. Malyi*, *S. A. minor*, *S. A. recta*, and *S. A. rotata*, *Saxifraga Andrewsii*, *S. caesia*, *S. cæspitosa*, *S. cartilaginea*, *S. celtiformis*, *S. crustata*, *S. cuneifolia apennina*, *S. c. infundibuliformis*, *S. c. multicaulis*, *S. gibraltarica*, *S. Hosti*, *S. hypnoides*, *S. Kolenatiana*, *S. lantoscana*, *S. ligulata*, *S. l. cochlearis*, *S. longifolia*, *S. Macnabiana*, *S. muscoides atropurpurea*, *S. pennsylvanica*, *S. rotundifolia glandulosa*, *S. trifurcata*, and *S. Wallacei* or *Camposi*. *Scilla verna* was in bloom, as was *Silene Zawadski*, *Symphytum tuberosum* and *Tanacetum argenteum* being also in flower. The pretty little *Tiarella cordifolia* was producing its ivory-white flower-spikes, but the *Trilliums* had seen their best days. *Valeriana rotundifolia* was in bloom, as were *Vancouveria hexandra*, *Veronica aphylla*, *V. austriaca*, *V. gentianoides*, and *V. pectinata rosea*, while the yellow *Viola biflora*, *V. cucullata* and its charming white variety were in flower, as were *Wahlenbergia Kitaibeli* and *W. serpyllifolia*, while above the rock garden a fine bush of *Rosa sericea* was expanding its single white blossoms. S. W. F.

Ilford, park at.—The public park is to be enlarged by the purchase of ten acres at £850 per acre, and six acres at £650 per acre.

Robert Browning Garden.—Miss Hay, the daughter of the American Ambassador, on Monday evening opened, as a public garden, the long-disused burial ground which lies at the rear of the Robert Browning Hall, York Street, Walworth. The garden has been prettily laid out under the direction of Miss Wilkinson, the landscape gardener connected with the Metropolitan Gardens Association. The association itself has contributed a portion of the cost. After Miss Hay had opened the gates and formally declared the garden open to the public, the further ceremony was performed of receiving the gift of a handsome Doulton ware drinking-fountain presented by Mr. H. Lewis Doulton, in commemoration of the fact that his father, the late Sir Henry Doulton, had, with other members of the family, been baptised in and connected with the old chapel.

An open space for Lee.—Thanks to the enterprise of the Lee Vestry and the public spirit of Lord Northbrook, the Manor House of Lee and its grounds will be secured for the public. Lee, although in the corner of London which is still most sparsely populated, is filling up fast, and all round the manor house building operations are going on. The parish has a population of nearly 20,000, which will be more than doubled during the next ten years. With the exception of seven acres presented to the parish as a Jubilee gift by Lord Northbrook, Lee has no pleasure grounds. The falling in of the lease of Lee Manor House offered an excellent opportunity of acquiring a ready-made recreation ground. The present house stands on a site occupied by an older mansion, and with its fine old trees, lawn, ornamental lake, and walks, would make an ideal pleasure garden. Lee Vestry opened negotiations with the landlord, Lord Northbrook, and has practically secured the house and its ten acres, with an additional three-quarters of an acre, for £9600, and Lord Northbrook has generously offered to contribute £1300 towards the purchase.

NOTES OF THE WEEK.

Incarvillea Delavayi.—This handsome plant is just coming into bloom in the open air in the gardens at Hamslade, N. Devon.

Iris Lorteti.—A couple of flowers of this handsome Cushion Iris, noted at the last meeting of the Royal Horticultural Society, were very beautiful in the delicate, though warm rose-lilac tint in the upper parts of the flower.

Heuchera micrantha.—Though not possessing the bright colour of *H. sanguinea*, there is a use for this species in place of foliage in vases and the like. The creamy white blossoms are very small, though freely produced in a large nearly pyramidal head.

Pyrethrum Lady Kildere.—The bronze-orange shade of this new variety renders it quite distinct among double Pyrethrums, and distinctness is what is most needed in every direction of so-called florists' flowers, therefore should specially be a medal.

Omphalodes linifolia.—This has quite a distinct appearance from other members of this genus, the plant being more erect in habit and more free-flowering. It is, however, worth growing for the sake of its freedom and the value of its pretty flowers.

Eremurus robustus.—A magnificent plant of this is now blooming freely in Mrs. Macalister's garden at Hamslade, N. Devon. The plant is 3 ft. 6 in. through and carries six fine spikes of bloom, the tallest of which is 6 ft. 9 in. in height, and is still growing.

Cytisus scoparius pallidus.—This forms a pretty and effective bush, bearing on its dainty twigs an abundance of the soft yellow blossoms, which are as distinct from those of others of its class as they are welcome. For such beautiful things there is ample room in the garden.

Iris dalmatica Princeess Beatrice.—This is, perhaps, the finest form of the pallida section, the monster flowers, perhaps, a shade deeper in colour, yet decidedly bold and striking notwithstanding. Its taller growth especially adapts it for bold, effective massing in the garden.

Meconopsis nepalensis, a white form of.—A very fine ivory white flowered variety of *Meconopsis nepalensis* is blooming here now, each flower 4 inches across a perfect bell. The plant is 6 feet high, or 2 feet higher than the typical *M. nepalensis* by its side. I never saw *M. nepalensis* so good.—F. W. B., Dublin.

Iris Dr. Bernice.—This Flag Iris should be found in all good collections of these flowers, the lower petals very dark, almost blackish crimson, the upper petals of a smoky bronze hue that is rather effective. The flowers are also borne in a free manner that renders them of value for cutting, and in company with some of the yellow kinds they are very telling in a vase.

Achillea mongolica.—This is one of the most valuable of the genus when regarded from a cut-flower standpoint. The purity of the blossoms, together with their size and remarkable profusion, are points not lightly to be regarded when combined in one plant. These good properties are of still greater value when the plant is of quite easy culture and hardy, as in this instance.

Lilium tenuifolium.—In spite of its being among the dwarfest and most slender of its class, it is yet among the most brilliant, as it is among the earliest to bloom. Notwithstanding the slender growth, it is more reliable in some gardens in its flowering than others. Among its tribe the brilliant colour is very welcome and precious, and a more vigorous and even more reliable variety would be even more so.

Iris orientalis (syn., *I. ochroleuca*).—Just now this is among the most striking of the Iris species and a fine plant when freely grouped in the garden. To get it thoroughly established takes from two to four years, much depending on the quality and depth of the soil and likewise the material available when planting. In deep rich ground the species will attain 4 feet or 5 feet high, sometimes more, and then it is a striking object in the garden.

Carnation Primrose Queen.—This yellow self kind has been shown upon several occasions of late, and has been admired both for its size and its uniform colour. For the production of blossoms alone it is useful, but for open-air culture it is rather tall, an evil necessitating much staking to make the plants, or rather the head of bloom, secure. The plants were of

course brought into flower under glass, and this to some extent may have elongated the stems.

Leontopodium alpinum (Edelweiss).—A mass of this popular alpine was included in the group from Messrs. Veitch at the Royal Horticultural show last week. The group contained many good flower-heads, though somewhat lacking the purity as compared with specimens collected in their mountain home, and usually attributed to certain compositions of soil and the like. A little limestone may be added where this is believed to be deficient in the natural soil, and, while not essential, is helpful in certain ways.

Iris sibirica orientalis.—This distinct and valuable kind was shown in most of the hardy plant groups at the Drill Hall last week. It is perhaps the best formed of the *I. sibirica* group and of a good showy colour, and, coupled with a pleasing, graceful habit, in common with the other members of this set, is useful for grouping or for cutting. It is somewhat unfortunate, however, that the specific name is so generally omitted, thus causing confusion between it and *I. orientalis* proper.

Anthericum liliastrum majus.—For purity as well as size this is by far the handsomest of all the St. Bruno's Lilies, and which is now so finely in flower in the garden. It is the glistening purity of the snow-white bells as much as its profuse flowering that renders it so ornamental in the garden. It is a plant, too, that is not benefited by frequent transplanting, and for this reason should be left alone for three or four years to attain its greatest vigour. Where a deep and good soil admits of this being done, the plants should be grouped in proportion when planting is being done.

Acalypha Sanderi.—This distinct novelty has been one of the most striking objects at the recent exhibitions, and has attracted a good deal of attention by reason of the catkin-like inflorescences that depend in such profusion even in the case of small plants. Not only in the colour or the remarkable length of the appendages referred to, but also in the singular regularity and uniformity of production from each and every leaf-axil is this so distinctly novel and unique. Of easy culture, too, and free growth, it will no doubt be used freely in decoration, where it would produce a feature of its own.

Laburnum.—"A. D.'s" note on page 508 induces me to put in a plea for the more extended use of the Laburnum known as *Cytisus Laburnum Parkeri*, or *Watereri*. The other day I saw a noble tree of this variety in the Glasnevin Botanic Gardens. It was literally covered with its long, dense racemes of beautiful flowers. Mr. Moore considered it the finest thing in the gardens at the time. In such a place as Glasnevin this seems high praise; yet I fancy there are few who would not have agreed with Mr. Moore. A group of other Laburnums beside Parker's variety looked dull in comparison, although well flowered and in the best of condition.—S. ARNOTT.

Phlox ovata.—This handsome early-flowering kind is only rarely seen in collections, yet it is among the best of the dwarf early summer flowering species. It is also known as *P. Listoniana rubra*, and sometimes as *P. caroliniana* var. *ovata*, &c. It is very distinct in the compact, bush-like form that rarely exceeds 1 foot high, the leaves broadly ovate and smooth. A deep and rich soil suits it best, and when established it will flower freely. The colour is rosy purple, and this in the crowded terminal heads is very effective in so dwarf a plant. A capital bunch of this kind was included in the group from Messrs. Collins and Gabriel at the Drill Hall last week.

Rhododendrons at Howth.—After the Roses, my favourite shrubs would be all the Heath and Rhododendron family (if on a soil free from lime, of course). The Rhododendrons at Howth are now exquisite; the position and setting of wild Birch, Larch, Hawthorn, Oaks, and the carpet of Fern, hacked by beetle crags just suit them. They look—as I saw them at 8000 feet to 10,000 feet elevation in Borneo—at home. I have seen finer Rhododendrons and Azaleas than

those at Howth, and also more noble, natural rocks, &c., but I never yet saw the two features of Rhododendrons and natural rocks so well blended by the gardener.—F. W. B.

Tufted Pansy King of the Blues.—This is one of the prettiest of Dr. Stuart's new miniature types of the flower, and is a distinct gain in point of colour among these charming little blossoms. This variety is not widely known, having only been distributed last season, but growers on the look out for a pleasing novelty should make a note of this sort. The habit of growth is dwarf and tufted, and the plant appears to possess a good constitution. At the time of writing it is looking at its best, producing quite freely miniature circular blossoms of a rich violet-blue colour, with a neat rayless yellow eye. It is also rather later than most sorts before it commences to flower.—D. B. C.

Clematis montana near Dublin.—The Mountain Clematis, the subject of "H.'s" remarks on page 513, is apparently a favourite around Dublin, and I have never seen it do better anywhere. At Glasnevin a mass many feet in height and clambering over a tree formed a most beautiful sight, and was being photographed as one of the most characteristic things in the garden. At Dornden, Monkstown, there was also a very fine plant. Both of these had large flowers and seemed to be the variety named *grandiflora*. Mr. F. W. Burbidge has, however, at Trinity College Gardens a variety with even larger flowers. This has been grown from cuttings, and is trained over a pergola recently erected over one of the garden walks. It is a very fine variety.—S. ARNOTT.

Gentiana acaulis.—In last week's GARDEN, June 18, page 514, "S. T." (Ulverston) asks for suggestions on growing this plant to advantage. At Stelling Hall, Northumberland (which I have since parted with), the kitchen garden walks, to the extent of not less than 300 yards in length, were edged with *Gentianella*. The garden was at a considerable elevation, but there was a good depth of light soil, and the walks were made with sandstone, and filled in with sand from the same quarry. In this the *Gentianella* was planted, and in a very few years the entire border increased to a foot or more in width, and produced from end to end a perfect mass of bloom. It may be so still. This speaks well for sand. I cannot give an opinion as to lime; there was none in my soil.—T. H. ARCHER HIND, *Coombefishacre, South Devon*.

Orchis maculata var. superba.—The Rev. C. Wolley-Dod is fortunate in possessing such a fine clump of the Kilmarnock Orchis as is figured on p. 514. I do not know if Mr. Wolley-Dod has found it necessary to remove it occasionally. I believe this to be the general experience, and that if this is not done the plants will either dwindle away or die off suddenly. This Orchis is exceedingly fine and worthy of this attention. The variety known as the Glasnevin variety as grown at Glasnevin Botanic Gardens, Dublin, is, I think, even finer as regards the flower and spike, but the leaves are not so much spotted. I quite neglected to ask Mr. Moore if he found it necessary to transplant this variety occasionally. The Kilmarnock variety seems to require this on all soils, and I well recollect my disappointment at losing a nice clump through omitting to do this after three years' growth in one place.—S. ARNOTT, *Carsethorne, by Dumfries, N.B.*

Tolmiea Menziesii.—This singular-looking plant is at present in flower, and if not attractive is at least interesting. The flowers are sometimes described in catalogues as of a terra-cotta colour, but I must say that I fail to see anything in the colouring to justify this. Brown and green, the former predominating, are the colours seen in the flowers, which are small, curiously formed, and arranged in a long slender, one-sided raceme. The plant before its flowering period begins is rather pretty, and is all the more interesting because of the production of plantlets at the base of the leaves close to the petioles. These leaves

afterwards sink to the ground, and the young plants thus acquire an independent existence. *Tolmiea Menziesi* belongs to the Saxifragas, and has been named *Heuchera Menziesi* and *Tiarella Menziesi*. It was introduced from North-west America in 1812, and does well here in the shade and attains a height of about 3 feet.—S. ARNOTT, *Carscethorn, by Dumfries, N.B.*

Primula sikkimensis.—There are very few species of *Primula* more beautiful than this when well grown and flowering for the first time; indeed, any after attempts at flowering are not usually of a satisfactory nature, and for this reason the species is more frequently regarded as a biennial. Thus treated, it is capable of making a fine display, the more so if the plants from the start have been grown on quickly without the least check. It is a reputedly moisture-loving species, and in fact delights to have its root-fibres within touch of constant moisture. At the same time, in common with others of a similar nature, this species also can be grown very successfully when given a deep bed of rich soil in a position that is never dry—a condition of uniform coolness with shade going a long way to satisfy its requirements in this respect. By raising a few seedlings each year a succession of the pretty drooping umbels of pale yellow blossoms may be secured. The young plants should be put out into their permanent positions as soon as it is possible to do so, keeping them moist till growth is renewed.

GARDENERS' CHARITIES.

I do not wish to decry in any way the management of these, but the system and principle on which they are carried out appear to me to be utterly wrong, and the exceedingly small number who do subscribe shows that I am not alone in my opinion. A gardener is usually not a person who can afford to subscribe liberally to general charities; it needs all his care to do a little to provide for himself and his family, and, naturally, under the circumstances, his charity begins, as it should, at home. If he subscribes 5s. per annum he gets a vote, and what use is the vote to him? Practically none. All his money may, and probably will, go to someone else, and it is worth while to consider what this 5s. per annum means to him. If he begins to save this amount from the age of twenty-four, his average expectation of life is forty years more. His 5s. per annum, saved and invested at 4 per cent. interest, would at the end of the period amount to the sum of £23 15s. If he saved 5s. per month, it would be £285. Why should he sacrifice this certainty of £23 15s. for a simple vote? If the thing is to be a success, the subscriber, who is almost invariably a poor man, must be able to depend on some certain return for his money; 5s. per annum would, if properly

invested, provide him with a valuable sick and accident fund, or it would ensure his family the sum of £23 15s. at his death, whenever it occurred. Very large numbers subscribe to sick and benefit clubs, and these are a very costly luxury indeed. Taking the very best and most liberal of the English industrial insurance offices, it will be found that, on an average for several years past, for every shilling paid in premiums less than 4½d. has been paid back, all the remainder going in expenses, profits to shareholders, &c. What this really means none but those behind the scenes know, but it is a fact that the difference between the premiums paid to one office only, exceeded the amount paid for claims during the last year by considerably over £2,800,000. In the face of such figures as these one ceases to wonder at the palatial offices, the salaries to officials, and the high price of the shares. Let it be borne in mind that this is only one out of a great many offices, and the less to the poor workman will be appreciated. If a gardener's industrial assurance can be inaugurated, dispensing with all the magnificent offices, salaries and profits, and a fair and certain return for his hard-earned money could be depended on, it would not be necessary to make urgent appeals; they would gladly come in in their thousands without being asked. At present they naturally like to feel they are saving something, and the Post Office Savings Bank is their best gardeners' benevolent society. Can this be wondered at? and, if I am wrong, will someone set me right?—THOS. FLETCHER, *Grappenhall, Cheshire.*

* * We fear Mr. Fletcher does not know of the existence of the United Horticultural and Benefit Provident Society, in which all the subscriptions the man has paid, with the exception of the very reasonable sums required for management and the sick and benevolent funds, are paid to him when he reaches the age of seventy, or, if he dies previous to this, to someone whom he has nominated when he was elected. In case of sickness he is allowed, if he pays on the higher scale, 18s. per week for six months, with half that amount for the next six months; and if on the lower scale, 12s. per week for six months, with 6s. per week for the remaining six. The Convalescent Fund also provides him with a sum of money for a change of air after a severe illness. The secretary, Mr. W. Collins, 9, Martindale Road, Balham, will, we are sure, be pleased to forward Mr. Fletcher a copy of the rules as also the benefits to be derived from this society, to which all young gardeners should belong.—ED.

National Viola Society.—The committee of this society met at 37, Southampton Street, Strand, W.C., on Wednesday evening last to complete arrangements for their exhibition at the Crystal Palace on Saturday, July 2 next, on the

occasion of the National Rose Society's show under the same roof. An interesting and attractive exhibition it is expected will be got together on the occasion, and intending exhibitors and new members should at once communicate with the honorary secretary, Mr. R. T. Dougall, 52, Pembroke Road, Walthamstow, Essex, who will be pleased to give any particulars respecting the society and its work. There is a goodly number of open classes as well as those for amateur growers.

The weather in West Herts.—Temperatures remained steady and rather warm until after the 11th inst., when, owing to the absence of sunshine, the day readings fell from about 5° above average to 13° below average. The night temperatures were at first only slightly affected by the change, but during the night preceding the 15th the exposed thermometer fell about half a degree below the freezing point. The temperature of the ground at 1 foot deep is now about 4° colder than at the beginning of the week and 5° colder than is seasonable. At 2 feet deep, however, only a slight change has taken place. No rain at all has fallen since the 8th, and no measurable quantity of rain-water has come through either percolation gauge for ten days. The wind, which has been light, has come exclusively from some point between north and north east since the 8th. On the 11th the sun shone brightly for as many as fourteen hours, but during the next three days there was no sunshine whatever.—E. M., *Berkhamsted, June 17.*

—The 16th proved cold for the time of year, but since then the temperatures have been above average both during the daytime and at night. On each of the five days ending the 21st the reading in shade exceeded 70°, and on two of these days rose to 75°. Several of the nights were also very warm, and on that preceding the 21st the thermometer exposed on the lawn never fell lower than 53°. At 2 feet deep the soil is at the present time about 1° and at 1 foot deep about 3° warmer than is seasonable. Since the beginning of the month less than half an inch of rain has fallen, which is nearly 2 inches below the June average. No measurable quantity of rain-water has passed through either percolation gauge for more than a fortnight.—E. M., *Berkhamsted.*

Names of plants.—S. H. B.—1, *Fuchsia procumbens*; 2, the Allspice Tree (*Calycanthus floridus*).—W. A. G.—The Bird Cherry (*Prunus Padus*).—C M—1, *Cotoneaster frigidus*; 2, *Abelia triflora*.—B. Greaves.—*Limnanthes Douglasii*.

“The English Flower Garden.”—*The Fifth Edition of this book is now out of print, and a new edition, revised throughout and containing six new chapters, will be ready in a few days.*



